Montecito Water District
2025 Urban Water Management Plan

RINCON
CONSULTANTS

2025 Urban Water Management Plan

Draft

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Acronyms and Abbreviations

Below is the full list of acronyms and abbreviations used in the Urban Water Management Plan (UWMP).

AB	Assembly Bill
ADU	Accessory Dwelling Unit
AF	Acre-feet
AFY	Acre-feet per year
AMI	Advanced Metering Infrastructure
CAAP	Climate Action and Adaptation Plan
CCWA	Central Coast Water Authority
CEQA	California Environmental Quality Act
COMB	Cachuma Operations and Maintenance Board
CWC	California Water Code
DMM	Demand Management Measure
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
EEWTP	El Estero Wastewater Treatment Plant
GPCD	Gallons per capita per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IPR	Indirect potable reuse
kWh	Kilowatt-hours
MGD	Million gallons per day
MSD	Montecito Sanitary District
NMFS	National Marine Fisheries Service
SB	Senate Bill
SCC	South Coast Conduit
SGMA	Sustainable Groundwater Management Act
SSD	Summerland Sanitary District
SWP	State Water Project
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan

UWUO	Urban Water Use Objective
AMI	Advanced Metering Infrastructure
RWEP	Regional Water Efficiency Program
USBR	United States Bureau of Reclamation
WSA	Water Supply Agreement
WSCP	Water Shortage Contingency Plan
WUEP	Water Use Efficiency Plan

Executive Summary

The Urban Water Management Act (Act) became part of the California Water Code (CWC) with the passage of Assembly Bill (AB) 797 during the 1983-1984 regular session of the California Legislature. The CWC requires every urban water supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year (AFY) to adopt and submit an Urban Water Management Plan (UWMP) every five years to the California Department of Water Resources (DWR). The specific planning requirements are in the CWC Division 6, Part 2.6 Urban Water Management Planning.

Subsequent legislation has been passed that updates and provides for additional requirements for the UWMPs and water management, such as reporting on energy intensity, an expanded Water Shortage Contingency Plan, and a 5-Year Drought Risk Assessment.

The core requirements for the UWMP include:

- Description of the water service area.
- Estimates of past, present, and projected water use.
- Estimates of existing and planned supply sources.
- Analysis and target compliance per Senate Bill (SB) X7-7.
- Description of existing and planned Demand Management Measures (DMMs) and other conservation measures.
- Dry year supply estimates, including 5-Year Drought Risk Assessment.
- Water Shortage Contingency Plan.

The 2025 UWMP must submit data in specific tables to DWR. DWR has provided these tables and this UWMP utilizes the provided tables with minor changes to format or organization where applicable. This Montecito Water District (District) 2025 UWMP presents each required element per DWR’s 2025 Urban Water Management Plan Guidebook. A copy of the DWR checklist for compliance is included in Appendix A.

Plan Summary

Based on the information and analysis presented in this 2025 UWMP, the District anticipates a diversified and reliable source of supply to meet expected demands under various circumstances for the foreseeable future. Under normal conditions, the District estimates it will need approximately 4,900 acre-feet (AF) production to meet expected demands in 2050. To meet this demand, the District manages reliable supplies, including a desalinated water purchase agreement with the City of Santa Barbara and a contract for long-term water storage at Semitropic Groundwater Bank in the Central Valley. These supplies provide stable water sources which makes the District less reliant on imported water and rainfall-dependent sources of supply.

This UWMP assesses the near- and long-term reliability of the District supplies to meet expected demands in various hydrological conditions, including normal and single dry years, as well as during a drought condition lasting five consecutive years. In normal hydrologic years, the District has more than sufficient supplies to meet demands without implementing demand management measures through 2050. The District also has sufficient supplies to satisfy demands in all single dry year scenarios analyzed, which means the District is well prepared to weather short droughts without needing to reduce customer demands. During Year 5 of severe multi-year droughts, this UWMP anticipates that there may be a supply shortage of up to 5 percent.

The District has updated its Water Shortage Contingency Plan (WSCP) in conjunction with this 2025 UWMP. The WSCP is a tool aimed at addressing supply shortages identified through an annual assessment of available supplies and unconstrained demand. The District's demand management and supply augmentation tools provide necessary actions to address and mitigate projected supply shortfalls, if necessary. As described in this UWMP, water use during Year 5 of severe multi-year drought could feasibly be reduced, if needed to align with available supplies through implementation of Stage 1 of the WSCP. No further WSCP stages are anticipated to be required to meet demands during multi-year drought periods, though the WSCP does provide for additional water shortage stages should an emergency shortage occur. The determination of supply shortages in this UWMP is specific to the District's water supply outlook, which may not align with statewide conditions.

1 Introduction and Lay Description

An Urban Water Management Plan (UWMP) is a water supply planning document that serves to help guide the sustainable and efficient use of urban water resources. In alignment with California Water Code (CWC) Sections (§) 10610.2(a)(2) and § 10608(h), presented below, UWMPs recognize that while water conservation is a statewide priority, water supply reliability planning and the implementation of effective conservation efforts are best achieved at the local level.

> CWC § 10610.2(a)(2) states, "[t]he conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level."
>
> CWC § 10608(h) states, "[t]he factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency."

In accordance with the Urban Water Management Planning Act (UWMP Act), water supply providers with at least 3,000 service connections or that provide at least 3,000 acre-feet per year (AFY) of water are responsible for developing a UWMP. The UWMP must account for region-specific factors, including but not limited to climate patterns and the effects of climate change, as well as the type and extent of existing and anticipated development, and historical conservation efforts. Additionally in accordance with the UWMP Act, UWMPs are updated every five years, accounting for updated conditions and development characteristics with associated water demand forecasts and supply availability projections.

Montecito Water District (District) is an independent special district governed by an elected Board of Directors chosen by voters within its service area. The current District service area encompasses 15.4 square miles and includes a small eastern part of the City of Santa Barbara, the unincorporated communities of Montecito and Summerland, and Toro Canyon. The District operates pursuant to CWC §§ 30000-33901, which authorize the District to acquire and operate water systems, treat and distribute potable and recycled water, collect and treat wastewater, issue bonds and levy assessments, and enter into interagency agreements for regional water and wastewater services.

The District has prepared this 2025 UWMP to guide its conservation and water resource management programs, consistent with CWC and UWMP Act requirements. The UWMP will be updated every five years, with annual reviews conducted by the District to track progress and address any unanticipated factors affecting supply reliability. Information and analysis provided in the District's 2020 UWMP, adopted on June 22, 2021, has been updated and incorporated into this 2025 UWMP. In addition, this UWMP has been prepared in accordance with guidance provided by the California Department of Water Resources (DWR) in its *Final Urban Water Management Plan Guidebook for Urban Water Suppliers* (2025 UWMP Guidebook[1]), to facilitate the DWR review process and support compliance with all applicable standards for urban water supply planning.

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[1] The 2025 UWMP Guidebook is available online at: https://wuedata.water.ca.gov/public/public_resources/4825681388/2025_Draft_UWMP_Guidebook_Release.zip

The 2025 UWMP serves as a long-term planning document to ensure a reliable water supply at the local level. The District has implemented its 2020 UWMP strategies with substantial progress towards diversifying supplies, promoting water use efficiency, and improving local supply reliability. Efforts continue towards the ongoing achievement of greater potable water savings, including reduced per capita water use and progress on development of alternative sources of potable water supply.

1.1 UWMP Organization

Guidance provided by DWR in its 2025 UWMP Guidebook has been incorporated into this 2025 UWMP. Use of the 2025 UWMP Guidebook is intended to facilitate the DWR review process, support compliance with applicable standards for urban water supply planning, and provide structural consistency with UWMPs produced by other public water suppliers. As such, this UWMP is organized as follows.

- Chapter 1: Introduction and Lay Description
- Chapter 2: Plan Preparation
- Chapter 3: System Description
- Chapter 4: Water Use Characterization
- Chapter 5: SB X7-7 Baselines, Targets, and 2025 Reporting
- Chapter 6: Water Supply Characterization
- Chapter 7: Water Service Reliability and Drought Risk Assessment
- Chapter 8: Water Shortage Contingency Plan
- Chapter 9: Demand Management Measures
- Chapter 10: Plan Adoption, Submittal, and Implementation

In addition to the chapters listed above, this 2025 UWMP includes an Executive Summary to provide an overview of the contents, findings, and recommendations.

1.2 Urban Water Management Plans and the California Water Code

1.2.1 Urban Water Management Plan Act of 1983

The UWMP Act requires urban water suppliers to report, describe, and evaluate various aspects of their water resources and plans for providing water services, such as:

- Water deliveries and uses
- Water supply sources
- Water use efficiency and Demand Management Measures (DMM)
- Water shortage contingency planning

The UWMP Act directs water agencies to plan for long-term water resource management to ensure adequate water supplies are available to meet both current and future demands. Urban water suppliers are required to assess current demands and supplies over a 20-year planning horizon (with an additional five-year option) and consider various drought scenarios. Among other things, the

UWMP Act also requires plans to include water shortage contingency planning and drought response actions.

UWMPs are to be prepared every five years by urban water suppliers. The UWMP Act defines urban water suppliers as those providing water for municipal purposes, either directly or indirectly, to more than 3,000 customers or supplying more than 3,000 AFY of water. Updated 2025 UWMPs must be adopted and submitted to DWR on or before July 1, 2026. Although submitted in 2026, these UWMPs are referred to as 2025 UWMPs because they include 2025 data. This naming convention also provides consistency with the five-year submittal cycle under the UWMP Act.

As discussed in Section 1.1, this 2025 UWMP was prepared following the DWR's 2025 UWMP Guidebook and addresses all requirements of the UWMP Act, as well as recent code changes and other relevant information.

1.2.2 New Requirements for 2025 UWMPs

Since the completion of the District's 2020 UWMP, several requirements have been clarified by DWR for the 2025 UWMPs. Clarifications include:

- **SB X7-7 Compliance and 2025 Reporting:** The 2025 UWMP Guidebook directs urban water suppliers to report on their progress in meeting the SB X7-7 targets established in the 2015 and 2020 UWMPs. Simplified guidance is provided to address the reporting requirements for continued compliance with the 2020 targets. Chapter 5 contains this information.
- **Integration of Potable Reuse:** Regulations adopted by the State Water Resource Control Board (SWRCB) in December 2023 (effective October 2024) require documentation of direct and indirect potable reuse projects. Minor changes to the tables provided by DWR for Chapters 4 and 6 allow for clearer accounting of potable reuse supplies.
- **Water Loss Standard Reporting:** Guidance has been provided for how urban water suppliers can report progress toward compliance with their Water Loss Standard (Chapter 4 of the 2025 UWMP Guidebook) which has been available since the 2020 UWMPs.

1.2.3 Water Conservation Regulations

Senate Bill X7-7 (Water Conservation Act of 2009)

Senate Bill (SB) X7-7, passed in 2009, defined a key goal to reduce statewide per capita urban water use and by 2020 achieve a 20 percent reduction in per capita urban water use. In accordance with SB X7-7, UWMPs were required to support the achievement of this goal by reporting technical information such as base daily per capita water use (baseline), or gallons per capita per day (GPCD), as well as urban water use targets, interim urban water use targets, and compliance with daily per capita water use quotas. The District's 2020 UWMP demonstrated that the District was successful in achieving a 20 percent per capita water use reduction by 2020. Although the 2020 milestone has passed, this 2025 UWMP is required to report on the District's ongoing compliance with its SB X7-7 targets.

Senate Bill 606 and Assembly Bill 1668 (Urban Water Use Objectives)

The Urban Water Use Objective (UWUO) is a new water use efficiency legislation requirement authorized by Making Conservation a California Way of Life (SB 606 and Assembly Bill [AB] 1668), which was signed into law in 2018 and finalized by SWRCB on July 3, 2024. Under this legislation, urban water suppliers are required to begin submitting annual reporting requirements to DWR and SWRCB on January 1, 2024, and to report UWUOs beginning January 1, 2025 (CWC § 10609.60).

The Making Conservation a California Way of Life[2] regulation uses SB X7-7 targets (for 20 percent water use reduction by 2020) as a backstop for its calculations setting customized water use efficiency standards for each urban water supplier. In comparison to SB X7-7, which sought to reduce overall per capita urban water use, the UWUO requires more granularity in water use reductions, incorporating standards for indoor residential use, outdoor irrigation efficiency, overall system water loss, and dedicated irrigation meters for commercial, industrial, and institutional customers. Below is an overview of the UWUO requirements considered in this 2025 UWMP:

- **Indoor Residential Use:** Calculated as 47 GPCD in 2025, reducing to 42 GPCD in 2030.
- **Outdoor Irrigation Efficiency:** Estimate outdoor water use objectives using Landscape Efficiency Standards including 0.80 for existing outdoor landscapes in 2025, reducing to 0.63 for outdoor landscapes in 2035, and 0.55 in 2040.
- **CII-DIM Budgets:** Report water budgets for DIMs serving CII customers to align actual water deliveries with performance standards.
- **Water Loss Audits:** Include validated water loss data (full compliance with water loss standards begins in 2028).
- **Annual Reporting**: Submit annual UWUO data starting January 1, 2024, and every year thereafter, via DWR's Water Use Efficiency Data (WUEdata) portal: https://wuedata.water.ca.gov/.

The District's UWUO has been established in the District's UWUO Fiscal Year 2024-2025 report, which sets the District's UWUO at 1,241,287,323 gallons per year (3,809 AFY) of water use.[3] This UWUO objective is based on the District's service population water use in accordance with the water efficiency standards listed above.

Assembly Bill 1572 (Nonfunctional Turf Ban)

Passed in 2023, AB 1572 enacted legislation to significantly reduce potable water use for irrigation of nonfunctional turf. Nonfunctional turf is defined as grass that serves no practical purpose for human activity or recreation, including ornamental grass strips along roadways, expansive lawns in business parks, unused patches of grass in front of commercial buildings, and other similar areas that are not regularly used for sports, play, or social gatherings. The rationale behind this ban is straightforward: in a state facing chronic water scarcity, dedicating potable water to maintain purely aesthetic or unused landscapes is considered an unsustainable and wasteful practice. AB 1572 features a phased implementation schedule to allow property owners and managers sufficient time to adapt and transition their landscapes, applying to government properties in January 2027, CII properties in January 2028, and Homeowners Associations common areas in January 2029, with flexible compliance for properties in disadvantaged communities in 2031 or later.

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[2] https://www.waterboards.ca.gov/conservation/regs/water_efficiency_legislation.html

[3] https://wuedata.water.ca.gov/uwuo_plans

Senate Bills 610 and 221 (Water Supply Assessments)

Passed in 2001, SB 610 (CWC §§ 10910 through 10915) and SB 221 (California Government Code §§ 65867.5, 66455.3, and 66473.7) added and amended provisions of state law to improve the link between water supply availability and land use planning decisions.

In general terms, SB 610 requires that when a proposed project meets the definition of a project under SB 610, including that it is subject to California Environmental Quality Act (CEQA) and would rely on groundwater, the applicable public water provider is required to adopt a Water Supply Assessment as part of the project's CEQA review. A Water Supply Assessment must demonstrate water supply availability for the project over a 20-year planning horizon and with consideration to various climatic scenarios (i.e., drought) and may be used to inform water demand projections in the applicable UWMP.

SB 221 generally requires the approval of a development agreement or tentative map that includes more than 500 dwelling units to be conditioned on a written verification from the applicable public water system that sufficient water supplies will be available. No new projects triggering a Water Supply Assessment under SB 610 have occurred since the 2020 UWMP. No projects triggering a Water Supply Assessment under SB 610 are anticipated in the District service area.

1.3 Urban Water Management Plans and Grant or Loan Eligibility

Completion of a UWMP, including discussion of the status of a water supplier's implementation of DMMs, is required for urban water suppliers to be eligible for water management grants or loans administered by DWR, SWRCB, or the Delta Stewardship Council (CWC § 10631.5(a)). A current UWMP must be maintained by water suppliers throughout the term of any grant or loan administered by DWR. Water suppliers must also comply with the water conservation requirements established by the Water Conservation Act of 2009 and the Making Conservation a California Way of Life legislation, which was signed into law in 2018 and finalized by SWRCB in 2024. While the Water Conservation Act and Making Conservation a California Way of Life legislation do not directly establish funding eligibility criteria, they influence water suppliers' access to state grants and loans because achievement of conservation targets and compliance with annual urban water use objectives and annual reporting are prerequisites for funding and loan eligibility.

1.4 Demonstration of Consistency with the Delta Plan for Participants in Covered Actions

1.4.1 Background

The Sacramento-San Joaquin Delta Plan (Delta Plan) is a long-term management strategy developed by the Delta Stewardship Council under the Delta Reform Act of 2009 to manage the Delta's environmental resources including water supply.[4] Major water supply projects that rely on the Delta include the State Water Project (SWP), operated by DWR, and the federal Central Valley Project, operated by the United States Bureau of Reclamation (USBR).

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[4] Delta Stewardship Council. 2013. Sacramento-San Joaquin Delta Plan. https://www.deltacouncil.ca.gov/delta-plan/

An urban water supplier that anticipates participating in or receiving water from a proposed project, such as a multiyear water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta, should provide information in their UWMP to demonstrate consistency with the Delta Plan's Water Resource Policy 1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (California Code of Regulations, Title 23, § 5003). The type of information that can demonstrate such consistency includes description of locally available, cost-effective, and technically feasible projects that reduce the water supplier's reliance on the Delta, such as but not limited to water conservation and efficiency, recycled water use, groundwater development, and stormwater capture and reuse. The UWMP should report the percentage of the supplier's total supply that would be sourced from the Delta, as well as demonstrate a measurable reduction in this reliance over time. This information is provided in Appendix B and summarized in this section.

1.4.2 Consistency with Water Resource Policy 1

As a recipient of SWP supplies and an agency that may conduct future potential water sales, transfers, or exchanges using the Delta, the District is required to demonstrate its UWMP's consistency with Delta Plan Policy Water Resource Policy 1 (Consumer Confidence Report, tit. 23, § 5003).

Over the last decade, the District has implemented supply acquisition and conservation projects that reduce its reliance on water supply from the Delta. The 2025 UWMP Guidebook Appendix C provides suggested methodologies to demonstrate reduced Delta reliance. The District has completed this analysis, and using 2010 as the base year, projects a 28 percent reduction in Delta reliance by 2050. The analysis is presented in Appendix B. In summary, the District is in compliance with all aspects of Water Resource Policy 1 through its own activities.

Table 1-1 Calculation of Reliance on Water Supplies from the Delta Watershed (Percent)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2050
Percent of Supplies from the Delta Watershed	45.44%	25.16%	--	--	21.51%	20.10%	18.77%	17.80%
Change in Percent of Water Supplies from the Delta Watershed	--	-20.28%	--	--	-23.93%	-25.33%	-26.67%	-27.63%

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2 Plan Preparation

This chapter provides an overview of the District and the steps taken to assemble the 2025 UWMP, including but not limited to agency coordination, public hearings, and distribution of notices to stakeholders and the public on how to review and provide comments on the Draft 2025 UWMP.

2.1 Basis for Preparing a UWMP

The District is an independent special district serving the unincorporated communities of Montecito and Summerland, and Toro Canyon. The District provides retail potable water service to over 3,000 connections per year and over 3,000 AFY throughout its service area. As such, the District is considered an "urban retail water supplier" per CWC §10608 and 10617 and is subject to the requirement of the UWMP Act to prepare a UWMP every five years. Table 2-1 provides the District's public water system information and Table 2-2 specifies the units of measurement. Data in this UWMP is presented on a calendar year basis and volumes are reported in acre-feet (AF), unless otherwise noted. This 2025 UWMP reports solely on the District's service area and is therefore considered an individual UWMP.

Table 2-1 Public Water System Information (DWR Submittal Table 2-1 Retail)

Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025
CA4210007	Montecito Water District	4,674	4,195

Table 2-2 Supplier Identification (DWR Submittal Table 2-3)

Type of Supplier	
☐	Supplier is a wholesale supplier
☒	Supplier is a retail supplier
Fiscal or Calendar Year	
☒	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
Units of measure used in UWMP	
Unit	Acre-Feet (AF) (1 AF = 325,851 gallons)

2.2 Coordination and Outreach

2.2.1 Wholesale and Retail Coordination

To adequately demonstrate regional water supply reliability through the next 25 years, this UWMP quantifies the regional mix of existing and projected local and imported supplies necessary to meet future demands within the District's service area. Although this UWMP includes specific documentation regarding the District's supplies, plans submitted by wholesalers provide further details that contribute to the diversification and reliability of supplies in the region.

Central Coast Water Authority (CCWA) is a regional wholesaler, responsible for the delivery of all SWP water to Santa Barbara County. The District is one of eight CCWA member agencies. As a "urban wholesale water supplier" CCWA also prepares and submits a UWMP to DWR. CCWA's 2020 UWMP is available at: https://www.ccwa.com/2020-urban-water-management-plan.

Reasonable consistency among the UWMPs of the District and its wholesaler is important to accurately identify the projected supplies available to meet regional demands. To facilitate coordination within the District's service area, the District provided CCWA staff with demand projections for its service area. The District also provided public notice materials to CCWA (see Appendix C).

2.2.2 Coordination with Other Agencies and the Community

Agency coordination information is summarized herein. The District has encouraged community awareness of water issues and participation in water planning. Notices of the public hearing were published in the local press and copies of the Draft UWMP were made available at the District office and through the District's website, as included Appendix C.

The City of Santa Barbara, Santa Barbara County Water Agency, CCWA, Carpinteria Valley Water District, Montecito Sanitary District, Summerland Sanitary District, and Carpinteria Sanitary District were notified of the District's intention to prepare and adopt the 2025 UWMP, as included in Appendix C.

2.3 Public Hearing and Adoption

The draft 2025 UWMP was reviewed and discussed with the District's Board of Directors on April 28, 2026; at which time the Board of Directors supported staff's efforts to complete the plan in compliance with State UWMP requirements. A public hearing, with public notice pursuant to California Government Code §6066, was held before the Board of Directors on June 23, 2026. The Board voted to adopt Resolution No. [Insert Number] adopting the UWMP on June 23, 2026 (see Appendix J).

2.4 Plan Submittal and Availability

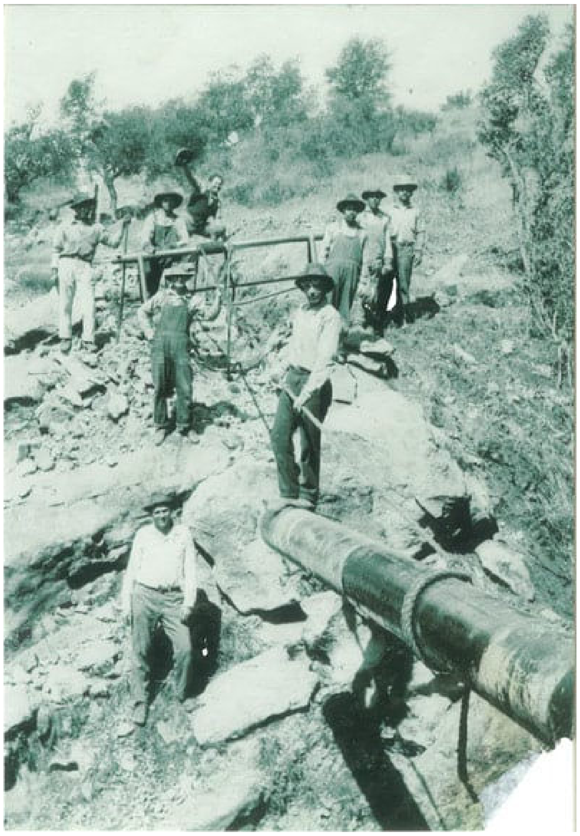
Copies of this 2025 UWMP will be sent to the office of the Clerk of the Board for Santa Barbara County and the California State Library at the time of submittal to DWR, by July 1, 2026.

A copy of this 2025 UWMP will be posted on the District's website within 30 calendar days of the filing date with a hard copy available for review at the District's office at 583 San Ysidro Road, Montecito, California 93108 during normal business hours.

3 System Description

This chapter describes the District's service area, climate, population and demographics, and land uses, in accordance with CWC §10631(a) and the 2025 UWMP Guidebook. It provides a concise basis for subsequent chapters on water use and water supply characterization.

3.1 General Description

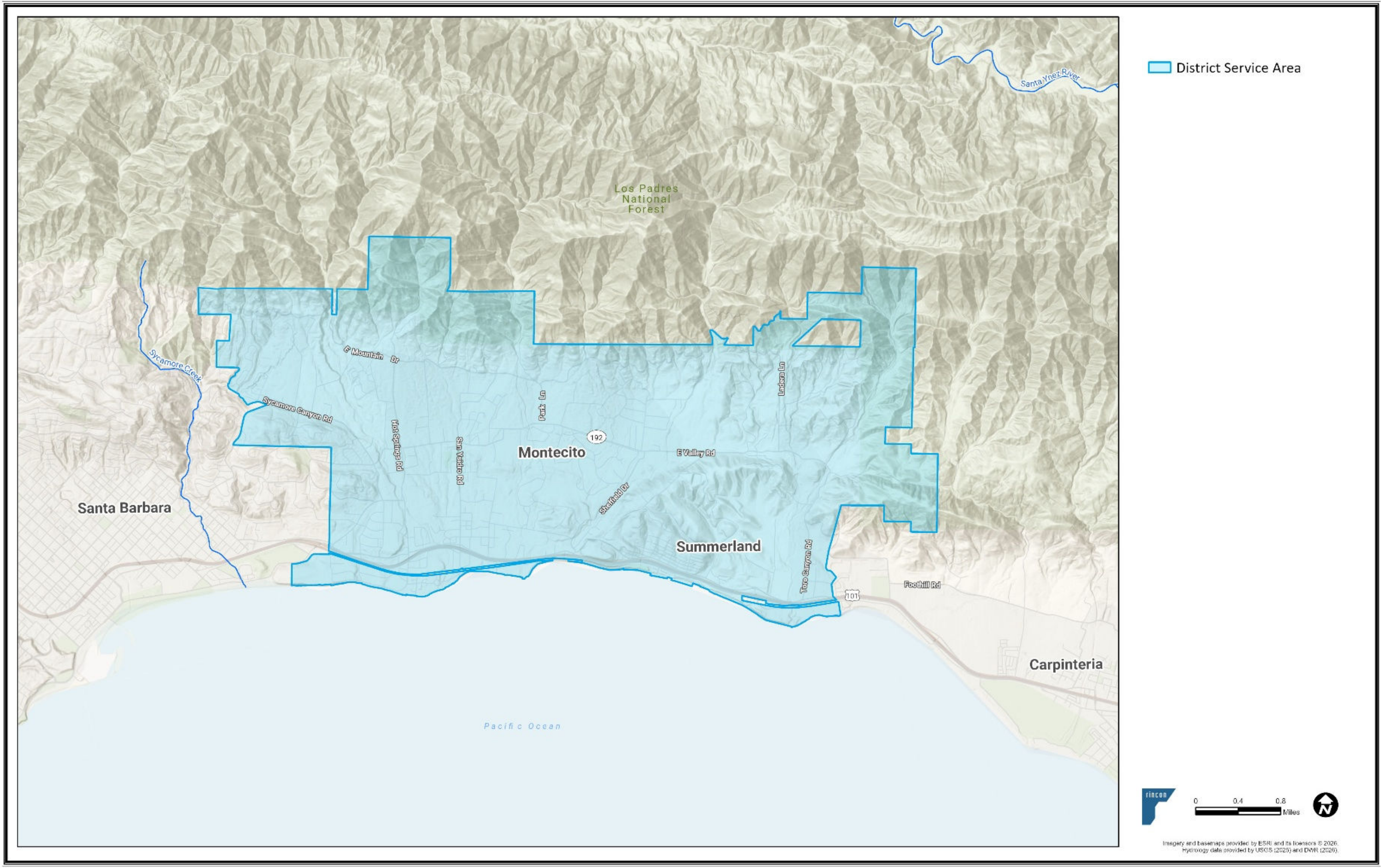


District pipeline construction, circa 1930

The Montecito Water District (District) is an independent special district governed by a publicly elected five-member Board. The District's service area is shown in Figure 3-1. Originally formed in 1921 to improve local water reliability, the District is rooted in agricultural estate beginnings. Montecito had grown into an unincorporated community consisting of several large estates by the early 1920s. Water was provided by numerous small private water companies that tapped into springs, creeks, and water wells that were at times unreliable due to inadequate seasonal rainfall. In 1921, local voters established the Montecito Water District to improve water supply reliability.

The District was formed as a County Water District in November 1921, in accordance with the CWC, with the purpose of furnishing potable water within the District. Following the formation of the District, management and its five-member Board of Directors set out to build Juncal Dam, the 2-1/4 mile long Doulton Tunnel through the Santa Ynez coastal range, and 50 miles of distribution pipelines within its service boundary. By 1930, the District had a fully functional distribution and reservoir storage system along with reliable and adequate water supplies. In 1949, the District executed the first contract with the Santa Barbara County Water Agency who was the designated local governmental agency and signature to the Cachuma Project with USBR. USBR held the federal Santa Ynez River water rights and owned, built and operated Bradbury Dam as a regional water supply. Lake Cachuma serves the District and four other Santa Barbara County water agencies, including the Santa Ynez River Water Conservation District 1, Goleta Water District, City of Santa Barbara and Carpinteria Valley Water District. The District has 10.3 percent of the reservoir's current annual safe yield.

Figure 3-1 District Service Area



Imagery and basemaps provided by ESRI and its licensors © 2026.
Hydrology data provided by USGS (2025) and DWR (2026).

The District's potable water service area encompasses approximately 15.4 square miles along the South Coast of Santa Barbara County, including the unincorporated communities of Montecito, Summerland, and Toro Canyon, with small areas of the city of Santa Barbara. The District's public water system identification is CA42100007. Figure 3-1 illustrates the District's service area boundary. The District's service area extends from the Pacific coastline into the foothills of the Santa Ynez Mountains.

The District provides water service to approximately 4,600 residential, commercial, institutional, and agricultural service connections. Approximately 92 percent of the service connections are low-density, single-family housing. Elevations in the District range from sea level up to about 1,820 feet in the coastal foothills in the northern area. Table 3-1 presents the historical and current breakdown of service connections by customer class.

Table 3-1 Customer Water Service Connections

Customer Class	2021	2022	2023	2024	2025
Single Family Residential	4,244	4,254	4,282	4,277	4,282
Multi-Family Residential	65	65	66	67	70
Commercial	136	136	134	132	135
Institutional/Government	132	129	127	130	136
Non-Potable	8	8	8	8	8
Agricultural Irrigation	42	41	42	42	43
Total	**4,627**	**4,633**	**4,659**	**4,656**	**4,674**

The majority of the District's potable water distribution system was designed and operated as gravity-fed system with a series of pressure regulating stations from the late 1920's to 1949. The primary source of water during this period was from Jameson Lake, located in the upper reaches of the Santa Ynez River and the 2-1/4 mile long Doulton Tunnel through the Santa Ynez coastal range that connected the Jameson Lake supply to the District service boundary. In 1949, the District connected to the USBR Cachuma Project via the South Coast Conduit, a water transmission pipeline conveying Lake Cachuma water to the South Coast. The hydraulic grade line of the SCC was below the operational grade line of District's storage reservoirs which required the construction of pump stations at the SCC turnouts to boost water into the District's distribution system.

Currently, the District's potable water treatment and distribution system is comprised of two surface water treatment plants, nine storage reservoirs, approximately 114 miles of distribution pipeline, and seven pumping stations. The District also operates twelve active groundwater wells. Supplies from Lake Cachuma and the SWP are conveyed via the South Coast Conduit and treated at the City of Santa Barbara's Cater Water Treatment Plant (WTP) before delivery to the District. Jameson Lake supplies are conveyed through the Doulton Tunnel to the District's Bella Vista and Doulton WTPs. Groundwater for potable use is treated at well sites as needed.

Not all properties within the District's service area are served by the District. A portion of properties within the area are supplied by private groundwater wells operated either individually or by private water companies. The use and treatment of groundwater for potable purposes by private well owners is subject to permitting authority by Santa Barbara County.

3.2 Service Area Climate

The District's service area has a Mediterranean climate characterized by cool, wet winters and warm, dry summers, with ocean-moderated temperatures. Seasonal Santa Ana winds can increase evapotranspiration and landscape irrigation needs during late summer and fall.

Historical climate patterns indicate that January is typically the coolest month, while February is the wettest in the service area. July through September are generally the warmest months, and June through August are the driest. The wet season extends from October through March, during which the area receives an average of approximately 20 inches of annual rainfall. The mean annual temperature is about 60.2°F, though summer daytime highs commonly reach the mid- to upper-70s, and winter nighttime lows often fall into the mid-40s.

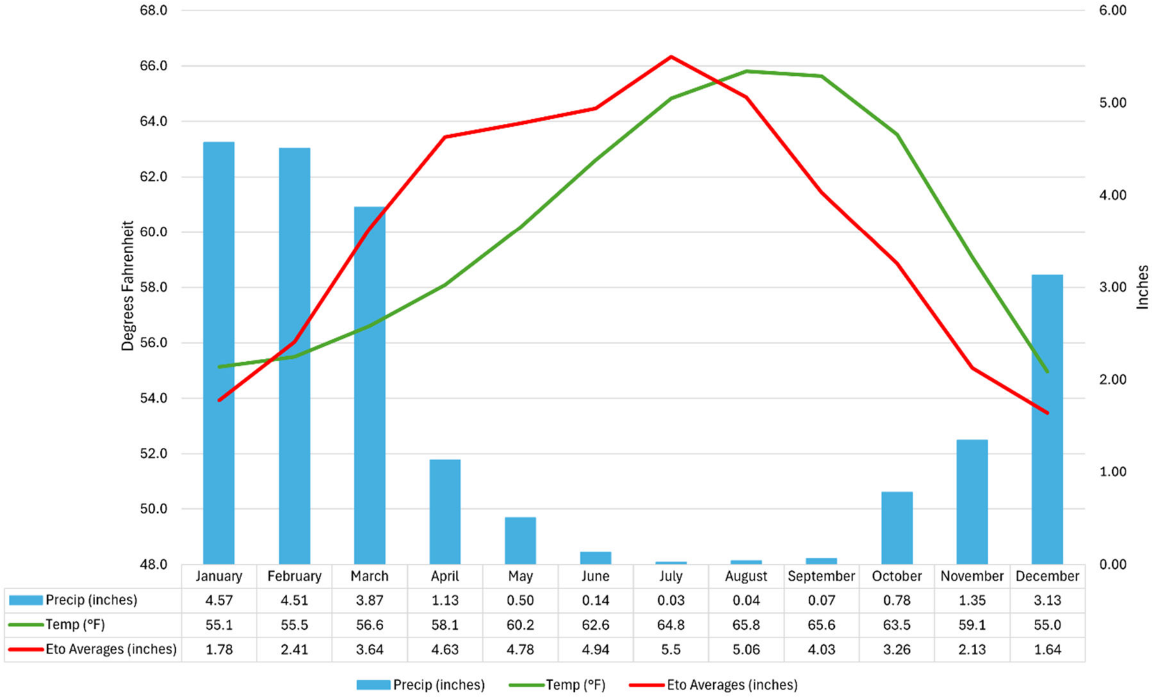
Seasonal marine fog is another defining feature of the local climate. Fog commonly moves inland from the Santa Barbara Channel, especially during May and June, producing a persistent overcast layer ("June Gloom"). This phenomenon contributes to a seasonal dip in reference evapotranspiration observed in long-term averages for June.

Snowfall is rare, but occasional cold frontal systems can bring freezing temperatures and trace amounts of snow or ice to the higher elevations of the Santa Ynez Mountains. Autumn typically begins warm and dry, transitioning to cooler and wetter conditions later in the season.

The area is also periodically affected by hot, dry Santa Ana winds, most commonly in late summer and early fall, which can elevate evaporative demand and drive higher water use late into the year. The final spring rains generally occur in late April or early May.

Figure 3-2 illustrates the average monthly temperature, rainfall, and evapotranspiration for the service area based on monthly data from 1991 to 2024. As shown, when temperatures increase, evapotranspiration rates increase while precipitation decreases. Actual annual rainfall totals deviate quite significantly from the average as illustrated in Figure 3-3; in most years, precipitation totals fall below the mean.

Figure 3-2 Historic Average Climate Conditions



	January	February	March	April	May	June	July	August	September	October	November	December
Precip (inches)	4.57	4.51	3.87	1.13	0.50	0.14	0.03	0.04	0.07	0.78	1.35	3.13
Temp (°F)	55.1	55.5	56.6	58.1	60.2	62.6	64.8	65.8	65.6	63.5	59.1	55.0
Eto Averages (inches)	1.78	2.41	3.64	4.63	4.78	4.94	5.5	5.06	4.03	3.26	2.13	1.64

Source: PRISM Climate Group; California Irrigation Management Information System[5]

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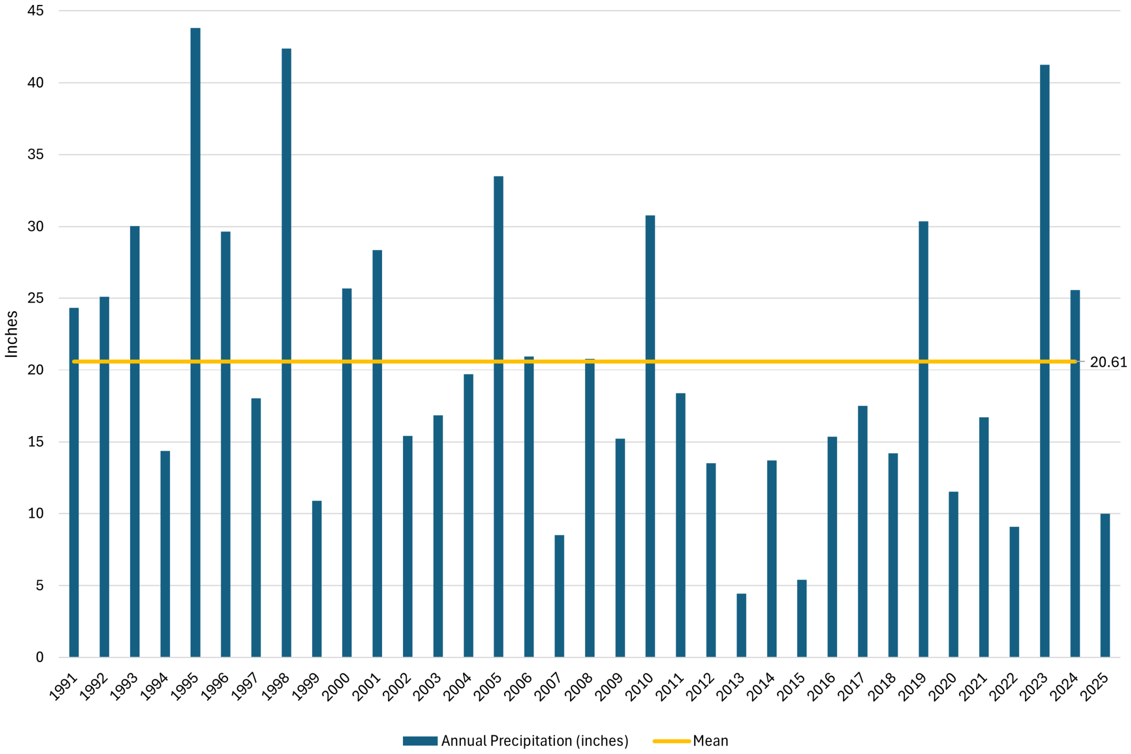
[5] 1991-2024 temperature and rainfall data from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 34.4196 Lon: -119.6257 Elev: 46ft; Evapotranspiration data is from CIMIS Santa Barbara Station 107 https://cimis.water.ca.gov/

Figure 3-3 Annual Precipitation Variability in Montecito (1991-2025)



Source; PRISM Climate Group; County of Santa Barbara[6]

3.3 Climate Change

The CWC does not mandate specific climate-change analyses for UWMPs; however, the 2025 UWMP Guidebook directs urban water suppliers to consider climate change when assessing drought risk, long-term water supply reliability, water conservation and efficiency, and demand management. Climate change is relevant to the District’s planning because changes in temperature, precipitation timing and intensity, and hydrologic variability affect both local and imported water supplies, as well as customer demand.

Long-term temperature records indicate a warming trend in the Montecito area, consistent with statewide observations of increasing temperatures and hydrologic variability. Figure 3-4 shows historical annual temperature in Montecito from 1924 to 2024.

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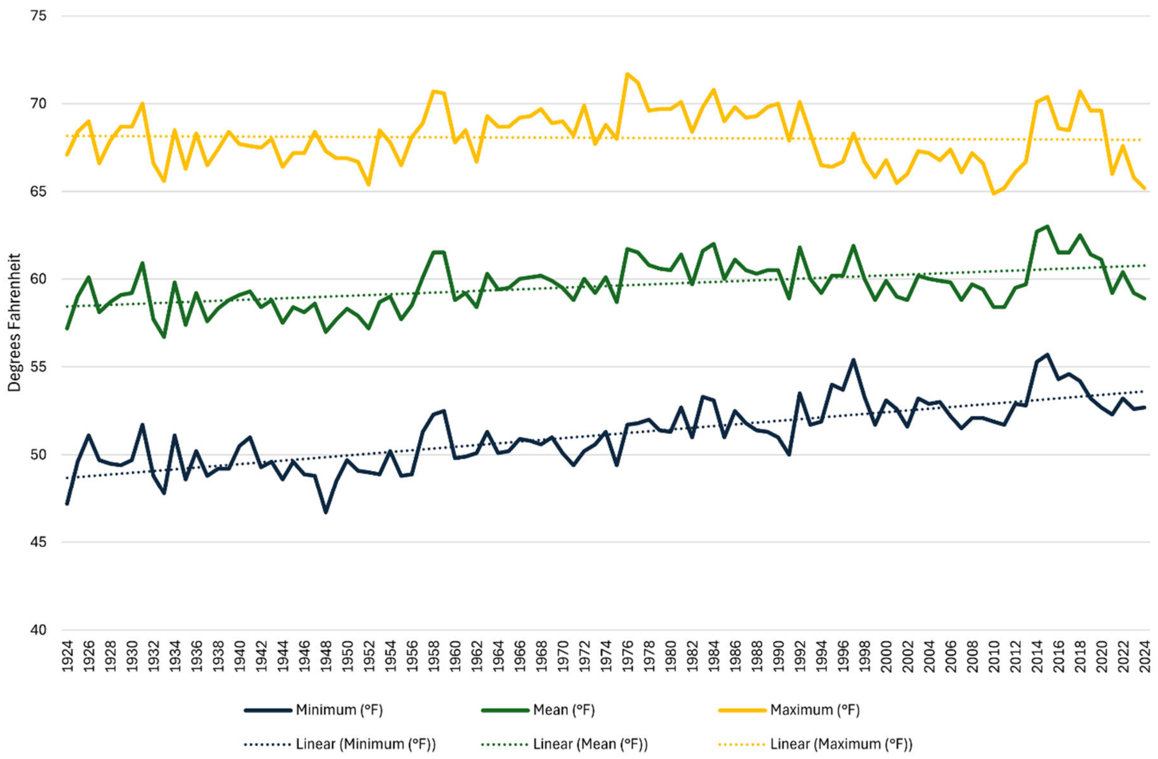
[6] 1991-2024 rainfall data from PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 39.1239 Lon: -121.6174 Elev: 56ft. 2025 rainfall data from Santa Barbara County https://files.countyofsb.org/pwd/hydrology/historic%20data/rainfall/325mdd.pdf

Figure 3-4 Historical Annual Temperature (1924-2024)



Source: PRISM Climate Group[7]

The District completed its first Climate Action & Adaptation Plan (CAAP) in 2025, which provides a comprehensive evaluation of climate trends that could potentially affect the District's water sources, facilities, and operations.[8] Key findings from the CAAP include:

- **Temperature Trends:** Average maximum temperatures at the District Headquarters are projected to increase by approximately 6.3°F by the end of the century, with heat days greater than 87°F increasing from two days historically to up to 17 days per year.
- **Precipitation Variability:** While annual precipitation totals are projected to remain broadly similar on average, future rainfall is expected to occur in fewer but potentially more intense storm events.
- **Sierra Nevada Snowpack:** Reduced snowpack and higher temperatures can result in variability in the timing of precipitation and reduce SWP supply deliveries.
- **Extreme Events:** Wildfire, extreme heat, atmospheric rivers, and post-fire debris flows are expected to continue to be important considerations for infrastructure and watershed management.

These climate drivers affect both water supply availability (local and imported) and water demand patterns, particularly landscape irrigation during prolonged hot and dry periods.

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[7] PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 39.1239 Lon: -121.6174 Elev: 56ft

[8] Montecito Water District. 2025. Climate Action and Adaptation Plan.

3.3.1 Climate Hazards Relevant to UWMP Reliability Planning

The CAAP identifies several climate hazards with direct implications for the District's water supply reliability assessments in Chapters 6 and 7:

- **Drought:** Increased frequency of dry years poses risk to Jameson Lake, Cachuma Project supplies, SWP deliveries, and groundwater recharge.
- **Wildfire:** Watersheds above Jameson Lake and Lake Cachuma are susceptible to burn related sedimentation, water quality degradation, as experienced during the 2017 Thomas Fire. District infrastructure within the District service area is also vulnerable to wildfire damage.
- **Extreme precipitation and debris flows:** Postfire debris flows can severely impact conveyance and treatment facilities as seen in the 2018 Montecito Debris Flow; several the District facilities are located within 100- and 500-year flood zones.
- **Extreme heat:** Elevated temperatures increase reservoir water quality risks and can drive higher evapotranspiration-based irrigation demand.
- **Sea level rise:** Longterm risk to coastal imported water infrastructure, including the City of Santa Barbara's desalination plant; groundwater basins currently have low susceptibility to seawater intrusion but require continued monitoring.
- **Landslides:** Steep hillside areas pose risks to pipelines, reservoirs, and the Highline transmission main.

3.3.2 Adaptation Strategies that Support UWMP Planning

The CAAP identifies adaptation and operational strategies that directly support DWR's guidance to incorporate climate considerations into UWMPs, including:

- **Infrastructure hardening:** Fire resistant materials, ember resistant retrofits, floodproofing, landslide stabilization, reservoir mixers, and protections for critical facilities.
- **Supply diversification and reliability:** Groundwater banking evaluation, recycled water feasibility analysis, continued conservation programs, and maintenance of emergency interties.
- **Enhanced operational monitoring and resilience:** Supervisory Control and Data Acquisition (SCADA) improvements for system monitoring; expanded backup power to address outages associated with heat, wildfire, or extreme storms.
- **Demandside efficiency:** Continued implementation of statewide "Making Water Conservation a California Way of Life" requirements.

These measures align with DWR's recommended practices for addressing climate change through adaptive management, demand efficiency, and a diversified, resilient supply portfolio.

Although hotter and drier conditions may increase outdoor water use potential, the District has observed lower residential demands since 2021, reflecting enduring demand hardening as a result of conservation behaviors. The District will continue to monitor climate influenced demand patterns and incorporate updated information into future UWMP cycles.

3.4 Service Area Population, Demographics, and Land Uses

Service area population and land use projections are critical to developing an effective planning framework, as population growth and demographic trends are primary drivers of water demand. These projections directly influence planning measures for system supply, delivery, infrastructure, and demand management. Similarly, understanding the economic, social, and demographic trends give valuable insight into water management and planning. This section of the UWMP addresses these factors to provide a basis for forecasting future water use.

3.4.1 Current Population

The large majority of the District service area connections are in the unincorporated communities of Montecito, Summerland, and Toro Canyon, along with very small portions of the city of Santa Barbara. For the purposes of calculating the historical service area population and historical growth rates this UWMP uses data from the U.S. Census Bureau's American Community Survey and Westmont College.

Since the formation of the District in 1921, Montecito Water District population has seen slow growth, the largest increase coming with the annexation of the Summerland County Water District in 1995. With high property values and cost of living, Montecito does not generally see the same population growth due to new residents moving to the area compared to other locations within the County. The last property annexation into the service area was approximately 14.9 acres in 2022.

The residential population of the District's service area has not fluctuated significantly over the past 25 years, as the unincorporated areas on the South Coast have had limited growth opportunities.

The 2025 population estimate for the District's service area is based on the methodology developed in its 2022 Water Use Efficiency Plan, which integrates multiple data sources to better reflect the unique characteristics of the District service area. The District reviewed U.S. Census datasets for the communities of Montecito, Summerland, and Toro Canyon, analyzed the vacation rental and second home market using AIRDNA, and incorporated Westmont College enrollment data.

Estimating population within the District service area is challenging because of several factors not captured in traditional Census counts. A substantial portion of the District's customers maintain secondary residences in Montecito and are officially counted as residents of another city or state. Additionally, many large estates rely on onsite staff and caretakers, who may reside outside the service area but contribute to daily water use. These populations create measurable water demand, yet do not appear in standard residential population datasets.

Table 3-2 presents the District's 2025 population estimate, with annual values calculated using the residential occupancy rate and active service-connection data shown in Table 3-1.

Table 3-2 2025 Estimated Population

Population	Source
7,719	100 percent of the U.S. Census population for Montecito (8,823) after subtracting non-institutionalized group quarters (1,104)
1,248	100 percent of the U.S. Census population for Summerland (1,248) after subtracting non-institutionalized group quarters (0)
1,289	75 percent of the U.S. Census population for Toro Canyon (1,736 total) after subtracting non-institutionalized group quarters (17)
917	Population of people occupying a second home in Montecito based on average size of owner occupied unit (2.3) multiplied by vacant units (798 in the ACS 2023 5 Year Survey DP04 table) multiplied by a 50 percent occupancy rate. This percentage of the population does not characterize their Montecito home as their primary residence, implying they are there less than 50 percent of the year.
258	Population of people occupying a second home in Summerland multiplied by a 50 percent occupancy rate.
195	Population of people occupying a second home in Toro Canyon multiplied by a 50 percent occupancy rate. Household size is multiplied by 75 percent of the vacant units.
372	The approximate number of total full-time equivalent people in a short-term rental, per year, using a second home when the second homeowner isn't there. This is a weighted average from data found on Keydatadashboard.com, which includes the average number of active rentals available in Montecito + Summerland in 2025 (356), weighted using the number of rooms (resulting in an average 3.9 persons per household for the rented days), and a weighted renter occupancy rate (26.84 percent).
1,104	Total number of Westmont College Students consistent with Census Fall 2025 on campus enrollment reports (1,150)
Total 2025 Population:	**13,102**

3.4.2 Projected Population

Developing accurate service area population forecasts requires evaluation of historical growth patterns, local economic conditions and projections, and current and anticipated land uses. Table 3-3 projects population growth by applying an annual growth rate of 0.5 percent to the baseline population shown in Table 3-2 consistent with the Montecito Community Plan and the *Future Demand and Water Supply Options Update 2025* prepared for the District (Bachman 2025; Appendix D).

Table 3-3 Population Forecast (DWR Submittal Table 3-1 Retail)

	2025	2030	2035	2040	2045	2050
Population Served	13,102	13,433	13,772	14,120	14,476	14,842

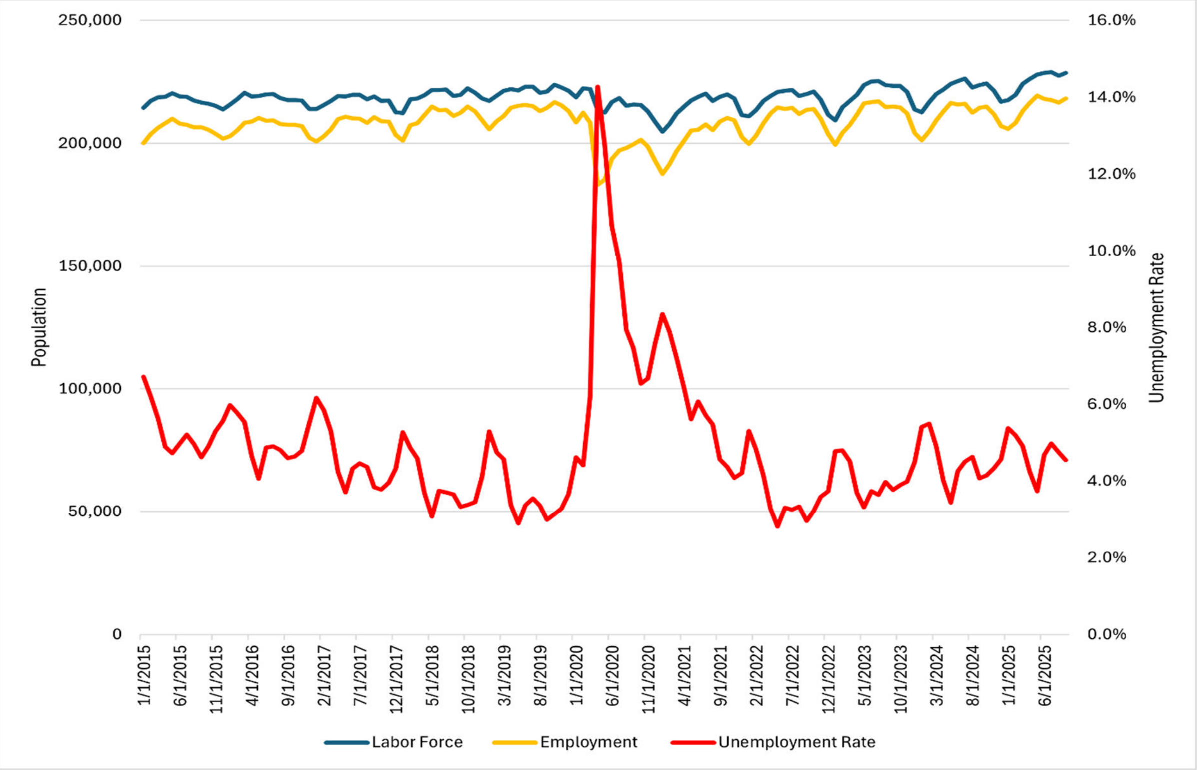
Source: Appendix D

3.4.3 Economic Trends & Other Social and Demographic Factors

The District includes the unincorporated communities of Montecito, Toro Canyon, and Summerland. These three communities are similar in their economic and demographic makeup. The service area is characterized by affluent residential neighborhoods, large landscape parcels, and a relatively small commercial base. These characteristics result in a demand profile with a high proportion of single family residential outdoor use, especially during dry and warm conditions. Additionally, Westmont College, sits on a 111-acre campus with approximately 1,300 students and 300 faculty and staff.

Santa Barbara County employment and unemployment data from 2015 to 2025 is presented in Figure 3-5. The coronavirus pandemic affected the national (and global) economy in 2020. As shown in Figure 3-5, the County's unemployment rate spiked to 14 percent in April 2020. Since 2020, unemployment has declined, with an annual countywide average unemployment rate of 5.8 percent in 2021, and a 4.5 percent annual countywide average unemployment rate in 2024. The District staff anecdotally understand that some of its customers who only reside in their homes seasonally may have become permanent residents during the coronavirus pandemic but now have continued to use their homes seasonally.

Figure 3-5 Santa Barbara County Employment and Unemployment



Source: California Employment Development Department 2025[9]

3.5 Land Uses Within the Service Area

CWC §10631(a) requires the UWMP to describe current and projected land uses within the service area and to coordinate, as appropriate, with local land-use authorities. This section summarizes the land-use pattern that informs the District's demand forecasting and supports consistency between this UWMP and regional land-use plans and policies.

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[9] California Employment Development Department. 2025. Unemployment Rates (Labor Force). https://labormarketinfo.edd.ca.gov/cgi/dataanalysis/labForceReport.asp?menuchoice=LABFORCE

Land use in the District's service area is predominantly low-density single-family residential, with a 111-acre liberal arts college campus and a small share of multi-family, commercial/institutional, golf course irrigation, and agricultural irrigation. As reflected in customer classifications and service connections, approximately 92 percent of connections are single-family residential, which aligns with observed demand patterns and the outdoor-use sensitivity described in Chapter 4.

The service area is largely built out, with limited new development potential. The District's current planning assumptions include:

- Modest residential growth through development of remaining buildable lots and small infill, with a greater share of additional single family units than multifamily units; and
- Accessory Dwelling Units (ADUs) added on some existing parcels. The District currently assumes a net neutral effect of ADUs on parcel level water use over the long term, as added indoor use may be offset by reduced landscape area. These assumptions are revisited as part of each UWMP update.

The District coordinates UWMP preparation with local and regional agencies and provides notice to affected cities and the County. The District's demand projections and land-use-based growth assumptions are designed to be consistent with regional expectations used in this UWMP's water use characterization (Chapter 4).

3.6 Delivery System Details

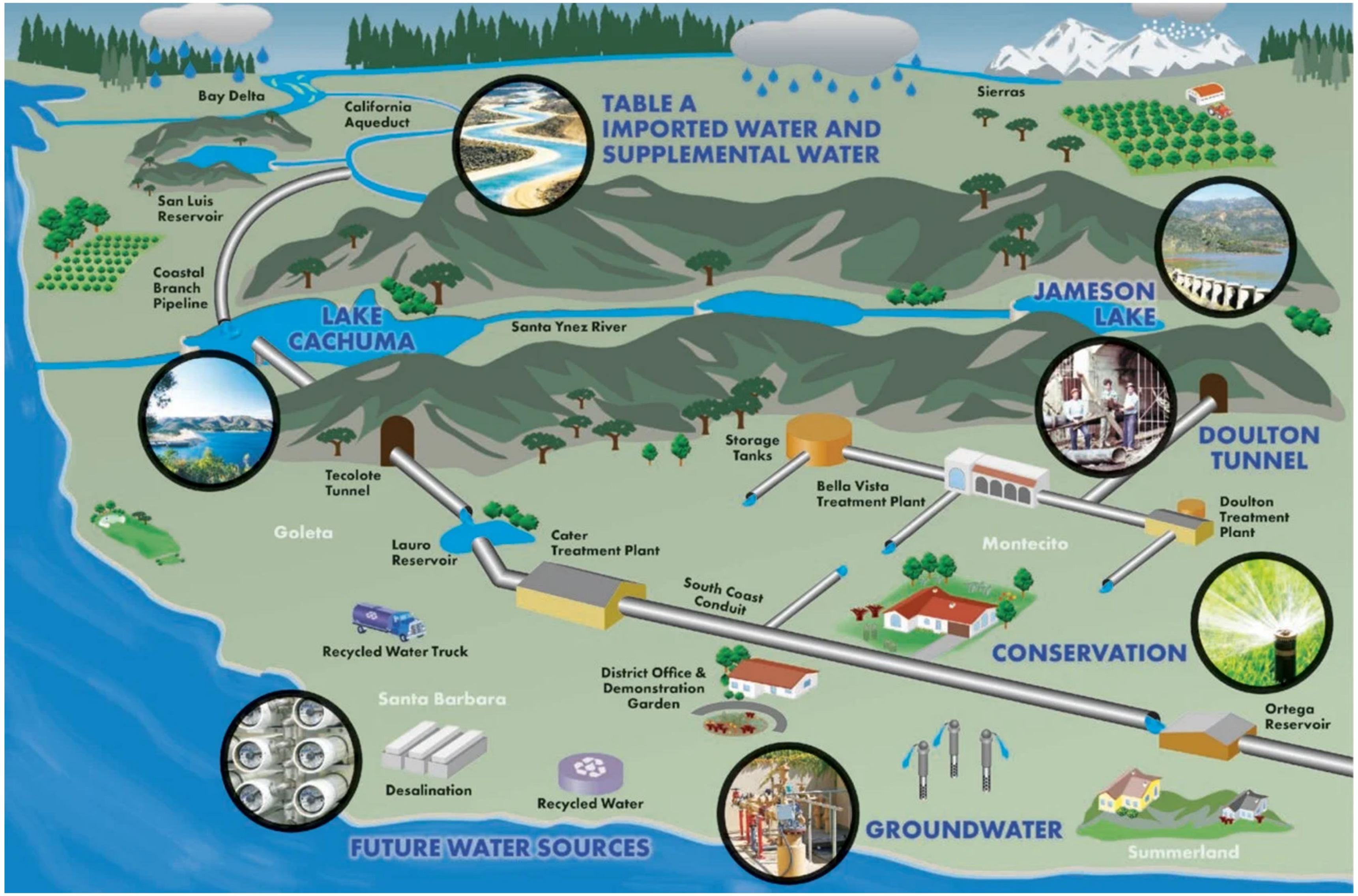
The District operates a potable water delivery system that conveys, treats, stores, and distributes water to customers throughout its 15.4 square mile service area. This subsection provides an overview of the District's water system in order to support the water use and supply analyses presented in later chapters.

The District's potable water system is supplied by a combination of local surface water, regional surface water, imported water, and local groundwater, as described in Chapter 6. These supplies enter a complex distribution network shaped by the District's topography, elevation differences, historic gravity-fed infrastructure, and reliance on both local and imported sources.

The District's current delivery system includes the following. A visual of the District's delivery system is shown in Figure 3-6.

- Two surface water treatment plants (Bella Vista and Doulton WTPs), which treat Jameson Lake supplies conveyed through the Doulton Tunnel.
- Eight active storage reservoirs and tanks providing operational storage and balancing service area elevations.
- Approximately 114 miles of distribution pipeline, much of which dates from the 1920s–1940s, serving a predominantly low-density, hillside residential area.
- Seven pump stations, necessary to lift imported supplies from the South Coast Conduit into the higher portions of the District's distribution system.
- Twelve active groundwater wells, with onsite treatment as required.
- Conveyance connections to regional facilities, including the South Coast Conduit (for Cachuma Project and SWP deliveries), the City of Santa Barbara's Cater WTP, and the City of Santa Barbara's Charles E. Meyer Desalination Plant.

Figure 3-6 Delivery System



Imported SWP water is conveyed from San Luis Reservoir via SWP facilities (i.e., the California Aqueduct and subsequently the Coastal Branch Pipeline) to Lake Cachuma. Lake Cachuma is a reservoir located on the Santa Ynez River created by the Bradbury Dam and is a primary source of water for the District. The 6.4-mile Tecolote Tunnel brings water from Lake Cachuma through the mountains to the South Coast and into the South Coast Conduit pipeline which runs from Goleta to Carpinteria. Water from this source is treated by the City of Santa Barbara at the Cater WTP and is conveyed to the District via the South Coast Conduit.

The District-owned Jameson Lake and Juncal Dam are located along the upper reaches of the Santa Ynez River. Water from this primary water source is conveyed in the 2.25-mile long Doulton Tunnel through the mountains and delivered to the District's Doulton and Bella Vista WTPs.

In 1948, USBR started the Cachuma Project to capture Santa Ynez River water and the District signed on to the project in 1949. As previously described, this water is conveyed via the South Coast Conduit, but since it lies below the service area, pump stations are required to boost South Coast Conduit water into the District's distribution system. The Summerland County Water District, which was contiguous with the District, was annexed in 1995 resulting in an initial 540 new customers and both Cachuma and SWP water entitlement.

The District's groundwater is sourced from the Montecito Groundwater Basin and the Toro Canyon Subbasin, most of which lies within the Montecito Groundwater Basin and service area. Groundwater from the local production wells is treated onsite as necessary and delivered into the District's distribution system.

The Bella Vista and Doulton WTPs serve the District exclusively and treat surface water from Jameson Lake, which is delivered through the Doulton Tunnel. The tunnel was completed in 1928 and currently supplies water to the 2.25 million gallons per day (MGD) combined treatment plant capacities. Water treatment for supplies delivered through the South Coast Conduit from the SWP is treated at the Cater WTP in a joint operation with the City of Santa Barbara and Carpinteria Valley Water District. This traditional coagulation and flocculation type plant is currently sized for 37 MGD to meet the needs of the multiple South Coast agencies.

Potable water pipes (i.e., pipes used to convey purified water) owned by the District represent a range of materials and ages. Approximately 80 percent of the pipelines in the system are ductile iron or cast iron and approximately 70 percent of all pipes in the system 6-inch to 8-inch. Approximately 82 miles of pipes date from before 1980 with the earlier pipes dating back to the early 1920s.

Historic infrastructure continues to play a critical operational role, though portions are subject to aging and hazard vulnerability, as demonstrated by damage sustained during the January 2023 winter storm, which temporarily severed the Jameson Lake transmission pipeline before repairs were completed in mid-2023.

These system details, together with the land use and population projections described in Section 3.4, provide the basis for the water use forecasting in Chapter 4, and the water supply assessment in Chapters 6 and 7.

4 Water Use Characterization

Understanding trends in water use is essential to enable the District to reliably and cost-effectively manage its water supplies and continue to meet customer needs. Characterization of past and current water use, coupled with considerations of anticipated growth, new regulations, changing climate conditions, and trends in customer water use behaviors are all considered in projecting demands. The chapter presents water use analysis and demand projections, as well as other statutory requirements.

4.1 Potable Water Versus Non-Potable Use

Currently, the District's potable water treatment and distribution system is comprised of two surface water WTPs, nine storage reservoirs, approximately 114 miles of distribution pipeline, and seven pumping stations. In addition, the District also includes six potable water production wells and six non-potable production wells. All District potable water is treated to meet all federal and state drinking water standards.

The District is one of many public water agencies in Santa Barbara County. Not all properties within the District's service area are served by the District. Those properties not served by the District use private groundwater wells operated individually or by private water companies. The use and treatment of water from groundwater wells for potable use by individual private water well operators is under the permit authority of Santa Barbara County. Table 4-1 shows the District's 2025 actual total uses for potable and non-potable water.

Table 4-1 2025 Actual Total Uses for Potable and Non-Potable Water (DWR Submittal Table 4-1)

	2025 Actual Water Use	
Use Type	**Level of Treatment When Delivered**	**Volume**
Single-Family Residential	Potable	2,729
Multi-Family Residential	Potable	86
Commercial	Potable	260
Institutional/Governmental	Potable	317
Agriculture	Potable	276
Juncal Exchange	Potable	300
Distribution System Water Loss		164
Subtotal Potable		*4,132*
Non-Potable Water Use	Non-potable	106
Subtotal Non-Potable		*106*
Total		**4,238**

[1] The total Juncal Exchange volume is 300 AF; however 297 AF is reported as 3 AF was exchanged through interties.

4.2 Past, Current, and Projected Water Use by Sector

As described in Chapter 2, the District currently supplies potable water to approximately 4,674 customer connections. The current customers, their recent and expected water use trends, and the District's on-going demand management efforts targeting these customers provide a foundational basis for this UWMP's water use forecast to 2050.

4.2.1 Water Use Sectors

As shown in Table 4-1, above, water use sectors in the District's service area include single-family residential, multi-family residential, commercial, institutional/governmental, and agriculture uses. Non-potable water use in the District's service area is used for outdoor landscaping.

4.2.2 Past and Current Water Use

Table 4-2 presents the District's past and current customer water use by sector for 2021 through 2025. This information is provided as context for recent water use trends, including the duration of a short drought period (2021-2022). Figure 4-1 presents total water use from 2021 to 2025 and Figure 4-2 presents the monthly single family residential demands over the same period. The District's water service demand under each customer classification dropped substantially between 2021 and 2024 as the result of water shortage restrictions implemented in response to the 2021-2022 drought. However, water use in 2025 has increased as a result of below average rainfall received in the first part of 2025. Of these water use sectors, single-family residential utilizes the most water and has the largest variability between years. For all water use sectors, water use is higher in the summer months compared to the winter, when rainfall helps to meet the water needs of landscapes.

Table 4-2 Customer Use: 2021 to 2025 (values in AF)

	Annual Demands				
Category	**2021**	**2022**	**2023**	**2024**	**2025**
Single Family Residential	3,280	3,187	2,544	2,528	2,729
Multi Family Residential	112	100	90	85	86
Commercial	217	234	213	232	260
Institutional/Governmental	294	335	223	278	317
Agricultural	310	319	234	229	276
Juncal Exchange	297	295	296	298	297
Distribution System Water Loss	218	254	93	250	164
Non-Potable	150	137	98	109	106
Total	**4,879**	**4,861**	**3,790**	**4,010**	**4,321**

[1] The total Juncal Exchange volume is 300 AF, some of which is exchanged through interties

Figure 4-1 Customer Use: 2021 to 2025 (values in AF)

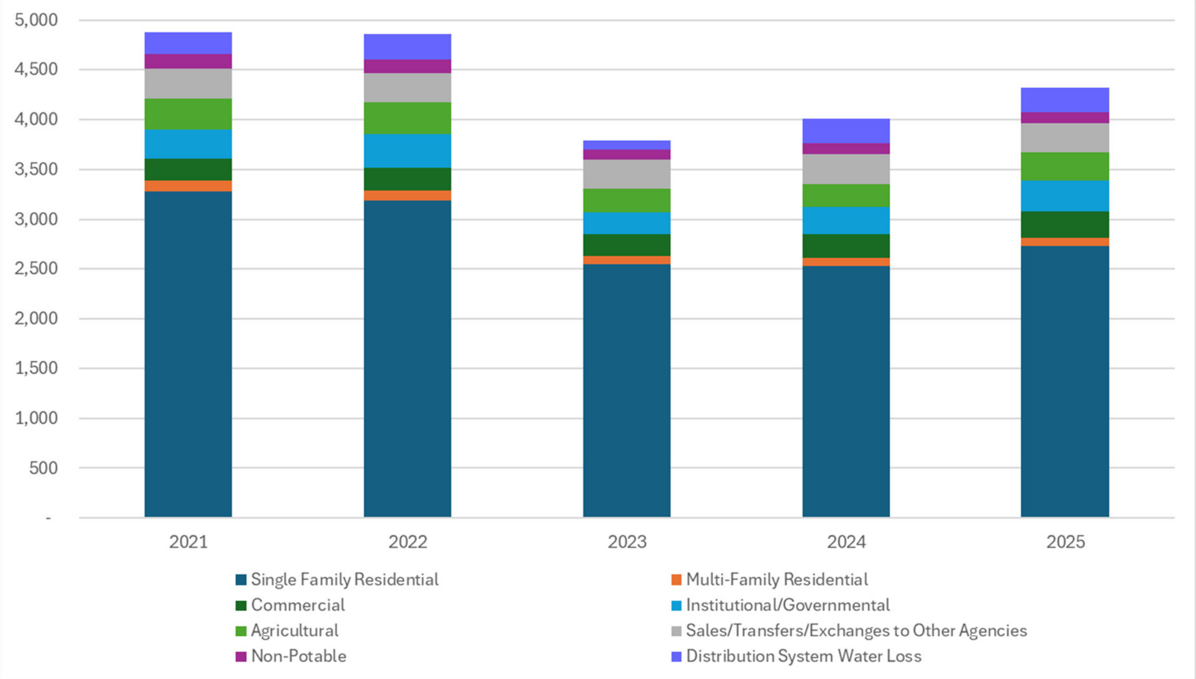
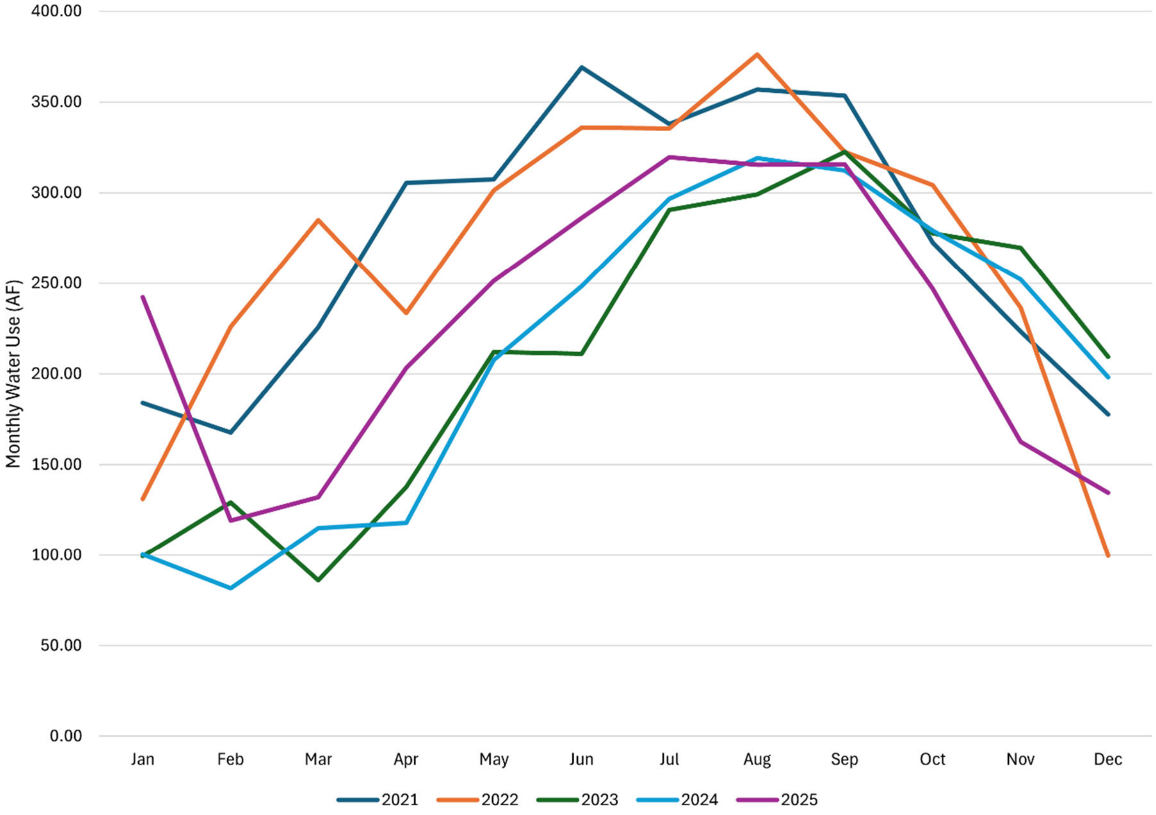


Figure 4-2 Single Family Residential Monthly Use: 2021 to 2025 (values in AF)



The single-family residential classification illustrates three important characteristics of the District's water service: (1) it represents over 70 percent of the annual use in every month, (2) it has summer uses that are over two to three times the monthly volume needed in winter months, and (3) it appears highly dependent on weather conditions in non-summer months (e.g. use can range from under 100 AF to over 200 AF in December). This understanding supports the District with additional insight necessary for assessing the seasonal reliability of its water supplies, forecasting use into the future, and developing and quantifying successful water shortage contingency response actions.

The 2025 annual customer use reported in Table 4-1 of 4,071 AF is 15 percent less than the 2021 customer water use of 4,661 AF. A major contributor to this decrease was the decline in single-family residential use from 3,280 AF in 2021 to 2,729 AF in 2025 resulting from high levels of rainfall in 2023 and 2024. When water shortage measures are put in place, they often trigger permanent shifts in how people use water, leading to a long-term reduction in demand that persists well beyond the emergency. Irrigation controllers and landscape changes made during drought reduce outdoor use in ways that don't fully rebound, while fixture upgrades lock in lower consumption structurally. At the same time, conservation habits formed during the shortage may persist, reinforcing a new, lower baseline. Together, these behavioral and infrastructural changes "harden" demand, meaning the reduced consumption carries forward into subsequent years. For example, when the single-family maximum monthly value for 2025 was compared to the maximum monthly value from the 2021 to 2024 period, the 2025 maximum monthly value was approximately 17 percent lower than the pre-drought value, demonstrating the difference in demands before and after implementation of water conservation efforts.

4.2.3 Water Budgets

In April 2025, the District introduced property-specific Water Budgets,[10] a data-driven tool that provides each customer with a unique, science-based guide for efficient indoor and outdoor water use based on their specific property characteristics. Property-specific Water Budgets account for seasonal changes in water use such as irrigation in winter versus summer and provide flexibility for customers to choose how they use water on their property while discouraging water waste and excessive use. While property-specific Water Budgets are not used as a demand forecast, the implementation of the Water Budget program has allowed the District to effectively plan and anticipate yearly customer demands. The cumulative water budget for all District customers is 4,334 AFY. As shown in Table 4-1, the District's actual use totals of 4,325 AF did not exceed the cumulative water budget for all District customers. This comparison demonstrates that recent normal-year customer demands are broadly aligned with the efficient use expectations embedded in the Water Budget framework. The District uses this alignment as a qualitative validation of the demand baseline used for projecting future water use, rather than as a substitute for the UWMP demand forecast methodology.

4.3 Projected Water Use

Forecasting future water demands begins with an understanding of existing customer demands and trends, recognizing the additional customers expected through growth, and considering the factors that will influence the water use of both existing and new customers well into the future – especially factors that directly affect the efficiency of water use. As required by the UWMP Act, the future

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[10] Montecito Water District. 2025. Water Budgets. https://www.montecitowater.com/conservation/water-budgets/

water uses of both existing customers and those added over the 25-year planning horizon should reflect the "efficient use" of water.

4.3.1 Existing Customer Future Use

To be conservative and assure the analysis of water system reliability is adequate, the District is maintaining the annual "current" customer demand, as shown in Table 4-2, which equates to a total annual customer demand of just over 4,000 AF, with a production need of about 4,200 AF when considering system losses (described further in Section 4.6).

While these existing customers may undertake a variety of conservation measures – actively through decisions to modify behavior or water use, or passively through the purchase of appliances and fixtures that simply use less water – they may also expand their future use. Holding the current use as a constant for all existing customers into the future will provide a conservative number that can be re-evaluated over time and in compliance with forthcoming urban water use objectives.[11]

4.3.2 New Customer Future Use

As detailed in Section 3.4.2, the District anticipates only a small amount of growth with an associated increased demand placed upon its water supplies. Forecasting the needs of these future customers is dependent upon the type and number of customers and the unit water demand factors associated with each customer type.

Several factors generally affect the forecast of future customer use, ranging from State and local landscape regulations, building code requirements, and other water use mandates, to changes in the types of housing products being offered. However, as described in Section 3.4.3, the District's service area is unique in that it is a small, affluent residential community that has limited growth potential because it is nearly built out. Thus, many of the standard factors affecting future water use are not applicable to forecasting the future water needs for the District's customers.

As discussed in Section 3.5, the District anticipates the growth of ADUs, a type of housing product that is also non-traditional. While plumbing codes and the availability of fixtures and appliances will conform to the State building codes, ADUs are anticipated to use water consistent with long-term average expectations on a unit-by-unit basis. Furthermore, the construction of ADUs will often displace current landscape and thus displace the outdoor landscaping demand – replacing it with an overall lower water use for the same parcel footprint.

For this 2025 UWMP, the District assumes a gradual increase in both residential and non-residential service connections. Residential customers will include both single-family dwelling units built under a variety of densities and multi-family residential dwelling units. Non-residential uses are expected to include mostly new commercial establishments. To be conservative with the future water use forecast, the District also anticipates a slight increase in irrigated agricultural acres which are served with potable water supplies. This expansion reflects trends for locally grown agricultural products. As new Agricultural customers are currently not allowed, growth in water demand of existing customers is projected through increased acreage.

Table 4-3 summarizes the District's anticipated new customer growth to occur by 2050, based on the population growth projections shown in Section 3.4.2. For purposes of this 2025 UWMP, the annual growth rate of 0.5 percent was used to forecast demand consistent with the Montecito

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[11] Per CWC §10609.20, urban water suppliers shall calculate a urban water use objective composed of, among other factors, aggregated efficient indoor water use based upon standards of no more than 55 GPCD, decreasing to 50 GPCD by 2030

Community Plan and the *Future Demand and Water Supply Options Update 2025* prepared for the District (Appendix D).

Table 4-3 Anticipated Growth by Customer Classification

	Forecast New Connections				
Category	**2030**	**2035**	**2040**	**2045**	**2050**
Single-Family Units Added	19	19	19	19	19
Multi-family Units Added	4	4	4	4	4
Agricultural Acres Added	1	1	1	1	1
Commercial Connections Added	1	1	1	1	1

Notes:
Forecast new connections based on percentage growth in connections from 2021-2025.

Demand factors were calculated for each of the land use categories served by the District by dividing the average water use by category from 2021 to 2025 by the average number of connections by category for that same timeframe. While the demand factors were not used to forecast future demands, they provide the District with information about water use trends within each customer category. Demand factors are as follows:

- Single Family Residential – 0.67 AFY/connection which illustrates the affluent, large lot characteristics of the Montecito area.
- Multi-Family Residential – 1.42 AFY/connection for multiple dwelling units served through a single meter, such as apartments and townhomes.
- Commercial – 1.72 AFY/connection for a wide array of commercial users such as restaurants and retail establishments
- Institutional/Governmental – 2.21 AFY/connection which includes parks, government buildings, and schools.
- Agriculture – 6.51 AFY/connection for small-scale farming operations.

In addition, the District utilizes a Smart Rebates Program which provides rebates to owners of single-family residential, multi-family residential, commercial, and institutional land uses which implement a Smart Rebate offered by the District. These rebates include the use of mulch, drip irrigation, smart irrigation controllers, high efficiency residential appliances, high efficiency toilet and urinals, and replacement of turf landscape with native or drought tolerant planting. Based on District statistics from 2023-2025, the District achieves a water savings of approximately 2.53 AFY from the Smart Rebate Program, which is accounted for in demand forecasts.

4.3.3 Summary of Forecast Water Use

Based upon the estimated water use of the existing and new customers, the District anticipates a gradual increase in use over the planning horizon. Table 4-4 presents the forecast customer water use. Although the forecast is presented in 5-year increments through 2050, the monthly pattern is expected to mimic the current monthly pattern detailed in prior tables. This characterization is important when evaluating the District's water service reliability as detailed in Chapter 5. Distribution system losses are presumed to further decrease with the District's AMI technology into the future, but are held to a conservative 5 percent for this forecast.

Pursuant to CWC §10631.1, retail suppliers are required to include the projected water use for lower income households in 2025 UWMPs. Per California Health and Safety Code §50079.5, a lower income household has an income below 80 percent of area median income, adjusted for family size. The annual median household income from the 2024 U.S. Census Bureau American Community Survey is approximately $155,814 for the District's service area.[12] Therefore, to be considered a lower income household, a household would need to have an annual income less than approximately $124,651 per year. According to the Census data, approximately 30 percent of the households are below this 80- percentile income. All demands, including those for lower income households, are included in the demand projections presented in Table 4-4.

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[12] This data is from the Median Household Income American Community Survey 5-Year Estimates Data Profile DP03: Selected Economic Characteristics https://data.census.gov/table/ACSDP5Y2024.DP03?q=Montecito+CDP,+California&g=160XX00US0675714,0679529&d=ACS+5-Year+Estimates+Data+Profiles

Table 4-4 Total Uses of Potable and Non-Potable Water - Projected (DWR Submittal Table 4-2)

Use Type	Additional Description (as needed)	Projected Water Use (AF)					
		Level of Treatment	2030	2035	2040	2045	2050
Single Family Residential		Potable	2,798	2,869	2,941	3,015	3,091
Multi Family Residential		Potable	88	91	93	95	98
Commercial		Potable	267	273	280	287	294
Institutional/Governmental		Potable	325	333	342	350	359
Agricultural		Potable	283	290	297	305	312
Juncal Exchange		Potable	300	300	300	300	300
Distribution System Water Losses		Potable	305	313	319	326	334
Subtotal Potable			4,366	4,469	4,572	4,678	4,788
Non-Potable	Landscaping	Non Potable	109	112	115	118	121
Smart Rebate Program Savings			-3	-3	-3	-3	-3
Subtotal Non-Potable			109	112	115	118	121
Total			**4,472**	**4,577**	**4,684**	**4,795**	**4,908**

4.4 Adjusting Water Use Forecasts for Single-Dry and Multiple Dry Conditions

The demand forecast presented above represents expected water needs under normal hydrologic conditions. To credibly forecast potential maximum future water use, the forecasted normal-year water uses must be modified to reflect anticipated increases in demand during drier conditions. In the case of the District, this can also include the high-wind, dry conditions that can occur in fall or early winter months coupled with limited rainfall which can dramatically increase single-month demands.

Conservative modifications to the forecasted normal year water use to more likely reflect use conditions during drier years are warranted to help adequately address water service reliability in Chapter 7. For purposes of this UWMP, the following adjustments are made:

- Single dry year: Landscape irrigation needs would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year or to reflect continued demands when rainfall is still absent in November or December. Since this increase only applies to the outdoor portion of a customer's use, a simple adjustment factor of nine percent is applied to the total normal-year forecasts to conservatively reflect the expected increase in demand for water for landscaping. This increase would represent the "unconstrained demand" expected prior to any District -imposed conservation measures (e.g., as proposed in the WSCP).
- Multiple dry years: During multiple dry years, demands are expected to increase at an additional rate of two percent increase year over year from the single dry year increase of nine percent. This is representative of an "unconstrained demand" that would be expected prior to any WSCP actions the District may find are warranted to reduce customer demands.[13]

These values are reflected in tables provided for the Drought Risk Assessment presented in later subsections.

4.5 Climate Change Considerations

Including climate change into a water use analysis aids in understanding the potential effects on long-term reliability, which in turn, allows the District to proactively begin planning appropriate responses. For example, hotter and drier weather may lead to increased demand in landscape and agricultural irrigation especially during spring and fall months, increasing the pressure on water supplies that may have availability restrictions during these periods.

This potential is reflected in the consideration of the single dry year increase of nine percent that is used for the water service reliability analysis, as discussed previously. Whether the elevated single dry year water forecast becomes more akin to the "normal" demand will become more apparent as the District continues to assess monthly water use trends throughout its service area.[14]

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[13] CWC §10632(a)(2) states water suppliers should use "unconstrained demand" when performing their annual water supply and demand assessment.

[14] A closer assessment of the correlation of monthly water use by customer type to rainfall and temperature will help the District improve water use forecasts to assure the effects of climate change are adequately being reflected in water service reliability analyses.

4.6 Existing Distribution System Losses

Distribution system water losses are the physical water losses from the District's water distribution system up to the point of delivery to the customer's system (e.g. up to the residential water meter). Since 2016, the District has been required to quantify its distribution system losses using the American Water Works Association Method (Title 23 California Code of Regulations §638.1 et seq.). The District submits its water loss report annually by October 1 of each year for the prior year's estimated system losses. Table 4-5 presents the loss based upon the difference between total customer sales and total production as reported by the District in various annual water loss reports (see Appendix I). Average water loss over the 2021 to 2025 timeframe was 4.8 percent. Average annual water loss for 2020 to 2025 was 5.3 percent of potable water use, with a peak water loss of 6.8 percent in 2024.

Table 4-5 Distribution System Loss: 2020 through 2024

Year	2020	2021	2022	2023	2024
Distribution System Loss	288	218	254	93	250

As can be anticipated given the dynamic functions of a pressurized potable water distribution system, the estimated annual distribution system loss as a percentage of water entering the system will vary year-to-year and month to month. While conservatively high given additional savings with the installation of AMI meters, a distribution system water loss of 5 percent is used for purposes of water use forecasting. CWC §10608.34 requires water suppliers to provide data to determine whether the supplier will meet its State Water Board water loss performance standard for real and apparent losses. The real water loss performance standard for the District is 36.2 gallons per connection per day, a 1.4 percent reduction from the State-estimated baseline of 36.7 gallons per connection per day. Suppliers will be required to submit a registry of breaks, repairs, and estimates of water loss every three years, beginning in 2029 for the 2025 to 2027 period. Water losses for the supplied data period will be assessed compared to the performance standard. The District's apparent water loss currently averages about 12.7 gallons per connection per day, per the most recently submitted water loss report. Table 4-6 shows the District's progress towards the 2028 Water Loss Standard.

Table 4-6 Progress Towards 2028 Water Loss Standard (DWR Submittal Table 4-6 Retail)

		Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit			State Water Board Standard		Most Recent AWWA Water Loss Audit		
Public Water System ID #	Did the Water Board Calculate a Water Loss Standard for this Public Water System?	2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss	Real Water Loss Per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss	Apparent Water Loss Per Unit per Day
CA4210007	Yes	36.2	Gallons per Service Connection per Day (GPSCD)	4,811	180.4	33.5	18.3	GPSCD	4,811	68.2	12.7

4.7 Forecasting Water Use for the DRA and Annual Assessment

Two UWMP requirements that help water suppliers assess and prepare for drought conditions are the Drought Risk Assessment[15] and the Annual Water Supply and Demand Assessment.[16] These planning requirements were established in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change. The Drought Risk Assessment requires assessing near-term water supply reliability over five consecutive dry years, covering 2026 to 2030 for this UWMP. The Annual Water Supply and Demand Assessment (Annual Assessment) undertakes a similar analytical exercise as the DRA but uses actual conditions anticipated for the particular upcoming water year. The Annual Assessment is further detailed in Chapter 1.

4.7.1 Projecting Water Use for 5-year Drought Risk Assessment

The Drought Risk Assessment uses supplier-defined hypothetical drought conditions expected to occur from 2026 to 2030 to test the resiliency of their water supply portfolio and their WSCP actions to meet severe conditions.

DWR recommends that suppliers first estimate expected water use for the next five years without drought conditions (also known as unconstrained demand). These estimates would then be adjusted to estimate the five-years' cumulative drought effects. Total water use for 2026, for example, is developed by modifying the water use representation for "current" conditions (see Table 4-7) taking into consideration the anticipated demand response to dry conditions, with each subsequent year further adjusted as appropriate. Adjustments year-to-year reflect several factors the District anticipates may occur, including increases from growth and outdoor landscape needs.

Each year is further adjusted to reflect anticipated increases in the "unconstrained demand" during a single dry year. As noted previously, this is reflected by applying a 9 percent increase to the total estimated demand in each year (greater than the 2 percent increase used in the multiple dry year analysis in Section 7.1). This conservative assumption (9 percent increase in demand year-over-year) serves as a stress case for drought response by the District, in terms of managing local water supplies and implementing the WSCP shortage actions to mitigate unsourced demand.

Table 4-7 Forecast DRA Water Use for 2026 through 2030 (AF)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2026	193	225	243	343	417	426	519	532	808	459	366	254	**4,785**
2027	197	230	249	351	426	435	530	543	818	469	374	258	**4,880**
2028	202	235	254	358	435	444	542	555	829	479	382	263	**4,978**
2029	206	241	260	366	444	454	553	566	839	489	390	270	**5,078**
2030	211	246	265	374	454	463	564	578	850	499	399	276	**5,179**

Notes: DRA forecast includes the 300 AFY transfer required pursuant to the Juncal Exchange

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[15] CWC §10635(b)

[16] CWC §10632.1

5 SB X7-7 Baselines, Targets, and 2025 Reporting

This chapter describes the Water Conservation Act of 2009, also known as SB X7-7, and demonstrates the District achieved the 2020 urban per capita water use reduction of 20 percent as directed under the UWMP Act for urban retail suppliers (CWC §10608.40).

In 2009, the Senate Bill 7 of Special Extended Session 7 (SB X7-7) was incorporated into the UWMP Act requiring that all water suppliers increase water use efficiency with the overall goal to decrease per capita water consumption within the state by 20 percent by the year 2020. SB X7-7 required DWR to develop certain criteria, methods, and standard reporting forms through a public process that water suppliers could use to establish their baseline water use and determine their water conservation targets. SB X7-7 and DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*[17] specifies methodologies for determining the baseline water demand, the 2015 interim urban water use target, and the 2020 urban water use target. This section demonstrates that the District achieved its 2020 water use target in 2020.

5.1 SB X7-7 Baselines and 2020 Targets

SB X7-7 required urban water suppliers to establish a per capita water use target for 2020 to be calculated by using one of four methods. Method 1 was the per capita water use that is 80 percent of the urban retail water supplier’s baseline per capita daily water use using a 10-year average starting no earlier than 1995. The District selected to use Method 1, which calculated a 2020 urban water use target of 338 GPCD, derived as the gross water use divided by the population during a defined baseline period.

5.1.1 Calculating Population and Gross Water Use

To assess compliance with the 2020 water use target in GPCD, the District’s population and gross water use were compared to the SB X7-7 target. Gross water use was calculated as the total amount of water received, including local and regional surface water, groundwater, imported SWP water, and seepage into the Doulton Tunnel. Gross water use excludes recycled water, agricultural water deliveries, and exchanges or transfers conveyed to other urban water suppliers. The District’s target water use was calculated as 338 GPCD for year 2020.

5.2 District Met 2020 Water Use Target in 2020

Urban water retail suppliers are required to report on their SB X7-7 progress to identify if they met their 2020 urban water use target pursuant to CWC §10631.

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[17] DWR. 2016. Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use. February 2016

The District met their 2020 target as reflected in Table 5-1 below, which includes their 2020 target and 2020 Actual GPCD. The District was not a part of a merger or consolidation and was not a part of an SB X7-7 Regional Alliance target.

Table 5-1 SB X7-7 2020 Target Progress (DWR Submittal Table 5-1 Retail)

Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target?	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?
No	Individual Target	338	319	Yes

6 Water Supply Characterization

This chapter provides an overview of the District's water supplies and estimates water supply use in a normal year.

6.1 Water Supply Analysis Overview

The District relies on a variety of local, regional, and State water supply sources to meet its customers' needs, while continuing to work with neighboring water purveyors on the South Coast to identify, investigate, and implement new sources. The District's current water sources include the following:

- Water Supply Agreement (WSA) with the City of Santa Barbara in connection with its desalination facility
- Lake Cachuma/Cachuma Project – regional surface water
- Jameson Lake surface water from the Santa Ynez River
- Doulton Tunnel groundwater infiltration
- Montecito Groundwater Basin well production
- SWP/CCWA – State surface water
- Supplemental water purchases

These water supply sources are detailed further in Section 6.2.

6.1.1 Special Considerations

The District takes into consideration certain conditions that affect the District's water supply availability. These considerations include the effects of climate change and water quality concerns, each of which have an effect on water availability. These considerations are described in greater detail below.

6.1.1.1 Climate Change Effects

According to California's Fourth Climate Change Assessment,[18] the Central Coast Region will face numerous climate impacts, including increased maximum and minimum temperatures, by midcentury. Multi-year average precipitation is expected to increase slightly, but "normal" years will become less frequent and both dry and wet extremes will become more frequent, heightening the risk of both droughts and floods. Precipitation variability will have detrimental effects on stream flows and aquatic organisms, including sensitive species whose protection drives state and federal regulation of water resources. Year-to-year fluctuations are expected to decrease the reliability of local surface water supplies, while rising temperatures will increase evaporation and may harm water quality. Imported water supplies conveyed through the Sacramento-San Joaquin Delta face the additional threat of sea level rise interfering with Delta conveyance systems. The State's Climate Change Assessment predicts that "Water supply shortages, already common during drought, will be exacerbated. Higher temperatures may result in increases in water demand for agriculture and

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[18] California Natural Resources Agency. 2018. California's Fourth Climate Change Assessment Central Coast Region Report. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf

landscaping."[19] Reduced surface water availability may lead to increases in groundwater extractions, which would threaten the sustainability of supplies for groundwater-dependent water suppliers. Rising sea levels will increase the risk of saltwater intrusion into coastal aquifers. Extremely destructive wildfires, like the 2017- 2018 Thomas Fire, may become more frequent and heighten the risk of property destruction, public safety power shut offs, and air and water quality impacts. Wildfire impacts will also accelerate sedimentation into water supply reservoirs and smoke will have public health impacts on residents.

Currently, there is still considerable uncertainty about the timing, direction, and magnitude of climate change impacts on various aspects of water resource management. Despite this uncertainty, it is still possible for water suppliers to prepare for future climate change impacts. The District's efforts to obtain additional local, independent water supplies will help ensure reliable water supplies in the face of climate change. The Montecito Groundwater Basin Groundwater Sustainability Plan (GSP),[20] approved by DWR in February 2025, provides an improved framework for responsible management of local groundwater supplies. Additional adaptation strategies less directly related to water resources include preparedness for public safety power shutoffs and land management practices that protect native species and reduce the risk of catastrophic fire. The Montecito Basin GSP includes a Climate Change scenario which models future groundwater conditions representing an anticipated change in temperature, precipitation, and corresponding groundwater demands. The modeling included within the Montecito Basin GSP concludes that the Montecito Groundwater Basin is not anticipated to experience chronic groundwater level lowering throughout the UWMP horizon. The District is committed to using the best available scientific information to inform decision-making now and in the future.

6.1.1.2 Water Quality

All water served to District customers meets or exceeds Federal and State drinking water standards as defined by the Federal Safe Drinking Water Act and the State Water Resources Control Board requirements. The District's water quality is documented annually in Consumer Confidence Reports which are available publicly on the District's website (see Appendix E). Each Consumer Confidence Report presents the primary and secondary water quality standards and the measured quality of the District's supplies from each source. Generally, surface water from the Santa Ynez River watershed is of excellent quality and local groundwater is good to moderately good; all water sources are treated before delivery to customers with the exception of non-potable well deliveries for irrigation purposes. In addition to testing water immediately after treatment, the District conducts periodic testing at customer tap to ensure water quality remains reliable throughout the distribution system. Continued close monitoring of water quality carries the additional water conservation benefit by reducing the need for water line flushing.

Despite supplying water of generally excellent quality, the District has encountered water quality challenges in recent years. The 2017-2018 Thomas Fire burned 100 percent of the watershed above Jameson Lake, and subsequent runoff from the burned area impacted this source of supply, resulting in elevated levels of organics and ultimately elevated levels of disinfection byproducts. The District's response included suspending deliveries of water from Jameson Lake for approximately one year. Upgrades were made to the Bella Vista WTP to reduce the potential for the development

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[19] Langridge, Ruth. (University of California, Santa Cruz). 2018. Central Coast Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-006.

[20] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan https://www.montecitogsa.com/doc/7530/

of disinfection byproducts in the distribution system. These upgrades will make the District more resilient to future wildfire impacts.

Other potential threats to the quality of the District's water supplies include droughts and heatwaves, which can lead to harmful algae blooms in surface reservoirs, and potentially saltwater intrusion increasing the salinity of groundwater. The District maintains an Algaecide Application Permit to treat algal blooms at Jameson Lake should algae blooms occur. The District will continue to monitor water quality proactively to mitigate future threats.

6.2 Water Supply

6.2.1 Desalinated Water

6.2.1.1 Water Supply Agreement with the City of Santa Barbara

Desalinated water opportunities on the South Coast of Santa Barbara County began with the construction of the City of Santa Barbara's Charles E. Meyer Desalination Facility, built between 1990 and 1992 as an emergency drought water supply during the 1987-1992 drought. The facility was placed in standby mode in 1992 following a wet winter and was recommissioned in 2017. In September 2020, the District and the City of Santa Barbara executed a 50-year WSA which secures the District 1,430 AFY local drought-proof potable water from the City of Santa Barbara's Charles D. Meyer Desalination Facility that the District is obligated to purchase and receive, regardless of hydrologic conditions. This supply source is considered very reliable and supplied the District with approximately 35 percent of its 2025 water supply needs. Delivery of water supplies from the Charles D. Meyer Desalination Facility began in 2022.

The water delivered to the District meets all state and federal primary water quality requirements and can be supplied from any City water supply source or a combination thereof, which offers the City additional operationally flexibility. The WSA greatly reduces the risk of shortages in dry years and reduces the District's reliance on imported supplies from the Delta.

6.2.2 Surface Water

Surface water supplies have historically constituted more than 95 percent of the District's typical water year supply. Surface water runoff to Jameson Lake and two other small tributaries in the upper Santa Ynez watershed were the District's primary source of water supply from the 1920s until the 1950s when the Cachuma Project was completed. While the District's supply portfolio has diversified considerably since then, local surface water is still an important source of water in normal years.

6.2.2.1 Lake Cachuma/Cachuma Project – Regional Surface Water

The District receives regional surface water from the Santa Ynez River watershed via Lake Cachuma, which can supply up to 58 percent of the District's total supply in wet years or be curtailed to zero in critically dry years. USBR owns the Cachuma Project and contracts with the Cachuma Operations and Maintenance Board (COMB) for operations and maintenance. COMB is a Joint Powers Authority whose members include Goleta Water District, City of Santa Barbara, Carpinteria Valley Water District, and Montecito Water District. Each member water agency has individual contracts which define each water agency's proportionate share of the Lake Cachuma water supply. The District's proportionate share of the Lake Cachuma water supply is 10.3 percent.

Water in Lake Cachuma is impounded by the federally owned Bradbury Dam, which was constructed in 1953 on the Santa Ynez River approximately 30 miles northwest of Montecito. The dam is a zoned earth-fill structure that is 206 feet high above the streambed. The dam was seismically retrofitted in 2001 and was fitted with flashboard extensions to increase the capacity of the lake in 2004. Per a bathymetric survey conducted in 2021, Lake Cachuma's overall capacity is 192,978 AF.

The Cachuma Project operates under a permit granted by the SWRCB. The current Water Rights Order 2019-0148 continued earlier requirements for water releases to protect downstream interests of the City of Lompoc, Santa Ynez River Water Conservation District - Improvement District No. 1, and riparian groundwater pumpers located along the Santa Ynez River. This Order required hearings and its Environmental Impact Report was completed in 2011. The final Water Rights Order was issued in 2019.[21]

The USBR and the Cachuma Project Member Units have developed revisions to Project operations since 1993 to improve habitat conditions for steelhead trout while still maintaining water supplies. In 2000, the National Marine Fisheries Service (NMFS) issued a Biological Opinion for USBR's operation and maintenance of Bradbury Dam. NMFS is the agency within the Department of Commerce that oversees the protection of Southern California steelhead trout. The 2000 Biological Opinion addresses the effects of Cachuma Project operations on steelhead and its designated critical habitat in accordance with Section 7 of the Endangered Species Act. In 2014, the NMFS and USBR formally initiated re-consultation of the Biological Opinion which may change the amount of future deliveries allowed from Lake Cachuma allocation to the District. This process is still ongoing.

The District's full entitlement from Lake Cachuma during years of normal rainfall is 2,651 AFY, which is curtailed on a percentage basis in dry years. Lake Cachuma is operated based on an operational yield that was developed through experience during long-term droughts and acceptable delivery reductions during such drought periods. Water is diverted from Lake Cachuma through the Tecolote Tunnel, which extends approximately 6.4 miles through the Santa Ynez Mountains to the head works of the South Coast Conduit. The South Coast Conduit is a gravity-fed concrete pipeline that runs approximately 26.4 miles and includes four regulating reservoirs - Glen Annie Dam and Reservoir (not in service since 2002 due to seismic concerns), Lauro Reservoir, Ortega Reservoir, and Carpinteria Reservoir. Lake Cachuma water supplies delivered to the South Coast Conduit are treated at the City of Santa Barbara's Cater WTP.

For the District's Cachuma Project surface water supply (including SWP delivered to Lake Cachuma), the District entered a Joint Powers Agreement with the City of Santa Barbara in 1978 for the construction, operation, and maintenance of the Cater WTP, a regional water treatment facility serving the City of Santa Barbara, Carpinteria Valley Water District, and Montecito Water District. The Cater WTP has a production capacity of 37 MGD and is owned and operated by the City of Santa Barbara. The District has a 20 percent interest in the Cater WTP which provides water deliveries daily to meet customer usage at all demand levels. Treated water from the Cater WTP is delivered to Montecito through the South Coast Conduit operated by COMB.

The District has metered turnouts supplied by the South Coast Conduit. These metered turnouts include; Barker Pass, Office, East Valley, Lambert, Toro Canyon, Sheffield, Asegra Road, Ortega Pump Station Control, and County Yard.

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[21] The District's Lake Cachuma supply is currently allocated pursuant to short-term extensions of the existing Cachuma Project water service contracts. While the District has a preference for a long-term contract to provide greater planning certainty and operational stability, the absence of such as contract does not indicate an anticipated loss of supply. Consistent with conservative UWMP planning practices, and independent of ongoing contract discussions with federal and state partners, the District has incorporated the 30 percent reduction scenario for Lake Cachuma supplies to account for contractual, regulatory, and hydrologic uncertainties.

6.2.2.2 Jameson Lake & Doulton Tunnel

Jameson Lake provides the District an average of 1,392 AFY, based on historical supply data from 1942-2024. Jameson Lake is formed by Juncal Dam, located on the upper reaches of the Santa Ynez River at the confluence with the North Fork stream. It is supplemented by seasonal diversions from Alder Creek. Water from Jameson Lake is diverted through the Doulton Tunnel under the Santa Ynez Mountains into the District's service area. There is significant infiltration of groundwater into the tunnel, which supplements this source with an additional volume of water. Natural inflow into Doulton Tunnel produces approximately 424 AFY based on average inflows from 1942-2024. When the District acquired the rights to Jameson Lake from the City of Santa Barbara, the District agreed to transfer 300 AF of water annually to the City in perpetuity.

Operations at Jameson Lake were disrupted by the Thomas Fire in December 2017. The massive wildfire, California's largest ever recorded at the time, burned 100 percent of the watershed above the reservoir and destroyed the dam caretaker residence and other MWD maintenance structures. Jameson Lake's supply was rendered undeliverable due to contamination from the Thomas Fire from December 2017 until May 2019.[22] The District implemented a treatment improvement project at its Bella Vista water treatment facility to respond to the increased presence of ash and other debris that react during the treatment process. Total deliveries from Jameson Lake were 746 and 634 AF in 2024 and 2023, respectively.

When Juncal Dam was completed in 1930, the reservoir had a capacity of approximately 7,000 AF. Siltation over time (and especially after the Thomas Fire) has reduced its capacity to 4,587 AF, as measured by a bathymetric survey in 2024.[23] Periodic surveying of the reservoir bottom has shown that siltation has reduced reservoir capacity by an average of about 25 AFY during normal (non-fire) years. The District continues to perform periodic silt surveys and other studies on the reservoir and has developed a conjunctive use operational plan for all District supplies that includes an operational annual yield and rule curve based on Jameson Lake capacity. The 2020 rule curve for Jameson Lake was used to project future water supplies. The 2020 rule curve is intended to reduce diversions and prioritize multi-year storage, which preserves water in storage for use in the later years of a multi-year drought.

Jameson Lake supply availability is directly related to rainfall. Deliveries were reduced during the during water years 2021-2022 due to drought conditions, but has since been increased due to above average rainfall. Droughts and catastrophic wildfire events may become more frequent or prolonged in the future, reducing the reliability of this water supply.

6.2.3 Groundwater

6.2.3.1 Basin Description

The District overlies the Montecito Groundwater Basin (Montecito Basin; Basin No. 3-049) which occupies approximately 9.6 square miles between the Santa Ynez Mountains and the Pacific Ocean.[24] The District owns and maintains six potable water production wells and six non-potable production wells, which together supplied an average of 381 AFY between 1942 to 2024. Entitlements to groundwater in the Montecito Basin have not been adjudicated and are subject to

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[23] Prober Land Surveying. 2024. Jameson Reservoir Bathymetry Survey 2024.

[24] DWR. 2004. Montecito Groundwater Basin. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3_049_Montecito.pdf

the rules of prior appropriation. Figure 6-1 illustrates the location of the Montecito Basin and the service areas of local water suppliers, including the District.

The Montecito Basin is bounded on the north by the Santa Ynez Mountains, on the east by consolidated rocks, on the southeast by an administrative boundary with Carpinteria Valley Water District, and on the northeast by a surface drainage divide that separates the Montecito and Carpinteria Basins. The offshore Rincon Creek fault and the Pacific Ocean bound the basin on the south. An administrative boundary on the west separates the Montecito Basin from the Santa Barbara Basin. The area overlying the basin contains several small creeks that flow from the Santa Ynez Mountains south to the Pacific Ocean.[25] The Montecito Basin is divided into 4 subbasins or “storage units”. The first three are divided by east-west trending faults that act as semi-barriers to groundwater movement. The northern unit (Storage Unit 1) is bounded on the south by the Arroyo Parida fault, the central unit (Storage Unit 2) by the Montecito Fault in the south, and the southern unit (Storage Unit 3) by the Rincon Creek Fault. The fourth, the Toro Canyon Storage Unit, is separated from the rest of the Montecito Basin by surfacing sedimentary bedrock and a surface water drainage divide. The extent to which the offshore Rincon Creek fault is an effective barrier to seawater intrusion into the deeper water-bearing zones of the Basin is unknown. The primary water-bearing deposits in the Montecito Basin are the unconsolidated alluvial deposits, and the Casitas and Santa Barbara Formations.[26] Natural recharge in the basin is derived from infiltration of precipitation over the Basin, seepage from streams, and subsurface inflow from consolidated rock.

The shallowest alluvium deposits are of Holocene age and consist of lenses of gravel, sand, silt, and clay. These deposits occur along stream channels and range to 80 feet thick. Deeper alluvium of Pleistocene age is composed of boulders and reddish clay, which, where saturated, yields only modest amounts of water to wells. Groundwater is generally unconfined within alluvial deposits.[27]

The Pleistocene age Casitas Formation consists of clay, silt, sand, and gravel. Groundwater is extracted mainly from the upper Casitas Formation, as it is the chief water-bearing deposit; the lower Casitas Formation is very fine-grained and displays poor water transmitting characteristics. [28]Groundwater in this formation is partially confined along the north side of the Arroyo Parida fault in Storage Unit 1 the northern part of the Basin.

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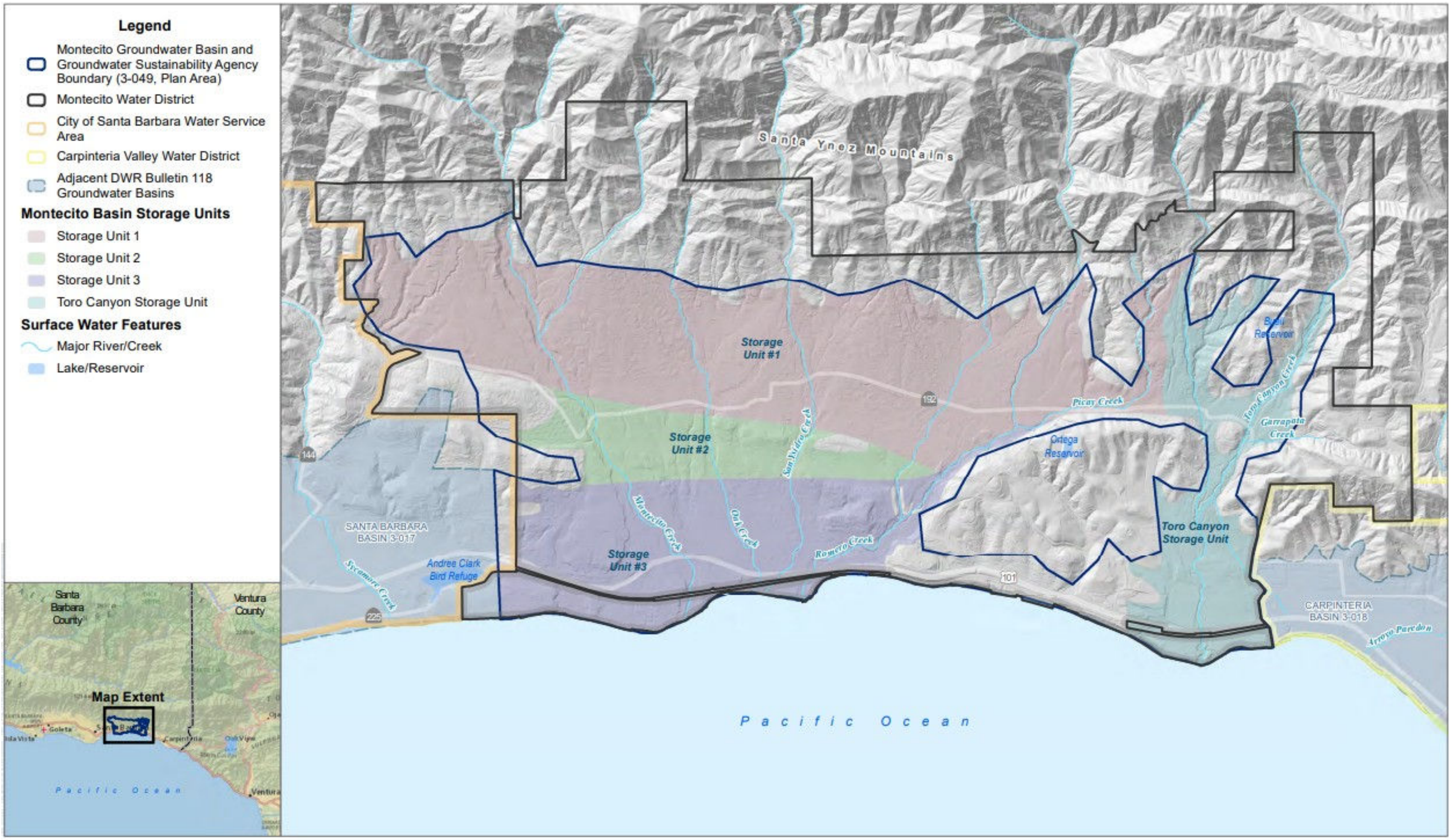
[25] DWR. 2004. Montecito Groundwater Basin. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3_049_Montecito.pdf

[26] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan https://www.montecitogsa.com/doc/7530/

[27] DWR. 2004. Montecito Groundwater Basin. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3_049_Montecito.pdf

[28] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan https://www.montecitogsa.com/doc/7530/

Figure 6-1 Map of the Montecito Groundwater Basin and Water District Boundaries



Source: Montecito Groundwater Basin Groundwater Sustainability Plan (2023)

Lastly, the Pliocene to Pleistocene age Santa Barbara Formation consists of marine sand, silt, and clay and has a maximum thickness of 2,200 feet in the southern part of the basin. Groundwater within the Santa Barbara Formation is generally confined. This formation occurs only in a restricted area in the southwest portion of the basin and, thus, is of negligible use as a groundwater source. [29]

6.2.3.2 Basin Management

The Sustainable Groundwater Management Act (SGMA) was signed into law by California Governor Jerry Brown on September 16, 2014, and created a framework for statewide groundwater management in California with an emphasis on local control.

In November 2018, DWR approved the District as the Montecito Basin Groundwater Sustainability Agency (GSA), making it responsible for fulfilling the requirements of SGMA for the Montecito Groundwater Basin (Basin).[30] The Basin is designated as a Medium-Priority basin by DWR, which means that the GSA is responsible for the preparation and implementation of a Groundwater Sustainability Plan (GSP) to guide sustainable management of groundwater. The Basin's GSP was completed and adopted in May 2023 and submitted to DWR in June 2023. In February 2025, DWR approved the GSP. As stated in the GSP, the estimated total extraction by all users (the District, private well owners, and mutual water companies) between 2015-2019 averaged 1,266 AFY. In addition, the GSP estimates the sustainable yield for the Basin to be 1,600 AFY. The sustainable yield is defined as the maximum amount of water that can be sustainably extracted from the Basin without causing undesirable results defined in the GSP. Management of groundwater production within this sustainable yield will ensure basin sustainability through the SGMA planning horizon. The GSA is the monitoring entity for the purpose of tracking and reporting groundwater conditions under SGMA to DWR. The District also helps coordinate SWRCB's Groundwater Ambient Monitoring and Assessment Program to evaluate groundwater quality within the Basin.

6.2.3.3 Other Considerations

Contracts for Groundwater Storage

Studies have concluded that the potential for expanded use of local groundwater storage beyond current practices is limited by the relatively small size of the Basin and the lack of suitable locations for enhanced aquifer recharge with recycled water.[31,32] In 2017, the District entered into a long-term groundwater water banking arrangement with the Semitropic Water Storage District (Semitropic Bank) in Kern County to bank surplus SWP and/or supplemental water. The District's portion of the Semitropic Bank is 4,500 AF, with an annual recovery limit of 1,500 AF unless additional capacity is available. Access to this facility provides the District greater supply reliability and protects water in multi-year storage from the risk of spillage or evaporation in surface water reservoirs. Although the Semitropic Bank is located south of the Coastal Branch turnout of the SWP, deliveries can occur to the District through the Coastal Branch in dry years, with the same amount of water returned to the SWP downstream from water pumped from the Semitropic Bank. Water deposited in the Semitropic Bank is subject to a 10 percent loss (for example; 1,000 AF deposited results in 900 AF later recovered). As with the District's other remote supplies, access to the Semitropic Bank could be disrupted by a natural disaster such as an earthquake.

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[29] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan https://www.montecitogsa.com/doc/7530/

[30] Montecito GSA. 2026. https://montecitogsa.com/about/mission-purpose/

[31] Dudek. 2015. Montecito Groundwater Basin Recharge Feasibility Study. Prepared for Heal the Ocean, Montecito Water District, and Montecito Sanitary District. September 2015.

[32] Montecito Water District. 2019. Montecito Recycled Water Facilities Plan. https://www.montecitowater.com/doc/5346/

Groundwater stored in the Semitropic Bank is used as part of a conjunctive use program, in which deposits (recharge) are made during normal and wet years and withdrawals (pumping) are made during dry years when other supplies are less available. In 2020, the District had 1,800 AF stored in the Semitropic Bank. Since initiating participation in the Semitropic Bank, the District has yet to recover water for its use. As of 2025, the District has 5,802 AF stored and available for use.

6.2.3.4 Past Five Years Groundwater Pumping

The GSA conducts a survey of approximately 70 water wells (consisting of both District-owned and private wells) located within the District's service boundary twice a year. Prior to the formation of the GSA in 2018, the survey was conducted by the District. The survey consists of measuring the static water elevations in wells and converting this data to a water elevation level with reference to mean sea level. This data is being collected to continue the ongoing efforts to monitor the Basin and is input into a Basin Numerical Model to ascertain groundwater storage conditions within the four defined groundwater storage units. The collection of data twice a year reflects groundwater conditions following the rainfall/groundwater recharge season (spring) and the groundwater extraction season (fall).

Data from monitoring wells with the most complete records in the Basin date back to the 1940s, with data coverage generally improving over time. After a basin-wide low water level period in the mid-1960s, groundwater levels stabilized and recovered from the late 1960s until the mid-1980s, when drought and increased pumping led to rapidly dropping groundwater levels including elevations below mean sea level near the coast. Groundwater levels reached their lowest levels ever recorded at the time in 1991. Representative Monitoring Points (RMPs) are wells identified in the GSP as being representative of groundwater conditions and having the longest and most complete historical records. Hydrographs for the RMPs show that from the late 1980s to the early 1990s groundwater levels declined by approximately 100 feet in Storage Unit 1 and 50 feet in Storage Unit 3.[33] In general, it appears that the most extreme fluctuations in groundwater levels occurred in Storage Unit 1.

After the drought conditions of the early 1990s yielded to wetter hydrologic conditions in the late 1990s, groundwater levels in general recovered until the mid-2000s. The arrival of SWP imports in the late 1990s probably contributed to this recovery by reducing extraction. Then, starting in 2007, water levels again began to rapidly decline by a rate of 6.4 feet per year in Storage Unit 1. From 2007-2019, groundwater levels declined by as much as 77 feet in Storage Unit 1, with declines in the other Storage Units being about half that value.[34] In 2020, water levels began to recover from their recent lows. There are cones of depression apparent around areas with high well densities in Storage Unit 1 and 3, with measured water levels below mean sea level in parts of storage unit 3. As a coastal aquifer, the Basin carries a risk of seawater intrusion, but intrusion may be blocked to some degree by the offshore Rincon Fault. Studies to date have been inconclusive about the magnitude, extent, and even existence of seawater intrusion in the Basin. Because seawater intrusion is an undesirable result under SGMA, the GSA will continue to gather data and closely monitor groundwater conditions particularly in the southern edge of the Basin.

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[33] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan. https://www.montecitogsa.com/doc/7530/ https://montecitogsa.com/about/mission-purpose/

[34] Montecito Groundwater Agency. 2023. Groundwater Sustainability Plan. https://www.montecitogsa.com/doc/7530/ https://montecitogsa.com/about/mission-purpose

In addition to the wells owned by the District, the Montecito Basin also contains private wells. While the precise number of active wells is not known, the GSA has a Well Registry Program that requires all wells in the Basin be registered. As of 2025, the GSA estimates the number of active private wells in the Basin to be between 400 to 500. Most of these private wells are unmetered. Some are used for private domestic water use and some are dedicated to outdoor landscape irrigation. Total Basin extractions depend on a multitude of factors and are estimated from 2020 – 2025 to range from approximately 950 AFY to 1,460 AFY.

The District's last five years of pumping are summarized in Table 6-1.

Table 6-1 Groundwater Volume Pumped (DWR Submittal Table 6-1 Retail)

		Produced Volume (AF)				
Groundwater Type	**Basin Name**	**2021**	**2022**	**2023**	**2024**	**2025**
Alluvial Basin	Montecito Groundwater Basin	312	396	113	121	248

6.2.4 Purchased or Imported Water

The District's water supply includes two sources of purchased or imported water: purchased SWP water from Central Coast Water Authority (CCWA) and supplemental water purchases such as transfer agreements.

6.2.4.1 State Water Project / CCWA – State Surface Water

The District purchases SWP supplies as a member of the Central Coast Water Authority (CCWA). The CCWA is the Joint Powers Authority administrator formed to construct, manage, operate, and maintain the SWP coastal aqueduct treatment and conveyance facilities serving Santa Barbara County. In 1963, the Santa Barbara County (County) Flood Control and Water Conservation District contracted with DWR for the delivery of up to 57,700 AFY of SWP water. The contract did not include the cost of constructing the necessary delivery system to bring SWP water into Santa Barbara County and, when a bond election failed in 1979, the County Flood Control and Water Conservation District sought financing through agreements with local water retailers to provide them entitlements for project funding. The contracts with the local water retailers provided the allotment of 45,486 AFY of SWP water, of which 3,300 AFY was allocated to the District.

The drought of 1987-91 illustrated the vulnerability of the county water agencies to multi-year below average rainfall years. The dwindling local surface water supplies caused mandatory cutbacks in customer water use and residents voted to connect to the State Water Project. In 1991, voters in a number of county communities with retained allocations, including the District, voted to fund the formation of the Central Coast Water Authority to manage and construct facilities for the import of State Water. Through the sale of water to customers, the CCWA member agencies are reimbursing the CCWA and the State Water Project for all costs, including construction and operation.

Construction of SWP conveyance facilities on the South Coast was completed in 1997, which included the 102-mile Coastal Branch of the California Aqueduct and the 42-mile Santa Ynez extension ending at Lake Cachuma where it comingles with other local surface water. Once SWP water reaches Lake Cachuma, it is conveyed through the Tecolote Tunnel to the City of Santa Barbara's Cater WTP for treatment before being conveyed via the South Coast Conduit to the District.

DWR determines the percentage of water available to each SWP Contractor each year as a function of available water supplies within the SWP based on hydrology, reservoir storage, Sierra Nevada snowpack, and operational and regulatory requirements. The percentage allocation determined by DWR is the SWP Contractor's Table A amount available for delivery that year. The District's full annual SWP Table A water amount is 3,300 AFY for a DWR annual water supply percentage of 100 percent. Since 2000, the annual DWR Table A allocation has averaged 41 percent and ranged from a low of 5 percent to a high of 100 percent.

When delivered, the District's SWP water is conveyed west through the Coastal Branch to Lake Cachuma. Any Table A water not delivered in the year allocated, becomes carryover water and is stored in San Luis Reservoir, located along the California Aqueduct near Los Banos. If San Luis Reservoir reaches full capacity and spilling occurs, any carryover water stored can be lost. To mitigate this risk, the District participates in the Semitropic Groundwater Banking and Exchange Program. This program offers the District a guaranteed right to store and recovery water (Table A and carryover) annually. As of the end of 2025, the District has 5,802 AF of water stored in the Semitropic Groundwater Bank and available for future use.

The 2012-2016 drought lowered the previously published annual reliability of the SWP. The 2023 SWP Delivery Capability Report[35] was used in the 2025 Future Demand and Water Supply Options (Appendix D) to estimate anticipated deliveries over the planning period under various hydrologic conditions.[36] The District relies on the 75 percent level of concern projections in the 2023 SWP Delivery Capability Report to project future deliveries. Table 6-2 contains the amount of water projected to be available to the District based on its current allocation of 3,300 AFY under various hydrologic conditions.

Table 6-2 Current and Projected Annual SWP Table A Allocation

	Year 2023 DWR Baseline[1]		Future Climate Change Scenario	
Simulated Time Period[2]	**% of SWP Annual Allocation (Baseline)**	**Supply Available to District Acre-feet (AF)**	**% of SWP Annual Allocation (75% LOC)**	**Supply Available to District Acre-feet (AF)**
Long Term Average	53%	1,749	44%	1,452
Single Dry Year 1977	4%	132	2%	66
Single Dry Year 2014	6%	198	5%	165
2-Year Drought 1976-1977	22%	726	11%	363
2-Year Drought 2014-2015	9%	297	7%	231
6-Year Drought 1987-1992	21%	693	15%	495
6-Year Drought 1929-1934	14%	462	12%	396

[1] DWR identifies 2023 as a baseline for the 2023 SWP Delivery Capability Report as the hydrologic modeling prepared by DWR is reflective of 2023 hydrologic conditions.

[2] DWR simulated time periods were manually selected to include the driest and most recent years from modeling conducted by DWR.

Source: DWR 2023 Delivery Capability Report (Table 7-4)

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[35] DWR released its Draft 2025 Delivery Capability Report in December 2025 for public review and comment. Comments were accepted through February 2026. For the purposes of this UWMP, the 2023 Delivery Capbility Report is referenced as it aligns with the data used in the 2025 Future Demand and Water Supply Options (Appendix D). The Draft 2025 Delivery Capbility Report is available at: https://data.cnra.ca.gov/dataset/state-water-project-delivery-capability-report-dcr-2025/resource/5d238ff5-899b-4357-8835-5b043f61f5da

[36] DWR. 2023. Delivery Capability Report 2023. https://data.cnra.ca.gov/dataset/finaldcr2023/resource/92356681-957a-48ee-97c4-529d25b9dbb2

As Table 6-2 indicates, the District's allocation of SWP supplies can be significantly reduced during droughts. During the most severe year of the most recent drought, in 2022, the SWP allocation was five percent based on the driest January and February in over 100 years. The District was allocated only five percent of its Table A amount, which equated to 165 AF. To combat historically low deliveries, California's Governor Gavin Newsome issued Executive Order N-7-22 which required all water suppliers across the State to implement their WSCPs for a shortage Level 2 to achieve 20 percent water use reduction. The District considers a five percent allocation to represent the "worst-case scenario" for supply planning purposes based on recent experience.

6.2.4.2 *Supplemental Water Purchases*

At the height of the 2012-2016 drought, DWR began allowing SWP Contractors to sell water to one another using DWR's SWP conveyance system. Supplemental water purchase agreements, typically coordinated by CCWA through its Supplemental Water Purchase Program, sometimes require an exchange component whereby the District is required to return an amount equal or greater amount of water purchased, typically over a ten-year period. This water return is often referred to as "water debt". The supplemental water purchase agreements include the return conditions of this water debt, which often dictate the return period and other conditions that must be met. Other transfers more closely resemble a one-time purchase and do not require water to be returned at a future date. Avoiding legal injury to other water users is a key determination that DWR examines when considering whether to allow a transfer, and each transfer requires approval from both agencies on a case-by-case basis.

The District purchased 17,806 AF of supplemental water from a variety of other SWP Contractors from 2014 to 2018. The District's latest supplemental water purchase occurred in April 2018. Some transfer agreements the District executed included return requirements. Because of the favorable hydrologic conditions in water years 2017 and 2019, the District was able to fully return owed water. In 2025, the District sold an additional 1,000 AF of excess water to its transfer partners for use by transfer partners.

While supplemental water purchases have proven to be crucial in meeting the District's dry-year needs in the past, the District remains committed to reducing its reliance on this source of water over time in compliance with The Delta Plan. The District's progress towards this goal and demonstration of compliance is included in Section 1.4.2.

6.2.5 Stormwater

Stormwater is not currently a quantifiable source of water supply to the District, and due to hydrogeologic and other limitations, is not expected to provide a measurable amount of water over the planning horizon.

6.2.6 Wastewater and Recycled Water

6.2.6.1 *Recycled Water Coordination*

The District does not currently use any recycled water as a source of supply. Recycled water was previously considered in the District's 2020 UWMP as a potential option for future water supplies. An initial Recycled Water Facilities Plan was completed by the District in 2018, which recommended non-potable reuse for large irrigation users with the option of indirect potable reuse as the recommended project, pending a hydrogeologic investigation of the Montecito Basin. A Groundwater Augmentation Feasibility Study prepared for the District in 2019 indicated limited potential of the Montecito Basin for groundwater replenishment with recycled water. In 2023, an Enhanced Recycled Water Feasibility Analysis was prepared in collaboration with the Montecito Sanitary District to inform the future direction of recycled water projects.[37] At this time, recycled water projects within the Enhanced Recycled Water Feasibility Analysis are not considered as long-term options for water supply due to cost constraints.

6.2.6.2 *Wastewater Collection, Treatment, and Disposal*

There are two independent special districts located within the District's service boundary that provide wastewater collection, treatment, and disposal. The Montecito Sanitary District provides wastewater collection, treatment, and disposal services within the areas of Montecito, while the Summerland Sanitary District serves the community of Summerland. In addition, a very small portion of wastewater generated inside the District's service area along Coast Village Road is served by the City of Santa Barbara with that wastewater conveyed to the City's El Estero Wastewater Treatment Plant (WWTP). Wastewater collected in the service area is summarized in Table 6-3 and Table 6-4 summarizes the discharge of each entity.

Table 6-3 Wastewater Collected within Service Area in 2025 (DWR Submittal Table 6-2 Retail)

Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated?**	**Volume of Wastewater Collected from UWMP Service Area 2025 (AF)**	**Name of Wastewater Treatment Plant (WWTP)**	**Is WWTP Located Within UWMP Area?**
Montecito Sanitary District[1]	Metered	517	Montecito Wastewater Treatment Plant	Yes
Summerland Sanitary District[1]	Metered	58	Summerland Wastewater Treatment Plant	Yes
City of Santa Barbara[2]	Estimated	46	El Estero Wastewater Treatment Plant	No
Carpinteria Sanitary District[2]	Estimated	92	Carpinteria Sanitary District Wastewater Treatment Plant	No
Total Wastewater Received from UWMP Service Area in 2025:		**713**		

Notes: The "Volume of Wastewater Collected from UWMP service area" for Santa Barbara's EEWTP and the Carpinteria Sanitary District's WWTP was estimated based on the proportion of service area population living in the District's service area, which is approximately 0.34% for EEWTP and 6.9% for the Carpinteria Sanitary District's WWTP

[1] Data for November-December 2025 is not available for these districts.

[2] 2025 volumetric reports for El Estero Wastewater Treatment Plant and Carpinteria Sanitary District Wastewater Treatment Plant are not currently available; therefore, data for these plants represents estimates based on the 2024 Volumetric Annual Report

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[37] Montecito Water District. 2025. Recycled Water. https://www.montecitowater.com/our-water/water-sources-supply-copy/recycled-water/

Montecito Sanitary District

Montecito Sanitary District is an independent special district voted into existence in 1947 by the residents of Montecito to provide for the collection, treatment, and disposal of wastewater. In 1961, Montecito Sanitary District constructed a secondary level wastewater treatment plant capable of processing 750,000 gallons per day, including ocean outfall (located 1,500 feet offshore), and trunk sewer system. Twenty years later, voters approved $3.1 million in revenue bonds to incorporate new technology, double the plant's capacity to 1.5 MGD, implement more stringent testing procedures, and provide emergency power. Montecito Sanitary District provides service to approximately 9,000 people through 3,185 service connections. It maintains approximately 61 miles of sewer pipelines and five pumping stations. Montecito Sanitary District's collection system is predominantly vitrified clay pipe with some areas of polyvinyl chloride pipe.[38] In 2025, Montecito Sanitary District treated approximately 517 AF of wastewater which was discharged through their ocean outfall.

Summerland Sanitary District

Summerland Sanitary District is an independent special district that was voted into existence by the citizens of Summerland in 1957. Summerland Sanitary District provides wastewater collection, treatment, and disposal for approximately 10 percent of the District's service area. Summerland Sanitary District operates and maintains more than eight miles of sewer pipelines and three pumping stations, a 0.3 MGD treatment plant, and a 12-inch diameter ocean outfall extending 740 feet into the Pacific Ocean. The Summerland WWTP was originally designed and constructed as a conventional activated sludge treatment process, however in 1991, the Summerland Sanitary District upgraded to a tertiary treatment facility. In 2025, Summerland Sanitary District treated approximately 58 AF of wastewater which was discharged through ocean outfall.

City of Santa Barbara

The City of Santa Barbara operates a wastewater collection system consisting of 257 miles of sewer pipe and seven lift stations. The City of Santa Barbara owns and operates the El Estero WWTP, which has a design capacity of 11 MGD and serves a population of approximately 86,451 as of 2025[39]. Construction of El Estero WWTP was completed in 1979, providing secondary treated wastewater. El Estero WWTP includes both a secondary treatment facility that discharges to the Pacific Ocean and a 4.3 MGD tertiary treatment train for recycled water. In October 2015, the City began distributing recycled water from the newly constructed tertiary treatment facility. The tertiary treatment facility uses ultrafiltration technology to supply recycled water to parks, schools, commercial landscapes, golf courses, and public restrooms, thereby freeing up potable water for other uses in the City. El Estero WWTP treated a total of approximately 7,689 AF of wastewater in 2024.[40] El Estero WWTP provides wastewater collection and treatment for approximately 3 percent of the District's service area along Coast Village Road.

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[38] Montecito Sanitary District. 2025. About the District. https://www.montsan.org/about-the-district

[39] California Department of Finance E-5 Population and Housing Estimates for Cities, Counties, and the State, 2020-2025. https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2025/

[40] State Water Resources Control Board. 2026. Volumetric Annual Report of Wastewater and Recycled Water. https://www.waterboards.ca.gov/water_issues/programs/recycled_water/volumetric_annual_reporting.html

Carpinteria Sanitary District

The Carpinteria Sanitary District is an independent special district that was formed in 1928 to provide wastewater collection, treatment, and disposal services to the residences and businesses of the City of Carpinteria and unincorporated areas of Carpinteria Valley. The Carpinteria Sanitary District's current wastewater collection system consists of approximately 42 miles of sewer pipeline and eight sewage pump stations which convey flow to the WWTP. The WWTP treats approximately 2.5 MGD of wastewater per day on average. In 2024, the Carpinteria Sanitary District WWTP treated a total of approximately 1,334 AF of wastewater. Carpinteria Sanitary District WWTP provides for approximately 7 percent of the District's service area.

Table 6-4 Wastewater Treatment and Discharge within Service Area in 2025[1] (DWR Submittal Table 6-3 Retail)

Wastewater Treatment Plant Name	Discharge Location	Discharge Location Description	Method of Disposal	Does this plant treat wastewater generated outside of service area?	Treatment Level	Wastewater Treated (AF)	Discharged Treated Wastewater (AF)	Recycled within Service Area (AF)	Recycled outside of service area (AF)
Montecito WWTP	Pacific Ocean	Pacific Ocean	Ocean outfall	No	Secondary	517	517	0	0
Summerland WWTP	Pacific Ocean	Pacific Ocean	Ocean outfall	No	Secondary	58	58	0	0
El Estero WWTP	Pacific Ocean	Pacific Ocean	Ocean outfall	Yes	Secondary	6,791	6,791	0	0
El Estero WWTP	Pacific Ocean	Pacific Ocean	Ocean outfall	Yes	Tertiary	898	0	0	898
Carpinteria Sanitary District WWTP	Pacific Ocean	Pacific Ocean	Ocean outfall	Yes	Secondary	1,334	1,334	0	0
Total						**9,598**	**8,700**		**898**

Sources: Volumes for Montecito WWTP and Summerland WWTP provided from communications with MSD and SSD staff. Volumes for El Estero WWTP and Carpinteria Sanitary District WWTP obtained from the SWRCB 2024 Volumetric Annual Report

[1] The 2024 Volumetric Annual Report represents the most recently available data.

6.2.6.3 *Future Recycled Water Use Options*

The Enhanced Recycled Water Feasibility Analysis[41] evaluated five project concepts for the use of recycled water in the Montecito area and concluded indirect potable reuse via groundwater replenishment in Carpinteria Basin as the preferred concept. This would involve Montecito Sanitary District producing purified wastewater and sending to Carpinteria Valley Water District for injection into the Carpinteria Basin, with Carpinteria Valley Water District providing water supply through an exchange agreement supplied through the South Coast Conduit. The Enhanced Recycled Water Feasibility Analysis identifies potential next steps for this project concept, which include developing a memorandum of understanding between the District, Montecito Sanitary District, and Carpinteria Valley Water District, preparing additional groundwater basin modeling, initiating design, and submit for grant funding. An overview of this project is provided in Table 6-5. However, given the financial constraints of this project, the District assumes no recycled water supply would be available for use in this 2025 UWMP.

Table 6-5 Methods to Encourage Future Recycled Water Use (DWR Submittal Table 6-6 Retail)

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (AFY)
Indirect Potable Reuse via Groundwater Replenishment in Carpinteria Basin	Montecito Sanitary District and the District would provide purified wastewater to Carpinteria Valley Water District and receive water via an exchange through the South Coast Conduit.	N/A	560
Total			**560**

6.2.7 Water Transfers and Exchanges

Water transfers and exchanges have historically been important to meeting the District's water demands, and will continue to play a role in the future.

The District's longest running transfer agreement is with the City of Santa Barbara which originated with the transfer of Jameson Lake water rights from the City to the District in the 1920s. In return, the District agreed to transfer 300 AFY to the City in perpetuity.

In addition, the District has a 2024 Water Management Program Agreement in place with Homer, LLC, which allows the District to assess water supplies and transfer surplus SWP water to Homer, LLC through 2029.

Purchases of supplemental water delivered via the SWP are discussed above in Section 6.2.1. While this supply has been important to meet District demands in the past, it is not projected to be a significant source of District supplies in the future.

6.2.8 Supply From Storage

As described in Section 6.2.2.3, groundwater stored in the Semitropic Bank is used as part of a conjunctive use program, in which deposits (recharge) are made during normal and wet years and withdrawals (pumping) are made during dry years when other supplies are less available. In 2020,

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[41] Montecito Sanitary District and Montecito Water District. 2023. Enhanced Recycled Water Feasibility Analysis. https://www.montecitowater.com/doc/8784/

the District had 1,800 AF stored in the Semitropic Bank. Since initiating participation in the Semitropic Bank, the District has yet to recover water for its use. As of 2025, the District has 5,802 AF stored and available for use. While the full 1,500 AF withdrawal limit is available to the District any year, the District will not likely make withdrawals during normal years or single dry years.

6.2.9 Other

The District does not supply water from sources other than those described above.

6.2.10 Future Water Projects

Currently, the District does not anticipate future projects or programs that are expected to have a quantifiable increase in the District's water supply and can reasonably be expected to be implemented within the 20-year planning horizon of the 2025 UWMP.

6.3 Energy Use

An urban supplier must include information on the amount of energy used for various processes of water supply management, including an estimation of energy use for treated water supplies and non-treated water supplies, to the extent that the information is readily available. Energy use is provided herein as Energy Intensity, defined as the total amount of energy expended in kilowatt-hours (kWh) by the urban water supplier on a per AF basis to take water from the location where the urban water supplier acquires the water to its point of delivery.

It is not currently possible to separate out extraction, treatment, storage, and distribution energy uses. System supply is conveyed from a combination of District owned sources (Lake Jameson, Bella Vista and Doulton WTPs, groundwater wells) and SWP and Santa Barbara City and County sources (Lake Cachuma, Cater WTP). Given these complexities, the District uses the Total Utility Approach. This method sums the annual energy consumed for all water management processes, divided by the total volume of water in AF. These processes include diversion, conveyance, placement into storage, treatment, and distribution. The total energy intensity is reported in Table 6-6.

Table 6-6 Energy Intensity – Total Utility Approach[1] (DWR Optional Submittal Table O-1B)

Sum of All Water Management Processes	
Volume of Water Entering Process	**3,955** AF
Energy Consumed	1,776,176 kWh
Energy Intensity	449 kWh/AF

[1] Data is based upon energy and total water production for January 2025 through December 2025.

In January 2025, the District adopted a Climate Action & Adaptation Plan (Appendix F) which provides a comprehensive assessment of the District's current operations and water supplies as it related to climate vulnerabilities and to identify strategies to enhance resiliency. The Climate Action & Adaptation Plan includes measures to increase the District's operational energy efficiency. These include Measure 7, which relates to increasing on-site energy generation and storage where feasible, and Measure 10, which relates to energy conservation in alignment with the District's Environmental Policy. Implementation of measures from the Climate Action & Adaptation Plan would enhance energy efficiency through the planning horizon of the UWMP.

6.4 Normal Year Water Supply

The WSA with the City of Santa Barbara represents a local purchased supply of 1,430 AFY that is expected to yield 1,409 AFY of supply after accounting for line losses (evaporation, conveyance losses, etc.) in all hydrologic conditions. Deliveries of this supply are expected to remain constant throughout the UWMP planning horizon.

The District's full entitlement from Lake Cachuma during years of normal rainfall is 2,651 AFY, which is curtailed on a percentage basis in dry years. The amount of Lake Cachuma water distributed to Cachuma Member Units, such as the District, was modified by the updated Water Rights Order 2019-0148 amending permits 11308 and 11310. This UWMP assumes that the updated Water Rights Order will reduce the water available to the District from this source by 30 percent from its historic average. Accounting for the effects of this reduction, the annual supply available from Lake Cachuma is expected to average 1,855 AFY. In a normal year, not all this available supply may be needed. The District will withdraw only as much surface water from Lake Cachuma as needed to meet normal year demands.

Jameson Lake is operated according to a rule curve that has recently been updated to preserve water supplies from this source for use in the later years of a multi-year drought, which has had the effect of reducing the supply available from this source during normal years. Jameson Lake was also affected by siltation and runoff from the Thomas Fire, which reduced the capacity of this reservoir from 5,144 AF before the fire to 4,587 AF during the most recent bathymetric survey in 2024. Future siltation is expected to continue to reduce the capacity of Jameson Lake at an approximate rate of 25 AFY, which will reduce the reservoir's capacity to 4,072 AF by 2045. Projections for the availability of future supplies from Jameson Lake were prepared using the modified rule curve and assume a constant lake capacity of 3,518 AF. Under these conditions, the available supply yield is based on the District's maximum allocation of 2,000 AFY, set forth as a result of the ruling in Gin Chow v. City of Santa Barbara. This value is the assumed normal year availability for projecting future supplies.

Groundwater infiltration into Doulton Tunnel is a reliable local supply that has averaged 424 AFY over the historical record. This historical average is assumed to be available in future normal years.

Groundwater wells provide both potable and non-potable water to the District and are an important source of supply during drought conditions. Under a strategy of conjunctive use, the District plans to rely on groundwater less during average or above average hydrologic conditions. The projected normal year supply of 300 AFY is based on the *Future Demand and Water Supply Options Update 2025* (Appendix D).

The SWP supply projections are based on 75 percent level of concern projections identified in DWR's 2023 SWP Delivery Capability Report to project long-term annual average deliveries of the District's SWP Table A amount. The 2023 Delivery Capability Report projects that the percent allocation will drop from its current average in 2021 of 53 percent to 44 percent by 2043. With regards to the District's Table A amount (3,300 AFY), this would be a reduction in SWP deliveries from 1,628 AF in year 2030 to 1,452 AF in year 2050.

Supply from storage of banked groundwater is available to the District through its participation in the Semitropic Bank. The District can bank excess supplies during normal and wet years and recover those supplies at a later time, subject to a withdrawal limit of 1,500 AFY. Banked supplies will play an important role in helping the District achieve its goals of reliable, drought-proof supplies. While the maximum withdrawal of 1,500 AF is expected to be available to the District during normal hydrological conditions, in practice, the District does not plan to produce water from this source during normal years. Use of banked supplies is further limited by the South Coast Conduit capacity. The South Coast Conduit can convey a maximum of 2,916 AFY if Lake Cachuma is below the storage threshold of 25,340 AF. At that point, the combined Cachuma, SWP, and Semitropic supplies are limited by the conveyance cap.

Supplemental water purchases, which have historically been important to meeting District demands during multi-year droughts, are not projected to be a major source of District supplies in the future. The District anticipates 0 AFY of supplemental water purchases in normal years.

The District's 2025 water supply portfolio is summarized in Table 6-7. A summary of the District's projected water supplies under normal year conditions is provided in Table 6-8.

Table 6-7 Water Supplies – 2025 Actual (DWR Submittal Table 6-8 Retail)

		2025		
Water Supply	**Additional Description**	**Water Type**	**Actual Volume**	**Total Entitlement**
Desalinated Water	WSA with the City of Santa Barbara	Potable	1,380	1,430
Imported Water	SWP/CCWA – State Surface Water	Potable	0	3,300
Purchased Water	Supplemental Water Purchases	Potable	0	--
Groundwater	Montecito Groundwater Basin	Potable	248	--
Groundwater	Doulton Tunnel Groundwater Infiltration	Potable	311	--
Surface Water	Jameson Lake	Potable	839	2,000
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	Potable	1,177	2,651
Supply from Storage	Semitropic Groundwater Bank	Potable	0	1,500
Total			**3,955**	**--**

Table 6-8 Water Supplies (Normal Year) – Projected (DWR Submittal Table 6-9 Retail)

		2030	2035	2040	2045	2050
Water Supply	**Additional Description**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**
Desalinated Water	WSA with the City of Santa Barbara[1]	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water[2]	1,628	1,560	1,493	1,452	1,452
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin[3]	300	300	300	300	300
Groundwater	Doulton Tunnel Groundwater Infiltration[4]	424	424	424	424	424
Surface Water	Jameson Lake[5]	2,000	2,000	2,000	2,000	2,000
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water[6]	1,855	1,855	1,855	1,855	1,855
Supply from Storage	Semitropic Groundwater Bank[7]	0	0	0	0	0
Total		**7,616**	**7,548**	**7,481**	**7,440**	**7,440**
Demand		**4,472**	**4,577**	**4,684**	**4,795**	**4,908**
Surplus/(Shortage)		**3,144**	**2,971**	**2,796**	**2,645**	**2,532**

Notes:

In a normal year, the District does not anticipate needing SWP supplies to fulfill demands. Lake Cachuma water supply fluctuation reflects supplies needed to meet normal year demands.

[1] Water Supply Agreement is for 1,430 AFY; estimated supply reflects line loss during conveyance.

[2] SWP allocation is for 3,300 AFY; normal year deliveries based on 2023 SWP Delivery Capability Report 75% LOC (assumes deliveries decrease from 53% in 2023 to 44% in 2043) minus reduction due to SCC capacity constraints (assumes Cachuma supply is priority in conveyance. SWP is assumed not needed in Normal years and results in Surplus.

[3] Normal year supply based on *Future Demand and Water Supply Options Update 2025* (Appendix D).

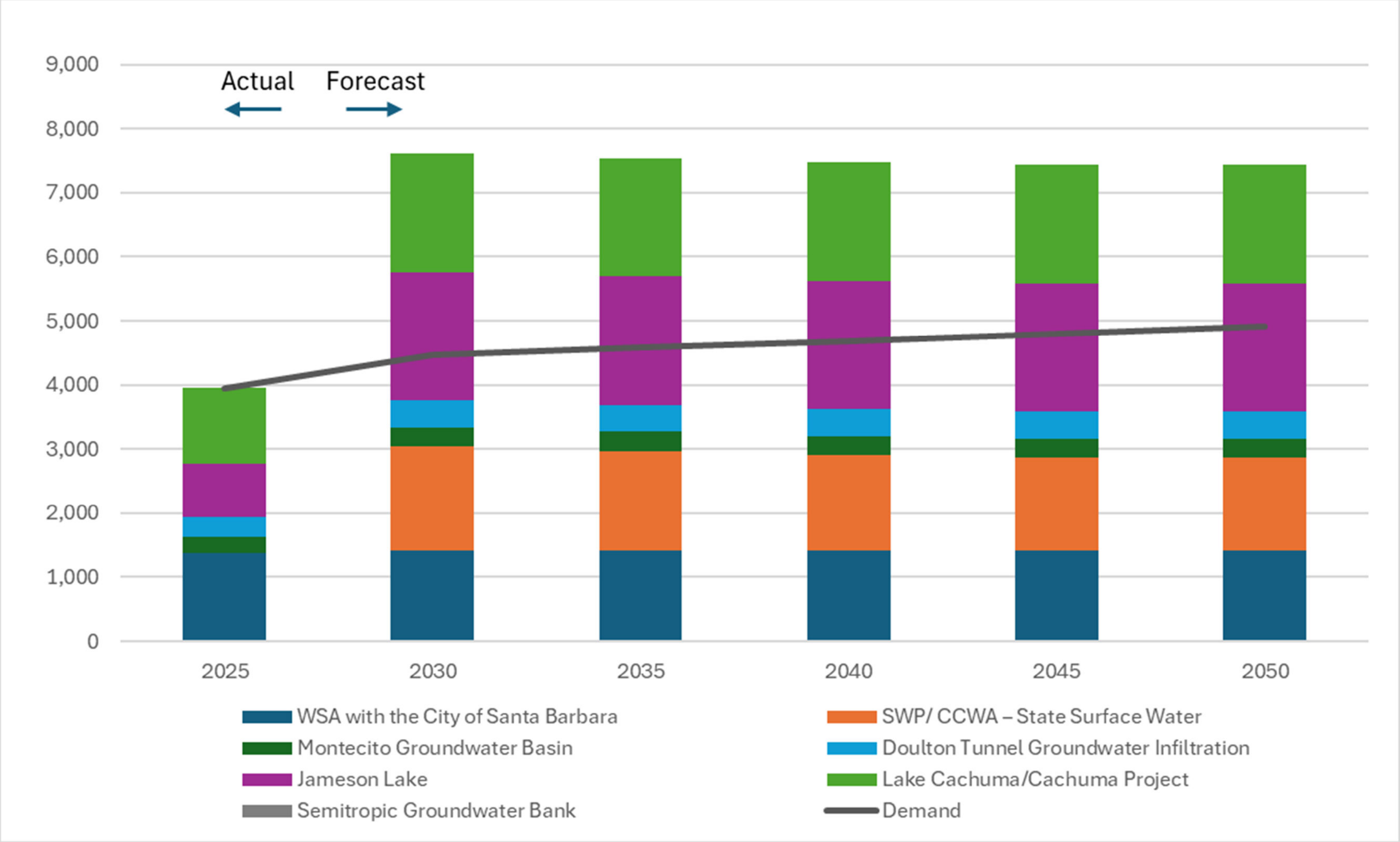
[4] Groundwater infiltration into Doulton Tunnel assumes average yield over historical record 1942-2024 (424 AFY).

[5] Total available supply in the Jameson Lake is based on the 2,000 AFY maximum allocation based on the ruling in Gin Chow v. City of Santa Barbara. Total deliveries based on the Jameson Lake 7-yr modified rule curve and average yield over historical record 1942-2024 is 1,138 AFY.

[6] Cachuma water right is for 2,651 AFY; estimated supply cap of 1,855 AFY reflects estimated 30% reduction per the Future Demand and Water Supply Options Update 2025 (Appendix D). The 1,855 AFY does not account for carryover water from Lake Cachuma. The District will withdraw only as much surface water from Lake Cachuma as needed to meet normal year demands.

[7] Semitropic maximum contractual storage capacity is for 4,500 AFY; maximum annual recovery is 1,500 AFY; assumed not needed in normal water years.

Figure 6-2 Available Water Supplies (Normal Year)



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7 Water Service Reliability and Drought Risk Assessment

This section describes the District's water service reliability to meet demands under various conditions, including normal year, single dry year, and multiple dry year scenarios. The District's assessment of water service reliability is used to direct management actions, provide insight on funding allocations, and allows for project prioritization aimed at increasing service reliability under all scenarios. The UWMP Act also requires a Drought Risk Assessment, which evaluates the reliability of the system assuming the next five consecutive years are dry. Because of the District's diversified water supply sources and recently improved access to local drought-proof supplies, combined with effective demand management as necessary, the District's supplies are found to be reliable through all scenarios examined in this 2025 UWMP.

Constraints on water sources considerations are described in Section 7.1. During one or more dry years, the total water available to the District is constrained. Important examples of supply constraints include reduced inflow to surface reservoirs such as Jameson Lake and Lake Cachuma and limitations due to water rights and contracts such as the Jameson Lake rule curve or Semitropic Groundwater Bank extraction limits, reduced groundwater infiltration into Doulton Tunnel, and reduced deliveries from the SWP/CCWA. In addition to an overall reduction in surface water supplies during multiple dry year conditions, the water quality of the region's open-air reservoirs can also be adversely affected during these extended periods of drought. Each of these sources, to varying degrees, is also vulnerable to natural disasters like earthquakes and wildfires. To compensate, the District will typically pump more local groundwater and withdraw water from long-term storage (groundwater banks and carryover) during dry years.

District demands are also affected by single and multiple dry year conditions, as discussed in Section 7.2. This analysis assumes that unconstrained demands increase by nine percent from normal conditions during the first dry year, and two percent for each subsequent dry year. As necessary, the District can reduce demands by implementing the DMMs as outlined in the WSCP presented in Appendix G.

7.1 Water Service Reliability Assessment

In addition to evaluating the District's preparedness for a severe drought in the near future through the Drought Risk Assessment (Section 7.2), the District is required to assess three scenarios when considering the reliability of a supply source, including the normal year, single dry year, and multiple dry year scenarios. These assessments must be completed at 5-year intervals over the 20- to 25-year planning period.

Each water source among the District's portfolio of current and planned future sources was evaluated for this analysis. Deliveries from these sources, to the extent possible, were compared to their historic record of performance during droughts in 1945-1951, 1983-1990, and 2012-2016. Where appropriate, the District engages in additional ongoing evaluations of supply sources such as periodic siltation surveys of surface reservoirs and participation in local groundwater monitoring through the Montecito Basin GSA. The reliability of each source during a severe multi-year drought beginning in 2030 is briefly discussed below.

City of Santa Barbara Water Supply Agreement

The completion and adoption of the WSA with the City of Santa Barbara in 2020 for 1,430 AFY of desalinated water from the City's Charles E. Meyer Desalination Facility secures a reliable purchased supply for the District in all year types, independent of rainfall. This assessment assumes a constant supply of 1,409 AFY in all years throughout the planning period, which accounts for water lost during conveyance.

Lake Cachuma (Cachuma Project)

The District's available supply from Lake Cachuma during years of normal rainfall is 2,651 AFY. However, over the last 10 years, the allocation has averaged only 72 percent of total, and dropped as low as 0 percent in 2016, the fifth year of a multi-year drought. Due to the regional dependence on this source, it is estimated that allocations during a multiple dry year scenario would be reduced when recharge conditions of the lake are at a minimum. The available capacity forecast for Lake Cachuma during a single-dry year assumes that the total 1,855 AF would be available pursuant to the Future Demand and Water Supply Options Update 2025 (Appendix D). During multiple dry years, the District relies more heavily on Lake Cachuma supplies as other supply sources are reduced. Based on the District's history of relying on Lake Cachuma supplies and carryover water to supplement demands during multiple dry years, the availability of Lake Cachuma supplies are projected to be maintained at 1,855 AF through Year 3 of a multi-year drought. During Year 4 and Year 5, the Lake Cachuma supply is anticipated to be 1,699 AF, consistent with the District's average Lake Cachuma deliveries during historical multi-year drought periods. During years when Lake Cachuma has a capacity of at least 25,340 AF, the elevation of the lake is high enough such that the water from Lake Cachuma is able to move to the South Coast Conduit via gravity at a rate of approximately 389 AF per month. However, in drought years, emergency pumps are required to pump water from Lake Cachuma to the South Coast Conduit, which results in a slower transfer rate of approximately 243 AF per month. The Years 3-5 forecast assumes that this constraint lowers the amount of water supply able to be conveyed to the District.

Jameson Lake

The District relies upon the operational rule curve published in the Water Supply Options 2020 Update and utilized in the Future Demand and Water Supply Options Update 2025 (Appendix D) to determine the annual diversion from Jameson Lake. During the 2012-2016 drought, the previous rule curve was found to drain Jameson too quickly in the early years of a multi-year drought, which resulted in insufficient water in storage for subsequent dry years. The Jameson Rule Curve was updated in May 2020 as part of the *Future Water Demand and Water Supply Options 2020 Update*, so that it now provides a 7-year water supply. The rule curve has also been updated to reflect ongoing siltation at the reservoir, including major sediment inputs which resulted from the Thomas Fire. Total reservoir storage in Jameson Lake is estimated to have dropped to 4,587 AF due to rapid siltation in the years following the 2017 Thomas Fire. Continued siltation at a rate of 25 AFY is expected. The projections for the single dry year supplies assume that the total available allocation of 2,000 AF, pursuant to the Gin Chow v. City of Santa Barbara ruling, would be available for the District to utilize. During the multiple dry year condition, diversions are projected to be reduced from the single dry year supply in accordance with the rule curve to reserve this water supply when recharge is at a minimum.

Doulton Tunnel Infiltration

The projections for the single dry year supplies are based on the average of supplies of all dry years from 2001-2024. For multiple dry year projections, it is estimated that this rainfall-dependent source will see a reduction in supply of 5 percent year over year from the single dry year amount, based on average historical losses during multiple drought years.

Groundwater Wells

The District reduces production from Montecito Basin during normal and wet hydrologic periods to allow the basin to recharge, which then allows for increased production during times of drought when other District sources are diminished. Although the long-term average (1942 to 2024) of the District well production was approximately 381 AFY, groundwater wells play an important role in supplementing District supplies during dry periods. For example, District well production reached an all-time high of 637 AF in 2015, the fourth year of a multi-year drought. This strategy is expected to continue, even as SGMA is implemented in the Montecito Basin. The projections for the single dry year and multiple dry year supplies are assumed to be 600 AFY which represents the approximate historic maximum AFY drawn from the Montecito Basin during drought.

State Water Project/CCWA

The District's full allocation of SWP water is 3,300 AFY. The District's water supply projections for this source are based on the average historical reduction in allocation delivered in single dry years from 2001 – 2025, which averaged an 8 percent reduction from normal year allocations. In a single dry year, no SWP supply is anticipated to be needed to meet demand. Given the variability of cost to deliver SWP water to Lake Cachuma, in addition to pumping constraints at Lake Cachuma described in Section 6.4 above, in drought years the District is only using enough SWP water necessary to satisfy demand. In addition, surplus SWP water is stored in the Semitropic Groundwater Bank or sold pursuant to the 2024 Water Management Program agreement with Homer LLC.

Supplemental Water Purchases

Supplemental supplies are not part of the District's plan to develop local, reliable supplies going forward. Supplemental water purchases are limited by the delivery infrastructure of the SWP and potential losses/spills associated with San Luis Reservoir and Lake Cachuma. While the District has used supplemental water purchases in the past to cover shortages, it is expected that the local, reliable supplies as discussed in Chapter 6 will reduce the need for supplemental supplies in the future. Supplemental water purchases are assumed to be zero.

Stormwater

Supply from this source is not projected to provide a quantifiable supply to the District over the planning period.

Recycled Water

The District does not currently use any recycled water as a source of supply. Recycled water was previously considered in the District's 2020 UWMP as a potential option for future water supplies, but as described in Section 6.2.6.1, recycled water projects are not considered as long-term options for water supply due to cost constraints.

Supply from Semitropic Bank

The District's portion of the Semitropic Bank is 4,500 AFY, with an annual withdrawal limit of 1,500 AF. The District's 2025 balance of stored and available water in the Semitropic Bank is 5,802 AF. This source of reliable water will be a primary water supply for the District as the multiple dry year period progresses. The single and multiple dry year scenarios assumes that the District will make withdrawals necessary to meet demands. However, supply from the Semitropic Bank is constrained by conveyance through the Cachuma Project when lake levels are low and the emergency pumping barge is in use. This assessment assumed Semitropic Bank water may not be able to be pumped from Lake Cachuma in Year 5 of a drought when Lake Cachuma drops below 25,340 AF storage and the South Coast Conduit limits total cumulative water conveyance.

The following sections present the District's projected available supplies under future normal conditions, a single dry year, and multiple dry years respectively.

7.1.1 Normal Year

Table 7-1 shows anticipated normal year supply and demand totals in five-year increments through 2050. Section 6.4 above contains a detailed list of the individual supply sources that comprise the District's supply portfolio in normal year conditions. The District has supplies that are more than sufficient to meet demands during normal years.

Table 7-1 Projected Normal Year Reliability (DWR Submittal Table 7-2 Retail)

	2030	2035	2040	2045	2050
Supply totals	**7,616**	**7,548**	**7,481**	**7,440**	**7,440**
Use totals	**4,472**	**4,577**	**4,684**	**4,795**	**4,908**
Surplus/(shortfall)	**3,144**	**2,971**	**2,796**	**2,645**	**2,532**

Notes: For a summary of water supply by source for normal year conditions, refer to Table 6-8. Lake Cachuma carryover supplies are not included in supply totals as such carryover supplies are variable; however, Lake Cachuma carryover supplies contribute to additional surplus not captured herein.

7.1.2 Single-Dry Year

Table 7-2 presents the anticipated supply and demand totals in five-year increments through 2050 for a single dry year. For all the years simulated, the District has adequate supplies to meet unconstrained demands without implementing its WSCP. Newly developed sources of supply, especially the Santa Barbara WSA and Semitropic Bank storage, are critical to providing the District with reliable supplies during critically dry years. Based on the analysis presented below, the District is well prepared for a severe drought lasting one year.

Table 7-2 Projected Single Dry Year Reliability (DWR Submittal Table 7-3 Retail)

	2030	2035	2040	2045	2050
Supply totals	7,590	7,528	7,466	7,429	7,429
Use totals	4,874	4,989	5,106	5,226	5,349
Surplus/(shortfall)	2,715	2,538	2,360	2,203	2,079

Table 7-3 Detailed Water Supplies (Single Dry Year) – Projected

		2030	2035	2040	2045	2050
Water Supply	Additional Description	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Desalinated Water	WSA with the City of Santa Barbara[1]	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water[2]	1,492	1,430	1,368	1,331	1,331
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin[3]	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration[4]	234	234	234	234	234
Surface Water	Jameson Lake[5]	2,000	2,000	2,000	2,000	2,000
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water[6]	1,855	1,855	1,855	1,855	1,855
Supply from Storage	Semitropic Groundwater Bank[8]	0	0	0	0	0
Total		**7,590**	**7,528**	**7,466**	**7,429**	**7,429**
Demand		**4,874**	**4,989**	**5,106**	**5,226**	**5,349**
Surplus/(Shortage)		**2,715**	**2,538**	**2,360**	**2,203**	**2,079**

Notes:

In a single dry year, the District does not anticipate needing SWP supplies to fulfill demands. Lake Cachuma water supply fluctuation reflects supplies needed to meet single dry year demands.

[1] Water Supply Agreement is for 1,430 AFY; estimated supply reflects line loss during conveyance.

[2] SWP allocation is for 3,300 AFY; single dry year deliveries based on average allocation delivered in single dry years from 2001 – 2025 (48.6%), adjusted for LOC 75% decline, minus reduction due to SCC capacity constraints (assumes Cachuma supply is priority in conveyance. SWP is assumed not needed in single dry years and results in Surplus.

[3] Dry year supply based on the District’s modeled maximum average production of groundwater (600 AFY).

[4] Groundwater infiltration into Doulton Tunnel assumes average yield over recent dry years 2001-2024 (234 AFY).

[5] Total available supply in the Jameson Lake is based on the 2,000 AFY maximum allocation based on the ruling in Gin Chow v. City of Santa Barbara.. Deliveries based on the 7-yr modified rule curve and average yield over recent dry years 2001-2024 is 1,373 AFY.

[6] Cachuma water right is for 2,651 AFY; estimated supply cap of 1,855 AFY reflects estimated 30% reduction per the Future Demand and Water Supply Options Update 2025 (Appendix D). The 1,855 AFY does not account for carryover water from Lake Cachuma. The District will withdraw only as much surface water from Lake Cachuma as needed to meet single-dry year demands.

[7] Semitropic maximum contractual storage capacity is for 4,500 AFY; maximum annual recovery is 1,500 AFY; assumed not needed in normal water years.

7.1.3 Multiple Dry Years

Table 7-4 presents the multiple dry year supply and demand totals in five-year increments through 2050. Under multiple dry year conditions, the District will rely on desalination pursuant to the WSA with City of Santa Barbara, and regional surface water (Cachuma Project and Jameson Lake) until those supplies diminish and then, as needed, introduce groundwater, SWP and banked supplies to meet demands.

Lake Cachuma supplies are assumed to be more heavily relied on as Jameson/Doulton supplies decline. The typical decline in base supplies after Year 2 resulting from lower rainfall volumes is balanced with use of carryover storage in Lake Cachuma. The maximum supply from Lake Cachuma in Years 4-5 (1,699 AFY) is based on the average drought deliveries 1984-1990, 2012-2016, and 2021-2022.

Given the constraints related to South Coast Conduit pumping capacity, however, supplies are not always considered sufficient to meet unconstrained demands during multi-year droughts. Shortfalls are projected to occur in Year 3 which the assumed year that Lake Cachuma drops below 25,340 AF storage and results in South Coast Conduit capacity constraints. Shortages would be addressed by invoking WSCP conservation measures, as needed.

The SWP allocations in multiple dry years have shown to decline from the single dry year average (48.6 percent) to a low of 5 percent in the fifth year of drought. The multiple dry year forecast below assumes a linear decline in SWP deliveries from Year 1 (48.6 percent) to Year 5 (5 percent).

The District’s diversified supply portfolio is important for assuring supply reliability, especially during the simulated droughts. Even with multiple sources of supply, the District’s conservation programs will remain in effect along with the potential for WSCP implementation if needed during the later years of severe multi-year droughts.

Table 7-4 Projected Multiple Dry Year Reliability (DWR Submittal Table 7-4 Retail)

		2030	2035	2040	2045	2050
First year	Supply totals	7,590	7,528	7,466	7,429	7,429
	Use totals	4,874	4,989	5,106	5,226	5,349
	Surplus/(shortfall)	**2,715**	**2,538**	**2,360**	**2,203**	**2,079**
Second year	Supply totals	5,930	5,930	5,930	5,930	5,930
	Use totals	4,972	5,089	5,208	5,331	5,456
	Surplus/(shortfall)	**958**	**840**	**722**	**599**	**474**
Third year	Supply totals	5,508	5,508	5,508	5,508	5,565
	Use totals	5,071	5,191	5,312	5,437	5,565
	Surplus/(shortfall)	**437**	**317**	**196**	**71**	**0**
Fourth year	Supply totals	5,173	5,295	5,418	5,546	5,677
	Use totals	5,173	5,295	5,418	5,546	5,677
	Surplus/(shortfall)	**0**	**0**	**0**	**0**	**0**
Fifth year	Supply totals	5,276	5,401	5,466	5,466	5,466
	Use totals	5,276	5,401	5,527	5,657	5,790
	Surplus/(shortfall)	**0**	**0**	**-61**	**-191**	**-325**

Table 7-5 Detailed Water Supply (Multiple Dry Years – Year 1) – Projected

Water Supply	Additional Description	2030 Reasonably Available Volume	2035 Reasonably Available Volume	2040 Reasonably Available Volume	2045 Reasonably Available Volume	2050 Reasonably Available Volume
Year 1						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	1,492	1,430	1,368	1,331	1,331
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	234	234	234	234	234
Surface Water	Jameson Lake	2,000	2,000	2,000	2,000	2,000
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,855	1,855	1,855	1,855	1,855
Supply from Storage	Semitropic Groundwater Bank	0	0	0	0	0
Total		**7,590**	**7,528**	**7,466**	**7,429**	**7,429**
Demand		**4,874**	**4,989**	**5,106**	**5,226**	**5,349**
Surplus/Shortage		**2,715**	**2,538**	**2,360**	**2,203**	**2,079**

Table 7-6 Detailed Water Supply (Multiple Dry Years – Year 2) – Projected

		2030	2035	2040	2045	2050
Water Supply	**Additional Description**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**
Year 2						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	1,243	1,243	1,243	1,243	1,243
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	222	222	222	222	222
Surface Water	Jameson Lake	600	600	600	600	600
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,855	1,855	1,855	1,855	1,855
Supply from Storage	Semitropic Groundwater Bank	0	0	0	0	0
Total		**5,930**	**5,930**	**5,930**	**5,930**	**5,930**
Demand		**4,972**	**5,089**	**5,208**	**5,331**	**5,456**
Surplus/Shortage		**958**	**840**	**722**	**599**	**474**

Table 7-7 Detailed Water Supply (Multiple Dry Years – Year 3) – Projected

		2030	2035	2040	2045	2050
Water Supply	Additional Description	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Year 3						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	933	933	933	933	933
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	211	211	211	211	211
Surface Water	Jameson Lake	500	500	500	500	500
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,855	1,855	1,855	1,855	1,855
Supply from Storage	Semitropic Groundwater Bank	0	0	0	0	58
Total		**5,508**	**5,508**	**5,508**	**5,508**	**5,565**
Demand		**5,071**	**5,191**	**5,312**	**5,437**	**5,565**
Surplus/Shortage		**437**	**317**	**196**	**71**	**0**

Table 7-8 Detailed Water Supply (Multiple Dry Years – Year 4) – Projected

		2030	2035	2040	2045	2050
Water Supply	**Additional Description**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**
Year 4						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	699	699	699	699	699
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	201	201	201	201	201
Surface Water	Jameson Lake	400	400	400	400	400
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,699	1,699	1,699	1,699	1,699
Supply from Storage	Semitropic Groundwater Bank	165	287	410	538	669
Total		**5,173**	**5,295**	**5,418**	**5,546**	**5,677**
Demand		**5,173**	**5,295**	**5,418**	**5,546**	**5,677**
Surplus/Shortage		**0**	**0**	**0**	**0**	**0**

Table 7-9 Detailed Water Supply (Multiple Dry Years – Year 5) – Projected

		2030	2035	2040	2045	2050
Water Supply	**Additional Description**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**
Year 5						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	165	165	165	165	165
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	191	191	191	191	191
Surface Water	Jameson Lake	350	350	350	350	350
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,699	1,699	1,699	1,699	1,699
Supply from Storage	Semitropic Groundwater Bank	862	987	1,052	1,052	1,052
Total		**5,276**	**5,401**	**5,466**	**5,466**	**5,466**
Demand		**5,276**	**5,401**	**5,527**	**5,657**	**5,790**
Surplus/Shortage		**0**	**0**	**-61**	**-191**	**-325**

7.2 Drought Risk Assessment

This subsection provides the detailed approach for conducting the District's Drought Risk Assessment, including the data and methods used.

7.2.1 Data, Methods, and Basis for Water Shortage Condition

District demands included in the Drought Risk Assessment include anticipated deliveries for treated water to customers and system losses. The projected demands considered climate characteristics, current land uses, and population and growth trends within the service area. Data comes directly from Section 4, with future projections supported by the District's Future Demand and Water Supply Options Update 2025 (Appendix D).

Demand increases are assumed to result from hotter and drier conditions, with values based on historical demand response by District customers between the drought periods of 1945-1951, 1984-1990, and 2012-2016.

If reductions in demand are needed due to an unanticipated supply constraint, the District's WSCP shall be implemented (Appendix G). If results of administering shortage response actions for the initial Stage Declaration indicate adequate supplies to meet expected demands, the Stage Declaration is proclaimed. Conversely, if results of administering shortage response actions for the initial Stage Declaration indicate inadequate supplies to meet expected demands, the Stage Declaration is increased, and the resulting shortage response actions are analyzed. This process is repeated until an appropriate Stage Declaration (and subsequent shortage response actions) results in expected supplies able to meet expected demands.

7.2.2 DRA Water Source Reliability

The assumptions used to analyze long-term service reliability from each supply source were the same as described in Section 7.2, except as specifically noted here.

7.2.3 Total Water Supply and Use Comparison

Table 7-10 below, shows the District's supplies and demands over the next five years assuming the next five years are as dry as the 2012-2016 drought. In the later years of the drought, the supply available from the SWP/CCWA and Jameson Lake decline significantly. The District instead relies on Lake Cachuma carryover water, groundwater production, Santa Barbara WSA deliveries, and withdrawals from Semitropic Bank. The District anticipates only withdrawing modest amounts from Semitropic Bank in the later years of multi-year droughts.

The results presented in Table 7-10 indicate that the District does not have sufficient supplies to meet unconstrained demands in the later years of a multi-dry year scenarios without implementing WSCP actions.

Table 7-10 Five-Year Drought Reliability Assessment (DWR Submittal Table 7-5 Retail)

		2026	2027	2028	2029	2030
Water Supply	**Additional Description**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**	**Reasonably Available Volume**
Year 5						
Desalinated Water	WSA with the City of Santa Barbara	1,409	1,409	1,409	1,409	1,409
Imported Water	SWP/ CCWA – State Surface Water	1,492	1,243	933	699	165
Purchased Water	Supplemental Water Purchases	0	0	0	0	0
Groundwater	Montecito Groundwater Basin	600	600	600	600	600
Groundwater	Doulton Tunnel Groundwater Infiltration	234	222	211	201	191
Surface Water	Jameson Lake	2,000	600	500	500	350
Surface Water	Lake Cachuma/Cachuma Project – Regional Surface Water	1,855	1,855	1,855	1,699	1,699
Supply from Storage	Semitropic Groundwater Bank	0	0	0	165	489
Total		**7,590**	**5,930**	**5,508**	**5,173**	**4,903**
Demand		**4,785**	**4,880**	**4,978**	**5,078**	**5,179**
Surplus/Shortage		**2,805**	**1,050**	**530**	**95**	**-276**

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8 Water Shortage Contingency Plan

This chapter provides a summary of information from the District's Water Shortage Contingency Plan (WSCP) to demonstrate compliance with DWR requirements. The District's WSCP is a standalone document included as Appendix G.

The WSCP describes how the District intends to predict and respond to potential water shortages, which occur when available water supplies are reduced to a level that cannot support projected demands. The WSCP serves as a planning document to guide the District by identifying response actions for efficient and accountable management of water shortages with predictability and transparency. While the WSCP does not provide absolute direction, it offers a range of response options to address varying water shortage conditions.

Water shortages may be triggered by hydrologic limitations such as prolonged periods of below-normal precipitation, failures or limitations in conveyance or treatment infrastructure, or a combination of both. Hydrologic or drought-related shortages typically develop and subside gradually, whereas infrastructure-related shortages tend to occur more suddenly and unpredictably. Water supplies may be interrupted or substantially reduced due to events such as drought, earthquakes that damage delivery or storage facilities, regional power outages, or toxic spills that affect water quality.

8.1 Water Supply Reliability Assessment

In Chapter 7 of its 2025 UWMP, the District evaluates its ability to meet water demands under normal, single dry, and multiple dry year conditions, as well as through a formal Drought Risk Assessment. Thanks to a diversified supply portfolio—including desalinated water, groundwater, surface reservoirs, and banked storage—the District water service is reliable in all scenarios except the fifth year of a multiyear drought, where small shortages occur.

Demand is assumed to rise during hotter and drier conditions associated with drought. The District faces several supply vulnerabilities during drought, including:

- Reduced surface water inflows to **Jameson Lake** and the **Cachuma Project**
- Reduced **Doulton Tunnel** infiltration
- Declining **Groundwater** levels
- Reduced **SWP** allocations
- Water quality degradation in surface water reservoirs
- Natural disaster risks (earthquakes, wildfires)

To compensate for reductions in regional supply sources, the District can increase imported deliveries such as SWP water, banked water or supplemental water purchases, and local groundwater pumping.

In normal hydrologic years, the District has more than sufficient supplies to meet demands without implementing DMMs through 2050. The District also has sufficient supplies to satisfy demands in all single dry year scenarios analyzed, which means the District is well prepared to weather short droughts without needing to reduce customer demands. In these scenarios, supplies will comfortably exceed demand and result in a surplus without requiring additional DMMs. During years 1-4 of the multiple dry year scenario, water supplies are anticipated to be sufficient to meet project demands. However, in the fifth year, a minor shortage is projected to occur due to conveyance constraints that limit the delivery of both Cachuma Project and imported supplies. The District's implementation of Stage 1 of the WSCP is likely sufficient to manage demand and fully mitigate the water shortage. This same pattern is observed in the Drought Risk Assessment for years 2026-2030 that is modeled after local demand and supply response in the 2012-2016 and 2021-2022 droughts.

8.2 Annual Water Supply and Demand Assessment

As required by the CWC §10632(a), the District conducts an Annual Water Supply and Demand Assessment (AWSDA) to help inform water resources management decisions for the coming year. The AWSDA methodology is described in the District's WSCP.

The District's 2025 AWSDA[42] concluded the District's current water supply outlook, which assumes dry weather conditions return next winter and customer demand remains at planned levels, projects sufficient water supply to meet demands over the next 3 years without water shortages or the need to acquire supplemental water supplies.

8.3 Six Standard Water Shortage Levels

Pursuant to CWC §10632(a)(2), the District adopted the State's six standard water shortage levels representing 10 percent, 20 percent, 30 percent, 40 percent, 50 percent, and >50 percent supply shortages. These standardized stages, developed by DWR, provide a consistent statewide method for identifying and communicating shortage conditions.

The District's WSCP outlines response actions for each stage, including associated demand reduction or supply augmentation estimates, as required by CWC §10632(a)(3). If the AWSDA shows a water shortage, the AWSDA is presented to the District's Board of Directors for discussion and questions. Staff will modify/update the assessment per direction from the Board. The Board can also provide direction to implement specific management strategies at that time.

8.4 Shortage Response Actions

The District's WSCP establishes a comprehensive set of actions to address water shortages, organized into key categories to ensure flexibility and effectiveness.

8.4.1 Demand Reduction

The District promotes efficient water use at all times through permanent conservation measures outlined in its 2022 Water Use Efficiency Plan and 2024 Ordinance No. 99. These ongoing efforts, supported by education and outreach, form the foundation for managing demand during both normal and shortage conditions. The DMMs outlined in Ordinance 99 include the following described in Table 8-1.

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[42] Montecito Water District. Annual Water Supply and Demand Assessment July 1, 2025 through June 30, 2026. https://wuedata.water.ca.gov/public/wsda_attachments/2218488395/AWSDA%20MWD%202025.pdf

Table 8-1 Ordinance 99 Demand Management Measures

Ordinance 99 Demand Management Measure 5.0	
Water Use Efficiencies and Best Practices	
A	Use District-provided smart water meters and the customer interface, WaterSmart to monitor real-time water use and to identify potential leaks.
B	Redesign landscape to replace some or all vegetation with drought-tolerant or native plants.
C	Water lawns and outdoor areas only when needed. Most landscapes do not need to be watered daily and excess watering not only wastes water but can cause harm to the landscape.
D	Improve irrigation management with the installation of a soil moisture sensor for measuring soil moisture and determining when irrigation is needed.
E	Replace or upgrade old irrigation systems with state-of-the-art efficient drip or spray systems.
F	Place 3" to 4" of mulch around trees and plants to retain moisture in the soil.
G	Set lawn mower blades at 3" to 4" to keep lawn longer and retain moisture in the soil.
H	Install water harvesting and diversion features, such as rain gutters, rain barrels, in-ground storage, and rain gardens to capture runoff from roofs and pavement for use on the property and/or groundwater recharge.
I	Install or replace plumbing fixtures with water-conserving plumbing fixtures such as high-efficiency toilets, showerheads, and faucets
J	Reduce the length of showers or the amount of water used for baths.
K	Turn off the water while brushing your teeth or shaving.
L	Install high efficiency appliances including washing machines and dishwashers.
M	Only wash laundry and dishes with full loads.
N	If on a septic system, install a "laundry-to-landscape" graywater system
O	For pre-cleaning dishes, use a filled sink instead of running water.
P	Consider installing an instant water heater on sinks that are located far from the main water heater and/or hot water recirculating system.
Q	Wash vehicles using a waterless car wash product. A waterless car wash is an eco-friendly and efficient car wash that uses little or no water. Alternatively use a commercial car washing facility.
R	Report broken, poorly timed or misaligned sprinklers around the community.
S	After a power outage, irrigation timers often reset to default. Check irrigation timers often.
T	Replace batteries in irrigation timers annually.
U	Cover swimming pools, spas, and hot tubs to reduce water loss due to evaporation.
V	Hotels, motels, etc., offer an option of not laundering towels and linens daily and displaying a notice of this option.
W	Implement additional, available property specific efficiencies as appropriate.
Prohibition Against Waste of Water	
A	Washing of hard surfaces such as driveways, sidewalks, patios and parking lots except where necessary to protect health and safety. Pressure washing for maintenance or repair is not considered water
B	Applying water to landscaping during, and within 48 hours after measurable rainfall of at least one-quarter inch of rain.
C	Applying water to outdoor landscaping in a manner that causes significant runoff such that water flows onto an adjacent property, non-irrigated areas, private and public walkways, parking lots or structures.
D	Washing a vehicle without the use of a bucket and/or hose equipped with a hand-operated shut off nozzle.
E	Using potable water in ornamental fountains or other decorative water features that do not use a water recirculating system.

Ordinance 99 Demand Management Measure 5.0	
F	Irrigating turf on public street medians or publicly owned or maintained landscaped areas between the street and sidewalk where the turf does not serve a community or neighborhood function such as for picnicking, sports, pet walking, etc.
G	Irrigating outdoor landscaping during the warmest part of the day when evaporation is the greatest. Irrigation is most efficient between evening and mid-morning, such as between the hours of 6 p.m. and 10 a.m.
H	Draining and refilling a swimming pool, spa or hot tub more than once every five years.
I	Using potable water to fill new ponds and maintaining the water level for unlined ponds.
J	Allowing an identified water line break or leak to continue without immediately making the necessary repairs or turning off the water service to the property temporarily to prevent water loss until such time as the repair has been completed.

In drought conditions, the District has established its WSCP to further reduce water use. The demand reduction actions for each stage in the WSCP are provided in Table 8-2.

Table 8-2 Demand Reduction Actions (DWR Submittal Table 8-3 Retail)

		How much is this going to reduce the shortage gap?		
Shortage Level	Demand Reduction Actions	Volume or Percentage	Shortage Gap Reduction Value	Penalty, Charge, or Other Enforcement?
1+	Increase communication to customers about parcel specific Water Budgets	Percentage	0-10%	No
1+	Increase Customer's use of WaterSmart, expanding leak alerts	Percentage	0-10%	No
1+	Promote Rebates program, Customer Water Audits and other water efficiency campaigns	Percentage	0-10%	No
1+	Expand public information campaign to enhance awareness of water use efficiency and conservation	Percentage	0-10%	No
2+	Targeted outreach to customers using water in excess of their Water Budget	Percentage	11-20%	No
2+	Targeted outreach to highest water users	Percentage	11-20%	No
2+	Expand conservation communication campaign using methods such as electronic signage	Percentage	11-20%	No
2+	Discourage discretionary uses such as the filling of pools, fountains, and water features	Percentage	11-20%	No
2+	Increase property specific water use efficiency audits	Percentage	11-20%	No
2+	Increased rebates specifically for landscape conversions	Percentage	11-20%	No
2+	Limit sale of water for construction occurring outside the District's service area	Percentage	11-20%	No
2+	Increase system water loss reduction efforts	Percentage	11-20%	No
2+	Implement or Modify Drought Rate Structure or Surcharge	Percentage	11-20%	No
3+	Apply a Drought Factor to Water Budgets aimed at reducing outdoor irrigation for residential and CII customers	Percentage	21-30%	Yes
3+	Establish penalty for water use in excess of Water Budgets; consider establishing budget based rates	Percentage	21-30%	Yes
3+	Pool, spa, and pond refills prohibited; topping off is permitted	Percentage	21-30%	Yes
3+	Limit hydrant flushing	Percentage	21-30%	Yes
3+	Prohibit the sale of water for construction purposes	Percentage	21-30%	Yes
4+	Increase Drought Factor and apply it to Water Budgets	Percentage	31-40%	Yes
4+	Limit outdoor irrigation for residential and CII customers to 1 day per week	Percentage	31-40%	Yes

		How much is this going to reduce the shortage gap?		
Shortage Level	**Demand Reduction Actions**	**Volume or Percentage**	**Shortage Gap Reduction Value**	**Penalty, Charge, or Other Enforcement?**
4+	Use of mechanical devices to restrict flow through service lines on severely over-budget accounts that are non-responsive to outreach, and other mandatory restrictions and enforcement	Percentage	31-40%	Yes
5+	Increase Drought Factor and apply it to Water Budgets	Percentage	41-50%	Yes
5+	Prohibit outdoor irrigation for all customers. Use limited to public health and safety water	Percentage	41-50%	Yes
6+	Prohibit all outdoor use except as necessary to protect public health and safety.	Percentage	Over 50%	Yes
6+	Issue-specific measures developed as needed	Percentage	Over 50%	Yes

8.4.2 Supply Augmentation

During a water shortage, the District may pursue supply augmentation measures to help maintain supply reliability and reduce the need for additional demand reductions. These actions are intended to supplement existing supplies and provide flexibility when conditions limit normal water availability. The District will evaluate potential augmentation options based on feasibility, cost, and availability at the time of implementation, using them as needed to support overall supply and demand balance during shortage events.

Table 8-3 Supply Augmentation and Other Actions (DWR Submittal Table 8-2 Retail)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap? Volume or Percentage	Shortage Gap Reduction Value	Additional Explanation or Reference
1+	Other Actions (describe)	As Needed	As Needed	Obtain additional supplies through District's ongoing water supply portfolio, as needed to meet shortfall

8.4.3 Operational Changes

During shortage conditions, operations may be affected by demand reduction responses. Operational changes to address a water shortage may be implemented based on the severity of the reduction goal. The District, with Board of Directors approval as needed, will consider their operational procedures at the time of a shortage to identify changes they can take to maximize supply and reduce demand during a water shortage.

8.4.4 Additional Mandatory Restrictions

In addition to any shortage response level being declared, the District maintains prohibitions and restrictions at all times pursuant to the District's Ordinance No. 99.

8.4.5 Seismic Risk Assessment, Mitigation Plan, and Emergency Response Plan

The District maintains several emergency planning documents including its Hazard Mitigation Plan, Emergency Response Plan, Risk and Resilience Assessment, and seismic evaluations that together guide preparedness, response, and recovery efforts during major emergencies. These plans are regularly updated and supplemented by the County's Multi-Jurisdictional Hazard Mitigation Plan.

To ensure continuity during a sudden water supply interruption, the District relies on a diverse supply portfolio, backup power at critical facilities, remote system monitoring, 24/7 on-call staffing, and well-maintained equipment and materials for emergency repairs. Coordination with mutual-aid partners further strengthens response capabilities.

While earthquakes present a key hazard, District facilities have historically performed well. Ongoing mitigation includes seismic upgrades, emergency distribution planning, and regular staff training. The District's diversified supplies and established emergency procedures together enhance system resilience during catastrophic events.

8.4.6 Shortage Response Action Effectiveness

The District routinely tracks water production, distribution, and customer billing data. During a water shortage, this information is compared to normal year demand or to a designated State-required baseline to evaluate progress toward meeting shortage stage objectives. Estimated water savings for each WSCP action are provided in Table 8-2, with higher savings achieved when multiple actions are implemented together. Some measures provide substantial reductions at advanced shortage stages. For example, prohibiting outdoor irrigation in Stage 5 is estimated to reduce the shortage gap by up to 50 percent. These estimates guide the District in selecting and adjusting response actions to meet demand reductions.

8.5 Communication Protocols

The District uses its established communications program to keep customers and stakeholders informed during a water shortage. Public notifications for Board meetings related to the AWSDA or potential shortage declarations follow standard Board noticing and press release procedures.

When the Board declares a shortage stage, the District announces the declaration and associated restrictions through press releases, billing statements, enews, and updates to the District website, which will feature the current stage, restrictions, and available customer resources. Ongoing Board meetings will review conditions, customer response, and any recommended adjustments to the shortage actions.

8.6 Compliance and Enforcement

In accordance with CWC §10632(a)(6), the District enforces water-use restrictions through a tiered compliance approach that may be adjusted as needed. Enforcement measures include:

- First violation: Written warning.
- Second and subsequent violations: A $250 fine, which doubles with each additional violation up to a maximum of $1,000 per violation.
- Fourth violation (or earlier if warranted): The General Manager may require installation of a flow restrictor on the customer’s service line.
- The District may apply additional penalties or charges as needed to enforce prohibitions on specific water uses.

These measures support effective implementation of shortage response actions and ensure adherence to District water-use requirements.

8.7 Legal Authorities

The District’s authority to manage water supplies and prevent waste is established under the County Water District Law and supported by California Constitution Article X, Section 2. State law (CWC §§31026–31028) authorizes the District to declare water shortages, restrict water use, and adopt ordinances needed to enforce those restrictions. Additional emergency powers under CWC §§350–359 allow the District to declare a water shortage emergency when normal demands cannot be met and to impose regulations that conserve water for essential needs.

The District also coordinates with local agencies under the California Emergency Services Act when broader emergency declarations are necessary. A water shortage emergency will be declared when projected supplies cannot meet demand, and appropriate WSCP measures or additional ordinances will be implemented to ensure compliance.

8.8 Financial Consequences

Implementation of the WSCP can affect the District's finances because reduced water use lowers revenue while costs increase for monitoring, enforcement, customer outreach, and potential supplemental supplies. The District's rate structure, which is composed of fixed monthly charges and variable volumetric rates, means that reductions in water sales can significantly impact revenue, as volumetric charges make up the majority of income.

During shortage conditions, the District may incur additional expenses for staffing, third-party support, equipment, and data tracking. Supplemental water supplies, if pursued, are expected to be more costly than regular sources and will be evaluated as needed.

The District maintains strong financial management practices and can mitigate impacts through tools such as reserve funds, deferring capital or operational expenses, and collecting penalty revenues. The District has enacted a drought rate surcharge in the past to address revenue reductions. Since that time, the District has developed an enhanced rate structure and base rates which are updated approximately every four to five years. These rates are based on updated projected water use forecasts. Projected water use is determined using the best available data and information. During an extended drought, demand is assumed to decrease due to the implementation of DMMs, which may require the District to revisit the need for a surcharge structure or new rates.

8.9 Monitoring and Reporting

In accordance with CWC §10632(a)(9), the District monitors and reports on the effectiveness of WSCP actions to ensure supply and demand remain in balance. After implementing shortage-stage measures, the District tracks both water use and available supplies using the same data sources that support its supply and demand assessments.

District staff will report to the Board at least quarterly with updates summarizing:

- Actual vs. projected demands by customer class and total use
- Actual vs. projected supply availability for each water source
- Supply projections for the next 36 months
- Any additional reporting required by the State

Based on the results, the District will evaluate whether adjustments to the shortage stage or response actions are needed. If necessary, the District may adopt additional measures, update ordinances, or revise the WSCP through the Board process unless urgent conditions require earlier action.

8.10 WSCP Refinement Procedures

The WSCP is designed to remain adaptable, consistent with CWC §10632(a)(10). The District will regularly review its shortage criteria and response actions to ensure they remain effective, incorporating lessons learned and findings from its monitoring and reporting program.

Refinements such as changes to shortage triggers, stage structure, or response actions will be incorporated into future WSCP updates. New actions identified by District staff or the public may be introduced as voluntary measures before being formally adopted.

8.11 Special Water Feature Distinction

CWC Section 10623 (b) requires that suppliers analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas. Under normal conditions, District Ordinance No. 99 prohibits operating decorative water features without recirculation and limits draining/refilling pools and spas to once every five years. At Stage 2+, refilling of pools, spas, and ponds is prohibited, while topping off remains permitted.

8.12 Plan Adoption, Submittal, and Availability

The District's WSCP was prepared and adopted in accordance with CWC §10632(a)(3)(C). The WSCP was presented at a duly noticed public hearing and formally adopted by the District Board of Directors on [DATE] by Resolution No. [XXXX]. Required public and agency notifications were provided, and the WSCP was made available for public review prior to adoption.

Following adoption, the WSCP was made publicly available within 30 days and submitted electronically to DWR through the Water Use Efficiency Data Portal concurrent with the UWMP. Hard copies of the adopted WSCP and UWMP were submitted to the California State Library, and copies were distributed to applicable cities and counties within the District's service area within 30 days of adoption. Any future amendments required by DWR will be adopted by the District Board of Directors and resubmitted to DWR within 30 days of adoption.

9 Demand Management Measures

This chapter describes the District's implementation of Demand Management Measures (DMMs) in accordance with the CWC and the 2025 UWMP Guidebook. It describes implementation during the past five years, actions taken to support State conservation targets, and planned near-term measures. The District's DMM program builds on long-standing conservation efforts, the District's Water Use Efficiency Plan (WUEP),[43] and Ordinance 99 (Water Conservation Ordinance), forming a comprehensive and adaptive water-use efficiency strategy.

9.1 Conservation Legislation and Regulatory Context

In 2018, Senate Bill (SB) 606 and Assembly Bill (AB) 1668 were enacted to establish long-term indoor and outdoor water use conservation goals across the state. Collectively referred to as "Making Conservation a California Way of Life," the bills are companion measures that link state water-efficiency targets with local water-supply planning achieve statewide water conservation goals and maintain reliable water supplies. AB 1668 directs DWR and the SWRCB to develop long-term water use efficiency standards and adopt drought planning measures into the California Water Plan. SB 606 strengthens urban water management planning objectives, requires annual reporting on actual water usage and grants the SWRCB the authority to monitor, verify and take corrective action to remedy violations if a supplier is non-compliant. A key principle of the legislation is development of and compliance with the UWUO, which defines the maximum amount of aggregate water usage for a water purveyor when water is managed efficiently. Further, the UWUO promotes water-use efficiency goals by encouraging permanent conservation practices at the agency level rather than temporary drought restrictions.

California Code of Regulations Title 23, §965 et seq, establishes a framework for calculating an UWUO. SB 1157 set the residential indoor water use standard at 55 GPCD until January 1, 2025, when it lowers to 47 GPCD, and finally lowers to 42 GPCD on January 1, 2030. For the outdoor water use standards, compliance is based on a landscape efficiency factor which indicates the amount of water a supplier needs to deliver to maintain healthy and efficient landscapes.

SB 1572 further directed conservation of potable water by eliminating non-functional turf. The bill mandates removal of non-functional turf and associated reduction in water use, includes a phased compliance schedule with public landscapes by January 1, 2027, CII landscapes by January 1, 2028, and HOA common areas by January 1, 2029.

9.2 History of Conservation Programming

Over time, the District's conservation programming has progressed from traditional, compliance-oriented measures toward a comprehensive, data-driven water use efficiency strategy guided by the District's WUEP. The WUEP evaluated historic performance, identified key drivers of demand, and established a long-term, cost-effective portfolio of efficiency investments aligned with statewide objectives.

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[43] Montecito Water District, 2022. Water Use Efficiency Plan. (December 13, 2022)

To support continued long-term reductions, the District evaluated a range of potential measures and ultimately selected the WUEP Strategic Program (Program B) as its preferred implementation pathway. This portfolio emphasizes high-value conservation actions, including AMI engagement, parcel-level water budgeting and monitoring, landscape and device rebates, water audits, and ongoing customer education. According to the WUEP, implementation of the Strategic Program is projected to achieve approximately 842 AFY of water savings by 2045.

9.3 Implementation Over Past Five Years (2021-2025)

Over the past five years, the District has implemented a coordinated suite of conservation measures from the WUEP, including:

- AMI Customer Portal and Targeted Outreach
- Water Loss (District System Leak Detection)
- Mulch Program
- Indoor Appliances Rebate Program – Commercial/Institutional
- Indoor Appliances Rebate Program – Residential
- High Efficiency Toilet Rebates
- Outdoor Water Audits
- Drip Irrigation Rebate
- Smart Irrigation Controller Rebate
- As-Needed Water Budgeting/Monitoring at Parcel Level
- Landscape Conservation/Improvements— Residential
- Community Outreach and Education
- Demonstration Garden
- Commercial/Institutional Audit Program

These measures demonstrate durable conservation beyond temporary drought restrictions and position the District to meet emerging performance standards.

9.4 Demand Management Measures

This section provides a narrative discussion of the District's DMMs. The District's DMM program is designed to reduce potable water demand, improve system efficiency, and enhance long-term water supply reliability under a wide range of hydrologic conditions. These measures support achievement of the District's UWUO established pursuant to State law and complement supply-side investments described elsewhere in this UWMP.

The District implements all foundational DMMs required of retail urban water suppliers, as described below. In addition, the District participates in regional conservation programming through the Santa Barbara County Regional Water Efficiency Program (RWEP), which provides coordinated outreach, technical assistance, and incentive programs throughout the South Coast region.

9.4.1 Water Waste Prevention Ordinances

In June 2024, the District Board of Directors adopted Ordinance 99 (Appendix H) establishing permanent prohibitions on water waste and detailing recommended best practices such as soil-moisture-based irrigation, mulch use, and efficient irrigation hardware. Examples of water-waste prohibitions include runoff, irrigation during and within 48 hours after measurable rainfall of at least one-quarter inch, and use of potable water in non-recirculating decorative features. Enforcement escalates from a written warning to $250 and then doubles with subsequent violations up to $1,000, with authority to install a flow restrictor in egregious cases and a defined appeal process.

9.4.2 Metering

The District meters all potable water deliveries to customers and maintains production, transmission, and distribution system metering to accurately account for water use and system losses. The District operates ongoing meter testing, calibration, and replacement program to ensure data accuracy.

9.4.3 Property Specific Water Budgets

The District has fully transitioned to AMI, which serves as the foundation for its modern demand management strategy. In April 2025, the District introduced property-specific Water Budgets,[44] a data-driven tool that provides each customer with a unique, science-based guide for efficient indoor and outdoor water use based on their specific property characteristics. The District provides calculated property-specific Water Budgets to all customers on their monthly bill, free of charge. This system integrates with the WaterSmart customer portal, enabling residents to track daily usage and receive automated alerts for potential leaks. More information about Water Budgets, including the methodology for calculations are available at https://www.montecitowater.com/conservation/water-budgets/.

9.4.4 Conservation Pricing

In June 2024, the District adopted a new five-year schedule of rate increases following a comprehensive Cost of Service study.[45] This updated structure maintains a three-tiered pricing system for single-family and multi-family residential connections, designed to provide clear conservation price signals based on consumption levels. Under this methodology, Tier 1 covers efficient indoor use (0-9 hcf), while Tiers 2 (10-35 hcf) and 3 (36+ hcf) are priced significantly higher to reflect the cost of securing supplemental water supplies, such as desalination and SWP imports. This conservation-based rate structure aims to reduce customer water use while ensuring the financial stability needed for critical infrastructure and long-term supply reliability.[46]

9.4.5 Public Education and Outreach

The District provides ongoing public education and outreach to promote water conservation and efficient water use. Outreach efforts include customer bill inserts, District website content, targeted communications, press releases, workshops, and direct customer assistance. The District's website (https://www.montecitowater.com/conservation/) provides access to a wide range of conservation information, rebates and incentive programs, and activities.

Through participation in the RWEP, District customers have access to regionally coordinated education programs, school curricula, professional trainings, and conservation messaging that

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[44] Montecito Water District. 2025. Water Budgets. https://www.montecitowater.com/conservation/water-budgets/

[45] Montecito Water District, 2024. "Water Rate Study: Final Report (May 1, 2024) https://www.montecitowater.com/doc/9719/

[46] Montecito Water District, 2024. Rates & Fees https://www.montecitowater.com/customer-service/rates-fees-meters/

leverage economies of scale and consistent regional messaging. These efforts support long-term behavioral changes and improved water use efficiency across all customer sectors.

9.4.6 Distribution System Water Loss

The District proactively manages distribution system water loss through a combination of advanced technology and infrastructure maintenance. A cornerstone of this program is the 2024 rollout of District-wide AMI smart meters, which allow for real-time monitoring of system-wide water demand and the rapid identification of distribution-side leaks. The District is responsible for the ongoing repair and maintenance of its treatment and distribution network up to the customer meter and for any significant water leak on their side of the meter due to circumstances out of their control.[47]

To support these responsibilities, the District implements the following strategies to reduce water loss and protect system reliability:

- **Real-Time Monitoring:** Utilizing the WaterSmart customer portal, the District and its customers receive automated notifications of unusual flow patterns, significantly reducing the duration of undetected leaks.
- **Infrastructure Investment:** The District's water rates and its Water Availability Charge provides dedicated annual funding for capital improvement projects, including the replacement of aging pipelines and upgrading distribution services to minimize physical water loss.
- **Asset Management:** The District employs a proactive asset management strategy to evaluate the condition of its distribution infrastructure and prioritize repairs before catastrophic failures occur. The District completed the first ever Asset Management Plan (AMP) in 2024 which is used to inform long range capital project planning.

The District’s American Water Works Association Water Audit is included as Appendix I.

9.4.7 Conservation Program Coordination and Staffing

Since 2020, the District has expanded water conservation programs, coordination and staffing following adoption of the WUEP and Ordinance No. 99. Conservation program management is performed by District staff, who administer audits and rebates, oversee AMI/analytics, coordinate with RWEP, and manage reporting. The District maintains dedicated staffing resources to support water conservation program implementation. The District’s Water Conservation Specialist position is responsible for conservation program administration, customer assistance, water audits, landscape efficiency evaluations, and coordination with regional partners.

9.4.8 Other Demand Management Measures

In addition to the foundational measures described above, the District implements supplemental DMMs tailored to local conditions as implemented through the WUEP programs. The WUEP evaluated 20 conservation measures to select DMMs that would meet regulatory and compliance mandates. This included analysis of water savings and benefits based on demands, including cost and savings associated with each program. From this analysis, an implementation strategy and schedule was identified to track progress for 17 identified DMMs as reflected in Table 9-1.

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[47] Montecito Water District 2025. Resolution No. 2308. https://www.montecitowater.com/doc/9306/

Table 9-1 Conservation Measures Implementation Schedule (2022–2045)

Measure	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
AMI Customer Portal and Targeted Outreach [B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Water Loss (MWD System Leak Detection) [B,C]	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mulch Program [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
School Building Retrofit (implemented through CII indoor rebates) [B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Indoor Appliances Rebate Program – Commercial/Institutional [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Indoor Appliances Rebate Program – Residential [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
High Efficiency Toilet (HET) Rebates – Residential [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Outdoor Water Audit [B,C]	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Drip Irrigation Rebate [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Smart Irrigation Controller Rebates [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Water Budgeting/Monitoring at Parcel Level [B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Landscape Conversion/Improvements – Residential [A,B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Community Outreach and Education [B,C]	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Demonstration Garden [B,C]	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Commercial/Institutional Audit Program [B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Water Budget-Based Billing (as needed) [B,C]																								
Grey Water System Rebates (implemented through Landscape Conservation/Improvement rebates) [B,C]		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Notes:

This schedule does not include any measures that were not included in the Strategic Program as described in the 2022 WUEP.

Superscript notes are defined as follows:

A = measures in the Pilot Program

B = measures in the Strategic Program

C = measures in the All-Inclusive Program

The District's programs include targeted efforts to address water use efficiency for CII, large landscape, and residential customers. Since implementation of the WUEP, the following programs have been implemented by the District.

9.4.8.1 Demonstration Garden

In partnership with the Montecito Community Foundation and Lotusland, the District constructed a Demonstration Garden for the public to learn about sustainable landscaping and efficient outdoor water use. The garden is located at the District's office on 583 San Ysidro Road, Montecito, California 93108. More information is available at https://www.montecitowater.com/conservation/demonstration-garden/.

9.4.8.2 California Water Efficiency Partnership Rebates

The District promotes and participates in the California Water Efficiency Partnership's (CalWEP) Smart Rebates program which offers financial incentives for qualified purchases single-family residential, multi-family residential, commercial, and institutional. Through the District's WUEP, rebate programs were developed intended to reward conservation actions which include installation of mulch, drip irrigation, smart irrigation controllers, landscape conversion/improvements, installation of high- efficiency indoor appliances, toilets, and urinals. More information on the rebate program can be found at https://www.montecitowater.com/conservation/rebates/.

9.4.8.3 Free Water-Wise Checkups

Starting in 2023, the District offers free WaterWise checkups for customers by conducting property evaluations, identifying efficiency improvements, and helping residents reduce both water use and costs. Customers can schedule a visit or request assistance by calling the District's main conservation line at (805) 969-2271, or by visiting the District's website at https://www.montecitowater.com/conservation/on-site-visits/.

9.4.8.4 WaterWise Programs

The District has partnered with Santa Barbara County to promote several WaterWise programs offered to elementary through high school students, including High School Video Contest, free assembly performances (virtual and in-person) for elementary school students, and free parent and teacher resources to promote water use efficiency. More information about these programs can be found at https://www.montecitowater.com/conservation/for-kids/.

In addition, the Santa Barbara County hosts the WaterWise Garden Contest which recognizes water-efficient residential gardens. Residents of Santa Barbara County can apply through the County's website, and awards are given to a residential property in each water provider's service area throughout Santa Barbara County. Landscapes are evaluated based on visual qualities as well as irrigation methods and other sustainable design criteria. More information about this contest can be found at https://www.waterwisesb.org/2325/WaterWise-Garden-Contest.

9.5 Planned Demand Management Measures

The District will continue to evaluate and refine its DMMs to support compliance with UWUO established pursuant to CWC §10609.20 and related statutes. Guided by the WUEP schedule and annual work planning, the District will:

- **Expand AMI analytics** and customer alerts to shorten leak duration;
- **Deepen parcel level water budgeting/monitoring** and high use engagement;
- **Continue indoor/outdoor retrofit incentives and audits** where cost effective;
- **Scale staffing/administration** per WUEP to maintain delivery capacity and reporting; and
- **Monitor and report** UWUO progress and water-loss performance consistent with the Guidebook's reporting tables.

Resources for DMM activities will continue to be incorporated into the District's annual budget and long-range planning processes. Special consideration will be given to evolving water use patterns, climate change impacts, and future regulatory requirements.

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10 Plan Adoption, Submittal, and Implementation

This chapter provides an overview of public and agency notifications completed per CWC requirements, public availability, and UWMP and WSCP adoption.

10.1 Notice of Plan Preparation

CWC §10621(b) requires that water suppliers notify cities and counties within their service area that the UWMP and WSCP are being updated at least 60 days prior to the public hearing. The District's service area includes the unincorporated communities of Montecito, Summerland, and Toro Canyon, as well as small portions of the City of Santa Barbara. The City of Santa Barbara, Santa Barbara County Water Agency, CCWA, Montecito Sanitary District, Summerland Sanitary District, and Carpinteria Sanitary District, were notified of the District's intent to prepare a 2025 UWMP on March 16, 2026. Carpinteria Sanitary District was notified on April 21, 2026. Copies of the notification letters to the Cities and Counties can be found in Appendix C. Table 10-1 shows the notification provided to cities and counties. In addition, agencies and members of the public have been provided opportunities to attend regularly scheduled District Strategic Planning Committee and Board of Directors meetings to discuss the UWMP and WSCP.

Table 10-1 Notification to Cities and Counties (DWR Submittal Table 10-1 Retail)

Entity Name	60 Day Notice	Notice of Public Hearing
City/Special District Name		
City of Santa Barbara	Yes	Yes
Carpinteria Valley Water District	Yes	Yes
Montecito Sanitary District	Yes	Yes
Summerland Sanitary District	Yes	Yes
Carpinteria Sanitary District	Yes	Yes
County Name		
Santa Barbara County Water Agency	Yes	Yes
Other Agency Name		
Central Coast Water Authority	Yes	Yes

10.2 Notice of Public Hearing, Plan Adoption, and Plan Submittal

The 2025 UWMP and WSCP were included as agenda items, noticed, and reviewed at regularly scheduled District Board of Directors meetings held on March 24, 2026, April 14, 2026, and April 28, 2026, and in a Public Hearing held on June 23, 2026. The hearing was held at 9:30am at the District offices, 583 San Ysidro Road, Montecito, California 93108 to provide the public with an opportunity to provide input on the 2025 UWMP and WSCP before adoption was considered on June 23, 2026.

Per Government Code 6066, the District noticed the 2025 UWMP and WSCP public hearing at least two weeks in advance in a local newspaper, with at least five days between the first and second publications. The public hearing was first noticed in the local paper on June 4, 2026 and noticed again on June 11, 2026. The hearing notices are attached as Appendix C.

The District Board of Directors adopted the 2025 UWMP and WSCP on [INSERT DATE]. A copy of the District Board of Directors resolution of adoption is included as Appendix J.

The 2025 UWMP and WSCP will be submitted to DWR by July 1, 2026 using the DWR Water Use Efficiency Data Portal. The documents will also submitted to the California State Library and to all cities and counties within the District's service area within 30 days of adoption. The District is not regulated by the California Public Utilities Commission, so notification to the Commission does not apply.

Commencing no later than July 1, 2026, the District will have a copy of the 2025 UWMP and WSCP available for public review at the District's office (see address below) during regular business hours.

Montecito Water District
583 San Ysidro Road
Montecito, CA 93108

The final documents will also be posted on the District's website at https://www.montecitowater.com/uwmp/.

10.3 Amending an Adopted Plan

Amendments to the District's 2025 UWMP and WSCP will be made on an as needed basis. Should the District need to amend the adopted 2025 UWMP or WSCP in the future, the District will hold a public hearing for review of the proposed amendments to the document. The District will send a 60-day notification letter to all cities and counties within the District's service area and notify the public in the same manner as set forth above. Once the amended document is adopted, a copy of the finalized version will be sent to the California State Library, DWR (electronically using the WUEdata reporting tool), and all cities and counties within the District's service area within 30 days of adoption. The finalized version will also be made available to the public both online on the District's website and in person at the District's office during normal business hours.

Appendix A

UWMP Checklist

Retail (x = required)	Order	2025 Guidebook Location	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	1	Chapter 1	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Section 1.2.1
x	1	Chapter 1	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	Chapter 1
x	2.1	Section 2.1	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Chapter 2
x	2.5	Section 2.5	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Section 2.1
x	2.5	Section 2.5	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Section 2.1
x	2.5	Section 2.5	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Section 2.1
x	2.4	Section 2.4	Provide supporting documentation that the Supplier has encourage~~d~~ active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Section 2.2.2
x	2.4	Section 2.4.2	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.2.2
x	2.4	Section 2.4.1	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Section 2.2.1
n/a	2.4	Section 2.4.1	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	
x	3	Chapter 3.0	Describe the Supplier service area.	System description	n/a	Section 3.1
x	3.3	Section 3.3	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.2
x	3.4	Section 3.4.1	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	Section 3.4.2
x	3.4	Section 3.4.2	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.4.3
x	3.5	Section 3.5	Describe the land uses within the service area… include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.5
x	4.2	Sections 4.2.3 and 4.2.4	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	Sectopn 4.2.2
x	4.3	Section 4.3.1	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	Section 4.6
x	4.3	Section 4.3.2	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Section 4.6
x	4.2	Section 4.2.5.4	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	Section 4.3.3
x	4.2	Section 4.2.5.3	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Section 4.3.2
x	4.2	Section 4.2.5.3	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Section 4.3.3
x	4.2	Section 4.2.5.3	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall… Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.3.3
x	4.2	Section 4.2.5.6	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.5
x	5.2	Section 5.2	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	Section 5.2
x	6.1	Section 6.1	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	Section 6.1
x	6.1	Sections 6.1 and 6.2	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	Section 6.1.1
x	6.2	Section 6.2.2	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Section 6.2.3
x	6.2	Section 6.2.2	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.2.3.2
x	6.2	Section 6.2.2	Describe the groundwater basin.	System supplies	n/a	Section 6.2.3.1

x	6.2	Section 6.2.2	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Section 6.2.3.1
x	6.2	Section 6.2.2	For unadjudicated basins… (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin.	Water supplies and recycled water	n/a	Section 6.2.3.2
x	6.2	Section 6.2.2	For unadjudicated basins… describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.2.3.3
x	6.2	Section 6.2.2.	If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.2.3.4
x	6.2	Section 6.2.2	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Section 6.4
x	6.1	Section 6.1	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	Section 6.4
x	6.2	Section 6.2.7	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.2.7
x	6.2	Section 6.2.5	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Section 6.2.6.2
x	6.2	Section 6.2.5	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	Section 6.2.6.2
x	6.2	Section 6.2.5	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Section 6.2.6.1
x	6.2	Section 6.2.5	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	Section 6.2.6.1
x	6.2	Section 6.2.5	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Section 6.2.6.3
x	6.2	Section 6.2.5	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	Section 6.2.6.3
x	6.2	Section 6.2.5	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	Section 6.2.6.3
x	6.2	Section 6.2.6	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.2.1
x	6.2	Section 6.2.10	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	Section 6.4
x	6.3	Section 6.3 and Appendix O	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	Section 6.3
x	7.1	Section 7.1	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.1
x	7.2	Section 7.2	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	Section 7.1.1, Section 7.1.2, Section 7.1.3
x	7.2	Section 7.2.3	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.3
x	7.3	Section 7.3	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	Section 7.2
x	7.3	Section 7.3	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.2.1
x	7.3	Section 7.3	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	Section 7.1.1, Section 7.1.2, Section 7.1.3
x	7.3	Section 7.3	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	Section 7.2.3
x	7.3	Section 7.3	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.1
x	8	Chapter 8	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Chapter 8
x	8	Chapter 8	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	Section 8.1
x	8.2	Section 8.2	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	Section 8.1
x	8.2	Section 8.2	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	Section 7.2.1
x	8.3	Section 8.3	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	Section 8.3
x	8.3	Section 8.3	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	Section 8.4.1
x	8.4	Section 8.4	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	Section 8.4.2
x	8.4	Section 8.4	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	Section 8.4.2
x	8.4	Section 8.4	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	Section 8.4.3
x	8.4	Section 8.4	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	Section 8.4.4
x	8.4	Section 8.4	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	Section 8.4.6
x	8.4	Section 8.4.6	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	Section 8.4.5
x	8.5	Section 8.5	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	Section 8.5
x	8.5	Section 8.5	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	Section 8.5

x	8.6	Section 8.6	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	Section 8.6
x	8.7	Section 8.7	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	Section 8.7
x	8.7	Section 8.7	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3. *Water Shortage Emergencies* .	Water shortage contingency planning	n/a	Section 8.7
x	8.7	Section 8.7	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	Section 8.7
x	8.8	Section 8.8	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	8.8	Section 8.8	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	Section 8.8
x	8.8	Section 8.8	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, *Excessive Residential Water Use During Drought* .	Water shortage contingency planning	n/a	Section 8.8
x	8.9	Section 8.9	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	Section 8.9
x	8.10	Section 8.10	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	Section 8.9
x	8.11	Section 8.11	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	Section 8.11
x	8.12	Section 8.12	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	Section 8.12
x	9.1	Sections 9.1	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	Section 9.3
x	10	Chapter 10	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	Section 10.2
x	10.2	Section 10.2.1	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Section 10.1
x	10.4	Section 10.4	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 2026.	Plan adoption, submittal, and implementation	n/a	Section 10.2
x	10.2	Sections 10.2.2, 10.3, and 10.5	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Section 10.2
x	10.2	Section 10.2.2	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Section 10.2
x	10.3	Section 10.3.2	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.4	Section 10.4	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.4	Section 10.4	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.4	Sections 10.4.1 and 10.4.2	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.7	Section 10.7.2	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.5	Section 10.5	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Section 10.3
x	10.6	Section 10.6	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	Section 10.2

Appendix B

Reduced Delta Reliance Analysis

Table C-1 Optional Calculation of Water Use Efficiency – To be completed if Water Supplier does not specifically estimate Water Use Efficiency as a supply

	Baseline (2007)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Use Efficiency Demands (Acre-Feet)									
Service Area Water Demands with Water Use Efficiency Accounted For	6,638	4,207	4,495	3,955	4,472	4,577	4,684	4,795	4,908
Non-Potable Water Demands	--	--	--	--	--	--	--	--	--
Potable Service Area Demands with Water Use Efficiency Accounted For	6,638	4,207	4,495	3,955	4,472	4,577	4,684	4,795	4,908
Total Service Area Population									
Service Area Population	11,772	11,402	11,516	13,102	13,433	13,772	14,120	14,476	14,842
Water Use Efficiency Since Baseline (Acre-Feet)									
Per Capita Water Use (GPCD)	503	329	348	269	297	296	296	296	295
Change in Per Capita Water Use from Baseline (GPCD)	--	(174)	(155)	(234)	(206)	(207)	(207)	(208)	(208)
Estimated Water Use Efficiency Since Baseline	--	2,217	1,994	3,427	3,097	3,183	3,272	3,361	3,454

Table C-2 Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2007)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	6,638	4,207	4,495	3,955	4,472	4,577	4,684	4,795	4,908
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	--	2,217	1,994	3,427	3,097	3,183	3,272	3,361	3,454
Service Area Water Demands without Water Use Efficiency Accounted For	6,638	6,424	6,489	7,382	7,569	7,760	7,956	8,156	8,362

Table C-3 Calculation of Supplies Contributing to Regional Self-Reliance

	Baseline (2007)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)									
Water Use Efficiency	--	2,217	1,994	3,427	3,097	3,183	3,272	3,361	3,454
Water Recycling	--	--	--	--	--	--	--	--	--
Stormwater Capture and Use	--	--	--	--	--	--	--	--	--
Advanced Water Technologies	--	--	--	--	--	--	--	--	--
Conjunctive Use Projects	--	--	--	--	--	--	--	--	--
Local and Regional Water Supply and Storage Projects	4,147	4,241	6,195	3,955	5,988	5,988	5,988	5,988	5,988
Other Programs and Projects the Contribute to Regional Self-Reliance	--	--	--	--	--	--	--	--	--
Water Supplies Contributing to Regional Self-Reliance	4,147	4,241	6,195	10,237	16,367	16,404	16,444	16,514	16,627
Service Area Water Demands without Water Use Efficiency (Acre-Feet)									
Service Area Water Demands without Water Use Efficiency Accounted For	6,638	6,424	6,489	7,382	7,569	7,760	7,956	8,156	8,362
Change in Regional Self Reliance (Acre-Feet)									
Water Supplies Contributing to Regional Self-Reliance	4,147	4,241	6,195	10,237	16,367	16,404	16,444	16,514	16,627
Change in Water Supplies Contributing to Regional Self-Reliance	--	94	2,048	6,090	12,220	12,257	12,297	12,367	12,480
Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)									
Percent of Water Supplies Contributing to Regional Self-Reliance	62.47%	66.02%	95.47%	138.68%	216.24%	211.39%	206.69%	202.48%	198.84%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance	--	3.54%	33.00%	76.20%	153.76%	148.92%	144.21%	140.00%	136.37%

Table C-4 Calculation of Reliance on Water Supplies from the Delta Watershed

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies from the Delta Watershed (Acre-Feet)									
CVP/SWP Contract Supplies	3,016	1,616	--	--	1,628	1,560	1,493	1,452	1,452
Delta/Delta Tributary Diversions	--	--	--	--	--	--	--	--	--
Transfers and Exchanges of Supplies from the Delta Watershed	--	--	--	--	--	--	--	--	--
Other Water Supplies from the Delta Watershed	--	--	--	--	--	--	--	--	--
Total Water Supplies from the Delta Watershed	3,016	1,616	--	--	1,628	1,560	1,493	1,452	1,452
Service Area Water Demands without Water Use Efficiency (Acre-Feet)									
Service Area Water Demands without Water Use Efficiency Accounted For	6,638	6,424	6,489	7,382	7,569	7,760	7,956	8,156	8,362
Change in Supplies from the Delta Watershed (Acre-Feet)									
Water Supplies from the Delta Watershed	3,016	1,616	--	--	1,628	1,560	1,493	1,452	1,452
Change in Water Supplies from the Delta Watershed	--	(1,400)	--	--	(1,388)	(1,456)	(1,523)	(1,564)	(1,564)
Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)									
Percent of Water Supplies from the Delta Watershed	45.44%	25.16%	--	--	21.51%	20.10%	18.77%	17.80%	17.36%
Change in Percent of Water Supplies from the Delta Watershed	--	-20.28%	--	--	-23.93%	-25.33%	-26.67%	-27.63%	-28.07%

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Appendix C

Notification and Public Hearing Outreach

RELIABLE SINCE 1921

583 San Ysidro Road
Santa Barbara, CA 93108-2124

Phone: 805.969.2271
Fax: 805.969.7261
Email: info@montecitowater.com
Web: montecitowater.com

MONTECITO WATER DISTRICT

March 16, 2026

Joshua Haggmark
Water Resource Director
City of Santa Barbara
630 Garden Street
Santa Barbara, California 93101
jhaggmark@santabarbaraca.gov

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Haggmark:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

RELIABLE SINCE 1921

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MONTECITO WATER DISTRICT

March 16, 2026

Walter Rubalcava
Water Resources Deputy Director
Santa Barbara County Water Agency
130 East Victoria Street, Suite 200
Santa Barbara, California 93101
wrubalc@countyofsb.org

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Rubalcava:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

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MONTECITO WATER DISTRICT

Board of Directors
Kenneth Coates, President
Brian Goebel, Vice President
Cori Hayman, Director
Tobe Plough, Director
Floyd Wicks, Director

General Manager and Board Secretary
Nick Turner

March 16, 2026

Ray Stokes
Executive Director
Central Coast Water Authority
255 Industrial Way, Suite B
Buellton, California 93427
RAS@ccwa.com

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Stokes:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

RELIABLE SINCE 1921

583 San Ysidro Road
Santa Barbara, CA 93108-2124

Phone: 805.969.2271
Fax: 805.969.7261
Email: info@montecitowater.com
Web: montecitowater.com

MONTECITO WATER DISTRICT

March 16, 2026

Kelley Dyer
General Manager
Carpinteria Valley Water District
1301 Santa Ynez Avenue
Carpinteria, California 93013
Kelley@cvwd.net

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Ms. Dyer:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

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MONTECITO WATER DISTRICT

Board of Directors
Kenneth Coates, President
Brian Goebel, Vice President
Cori Hayman, Director
Tobe Plough, Director
Floyd Wicks, Director

General Manager and Board Secretary
Nick Turner

March 16, 2026

John Weigold
General Manager
Montecito Sanitary District
1042 Monte Cristo Lane
Santa Barbara, California 93108
jweigold@montsan.org

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Weigold:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

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If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

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Tobe Plough, Director
Floyd Wicks, Director

General Manager and Board Secretary
Nick Turner

March 16, 2026

David Lewis
Operations Manager
Summerland Sanitary District
2435 Wallace Avenue
Summerland, California 93067
info@summerlandsd.org

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Lewis:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

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MONTECITO WATER DISTRICT

Board of Directors
Kenneth Coates, President
Brian Goebel, Vice President
Cori Hayman, Director
Tobe Plough, Director
Floyd Wicks, Director

General Manager and Board Secretary
Nick Turner

April 21, 2026

Craig Murray
General Manager
Carpinteria Sanitary District
5300 Sixth Street
Carpinteria, California 93013
info@carpsan.com

Re: Notice of Plan Preparation – 2025 Montecito Urban Water Management Plan (UWMP)

Dear Mr. Murray:

This letter provides notice that Montecito Water District (District) is currently preparing an update to its 2025 Urban Water Management Plan (UWMP) in compliance with the California Urban Water Management Planning Act (California Water Code §10610 et seq.).

The State of California requires urban water suppliers to update their UWMPs every five years. The District's 2025 UWMP will incorporate updated information regarding water demands, water supplies, water service reliability under normal and dry year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20year planning horizon. -year conditions, water conservation and demand management measures, and drought preparedness for a minimum 20-year planning horizon.

Consistent with California Water Code Section 10621(b), this notice is being provided at least 60 days prior to the public hearing on adoption of the UWMP. The District anticipates making a draft UWMP available for public review prior to the hearing, and the District's Board of Directors will conduct a public hearing to receive input and consider adoption of the 2025 UWMP on June 23, 2026.

The adopted UWMP will be submitted to the California Department of Water Resources, the County of Santa Barbara, and the California State Library by July 1, 2026, as required by law. Information regarding the UWMP update process, including the draft UWMP when available, will be posted on the District's website at www.montecitowater.com/uwmp.

If you have land use information, growth projections, or other planning considerations that the District should consider during preparation of the UWMP, the District welcomes your coordination and input.

Sincerely,

Adam Kanold, P.E.
Assistant General Manager/Engineering Manager

MONTECITO WATER DISTRICT
NOTICE OF PUBLIC HEARING
2025 URBAN WATER MANAGEMENT PLAN and WATER SHORTAGE CONTINGENCY PLAN UPDATES
TUESDAY, JUNE 23, 2026, 9:30 A.M.*

Montecito Water District (District) is currently preparing updates to its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan in compliance with the California Urban Water Management Planning Act.

NOTICE IS HEREBY GIVEN that the Board of Directors of the Montecito Water District (District) will conduct a Public Hearing on Tuesday, June 23, 2026 at 9:30 a.m. to consider input regarding proposed updates to the UWMP and Water Shortage Contingency Plan.

The proposed updates to the UWMP and Water Shortage Contingency Plan are available for public review as of April 30, 2026 at the District Office, 583 San Ysidro Road, Santa Barbara, CA 93108 and on the District web site at: www.montecitowater.com/uwmp
If you are unable to access the information via this link, or need accommodations to review the document, please contact:

Adam Kanold
Montecito Water District
583 San Ysidro Road
Santa Barbara, CA 93108
akanold@montecitowater.com
Phone: 805.969.2271

Written comments can be provided to the contact above up until the date and time of the Public Hearing.

*The public hearing will be conducted in person at the District office located at 583 San Ysidro Road, Santa Barbara, CA 93108. Remote participation information will be available on the meeting agenda posted at the District office, on the website www.montecitowater.com, and by calling 805-969-2271.

Appendix D

Future Demand and Water Supply Options Update 2025

FUTURE DEMAND AND WATER SUPPLY OPTIONS

Update 2025

Montecito Water District

Steven Bachman, PhD

Final, April 7, 2025

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ACRONYMS USED

AF – acre-feet
AFY – acre-feet per year
CCWA – Central Coast Water Authority
District – Montecito Water District
DWR – California Department of Water Resources
LOC – Level of Concern for projected future SWP deliveries
MWD – Montecito Water District
msl – Mean Sea Level
SGMA – Sustainable Groundwater Management Act
SWP – State Water Project
UWMP – Urban Water Management Plan
WSA – Water Supply Agreement with City of Santa Barbara

EXECUTIVE SUMMARY

MWD periodically examines its portfolio of water sources and compares them against current and future demand. This study updates the latest Future Demand and Water Supply Options Report, dated May 2020, using the latest Santa Ynez River/Cachuma modeling, State Water Project (SWP) availability forecasts, and current/future demand projections. This updated analysis includes potential future reductions in the Cachuma Project (Cachuma) allocation, a potential partial sale of SWP allocation/conveyance capacity, participation in a local groundwater storage program, an extended drought, and a temporary disruption in one of the MWD's primary sources of supply.

The supply/demand model used in this analysis runs in monthly time steps over an 83-year period of past hydrology (1942-2024). Phase I of the analysis examines current and future demand/supplies using current management strategies. Phase II builds on Phase I and examines various strategies to further shore up long-term water supply reliability including the partial sale of MWD's SWP Table A allocation/conveyance capacity and participation in a local groundwater storage program.

The results of the Phases I and II analyses indicate a relatively small amount of unsourced demand, also referred to as a water shortage, in only a few years over the modeled period. This unsourced demand was caused by conveyance limitations in/out of Cachuma and not a shortage of supply. Some or all of this unsourced demand may be met by temporarily pumping more groundwater and/or drawing more Jameson water, which is not limited by the Cachuma conveyance limitations. Alternatively, a small reduction in Customer demand through voluntary conversation could address the unsourced demand.

When the sale of 1,400 acre feet or approx. 43% of MWD's SWP allocation/capacity was modeled, unsourced demand did not increase substantially because Phase I modeling indicates limited use of SWP supplies over the modeled period.

Participation in a local groundwater storage program offers some advantages, such as not being constrained by conveyance restrictions in/out of Cachuma, offering some protection from infrastructure, fire, and earthquake disruptions, and could be used to address any unsourced demand. There are multiple sources of water available to fill a local groundwater storage program. These sources include unused Cachuma carryover water, Cachuma spill water, SWP supplies, and increased draws of Jameson Lake. Minimum storage capacity required is about 600 AF at 2045 demand levels.

The diversity of MWD's water sources provides resilience to temporary supply disruptions, such as the temporary loss of any one source for a period of time.

INTRODUCTION

MWD periodically examines its portfolio of water sources and compares them against current and future demand. The latest analysis was conducted in 2020, which, among other strategies included the potential for a long-term water supply contract with the City of Santa Barbara backed by its desalination plant (WSA). Since 2020, the availability of MWD's surface water supplies including SWP have diminished due to regulatory, environmental and climatic challenges. As a result of the continued reduction in the availability of SWP supplies and the significant improvements in water supply availability afforded by the WSA, MWD is considering other water supply strategies to further enhance future water availability including selling a portion of MWD's SWP allocation/conveyance capacity and participating in a local groundwater storage program in the Carpinteria Groundwater Basin. These strategies could help offset the financial impacts of MWD's acquisition of local drought-resistant water supplies, i.e., WSA, and eliminate any future projected unsourced demand. This 2025 analysis updates the previous work and considers both a partial sale of SWP supplies and participation in a local groundwater storage program.

UPDATING THE MODEL

The water supply model for the 2020 analysis used the hydrology from 1942 to 2020, along with then-current RiverWare modeling for the Santa Ynez River and modeling for delivery capabilities for the SWP. This 2025 analysis incorporates the hydrologic period of 1942-2024 (a total of 83 years), the Santa Ynez River hydrology included the RiverWare "Water Rights Order" model run, SWP availability[1], and MWD's 2024 updated bathymetric survey for Jameson Lake. In addition, the pipeline capacities that move water supplies into and out of Cachuma to MWD have been refined.

SWP capability was modeled by DWR for both current and future (2045) conditions. DWR has a single scenario for current conditions and three scenarios for future conditions. DWR modeling of current conditions yield an average of 51% of Table A available for Santa Barbara County. The future conditions include centroid inputs (middle of the spectrum of possible model inputs, called "50% level of concern" – average of 43% of Table A available for Santa Barbara County), inputs with less supply in assumptions ("75% level of concern" – average 40% of Table A), and inputs with worse-case assumptions ("95% level of concern" – average 37% of Table A). This analysis utilizes all three levels of concern for future conditions.

There are two significant conveyance constraints on water supplies for MWD that are included in the model. The first constraint is conveying imported supplies, e.g., SWP, into Cachuma from the SWP Coastal Branch Aqueduct. How that water is delivered depends upon the lake elevation in Cachuma. The three options for delivery of imported water to Cachuma have historically included (1) conveying water over Bradbury Dam (dam), (2) conveying water through the dam spillway, and (3) using the dam penstock. At lake levels greater than 720 ft msl, option #1 is used with a capacity of 2,843 AFY for MWD. At lake levels less than 720 ft above msl, option #2 can deliver 3,554 AFY for MWD. In addition, option #3 may be available when lake levels are either above 730 ft or below 665 ft above msl.

The second constraint involves the South Coast Conduit, the regional pipeline connecting Cachuma and Tecolote Tunnel to MWD's service area. At Cachuma Lake elevations greater than 662 ft above msl, MWD's capacity from Cachuma to Lauro Reservoir, located immediately ahead of the regional Cater Water Treatment Plant, is 389 AF/month (4,672 AFY). Below 662 ft above msl, MWD's capacity is 243 AF/month (2,920 AFY). This lower capacity is the result of the limited capacity of the emergency pumping barge in Cachuma, which is used when deliveries via

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[1] California Department of Water Resources, 2024, Technical Addendum to the State Water Project Delivery Capability Report, 2023, 274p.

gravity are prohibited due to a low lake level; this capacity could potentially be improved with higher-capacity pumps, but further analysis would be needed.

Two additional updates were made to the model to optimize MWD's use of its water supplies. First, groundwater use is dependent upon the hydrology (wet, average, dry). Use is limited during wet conditions and increased gradually as conditions become dry. Second, SWP supplies are imported to Cachuma in advance of their need to help reduce the impact of the conveyance constraints into Cachuma. Any imported water stored in Cachuma is a risk of loss to spill during a wet year.

CUSTOMER DEMAND

Demand can vary significantly between wet and dry conditions. Current demand was calculated by using demand during the period 2017-2024, which includes a range of hydrologic conditions. The model calculates demand depending upon hydrologic conditions; demand during wet years is 3,717 AFY, during average years is 4,084 AFY, and during dry years is 4,452 AFY.

Future demand in 2045 uses the current demand above and projects an annual increase of 0.5% growth consistent with the Montecito Community Plan. This results in a 2045 projected demand of 4,152 AFY in wet years, 4,563 AFY in average years, and 4,974 AFY in dry years. Actual growth over the last 20 years has been about 0.25%, which lowers projected future demand. As discussed in the Phase I results, the sensitivity of this future demand was evaluated in the modeling.

PHASE I MODEL SCENARIOS

This 2025 update is separated into two phases: Phase I examines current and future demand and supply without additional strategies, and Phase II incorporates various potential strategies to Phase I modeling.

SCENARIO I-1

Current demand, current supplies, current priorities of use for each water supply.

a. With historical sequence of wet, average, and dry years;
b. With extension of the longest dry period by two years to test resiliency of supply.

SCENARIO I-2

Future demand in 2045, future supplies according to SWP centroid (50% level of concern) delivery projections; future Cachuma deliveries reduced by 20%-30%-40%. This future scenario would be considered to be medium risk on the risk spectrum.

SCENARIO I-3

To examine higher-risk scenarios, future demand in 2045 was used with future supplies according to SWP 50% and 75% levels of concern, future Cachuma deliveries were reduced by 20%-30%-40%, and the longest historical dry period was extended by two years.

Scenario Parameters	Demand	SWP	Cachuma Reduction	Extended Dry Period
Scenario I-1a	Current	2023 Adjusted	None	No
Scenario I-1b	Current	2023 Adjusted	None	Yes
Scenario I-2	Future	50% LOC	20-30-40%	No
Scenario I-3	Future	50-75% LOC	20-30-40%	Yes

Table 1. Parameters for Phase I scenarios.

PHASE I RESULTS

Phase I results indicate that there is minor unsourced demand at current demand, and slightly more at future demand. In years with unsourced demand, the amount of unsourced demand is 5% or less of the annual demand or up to 273 AFY (Table 2). In all cases, the unsourced demand was not caused by a shortage of water supply, but rather a limitation in conveyance capacity in the South Coast Conduit. This limitation occurs only when Cachuma storage is low (during very dry periods) and the capacity to bring water to the Cater Water Treatment Plant via the Emergency Pumping Barge is reduced. This reduced capacity affects supply availability anywhere from one to four months. MWD could overcome this capacity limitation by temporarily increasing supplies nearer its service area, such as Jameson Lake or groundwater.

When future demand is lowered by using a growth rate of 0.25% instead of 0.5%, the temporary unsourced demand is reduced by about half but not eliminated.

The details of the amount of each source used during the various model runs is shown in Figures A- 1 to A- 8) included in the appendix.

Scenarios I-2 and I-3 were run with several iterations – SWP 50% and 75% levels of concern and Cachuma reductions of 20%, 30%, and 40%. Results were similar because it was conveyance constraints that resulted in the shortfalls, and not a lack of the water source itself.

Scenario	% of Years	Largest Annual Unsourced Demand (% of Demand/AFY)
Scenario I-1a	4%	2%/74
Scenario I-1b	5%	2%/80
Scenario I-2 20%-40%	5%	5%/264
Scenario I-3 50%, 20%-40%	5%	5%/264
Scenario I-3 75%, 20%-40%	5%	5%/273

Table 2. Unsourced demand from results of 83 years of hydrology in the model.

Water from Cachuma is one of MWD's primary sources of supply. Table 3 indicates the various methods and quantities of use. At current demand, more carryover water is lost to spills because there is less demand for the water. The carryover water lost to spill is a potential source of supply for a local groundwater banking program. An additional source for a local groundwater banking program is spill water, which is little used because customer demand is typically low during these wet months.

Scenario	Directly from Allocation (Avg. AFY)	Spill Water Used (Avg. AFY)	Carryover Used (Avg. AFY)	Carryover Lost to Spill (Avg. AFY)
Scenario I-1a	959	26	45	1,536
Scenario I-1b	963	26	48	1,530
Scenario I-2 20%-40%	1,218 to 1,158	45	141 to 123	735 to 365
Scenario I-3 50%, 20%-40%	1,217 to 1,157	45	141 to 123	735 to 365
Scenario I-3 75%, 20%-40%	1,217 to 1,157	45	141 to 123	735 to 365

Table 3. Use of Cachuma supplies from results of 83 years of hydrology in the model.

An aspect of the water supply that is of interest is the use of SWP supplies by MWD. SWP is used in the model after the WSA (desal), Jameson/Doulton, Cachuma, groundwater, and Cachuma sources (except for dry years when SWP may be delivered to Cachuma in advance of its need to avoid conveyance constraints). SWP supplies are little used at current demand, with use increasing at 2045 demand (Table 4, Figure 1). Subsequently, unused SWP supplies in any year decreases from current demand to 2045 demand (Figure 2). At current demand, SWP supplies stored in SemiTropic are little used, with usage slightly increasing at 2045 demand (Figure 3).

Scenario	Allocation (Avg. AFY)	To Storage (Avg. AFY)	From Storage to Customers (Avg. AFY)	Unused (Avg. AFY)
Scenario I-1a	0	0	0	1,472
Scenario I-1b	0	0	0	1,464
Scenario I-2 20%-40%	17 to 90	0 to 10	0 to 9	1,188 to 1,224
Scenario I-3 50%, 20%-40%	23 to 96	2 to 12	2 to 11	1,124 to 1,164
Scenario I-3 75%, 20%-40%	23 to 96	1 to 4	1 to 4	1,036 to 1,072

Table 4. SWP use from results of 83 years of hydrology in the model.

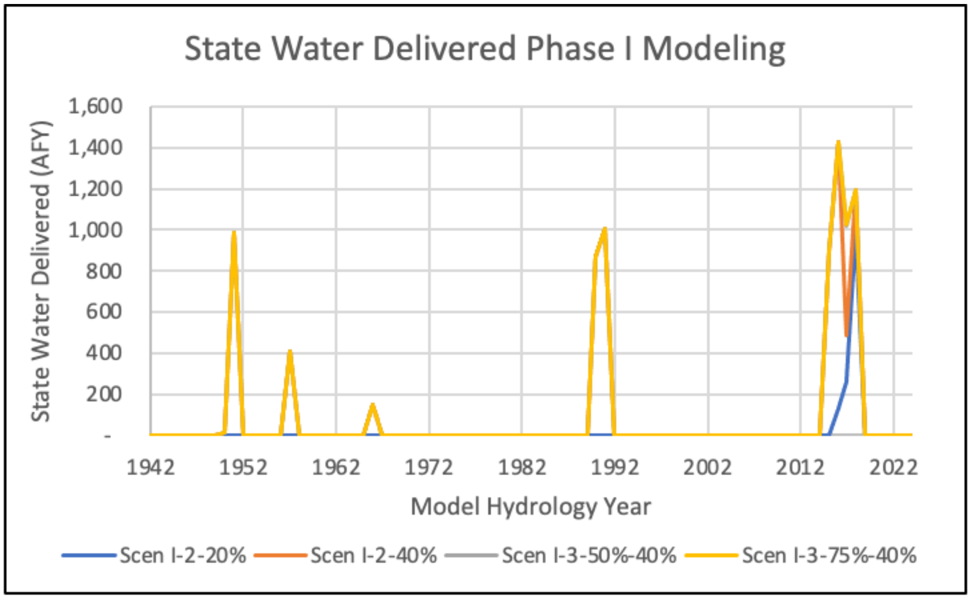

Figure 1. SWP delivered from results of 83 years of hydrology in the model.

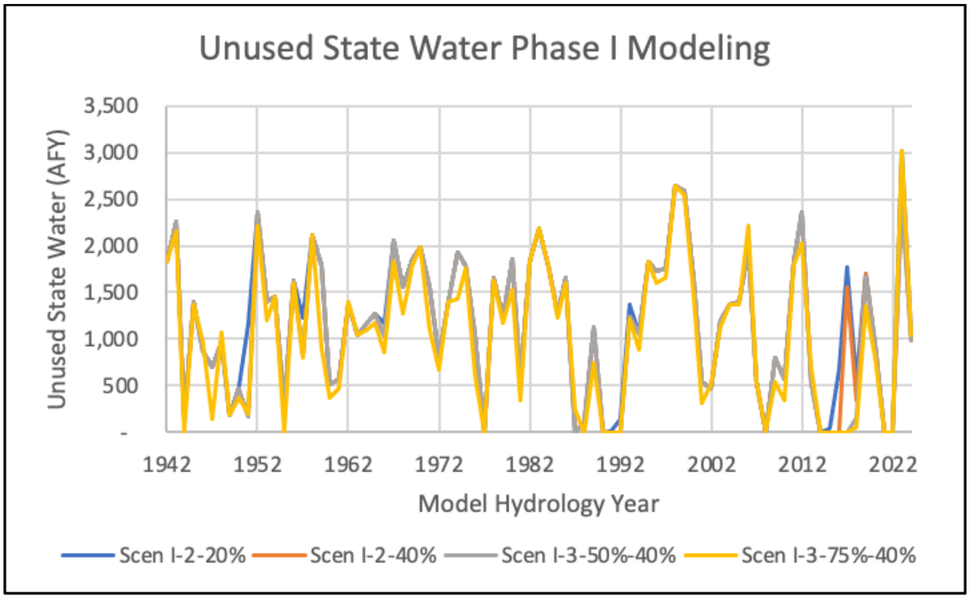

Figure 2. Unused SWP in a model year from results of 83 years of hydrology in the model.

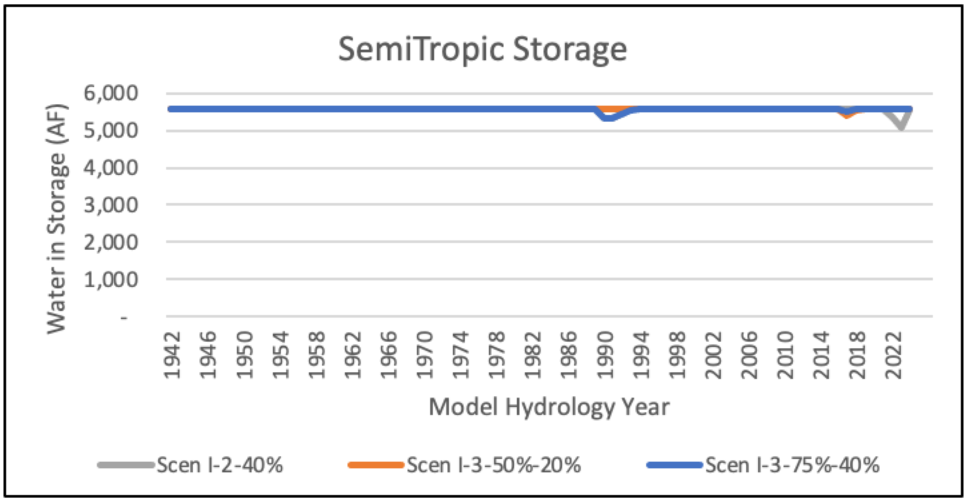

Figure 3. MWD water in storage with SemiTropic from results of 83 years of hydrology in the model.

Model results can be used to provide guidance for the upcoming Urban Water Management Plan (UWMP). This analysis differs somewhat from the format of the UWMP. Appendix C provides suggested input for the UWMP.

PHASE II MODEL SCENARIOS

Phase II models two water supply strategies that have the potential to further shore up MWD's long term water supply reliability while optimizing its limited resources. The first strategy is the potential permanent transfer (or sale) of a portion of MWD's SWP allocation/conveyance capacity or just conveyance capacity. The sale amount modeled was 1,400 AFY of allocation and a proportional amount of conveyance capacity. Phase II modeling includes various combinations of sales/no sale, SWP availability, and reductions in Cachuma allocation. The second strategy modeled is participating in a local groundwater storage program, potentially in the Carpinteria Groundwater Basin. The modeling investigates potential sources of water for banking, the total storage capacity needed, the rates of input/output, and its ability to address any projected unsourced demand.

Phase II modeling took a broader look at the range of supply availability, including the worse-case SWP future availability at the 95% "level of concern", a drought extending two years from historical trends, and a six-month interruption in the delivery of desal water.

PHASE II SCENARIOS INCLUDE:

Scenario II-1: Use current demand, current supplies with the permanent transfer (or sale) of a portion of MWD's SWP allocation and conveyance capacity.

Scenario II-2: Use current demand, SWP allocation and conveyance capacity sale, current supplies with the addition of local injection/extraction capability commensurate with the availability of surplus water to mitigate the projected unsourced demand. This scenario gives an approximation of the amount of local storage/extraction capacity required to meet projected unsourced demand at current demand levels.

Scenario II-3: Use future demand in 2045, future supplies according to SWP centroid (50% level of concern) delivery projections; future Cachuma deliveries reduced by 20%, 30%, or 40%. Addition of local injection/extraction capability commensurate with the availability of surplus water to mitigate the projected unsourced demand. This scenario gives an approximation of the amount of local storage/extraction capacity required to meet unsourced demand at 2045 demand levels.

a. Without sale of SWP;
b. With sale of portion of SWP allocation and conveyance capacity;
c. With sale of portion of SWP allocation conveyance capacity only, no local storage;
d. With sale of portion of SWP conveyance capacity only.

Scenario II-4: Use future demand in 2045, future supplies according to SWP 75% level of concern delivery projections; future Cachuma deliveries reduced by 30%; sale of portion of SWP allocation and conveyance capacity; addition of local injection/extraction capability commensurate with the availability of surplus water to mitigate the projected unsourced demand. This scenario is positioned between the centroid values and the worst-case values. Given the continued reduction in projected future availability of SWP and the uncertainty in future Cachuma allocation, this scenario may be the most realistic for future planning.

a. Without sale of SWP allocation and capacity;
b. With sale of SWP allocation and capacity.

Scenario II-5: Use future demand in 2045, future supplies according to SWP 95% level of concern delivery projections; future Cachuma deliveries reduced by 40%; the extension of drought conditions by two years, addition of local injection/extraction capability commensurate with the availability of surplus water to mitigate the projected unsourced demand. This scenario uses low supply assumptions and is considered on the high-risk side of the model runs.

a. Without sale of SWP allocation and capacity;
b. With sale of SWP allocation and capacity.

Scenario	Demand	SWP	Cachuma Reduction	Extended Dry Period	Sale	Local Storage
Scen II-1	Current	2023 Adjusted	None	No	Allocation, Capacity	No
Scen II-2	Current	2023 Adjusted	None	No	Allocation, Capacity	Yes
Scen II-3a	Future	50% LOC	20-40%	No	No	Yes
Scen II-3b	Future	50% LOC	20-40%	No	Allocation, Capacity	Yes
Scen II-3c	Future	50% LOC	20-40%	No	Capacity only	No
Scen II-3d	Future	50% LOC	20-40%	No	Capacity only	Yes
Scen II-4a	Future	75% LOC	30%	No	No	Yes
Scen II-4b	Future	75% LOC	30%	No	Allocation, Capacity	Yes
Scen II-5a	Future	95% LOC	40%	Yes	No	Yes
Scen II-5b	Future	95% LOC	40%	Yes	Allocation, Capacity	Yes

Table 5. Parameters for Phase II model runs.

PHASE II RESULTS

Phase II results indicate that without a local groundwater storage program, all scenarios result in small amounts of unsourced demand (Table 6). As in Phase I modeling, unsourced demand is a result of conveyance constraints in and out of Cachuma and not from a lack of supply. The sale of a portion of SWP allocation and conveyance capacity do not negatively impact the unsourced demand – there remains significant unused SWP supplies in all but the most extreme scenarios (i.e., scenario 5) after the sale is accounted for.

MWD's various supplies provide resilience to temporary loss of a source of a supply. A six-month disruption of WSA (desal) water was modeled to test this resilience. Depending upon when the loss occurs (wet, average, drought), unsourced demand varies from 0 AF to about 300 AF during the loss period. These shortages can be filled by temporarily increasing groundwater pumping and/or extra withdraws from Jameson Lake.

Scenario II-4b is considered to be the most likely combination of factors for future planning. This scenario uses SWP projections that are between centroid and worse-case values. It also uses a 30% reduction in future Cachuma allocations.

Scenario	% of Years	Largest Annual Unsourced Demand (% of Demand/AFY)
Scen II-1	4%	2%/74
Scen II-2	4%	2%/74
Scen II-3a, 20%-40%	5%-6%	5%/273-273
Scen II-3b, 20%-40%	5%-5%	5%/273-273
Scen II-3c, 20%-40%	5%	5%-5%/273-273
Scen II-3d, 20%-40%	5%	5%/273-273
Scen II-4a	5%	5%/273
Scen II-4b	5%	5%/273
Scen II-5a	5%	5%/273
Scen II-5b	5%	5%/273

Table 6. Results of 83 years of model. Unsourced demand is calculated before the possible addition of local groundwater storage program.

Scenario	Allocation (Avg. AFY)	Spill Water Used (Avg. AFY)	Carryover Used (Avg. AFY)	Carryover Lost to Spill (Avg. AFY)
Scen II-1	959	26	45	1,536
Scen II-2	961	26	46	1,534
Scen II-3a, 20%-40%	1,218 to 1,158	45	141 to 123	735 to 365
Scen II-3b, 20%-40%	1,218 to 1,158	45	141 to 123	735 to 365
Scen II-3c, 20%-40%	1,218 to 1,158	45	141 to 123	735 to 365
Scen II-3d, 20%-40%	1,218 to 1,158	45	141 to 123	735 to 365
Scen II-4a	1,194	45	144	531
Scen II-4b	1,194	45	144	531
Scen II-5a	1,161	45	119	364
Scen II-5b	1,157	45	123	365

Table 7. Results of Phase II modeling for Cachuma supplies.

Scenario	Directly to Customers (Avg. AFY)	To SemiTropic (Avg. AFY)	From SemiTropic to Customers (Avg. AFY)	Unused (Avg. AFY)
Scen II-1	0	0	0	735
Scen II-2	0	0	0	735
Scen II-3a, 20%-40%	17 to 99	0 to 3	0 to 3	1,188 to 1,132
Scen II-3b, 20%-40%	14 to 26	1 to 9	1 to 8	1,613 to 1,614
Scen II-3c, 20%-40%	17 to 96	0 to 3	0 to 3	1,190 to 1,156
Scen II-3d, 20%-40%	10 to 90	0 to 6	0 to 6	1,190 to 1,153
Scen II-4a	37	0	0	1,077
Scen II-4b	30	0	0	514
Scen II-5a	100	13	12	935
Scen II-5b	102	10	9	442

Table 8. Results of Phase II modeling for SWP supplies.

ADDITION OF LOCAL GROUNDWATER STORAGE PROGRAM

The advantage of a local groundwater storage program closer to MWD's service area is that the conveyance limitations in and out of Cachuma can be largely avoided. Four potential sources of water were investigated for such a program. Although each source was evaluated as a stand-alone source; in practice, storage water would likely be from a combination of the sources.

1) **Cachuma carryover water** – unused Cachuma allocation from a prior year that is in excess of 2,000 AF of carryover water.

2) **Cachuma spill water** – water that becomes available during spill months. While significant spill water can be available and is additive to the Cachuma allocation if delivered, spills are relatively short in duration and infrequent, demand is often low during wet periods, and the available capacity to store this water in a groundwater storage program would likely be relatively small.
3) **Unused SWP supplies** – whereas modeling has indicated a significant amount of unused SWP supplies in most scenarios, SWP supplies would likely be imported for storage during wetter, lower-demand years to avoid conveyance restrictions in/out of Cachuma.
4) **Additional Jameson draw for storage** – Jameson withdraw would increase during wet and average years, lowering the demand for Cachuma water. Because infrastructure limitations do not allow Jameson water to be transported directly to a storage program in Carpinteria, there would have to be an exchange such that Jameson water replaces some of MWD's demand, freeing Cachuma water for the storage program. The extra draw on Jameson would subsequently be replaced during spill years. The total Jameson withdraw including for storage is limited to 2,000 AFY pursuant to the Gin Chow ruling.

Evaluating how each source would be used for storage was accomplished in a two-step fashion. First, the availability of each source was determined for each month of the 83 years of the model. This availability took into account both the amount of potential source water and the conveyance restrictions in/out of Cachuma. Second, the size of the storage program for each of the four sources was determined so that there was no longer any unsourced demand. This step calculated the minimum required size of the bank to avoid unsourced demand. It does not include any safety margin for unforeseen weather or infrastructure problems. All of the sources used by themselves eliminated the unsourced demand, with the exception of Cachuma carryover water (Table 9). Cachuma carryover water could not be accumulated fast enough before the first drought in the model, so the storage project program would need to be "seeded" with initial storage water[2]. Carryover water subsequently performed as well as the other sources of storage water.

As part of the determination of minimum storage capacity, rates of input/output from storage were also determined (Table 10).

Scenario	Maximum Unsourced Demand without Local Storage	W/ Carryover Storage*	W/Spill Storage	W/ SWP Storage	W/ Jameson Storage
II-2	74	0	0	0	0
II-3a-20%	273	0	0	0	0
II-3a-40%	264	0	0	0	0
II-3b-20%	273	0	0	0	0
II-3b-40%	231	0	0	0	0
II-3d-20%	273	0	0	0	0

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[2] This problem is in part based upon the sequence of hydrologic years in the model. If there was initially a long sequence of wet or normal years, "seeding" would not be required.

II-3d-40%	231	0	0	0	0
II-4a	273	0	0	0	0
II-4b	273	0	0	0	0
II-5a	278	0	0	0	0
II-5b	217	0	0	0	0

Table 9. Results of Phase II modeling for local storage program indicating that these storage sources eliminated unsourced demand. Although each water source was modeled individually – in practice, a combination of water sources might be used for storage. * Carryover water was not effective by itself unless the storage program was first "seeded" with most of its storage water; the other sources were self-sufficient in initially filling the storage capacity.

Demand	Minimum Storage Capacity (AF)	Injection/Extraction Rate (AF/month)
Current	200	45
2045	600	105

Table 10. Minimum capacities and injection/extraction rates for storage program at current and 2045 demand. The 2045 results are for the most likely scenario (Scenario II-4b).

Figure 4. Local storage of spill water, indicating the amount of water in storage. The first years of the figure indicate the initial filling of storage. Use of stored water occurs when there is unsourced demand. Subsequent re-filling of storage may not occur in a single spill year because of conveyance capacities (e.g., early 1950s).

CONCLUSIONS

All the model runs in both Phases I and II resulted in relatively small amounts of unsourced demand (74 to 273 AFY) in 4 to 5 years of the 83 years of the modeled period. This unsourced demand is caused by conveyance limitations in/out of Cachuma rather than a shortage of supply. Some or all of this unsourced demand can likely be met by temporarily pumping more groundwater and/or drawing more Jameson water, which are not limited by the Cachuma conveyance limitations. No additional supplies are considered in Phase II – any new supplies would increase the favorability of these findings.

Disasters, such as the collapse of local tunnels, are not considered in the worst-case scenarios modeled herein, and are not analyzed in this report. Disasters such as the collapse of one or more local tunnels, or a levee break/dam failure on the SWP, or a tsunami damaging the desal facility would obviously produce different results. The District's diverse water supply portfolio helps but does not eliminate the potential impacts of a disaster such as these.

When the sale of a portion of MWD's SWP allocation/conveyance capacity is modeled, projected unsourced demand does not increase substantially because SWP supplies are little used over the model period. The unsourced demand with the sale of a portion of MWD's SWP allocation/conveyance capacity is a maximum of 74 to 273 AFY (maximum 43 to 104 AF/month) and can be mitigated with temporarily increasing deliveries from Jameson and/or groundwater.

For future planning purposes, Scenario II-4b, which incorporates (1) SWP water at 75% LOC (40% reliable), (2) 30% reduction in Cachuma, (3) sale of a 42% (or 1,400 AF) of SWP allocation and conveyance capacity, and (4) acquisition of local groundwater storage, is considered the most realistic combination of centroid and worse case assumptions. The other scenarios provide an indication of the potential range of outcomes.

MWD has several options to decrease or eliminate unsourced demand. These include participation in a local groundwater storage program, increasing pumping capacity in/out Cachuma, increasing groundwater pumping (100-300 AFY), voluntary or mandatory reduction in water demand during anticipated shortages, and acquisition of a new local water supply such as additional desal or recycled water.

MWD has multiple sources of water available for storage in a local groundwater storage program. These sources include unused Cachuma carryover water, Cachuma spill water, unused SWP, and increased draws of Jameson storage. The advantage of local storage is that it is not constrained by conveyance restrictions in/out of Cachuma. The model indicates the minimum storage capacity required is about 600 AF at 2045 demand levels. The model indicates use of a local groundwater storage program fully mitigates any project unsourced demand. Alternatively, any new supplies and/or decrease in demand would also mitigate any unsourced demand.

MWD's diverse water supply portfolio provides resilience to temporary disruptions of supply, such as the temporary loss of WSA (desal) water for a period of time. Depending upon when the loss occurs (wet, average, drought), unsourced demand varies from 0 AF to about 300 AF during the loss period. These shortages can be filled by temporarily increasing groundwater pumping and/or extra withdraws from Jameson Lake.

Under certain rare circumstances (excluding disaster conditions), the District's full SWP allocation (3,300 AFY) and/or associated conveyance capacity could be necessary to avoid unsourced demand. These circumstances depend on many factors including hydrology statewide and the availability of each of the District's water sources. Although the commencement of desal deliveries in 2022 lessened the District's future reliance on imported water, that dependence under certain rare conditions remains. Modeling suggests that future reliance on imported supplies is extremely limited and that the permanent transfer of a portion of the District SWP allocation and conveyance capacity has little impact on unsourced demand. Conceivably, more severe drought conditions could plague California, resulting in a worse water supply condition than historically experienced. Under such a condition, e.g., both Jameson and Cachuma supplies become nearly depleted, desal deliveries and groundwater production coupled with a greater reliance on imported supplies would likely be necessary to mitigate unsourced demand to the greatest extent. If SWP conveyance capacity is reduced through the sale of a portion of the District's SWP allocation and conveyance capacity, the ability to mitigate the unsourced demand would be reduced and it could become challenging, if not impossible to fully mitigate the unsourced demand. As mentioned herein, there are potential future actions that could be implemented to help mitigate or eliminate the projected unsourced demand under these rare circumstances.

APPENDIX A. PHASE I GRAPHIC RESULTS

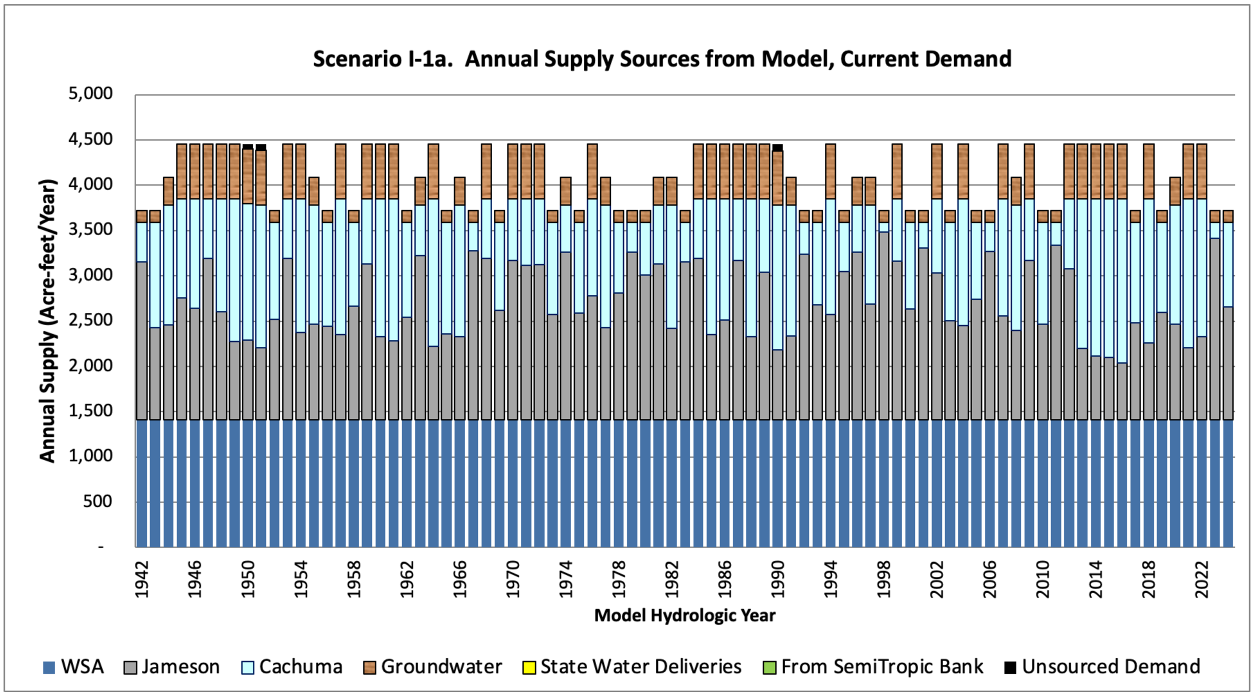


Figure A- 1 Sources of supply for Scenario I-1a from results of 83 years of hydrology in the model.

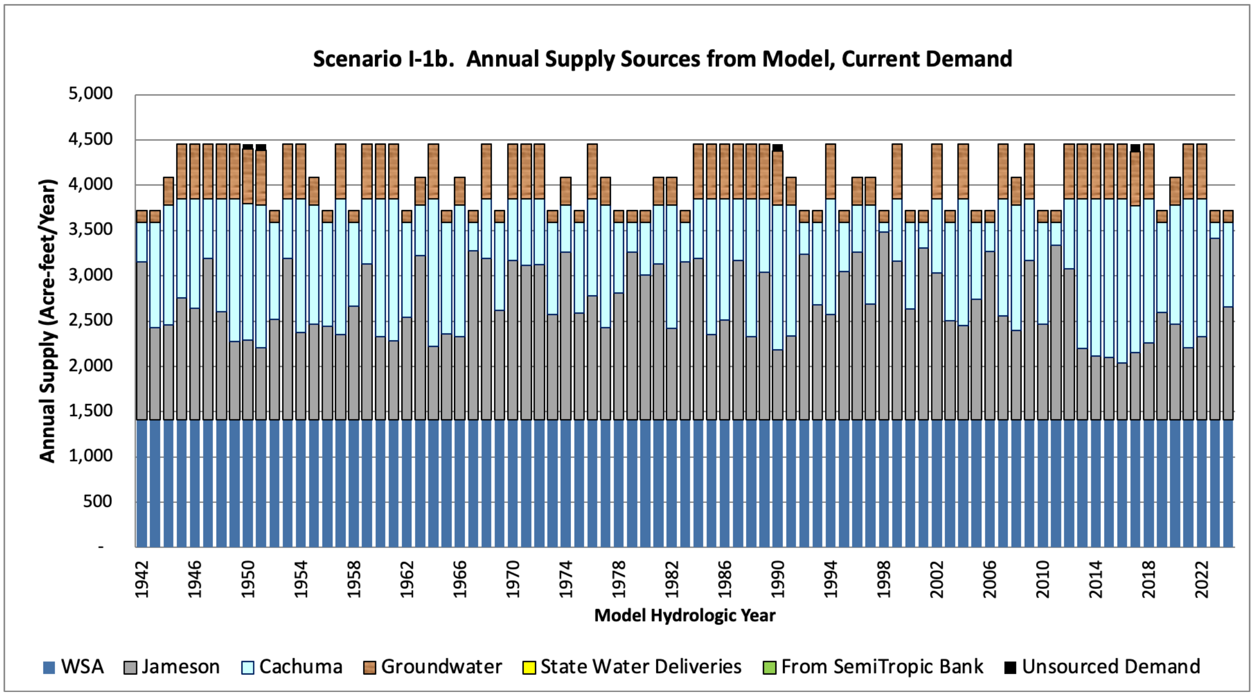


Figure A- 2. Sources of supply for Scenario I-1b from results of 83 years of hydrology in the model. This scenario increases drought by two years.

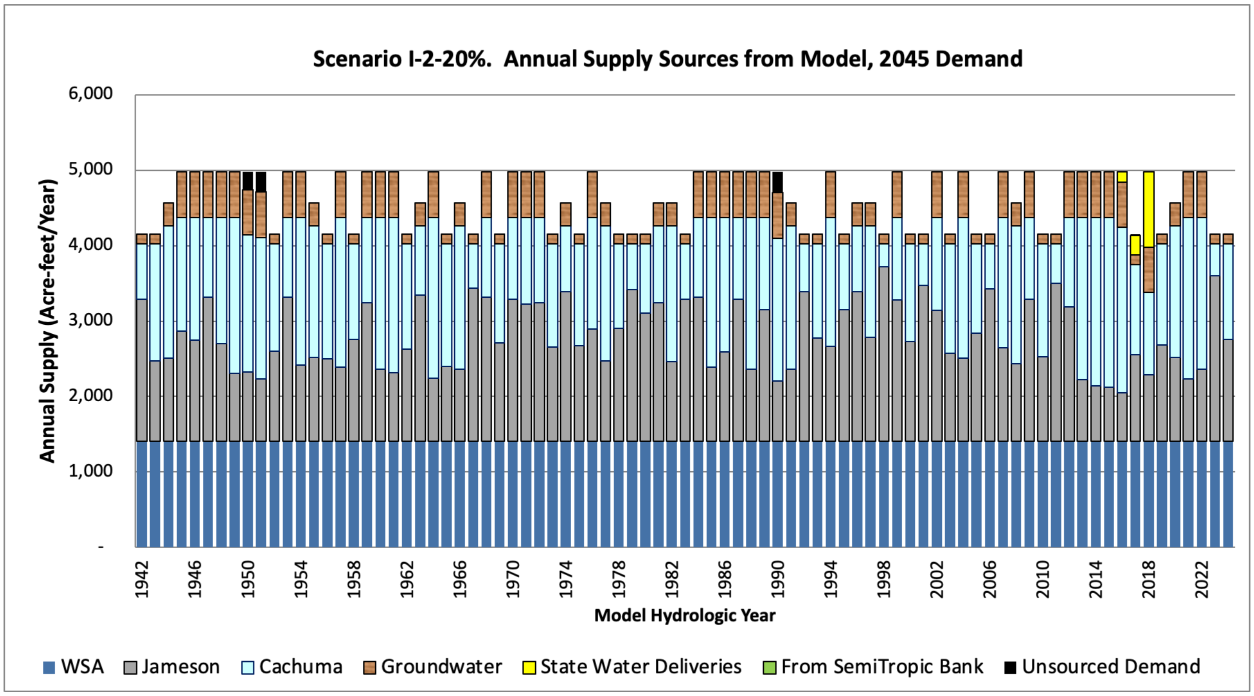


Figure A- 3. Sources of supply for Scenario I-2-20% from results of 83 years of hydrology in the model. Cachuma deliveries are reduced by 20%.

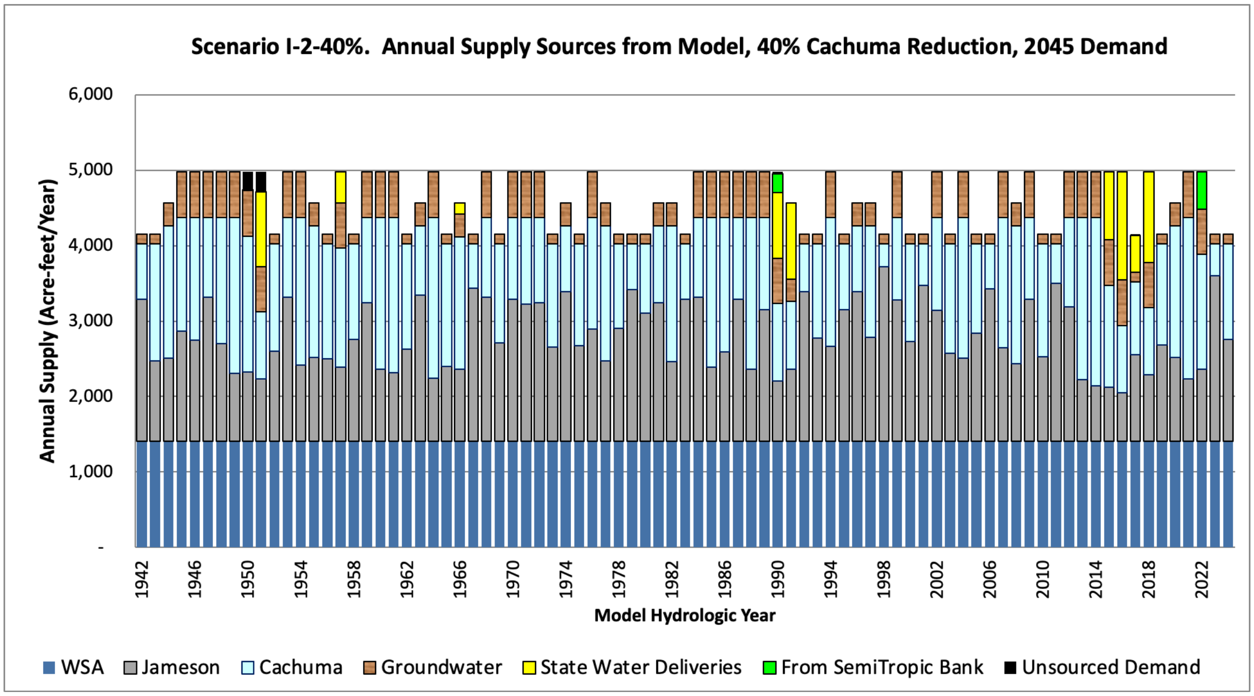


Figure A- 4. Sources of supply for Scenario I-2-40% from results of 83 years of hydrology in the model. Cachuma deliveries are reduced by 40%.

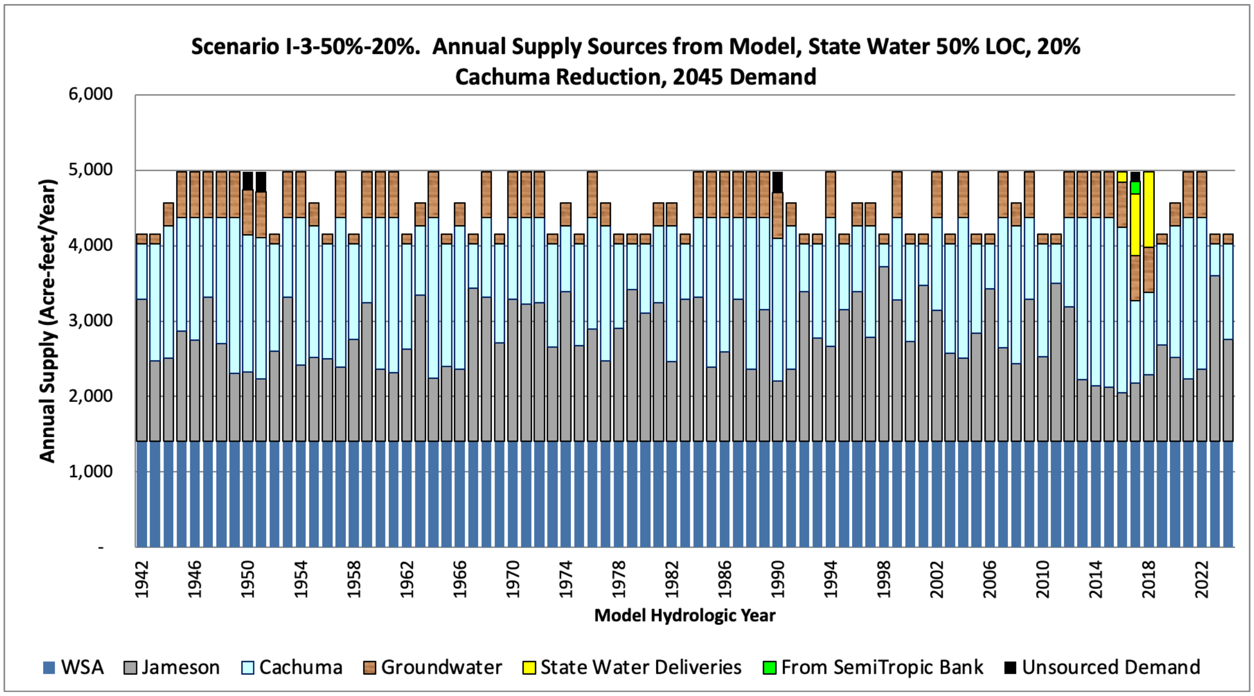


Figure A- 5. Sources of supply for Scenario I-3-50%-20% from results of 83 years of hydrology in the model. Future SWP deliveries are from centroid 50% Level of Concern, Cachuma deliveries are reduced by 20%, drought extended by two years.

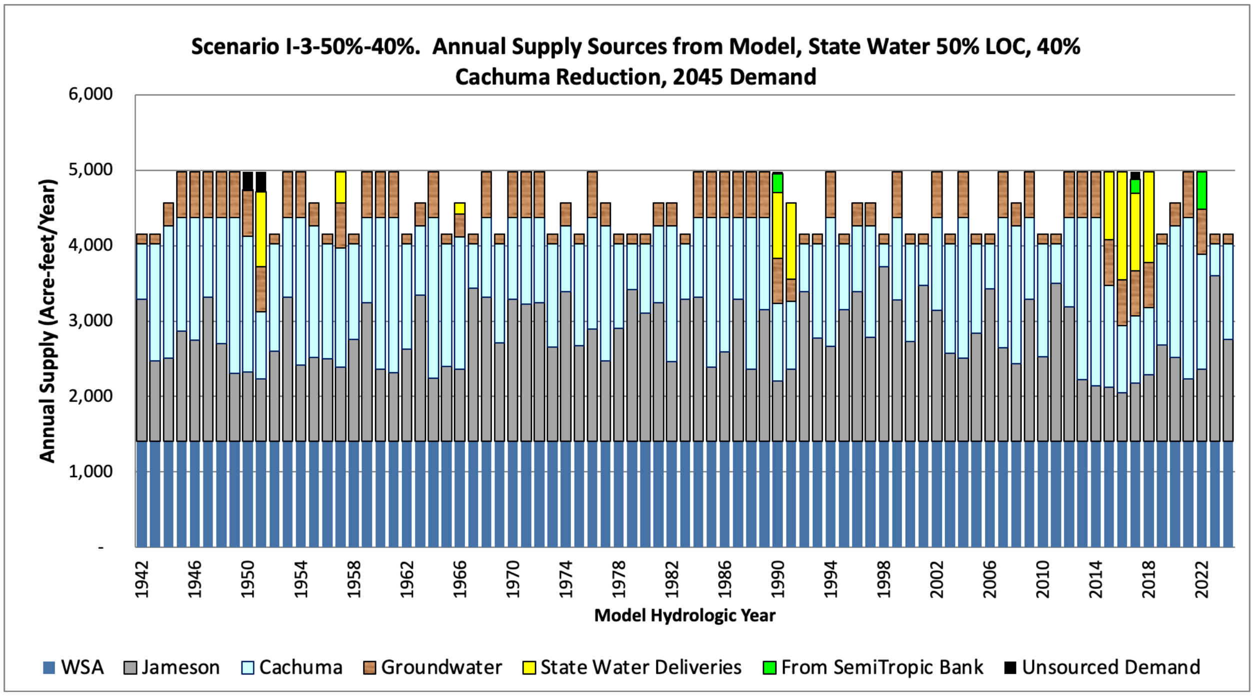


Figure A- 6. Sources of supply for Scenario I-3-50%-40% from results of 83 years of hydrology in the model. Future SWP deliveries are from centroid 50% Level of Concern, Cachuma deliveries are reduced by 40%, drought extended by two years.

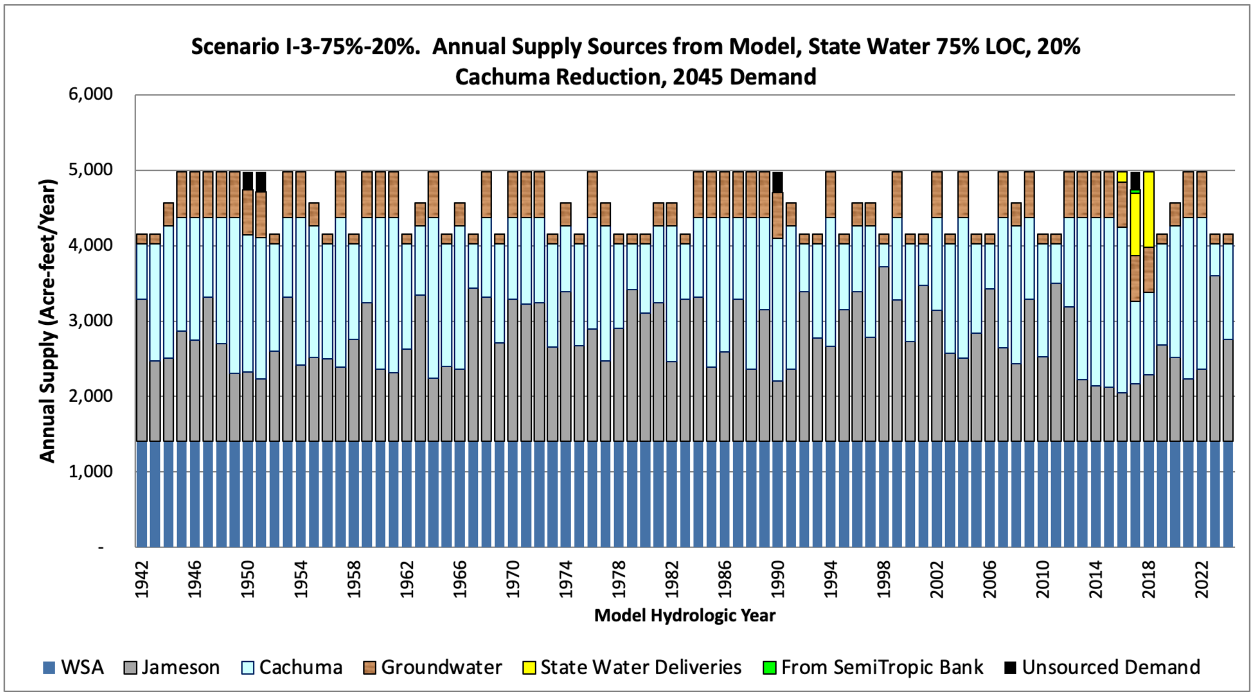


Figure A- 7. Sources of supply for Scenario I-3-75%-20% from results of 83 years of hydrology in the model. Future SWP deliveries are from 75% Level of Concern, Cachuma deliveries are reduced by 20%, drought extended by two years.

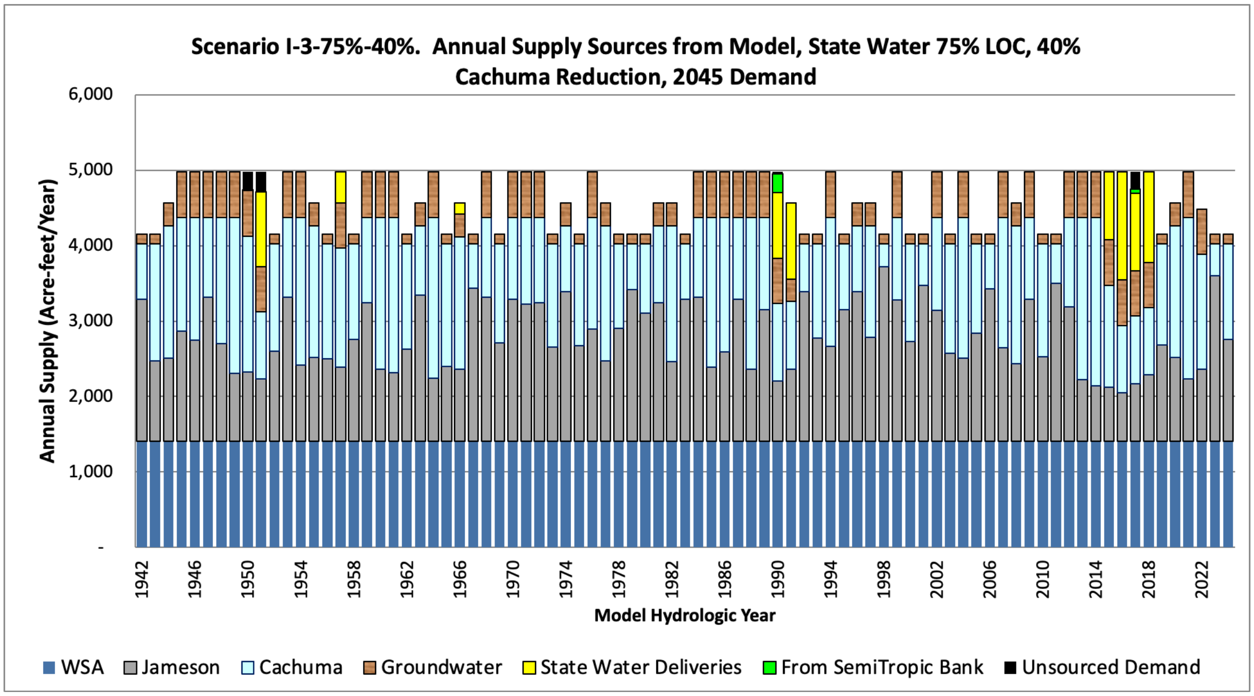


Figure A- 8. Sources of supply for Scenario I-3-75%-40% from results of 83 years of hydrology in the model. Future SWP deliveries are from 75% Level of Concern, Cachuma deliveries are reduced by 40%, drought extended by two years.

APPENDIX B. PHASE II GRAPHIC RESULTS

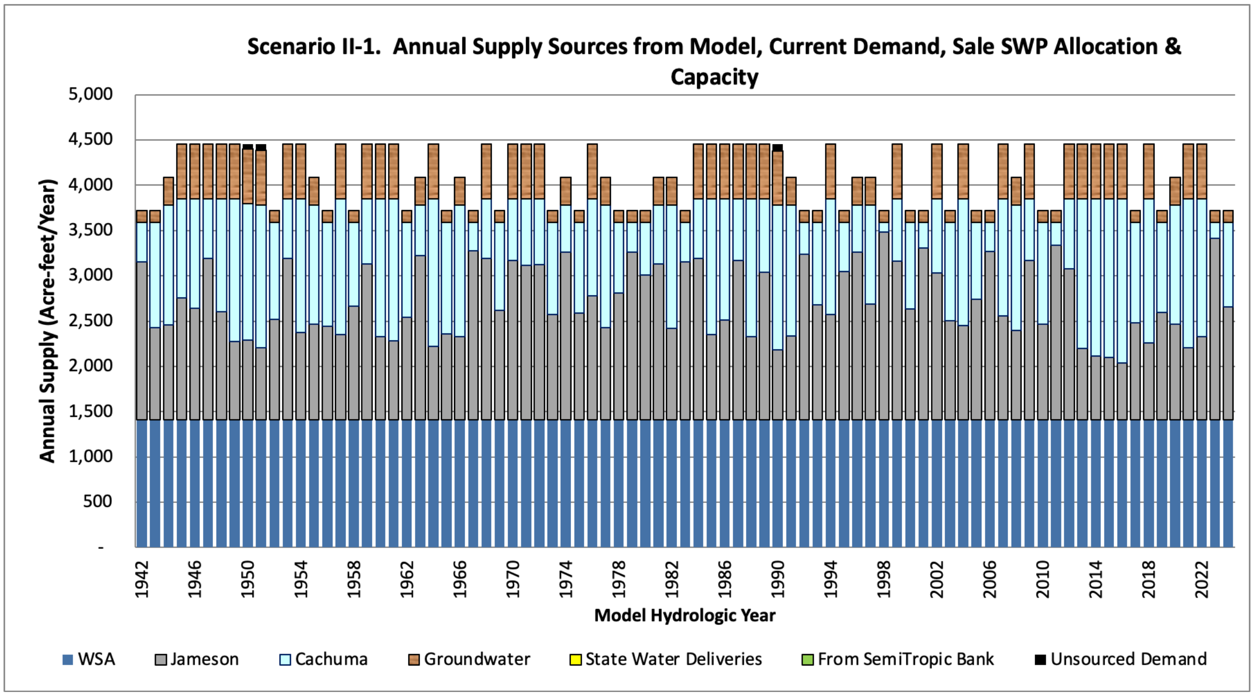


Figure B- 1. Sources of supply for Scenario II-1 from results of 83 years of hydrology in the model.

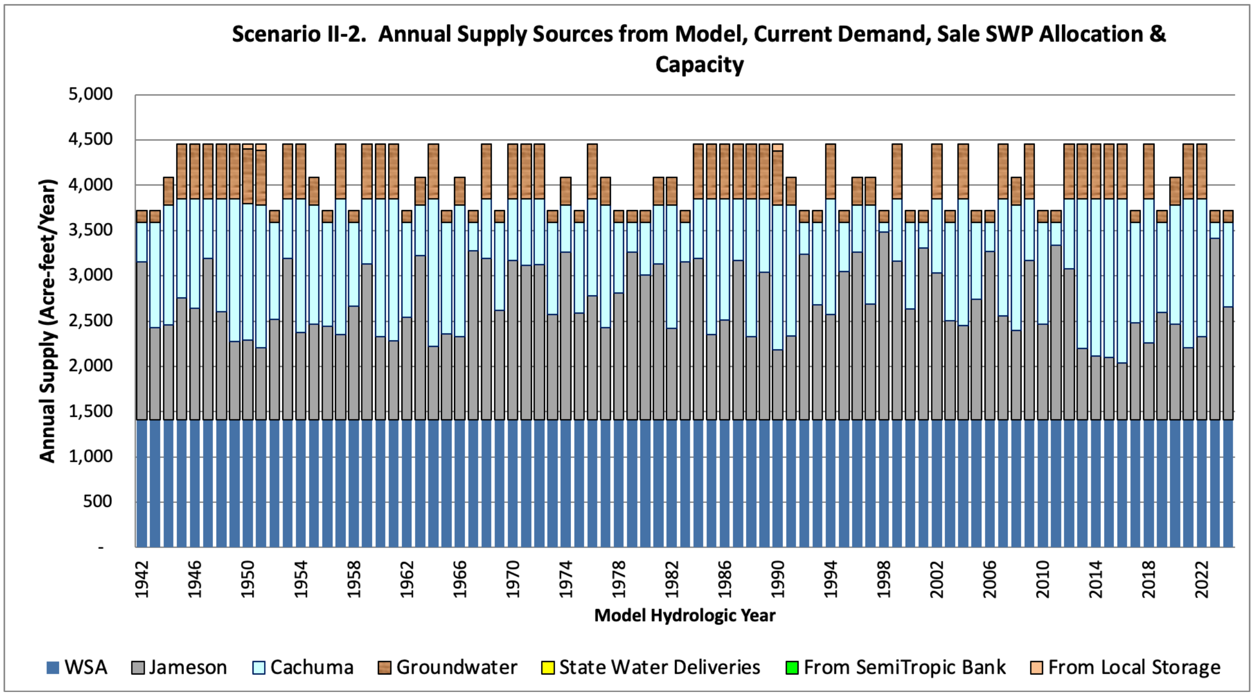


Figure B- 2. Sources of supply for Scenario II-2 from results of 83 years of hydrology in the model. Unsourced demand is replaced by supplies from local storage.

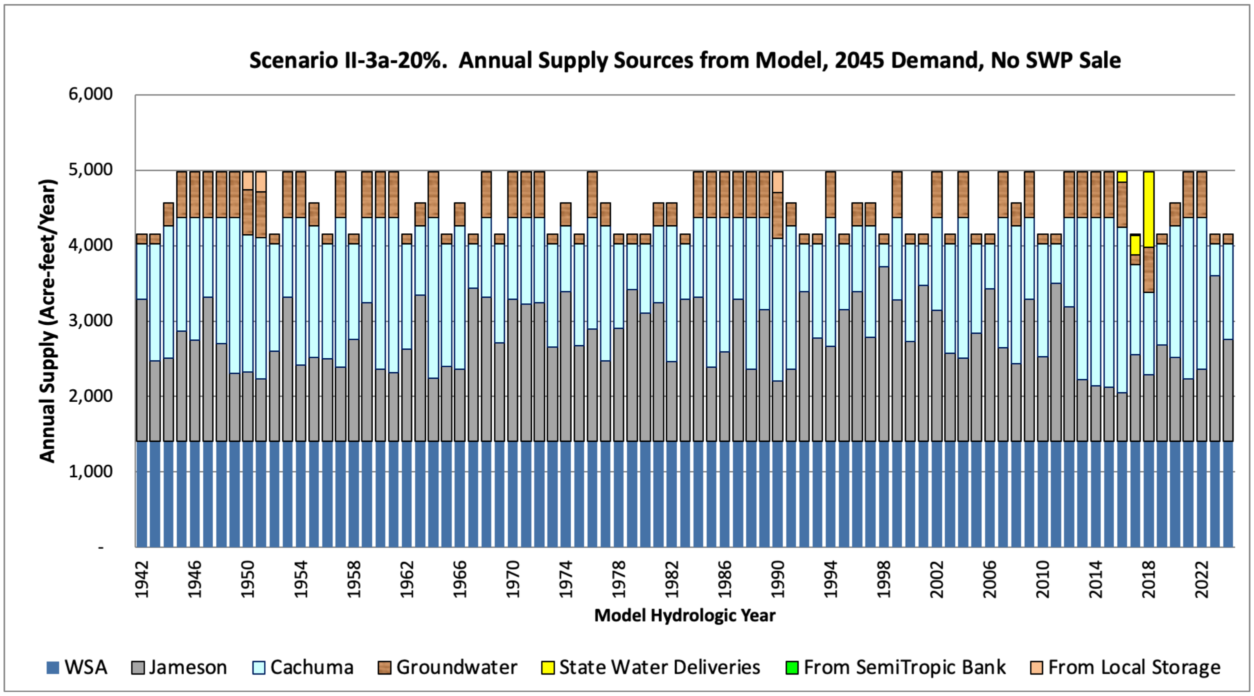


Figure B- 3. Sources of supply for Scenario II-3a-20% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 20% reduction in Cachuma allocations.

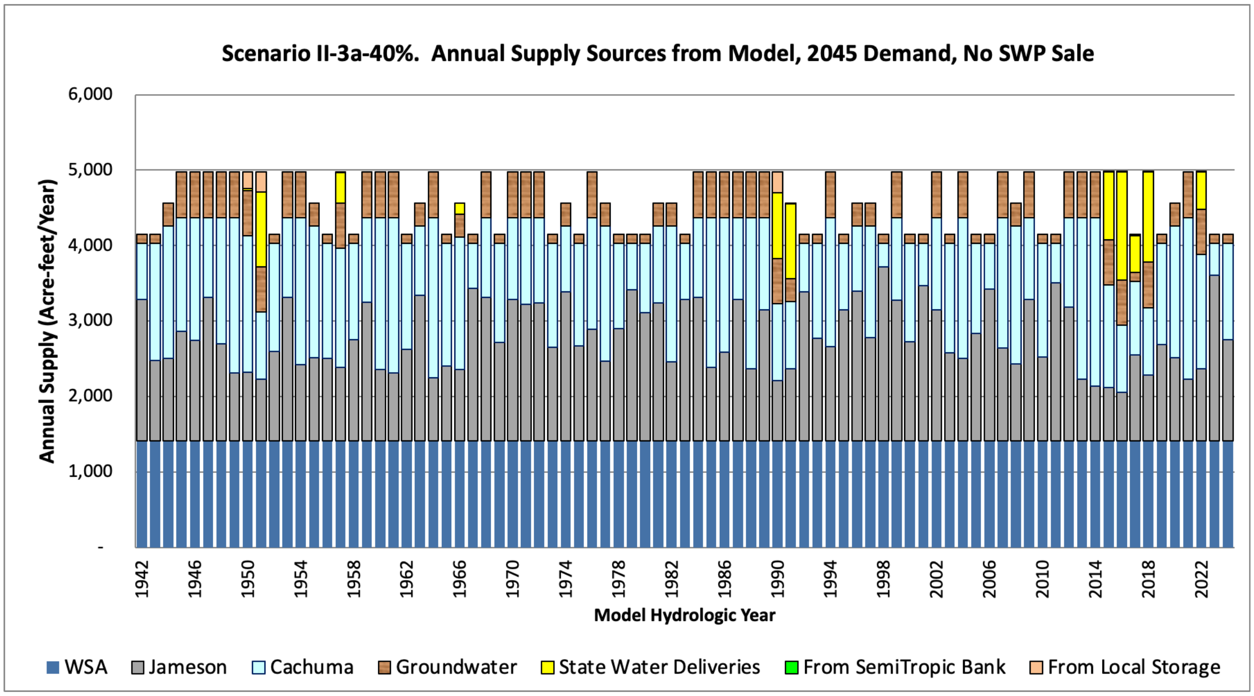


Figure B- 4. Sources of supply for Scenario II-3a-40% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 40% reduction in Cachuma allocations.

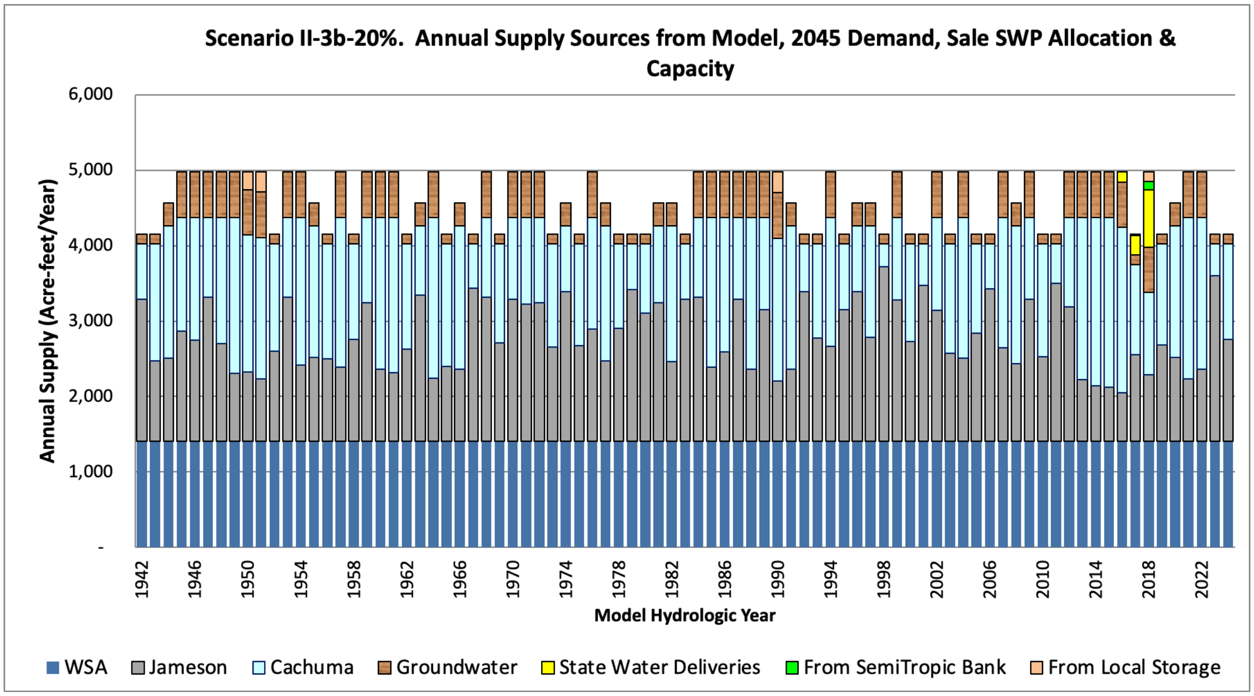


Figure B- 5. Sources of supply for Scenario II-3b-20% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 20% reduction in Cachuma allocations.

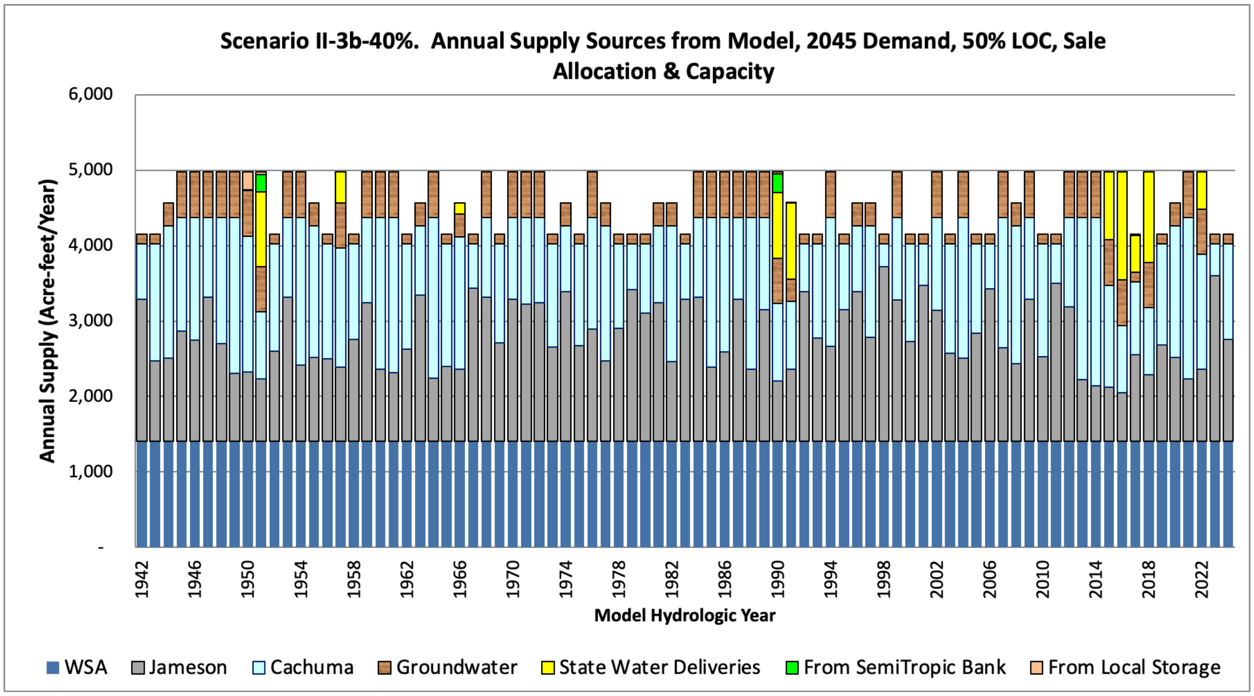


Figure B- 6. Sources of supply for Scenario II-3b-40% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 40% reduction in Cachuma allocations.

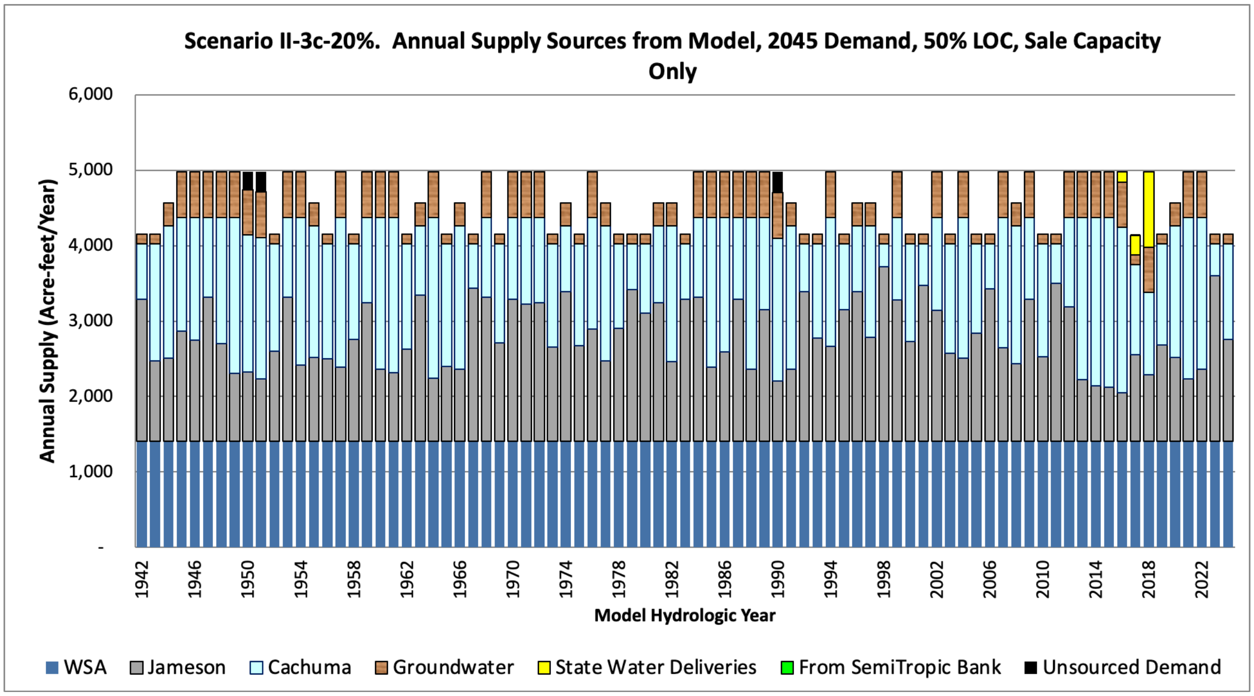


Figure B- 7. Sources of supply for Scenario II-3c-20% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 20% reduction in Cachuma allocations. There is no local storage to offset unsourced demand.

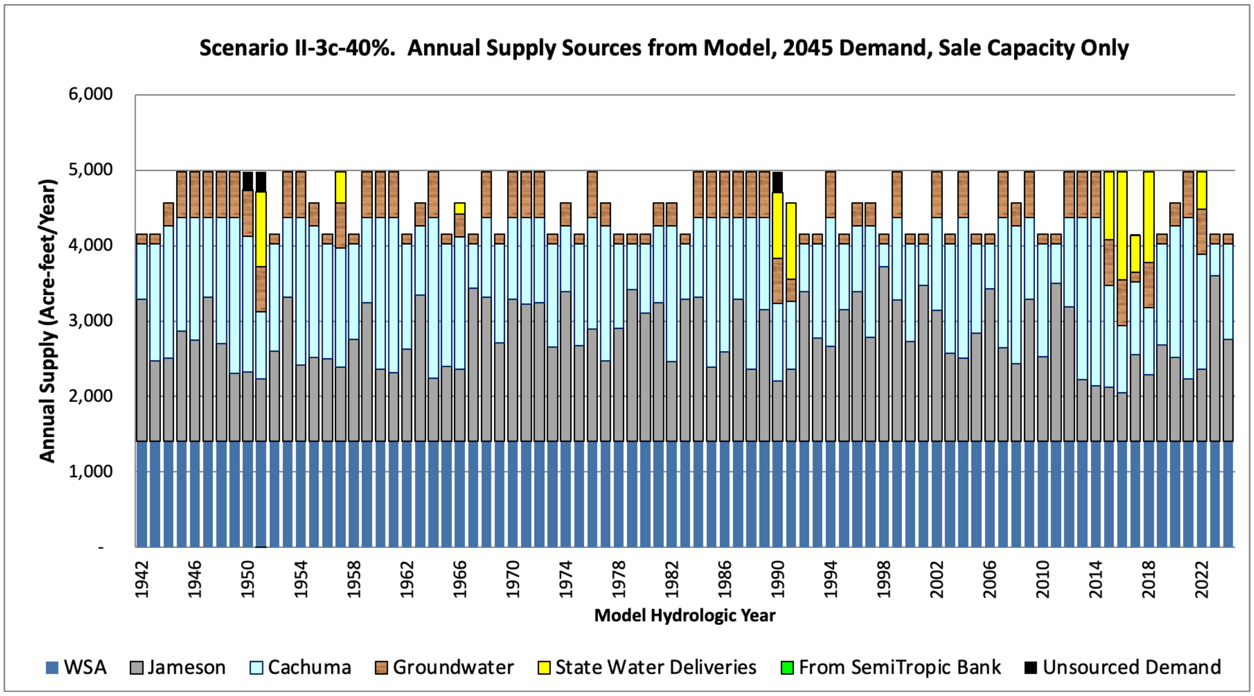


Figure B- 8. Sources of supply for Scenario II-3c-40% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 40% reduction in Cachuma allocations. There is no local storage to help offset unsourced demand.

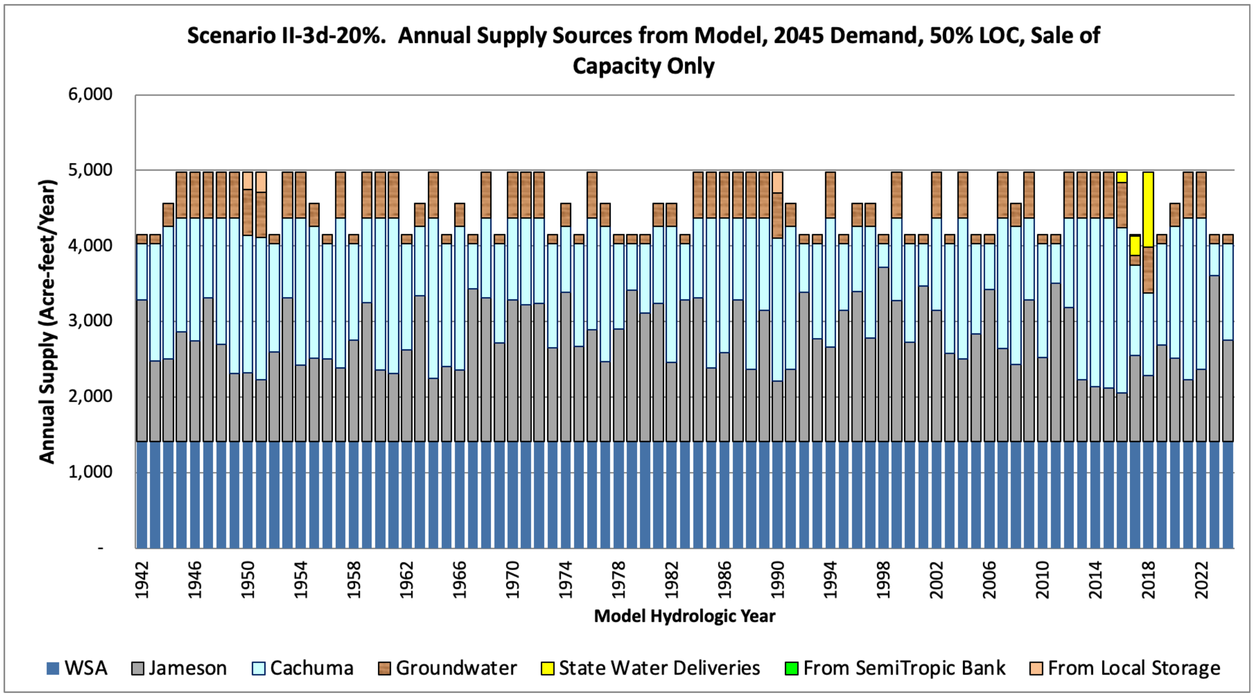


Figure B- 9. Sources of supply for Scenario II-3d-20% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 20% reduction in Cachuma allocations.

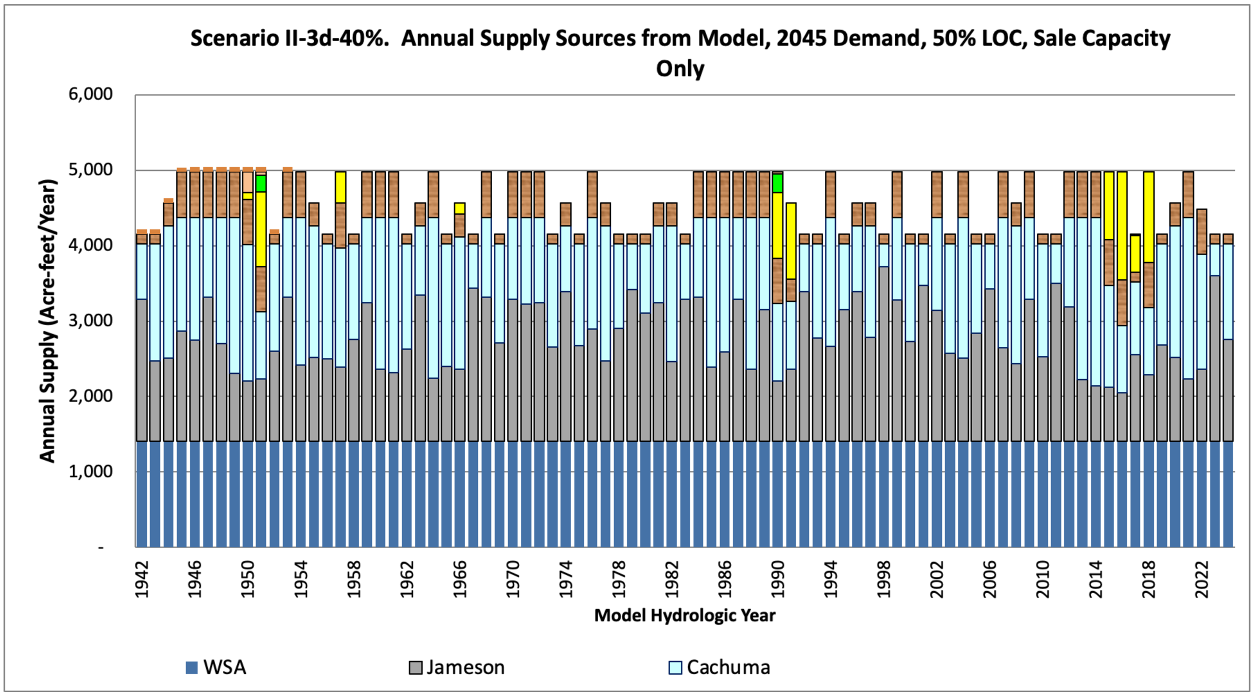


Figure B- 10. Sources of supply for Scenario II-3d-40% from results of 83 years of hydrology in the model. Future SWP is at 50% "level of concern", there is a 40% reduction in Cachuma allocations.

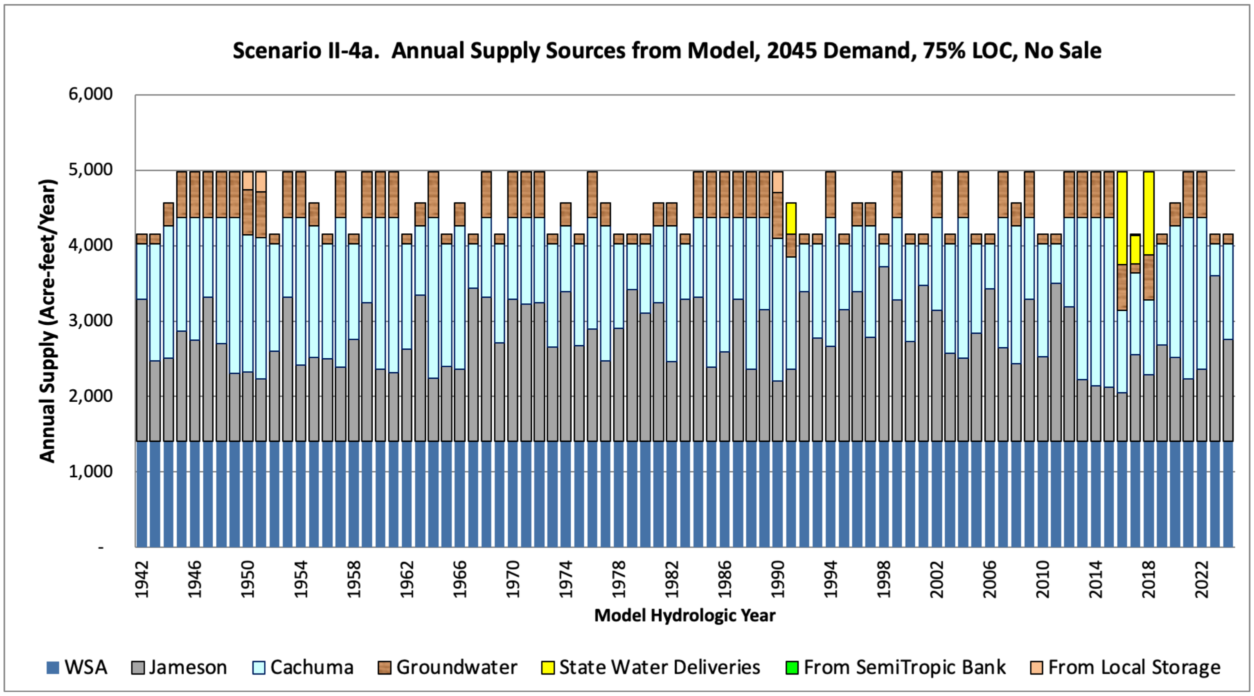


Figure B- 11. Sources of supply for Scenario II-4a from results of 83 years of hydrology in the model. Future SWP is at 75% "level of concern", there is a 30% reduction in Cachuma allocations.

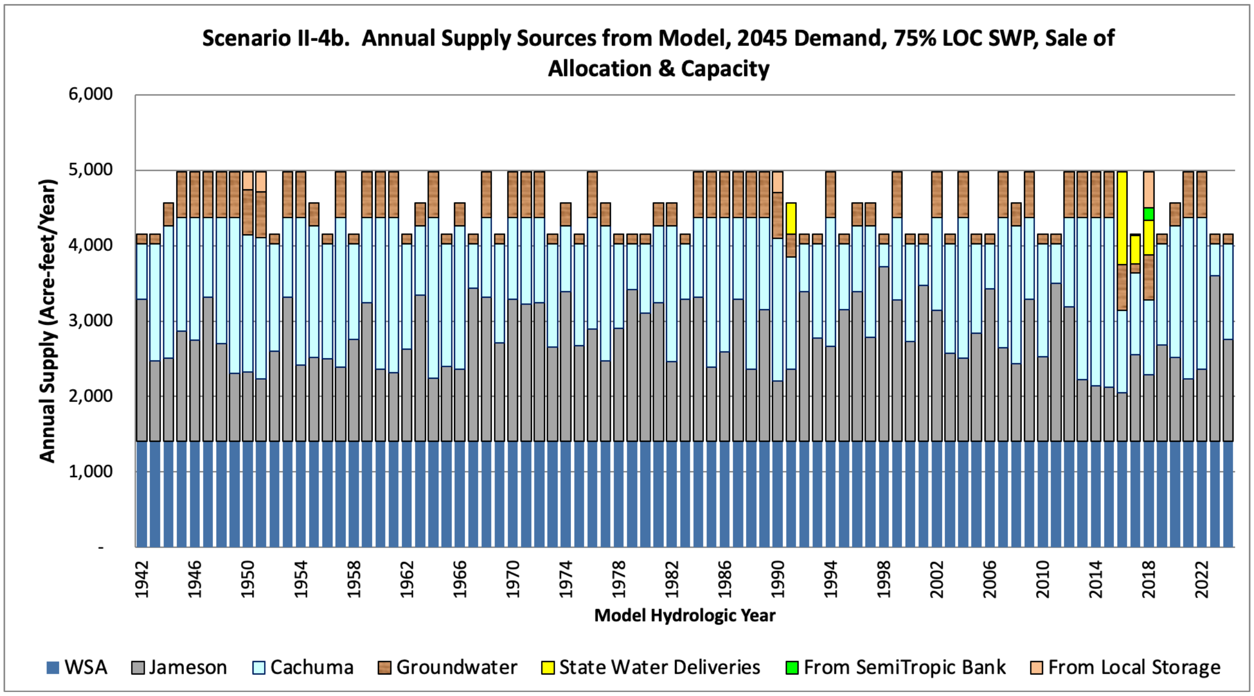


Figure B- 12. Sources of supply for Scenario II-4b from results of 83 years of hydrology in the model. Future SWP is at 75% "level of concern", there is a 30% reduction in Cachuma allocations.

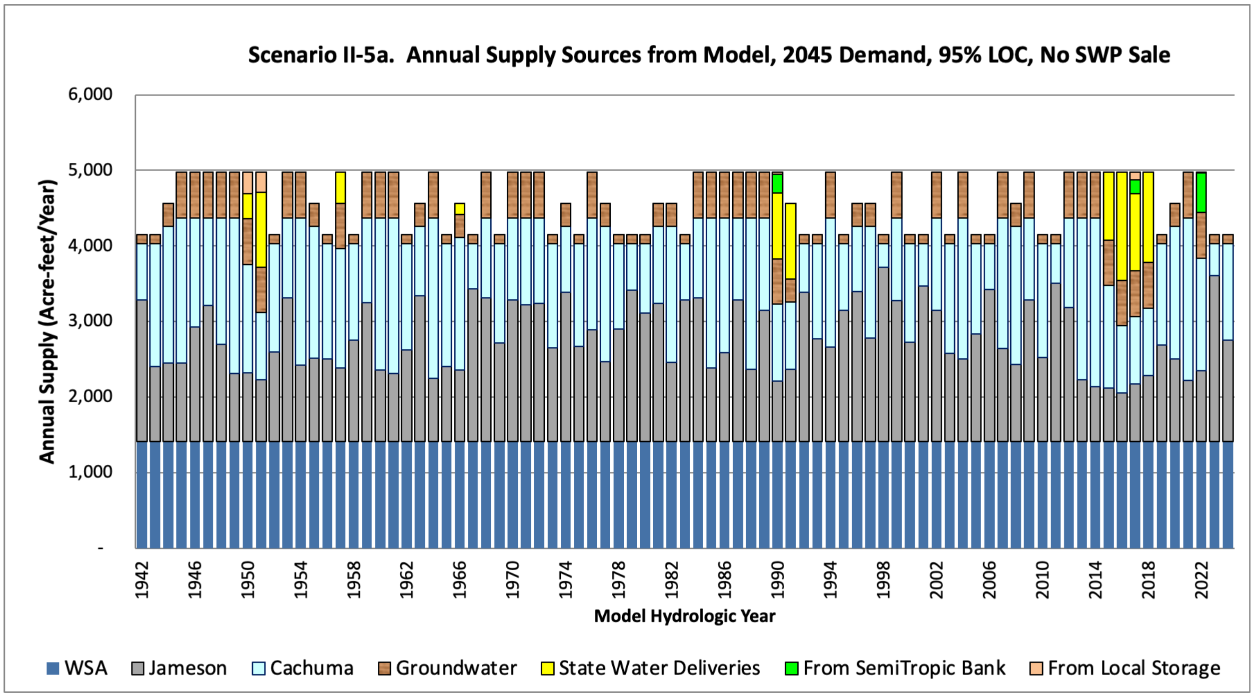


Figure B- 13. Sources of supply for Scenario II-5a from results of 83 years of hydrology in the model. Future SWP is at 95% "level of concern", there is a 40% reduction in Cachuma allocations. This is considered to be the worse-case for MWD water sources with no SWP sale.

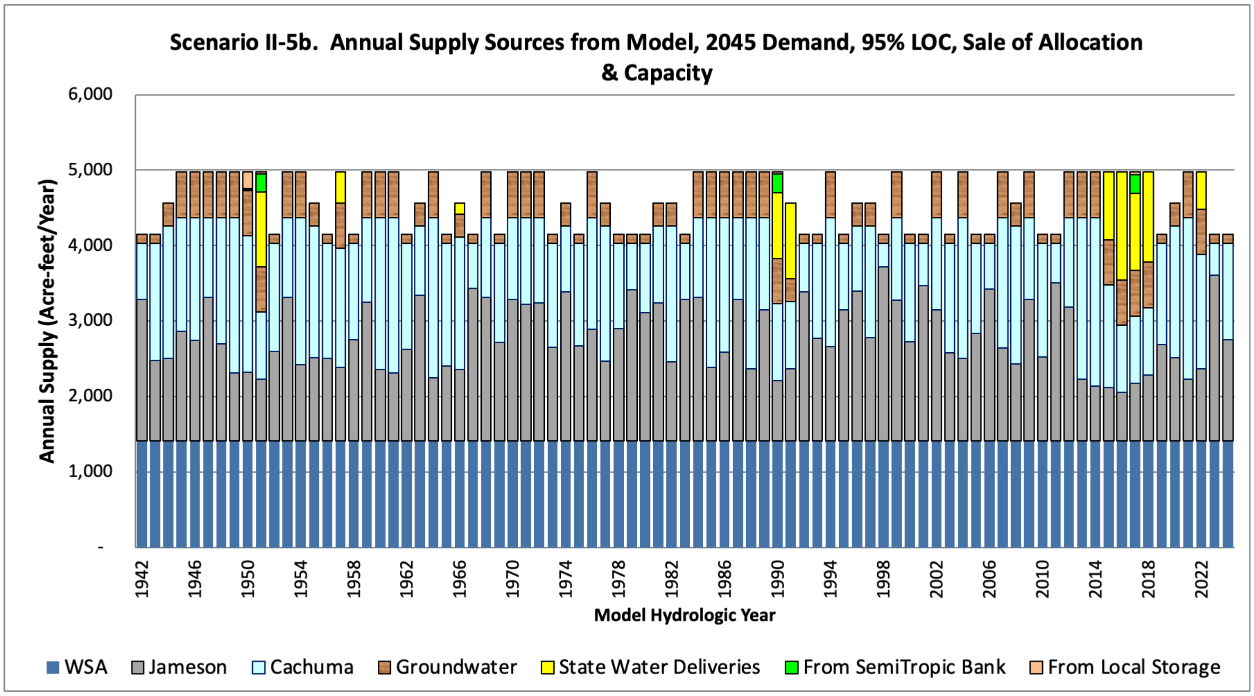


Figure B- 14. Sources of supply for Scenario II-5b from results of 83 years of hydrology in the model. Future SWP is at 95% "level of concern", there is a 40% reduction in Cachuma allocations. This is considered to be the worse-case for MWD water sources with a sale of a portion of SWP.

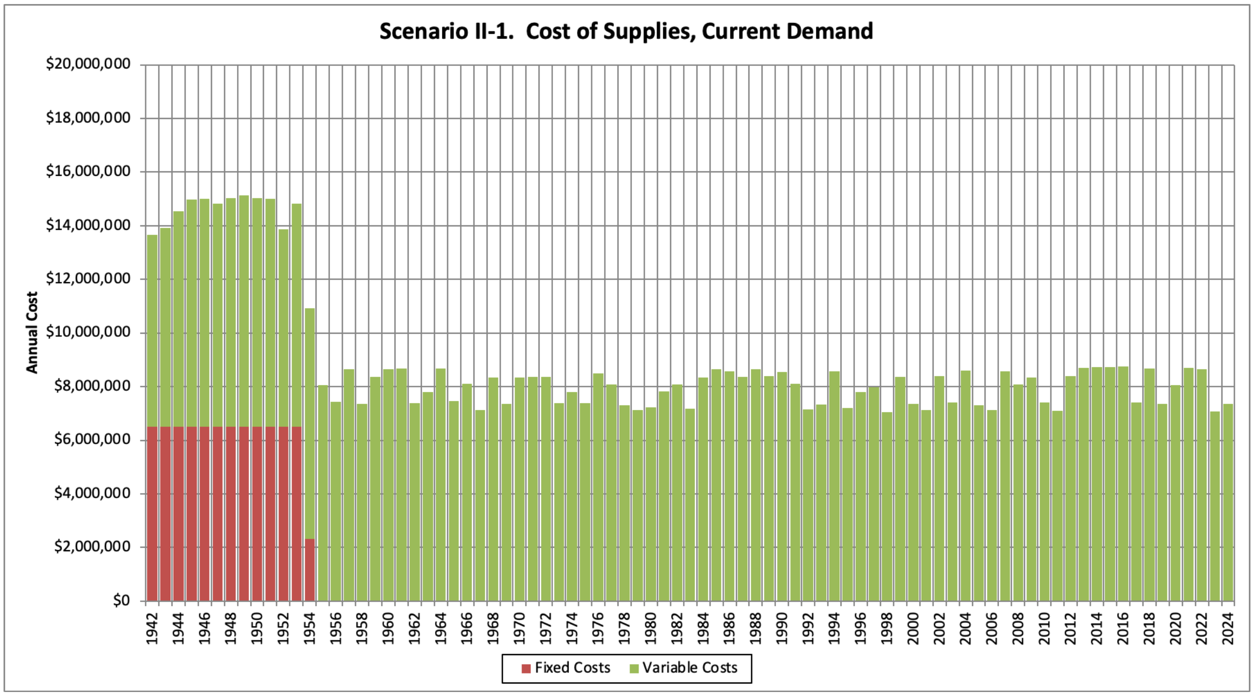


Figure B- 15. Cost of supplies for Scenario II-1 from results of 83 years of hydrology in the model.

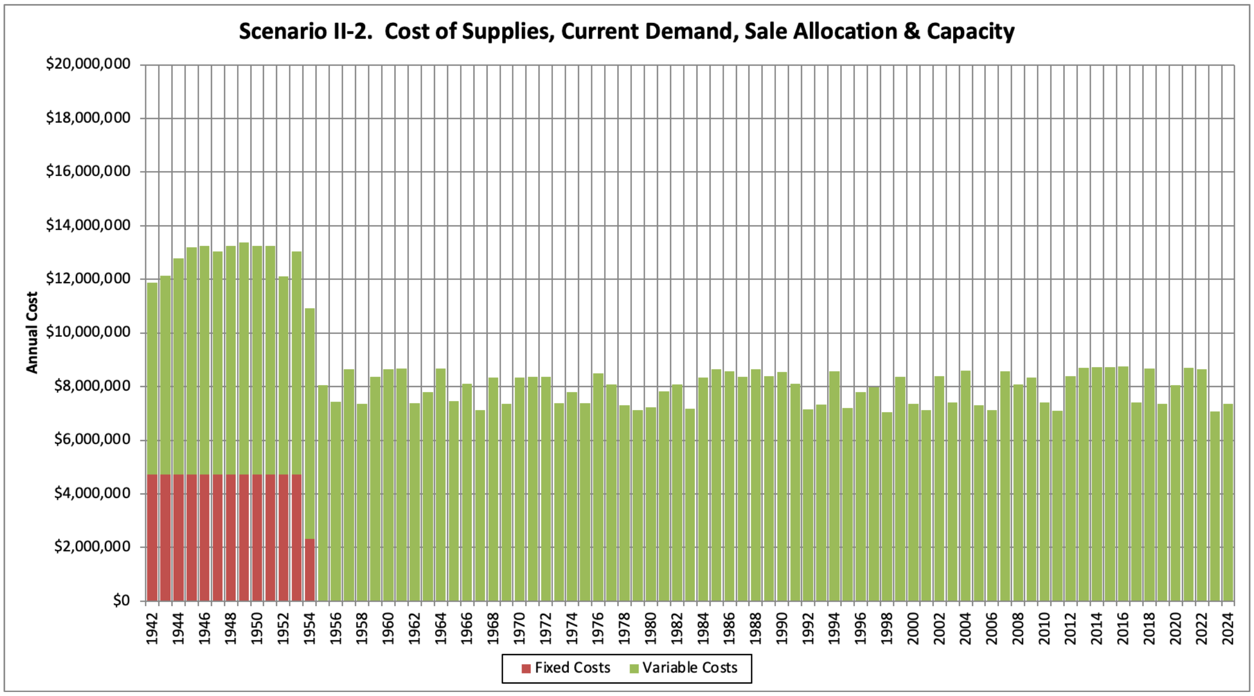


Figure B- 16. Cost of supplies for Scenario II-2 from results of 83 years of hydrology in the model. Current demand, sale of a portion of SWP allocation and capacity. The assumption is that SWP fixed costs would be reduced by an amount proportional to the amount of SWP sale.

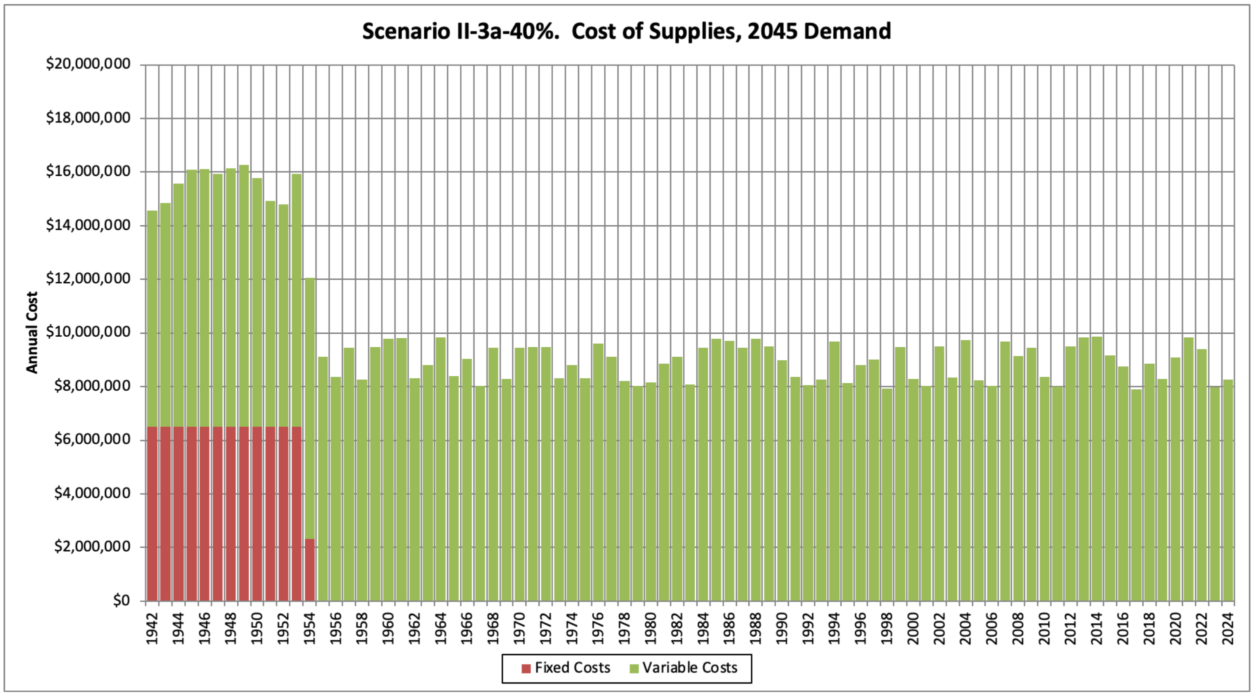


Figure B- 17. Cost of supplies for Scenario II-3a-40% from results of 83 years of hydrology in the model. SWP is at 50% "level of concern" and Cachuma allocations are reduced by 40%.

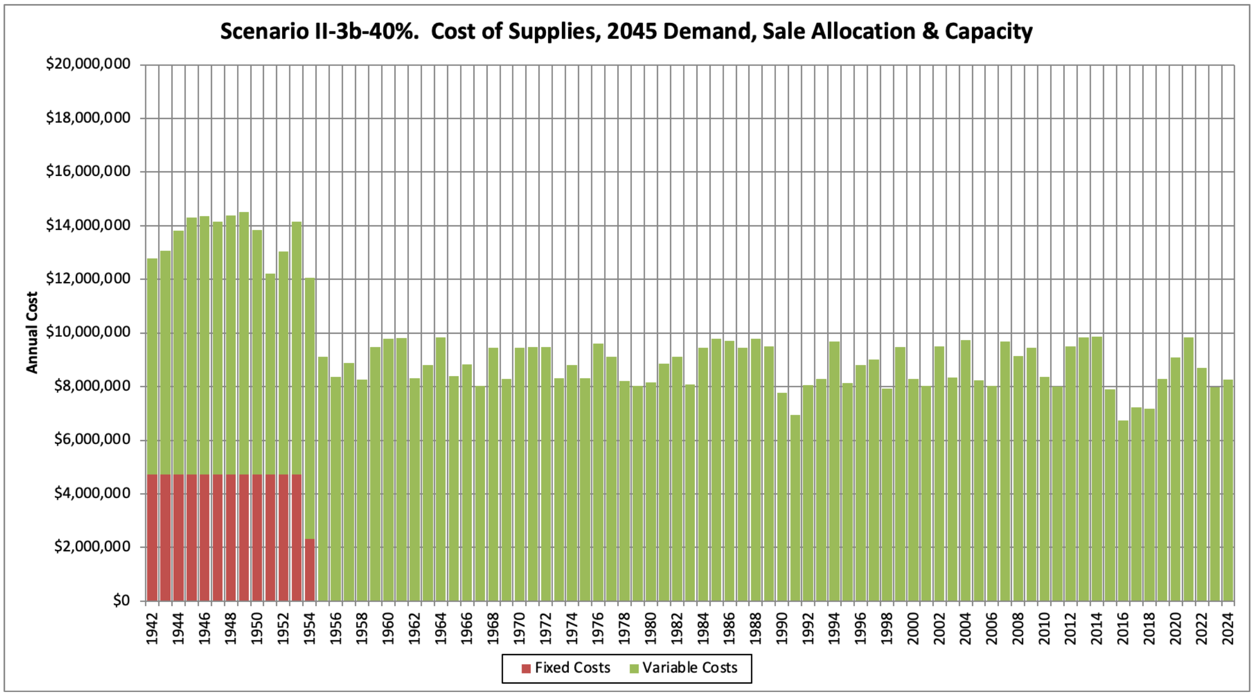


Figure B- 18. Cost of supplies for Scenario II-3b-40% from results of 83 years of hydrology in the model. 2045 demand, sale of a portion of SWP allocation and capacity. The assumption is that SWP fixed costs would be reduced by an amount proportional to the amount of SWP sale.

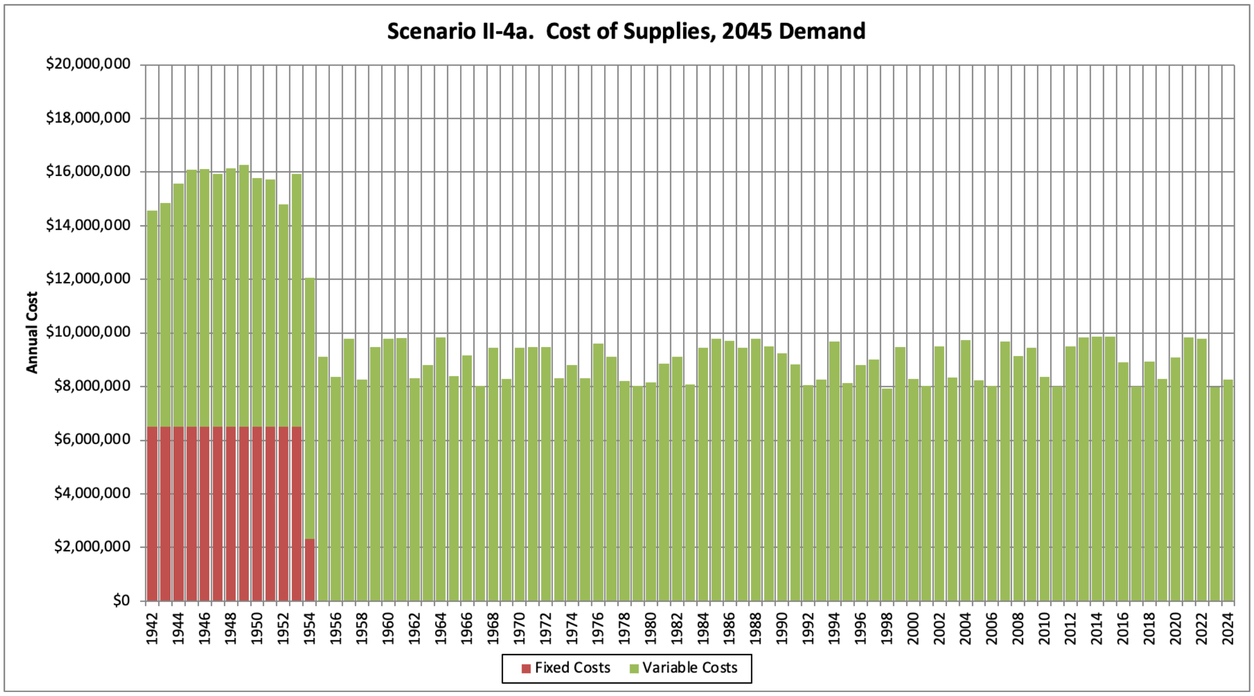


Figure B- 19. Cost of supplies for Scenario II-4a from results of 83 years of hydrology in the model. SWP is at 75% "level of concern" and Cachuma allocations are reduced by 30%.

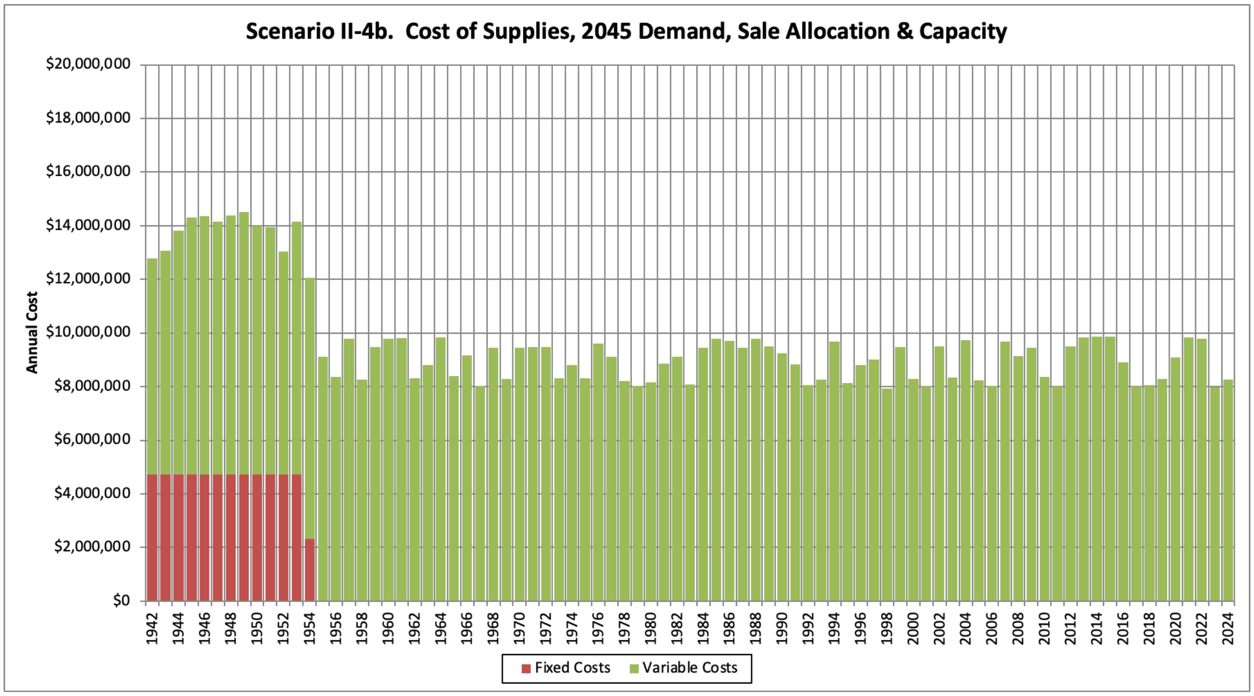


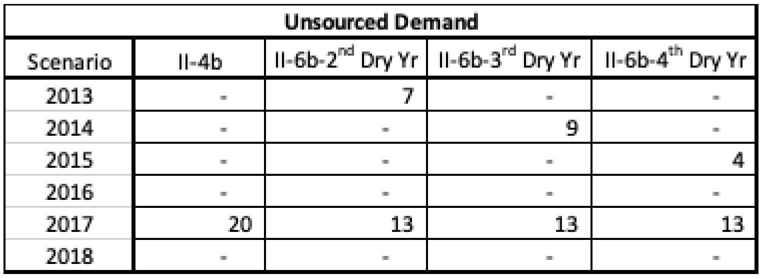
Figure B- 20. Cost of supplies for Scenario II-4b from results of 83 years of hydrology in the model. SWP is at 75% "level of concern" and Cachuma allocations are reduced by 30%. The assumption is that SWP fixed costs would be reduced by an amount proportional to the amount of SWP sale.

APPENDIX C. OTHER CONSIDERATIONS

Following discussions with MWD's Board of Directors, other potential strategies to avoid unsourced demand were also considered. These strategies attempted to overcome the decrease in pumping capacity out of Cachuma during the driest years by bringing in stored water from SemiTropic earlier in a dry sequence of years; this would potentially preserve supplies on the South Coast that are not subject to the Cachuma conveyance limitation. Also evaluated was using Jameson supplies in excess of the rule curve during these driest years. Scenario II-4b, which is considered to be the most realistic future scenario, was used as the basis for this evaluation. This scenario includes SWP 75% LOC (40% Table A average delivery), a 30% reduction in Cachuma allocation, and a sale of 1,400 AFY of SWP allocation. No additional supplies or storage projects are included in this scenario.

A second set of model runs involve more catastrophic scenarios – permanent loss of Jameson, Cachuma, or WSA (desal) following a partial sale of SWP. These scenarios test whether there is unsourced demand after SWP sale in these catastrophic events. Scenario II-4b was also used as the basis for these model runs.

> **Scenario II-6a – SemiTropic recovery early in sequence of dry years**: This scenario examines whether it is beneficial to recover a portion of SemiTropic storage early in a dry-year sequence, transport it to Cachuma, and use it to satisfy unsourced demand. This scenario tested bringing in SemiTropic water in either the second, third, or fourth dry year in a row. **Results**: There was no unsourced demand in any of the years when SemiTropic water was delivered to Cachuma. Thus, the SemiTropic water was not used to meet demand and remained in storage in Cachuma. When there was unsourced demand later in the sequence of dry years, Cachuma Lake levels were low, and water was required to be pumped out of the reservoir. As discussed earlier in this document, conveyance rates are lower when pumping is required. Therefore, there was no remaining pumping capacity to transport SemiTropic water to the South Coast, and the SemiTropic water in Cachuma was eventually lost the next time Cachuma spilled. Thus, this strategy had no advantage in providing water to satisfy unsourced demand.
>
> **Scenario II-6b – SemiTropic recovery displaces Jameson use**: This scenario is similar to Scenario II-6a, except Jameson water was not used in the year that SemiTropic water is recovered and transported to Cachuma. In theory, SemiTropic water would fill in the demand for Jameson water in that year, preserving Jameson storage for subsequent dry years. **Results:** As indicated in Table C- 1, eliminating Jameson supply in any year creates a small amount of unsourced demand (there is insufficient pumping capacity to bring SemiTropic or any other water from Cachuma to replace the Jameson supply). At the peak of the drought (in this case 2017), there is a small reduction in unsourced demand using this strategy. Thus, this strategy just trades unsourced demand from one year to another and is not particularly beneficial. In addition, the SemiTropic water brought to Cachuma was lost in the next Cachuma spill.



Unsourced Demand				
Scenario	II-4b	II-6b-2nd Dry Yr	II-6b-3rd Dry Yr	II-6b-4th Dry Yr
2013	-	7	-	-
2014	-	-	9	-
2015	-	-	-	4
2016	-	-	-	-
2017	20	13	13	13
2018	-	-	-	-

Table C- 1. Unsourced demand for Scenario II-6b when SemiTropic water is substituted for Jameson supplies in second, third, or fourth dry year in a row. There is a small amount of unsourced demand in the years when Jameson is not used, whereas there is a small reduction in unsourced demand in 2017 at the peak of the drought.

Scenario II-6c – Extra Jameson water used to meet unsourced demand: This scenario temporarily draws on Jameson in excess of the rule curve to meet unsourced demand. This extra draw is replaced the next time Jameson spills, which occurs on average every four years. **Results:** Figure C- 1 indicates that the extra draw reduces Jameson storage temporarily, but the storage is renewed at the next spill. This strategy appears to be viable for the small amount of unsourced demand identified in the modeling.

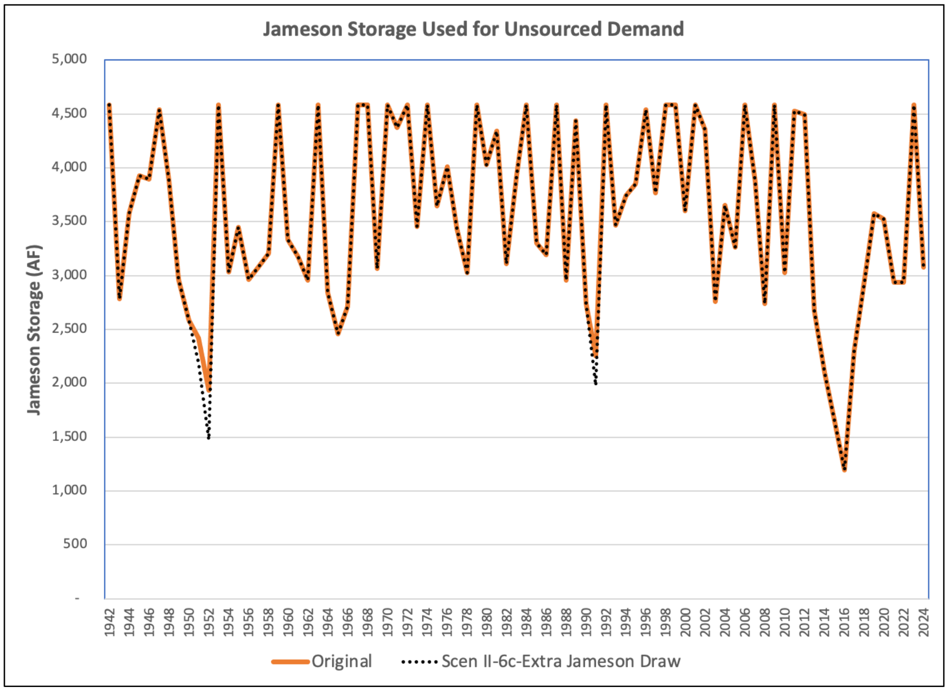


Figure C- 1. Storage in Jameson if there is a temporary extra draw greater than the rule curve to meet unsourced demand. This strategy was run through the 83 years of modeling in Scenario II-6c. Although Jameson storage is temporarily reduced, storage is restored during the next spill.

Scenario II-6d – Combination of Scenarios 6b and 6c: This scenario brings in 1,500 AF of SemiTropic water to Cachuma in third and fourth dry years, with Jameson use eliminated in those years. SemiTropic water would be used first to meet unsourced demand (if there is capacity to bring it from Cachuma to South Coast Conduit), with Jameson water filling in any remaining unsourced demand. **Results:** This combination of scenarios results in no unsourced demand in any of the 83 years of the model. There is significant use of

SemiTropic water during the droughts in the model, with only one year of significant increase in Jameson draws. There is loss of unused SemiTropic water when Cachuma spills – this can largely be mitigated by reducing the amount of SemiTropic water brought to Cachuma in the third and fourth dry years.

Drought Years	Extra Draw from Jameson (AF)	SemiTropic Water to Customers (AF)
1950	210	35
1951	38	215
1987	2	-
1988	-	614
1989	-	-
1990	28	418
2014	9	-
2015	4	892
2017	6	-

Table C- 2. Results on Scenario II-6d indicating the amount of extra draw from Jameson and the use of SemiTropic water during drought years. Unsourced demand is eliminated in these results.

Scenario II-6e – Loss of Jameson supply: In this scenario, Jameson supply is lost for the entire 83 years of the model. As with Scenario II-4b, 1,400 AFY of SWP is sold. By eliminating a supply source near MWD's service area, there is more reliance on bringing water through Lake Cachuma and its conveyance limitations. **Results**: There is unsourced demand greater than 1% of demand in 27% of the model years. The maximum unsourced demand in any year is 18% of demand, or about 900 AFY. The contributing factors in the unsourced demand are conveyance capacity bringing water out of Cachuma and SWP supply shortfalls. The SWP shortfalls occur when annual allocations are reduced during droughts. There is significantly more use of SemiTropic stored water in this scenario. Supplemental water purchases averaging 24 AFY (maximum year of 590 AF) could make up for a portion of these shortfalls – these purchases could reduce unsourced demand to 19% of modeled years and a maximum shortfall of 17% of demand, or 820 AFY. The remaining shortfalls are caused by conveyance limitations both in and out of Cachuma.

Scenario II-6f – Loss of Cachuma supply: In this scenario, Cachuma supply is low for the entire 83 years of the model. As with Scenario II-4b, 1,400 AFY of SWP is sold. **Results:** There is unsourced demand greater than 1% of demand in 37% of the model years. The maximum unsourced demand in any year is 44% of demand, or about 2,200 AFY. The contributing factors in the unsourced demand are SWP supply shortfalls and conveyance limitations. The SWP shortfalls occur when annual allocations are reduced during droughts and some average years. Supplemental water purchases averaging 163 AFY (maximum year of 1,390 AF) could make up for a portion of these shortfalls – these purchases could reduce unsourced demand to 28% of modeled years and a maximum shortfall of 43% of demand, or 2,150 AFY. The remaining shortfalls are caused by conveyance limitations both in and out of Cachuma.

Scenario II-6g – Loss of WSA (desal) supply: In this scenario, WSA supply is lost for the entire 83 years of the model. As with Scenario II-4b, 1,400 AFY of SWP is sold. **Results:** There is unsourced demand greater than 1% of demand in 28% of the model years. The maximum unsourced demand in any year is 35% of demand, or about 1,700 AFY. The contributing factors in the unsourced demand are both conveyance constraints to get water from Cachuma and SWP supply shortfalls. The SWP shortfalls occur when annual allocations are reduced during droughts. Supplemental water purchases averaging 46 AFY (maximum year of 712 AF) could make up for a portion of these shortfalls – these purchases could reduce unsourced demand to 23% of modeled years and a maximum shortfall of 35% of demand, or 1,700 AFY. The remaining shortfalls are caused by conveyance limitations both in and out of Cachuma.

Table 3-7. Projected Water Supply (AF)					
Source of Water Supply	**2025**	**2030**	**2035**	**2040**	**2045**
SWP / CCWA	1,683	1,617	1,551	1,485	1,419
Cachuma	1,591	1,591	1,591	1,591	1,591
Jameson Lake	960	960	959	959	958
Fox & Alder Creek Diversions	400	400	400	400	400
Doulton Tunnel Infiltration	385	385	385	385	385
Groundwater Wells	300	300	300	300	300
Stormwater	0	0	0	0	0
Recycled Water	0	0	0	0	0
Desalination	0	0	0	0	0
Supply from Storage (Semitropic Bank)	1,500	1,500	1,500	1,500	`1,500
Supplemental Water Purchases	0	0	0	0	0
Santa Barbara WSA	1,430	1,430	1,430	1,430	1,430
Santa Barbara Transfer per Juncal Agreement	-300	-300	-300	-300	-300
Total Supplies	7,949	7,883	7,816	7,750	7,683

Table 3-7. From 2020 Urban Water Management Plan with modifications.

Table 3-7 of the 2020 UWMP (Projected Water Supply – modifications shown above) contains a few numbers that are recommended to be updated. For normal year supply reliability, recommendations include:

SWP: Current supply is 1,683 AF (51% of Table A as per DWR 2023), 2045 supply is 1,419 AF (43% of Table A for 50% "level of concern" as per DWR 2023). SWP supplies do not include any future sales of allocation/conveyance.

Cachuma Project: Any future reductions in Cachuma supplies are not known at this time.

Jameson Lake: Average of "normal" years from model, which incorporates Rule Curve: Current supply is 960 AF; 2045 supply is 958 AF.

Doulton Tunnel Infiltration: Average of "normal" years from model derived from 1981-2024 actual data: Current supply is 385 AF; 2045 supply is also 385 AF.

Groundwater Wells: Model has 300 AF for normal years, current and 2045.

Recycled Water: Recycled is 0 AF in model for current and 2045.

SemiTropic: Model has very little SemiTropic used. UWMP may want to treat this differently.

Table 4-7 of the UWMP (Forecast Future Water Use) is recommended to be updated. See discussion in this study in section **Customer Demand**.

Appendix E

2024 Consumer Confidence Report

MONTECITO WATER DISTRICT
A Reliable Supply Since 1921

2024 ANNUAL DRINKING WATER CONSUMER CONFIDENCE REPORT

This report explains where your water comes from, provides information on water quality and how it is measured, and presents the District's 2024 test results which show that ***drinking water met, or was better than, state and federal water quality standards.***

Nick Turner, General Manager

Your drinking water is treated to comply with Federal and State standards in accordance with the United States Environmental Protection Agency (EPA) Federal Safe Drinking Water Act and the State of California's Water Resources Control Board requirements.

As required by the EPA for all public water systems, the District completed a Lead Service Line Inventory with the goal of identifying any potential sources of lead in tap water associated with water service lines. No lead was detected in the District's pipes during a comprehensive survey completed in 2018, and no lead was apparent in any of the 1,700 customer service lines examined in 2024. Results from this State approved sampling process, which placed an emphasis on properties built before 1986 when the lead ban was enacted, indicate that copper is the most common pipe material, followed by plastic and galvanized steel. If you have any concerns that your household plumbing may be contributing lead to your drinking water, or would like to learn more, many resources are available online including: https://drinktap.org/Water-Info/Whats-in-My-Water/Lead-In-Water

The District has also expanded sampling to enhance detection of PFAS (Per- and polyfluoroalkyl substances). PFAS were not detected in District water sources when testing in compliance with State and Federal requirements began in 2014-15, and none have been detected through the most recent and rigorous required screening for 29 types of PFAS completed in 2024-25. While previous testing detected parts per billion (ppb or micrograms per liter - ug/L or one drop in 500 barrels of water), updated EPA standards can detect parts per trillion (ppt or nanogram per liter - ng/L or one drop in 500,000 barrels of water). Understanding and analysis of PFAS continues to evolve, and more information may be found here: https://www.waterboards.ca.gov/pfas

Providing high quality drinking water is a vital part of the District's mission. We take pride in the work we do and appreciate the opportunity offered by this annual report to reassure the community that the water delivered to your tap meets or exceeds the highest standards, year after year.

Reliability. Service. Quality. District tradition for more than a century.

- **Water quality meets or exceeds all State and Federal standards**
- **Certified/Licensed Distribution Staff and Engineers maintain and repair infrastructure**
- **Certified/Licensed Treatment Staff and Engineers ensure testing and compliance**
- **Drinking Water Consumer Confidence Report published annually**
- **Monitoring and sampling occur 24 hours/day, 365 days/year**

Reliable water service is essential for our health and safety, fire protection and to preserve the community's unique character.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien. Para información en español llame al 805.969.2271.

MONTECITO WATER DISTRICT
583 San Ysidro Road, Santa Barbara, CA 93108
phone: 805.969.2271
email: info@montecitowater.com

Montecito Water District's Water Quality Summary 2024

Primary Standards (PDWS)	Units	Maximum Contaminant Level	Public Health Goal (MCLG)	Jameson Lake Average	Jameson Lake Range	Ground Water Average	Ground Water Range	Cachuma Lake Average	Cachuma Lake Range	Common Sources of Contamination in Drinking Water
Water Clarity										
Treated Turbidity	NTU	TT = 1 NTU TT = 95% of Samples ≤ 0.3	NA	0.06	0.03 - 0.24 100.0%	0.43	0.1 - 1.0	NA	ND - 0.09 100%	Soil runoff.
Radioactive Contaminants (2024)										
Gross Alpha Particle Activity	pCi/L	15	(0)	3.01	3.01	2.49	1.92 - 3.47	NA	NA	Erosion of natural deposits.
Uranium	pCi/L	20	0.43	NA	NA	NA	NA	0.76	NA	Erosion of natural deposits.
Inorganic Contaminants										
Barium	mg/L	1	2	ND	ND	0.08	0.06 - 0.10	NA	NA	Discharges of oil drilling wastes: erosion of natural deposits.
Total Chromium	µg/L	50	100	18	18	26	24 - 28	NA	NA	Erosion of natural deposits.
Hexavalent Chromium	µg/L	10	0.02	ND	ND	ND	ND	0.025	NA	Erosion of natural deposits.
Fluoride	mg/L	2	1	0.2	0.2	0.9	0.5 - 1.3	0.44	0.395 - 0.49	Erosion of natural deposits; discharge from fertilizer.
Mercury	µg/L	2	1.2	ND	ND	0.05	ND - 0.09	ND	ND	Erosion of natural deposits; runnoff from landfills and cropland.
Nickel	µg/L	100	12	ND	ND	0.33	ND - 1.0	ND	ND	Erosion of natural deposits.
Nitrate as N (Nitrogen)	mg/L	10	10	ND	ND	2.7	0.9 - 4.0	0.09	DNQ - 0.179	Runoff or leaching from fertilizer use; leaching from septic tanks and sewage; erosion from natural deposits.
Perchlorate	µg/L	6	1	ND	ND	0.7	ND - 2.5	ND	ND	Perchlorate is an inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It usually gets into drinking water as a result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts.
Selenium	µg/L	50	30	ND	ND	4.0	2.0 - 6.0	1.2	NA	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive).
Synthetic Organic Contaminants										
Atrazine	µg/L	1	0.15	ND	ND	0.056	0.056	ND	ND	Herbicide runoff
Simazine	µg/L	4	4	ND	ND	0.059	0.059	ND	ND	Herbicide runoff

Primary Standards for Distribution System	Units	Maximum Contaminant Level	Public Health Goal (MCLG)	Distribution System Average	Distribution System Range	Common Sources of Contamination in Drinking Water
Microbiological Contaminant Samples						
Fecal Coliform Bacteria and E. Coli	% Tests Positive	0	0	0.00%	0	Naturally present in the environment.
Disinfectant						
Free Chlorine Residual	mg/L	MRDL, 4.0	MRDLG, 4.0	0.88	0.20 - 2.14	Drinking water disinfectant added for treatment.
Disinfection Byproducts (DBP)						
Total Trihalomethanes	µg/L	80	NA	Highest LRAA, 32.8	13 - 50	Byproduct of drinking water disinfection.
Haloacetic Acids	µg/L	60	NA	Highest LRAA, 25.9	7 - 38	Byproduct of drinking water disinfection.

	Units	Maximum Contaminant Level	Public Health Goal (MCLG)	Jameson Lake Average	Jameson Lake Range	Cachuma Lake Average	Cachuma Lake Range	Common Sources of Contamination in Drinking Water
Bromate	µg/L	10	NA	NA	NA	3.0	1.9 - 5.0	Byproduct of drinking water disinfection.
Total Organic Carbon (DBP Precursor)	mg/L	TT	NA	1.1	0.4 - 1.9	1.69	1.29 - 2.22	Various natural and manmade sources. Total Organic Carbon (TOC) has no health effects. However, it provides a medium for the formation of disinfection byproducts.

Lead and Copper Rule (2023)	Units	AL	PHG	Samples collected	Above AL	90th Percentile	Schools (range)	Schools tested in 2022 Common Sources of Contamination in Drinking Water
Lead	µg/L	15	0.2	34	0	ND	ND	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits.
Copper	µg/L	1300	300	34	0	470	ND - 1580	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

Lead and Copper Rule Every three years, a minimum of 30 residences are tested for lead and copper levels at the tap. The most recent set of 34 samples was collected in 2023. All of the samples were well below the regulatory action level (RAL). Copper was detected in 26 samples. The 90th percentile value was at 470 ug/L. Lead was not detected in any of the samples. The 90th percentile value was Non-Detect. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Montecito Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/lead.

Secondary Standards	Units	Maximum Contaminant Level	Jameson Lake Average	Jameson Lake Range	Ground Water Average	Ground Water Range	Cachuma Lake Average	Cachuma Lake Range	Common Sources of Contamination in Drinking Water
Aesthetic Standards									
Color	Units	15	ND	ND	ND	ND	4	ND - 5	Naturally-occurring organic materials.
Chloride	mg/L	500	10	10	142	98 - 230	16	14.8 - 18	Runoff or leaching from natural deposits; seawater influence.
Copper	mg/L	1	ND	ND	ND	ND	0.040	0.021 - 0.059	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Iron	µg/L	300	ND	ND	48	ND - 220	ND	ND - DNQ	Leaching from natural deposits; industrial wastes.
Manganese	µg/L	50	ND	ND	9	ND - 90	ND	NA	Leaching from natural deposits.
Threshold Odor at 60 degrees celcius	Units	3	ND	ND	ND	ND	8	8 - 8	Naturally-occurring organic materials.
Specific Conductance	umhos/ cm	1600	860	701 - 1109	1160	942 - 1280	956	838 - 1079	Substances that form ions in water; seawater influence.
Sulfate	mg/L	500	188	188	170	130 - 235	302	232 - 360	Runoff or leaching from natural deposits; industrial wastes.
Total Dissolved Solids	mg/L	1000	500	500	948	560 - 1930	659	568 - 760	Runoff or leaching from natural deposits.
Zinc	mg/L	5	ND	ND	0.007	ND - 0.020	ND	ND	Runoff or leaching from natural deposits; industrial wastes.

Montecito Water District's Water Quality Summary 2024

Secondary Standards	Units	Maximum Contaminant Level	Jameson Lake Average	Jameson Lake Range	Ground Water Average	Ground Water Range	Cachuma Lake Average	Cachuma Lake Range
Additional Constituents Analyzed								
pH	pH units	NS	7.80	6.90 - 8.30	6.89	6.76 - 7.25	7.56	7.32 - 7.83
Total Hardness	mg/L	NS	381	324 - 448	409	271 - 648	426	368 - 496
Total Alkalinity	mg/L	NS	207	176 - 248	217	188 - 252	191	164 - 255
Boron	ug/L	1 (AL)	ND	ND	0.2	ND - 0.6	0.38	0.37 - 0.39
Calcium	mg/L	NS	99	99	88	64 - 109	104	94.5 - 115
Magnesium	mg/L	NS	23	23	33	27 - 41	44	28 - 55
Sodium	mg/L	NS	25	25	95	60 - 149	51	40 - 57
Potassium	mg/L	NS	2	2	1.0	1.0	2.4	1.8 - 3.0
Uranium	ug/L	NS	NS	NA	NA	NA	0.68	NA
Vanadium	mg/L	NS	6	6	7.7	7.0 - 8.0	ND	ND

Unregulated Contaminant Monitoring Rule 5 (2024) (5 year reporting requirement)								
	Units	Maximum Contaminant Level	Jameson Lake Average	Jameson Lake Range	Ground Water Average	Ground Water Range	Cachuma Lake Average	Cachuma Lake Range
Perfluorobutanoic acid (PFBA)	ug/L	NS	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ug/L	NS	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	ug/L	NS	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ug/L	NS	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	ug/L	NS	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorodecanoic Acid (PFDA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoDA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorobutane sulfonic acid (PFBS)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate (PFPeS)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorohexane sulfonic acid (PFHxS)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic acid (PFHpS)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonic acid (PFOS)	µg/L	NS	ND	ND	ND	ND	ND	ND
4:2 Fluorotelomer Sulfonate ND 0.0030 ug/L	µg/L	NS	ND	ND	ND	ND	ND	ND
6:2 Fluorotelomer Sulfonate ND 0.0050 ug/L	µg/L	NS	ND	ND	ND	ND	ND	ND
8:2 Fluorotelomer Sulfonate ND 0.0050 ug/L	µg/L	NS	ND	ND	ND	ND	ND	ND
Hexafluoropropylene oxide dimer acid (HFPO-DA)	µg/L	NS	ND	ND	ND	ND	ND	ND
4,8-dioxa-3H-perfluorononanoic Acid (ADONA)	µg/L	NS	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanon e-1-sulfonic Acid	µg/L	NS	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	µg/L	NS	ND	ND	ND	ND	ND	ND
11-chloroeicosafluoro 3oxaundecane-1-sulfonic Acid	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanoic acid (PFMBA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMPA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	µg/L	NS	ND	ND	ND	ND	ND	ND
N-EtFOSAA ND 0.0050 ug/L EPA 537	µg/L	NS	ND	ND	ND	ND	ND	ND
N-MeFOSAA ND 0.0060 ug/L EPA 537	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	µg/L	NS	ND	ND	ND	ND	ND	ND
Lithium	µg/L	NS	32.6	29.0 - 38.0	30.9	20.0 - 42.0	22.7	ND - 42.5
Unregulated Contaminant Monitoring Rule 4 (2019-20) (5 year reporting requirement)								
HAA5	µg/L	NS	32.87	23.98 - 44	NA	NA	13	ND - 32
HAA6Br	µg/L	NS	8.03	4.24 - 14.09	NA	NA	14	ND - 24
HAA9	µg/L	NS	39.95	32.57 - 48.94	NA	NA	24	ND - 51
Bromochloroacetic Acid	µg/L	NS	3.29	1.89 - 5.45	NA	NA	3.9	ND - 8.2
Bromodichloroacetic Acid	µg/L	NS	2.95	2.15 - 4.05	NA	NA	3.5	ND - 5.8
Chlorodibromoacetic Acid	µg/L	NS	0.85	0 - 1.9	NA	NA	2.2	ND - 3.3
Dibromoacetic Acid	µg/L	NS	0.71	0 - 1.9	NA	NA	2.3	ND - 4.2
Dichloroacetic Acid	µg/L	NS	12.34	7.75 - 20	NA	NA	6.0	ND - 16
Monobromoacetic Acid	µg/L	NS	0.24	0 - 0.8	NA	NA	2.3	ND - 4.9
Monochloroacetic Acid	µg/L	NS	1.17	ND - 1.6	NA	NA	2.3	ND - 4.9
Trichloroacetic Acid	µg/L	NS	18.41	10.75 - 26	NA	NA	4.2	ND - 12

People with Sensitive Immune Systems

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:
Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.

Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

Drinking Water Info

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's (U.S. EPA's) Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, the U.S Environmental Protection Agency (USEPA) and the Division Of Drinking Water prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.

Source Water Assessment: A comprehensive source water assessment of the District's drinking water sources was adopted in June 2021. A copy of this report is available for public inspection at the District Office.

Last year, as in years past, your tap water met all EPA and State drinking water health standards. Montecito Water District vigilantly safeguards its water supplies and once again we are proud to report that our system has never violated a maximum contaminant level or any other water quality standard. This brochure is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. We are committed to providing you information because informed customers are our best allies.

WATER QUALITY TERMINOLOGY

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Primary Drinking Water Standard (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

mg/L: Milligrams per liter, or parts per million. 1 mg/L is equal to about one drop in 17 gallons of water.

µg/L: Micrograms per liter, or parts per billion. 1 ug/L is equal to about one drop in 17,000 gallons of water.

< : Less than.

NA: Not applicable. **ND:** Non-detected.

NS: No Standard. **DNQ:** Detected, not quantified.

pCi/L: Pico curies per liter, a measure of radiation.

umhos/cm: Micromhos per centimeter (an indicator of dissolved minerals in water).

NTU: Nephelometric turbidity unit.

LRAA: Locational Running Annual Average

For Water Softeners: MWD's surface water has a hardness range of 19 to 26 grains per gallon, while groundwater has a hardness range of 19 to 38 grains per gallon. One grain per gallon equals 17.1 mg/L.

Footnotes: The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

Surface water sources include the District's Jameson Lake and Lake Cachuma. The District's Paden Well No. 2, Ennisbrook Well No. 2 and T Mosby Well No. 2 were used as groundwater supply sources.

An average number of 54 coliform samples were collected each month at 12 District sampling stations in compliance with the Federal Revised Total Coliform Rule . All sample results were negative.

Turbidity is a measure of the cloudiness of the water. Montecito Water District monitors for it continuously because turbidity is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. 100% of the District's samples met the Turbidity Performance standard. The highest single surface water turbidity measurement during the year was 0.24 NTU.

WATER SOURCES 2024

Most water supplies are rainfall dependent, and become limited in times of drought. As the District looks to the future, it aims to increase its portfolio of local, reliable supplies.

MONTECITO WATER DISTRICT

RELIABLE SINCE 1921
www.montecitowater.com

Doulton Tunnel, a horizontal well, source of groundwater and conveyance from Jameson Lake.

Cachuma Project (Lake Cachuma), a federally owned surface water facility.

Jameson Lake, a District owned surface water facility.

Groundwater wells, source from the Montecito Groundwater Basin.

Conservation - Water efficiency.

State Water Project & Supplemental Water Purchase.

FACILITIES

The District's water source portfolio and array of facilities is highly diversified. The combination of its own assets and collaboration with many partners provides added resilency.

Conservation — water supply that is attained through efficiency of use — is unique in that it is dependent on people rather than rainfall. The District will continue to look to its customers for their partnership in using water wisely.

- **2 Surface Water Treatment Plants**
- **9 Storage Reservoirs**
- **114 (approximate) Miles of Pipeline**
- **943 Fire Hydrants**
- **7 Pumping Stations**
- **12 Groundwater Wells**
- **1 Surface Water Reservoir, Dam and Groundwater Conveyance Tunnel**

Water Supplied by the City of Santa Barbara, secured by Charles E. Meyer Desalination facility.

For more information please contact **Chad Hurshman**, Water Treatment and Production Superintendent, at 805.969.7924

We encourage public participation.
For meeting times, agendas, and additional resources: **www.montecitowater.com**

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien. Para información en español llame al 805.969.2271.

Appendix F

District Climate Action & Adaptation Plan

Montecito
Water District

CLIMATE ACTION & ADAPTATION PLAN

January 2025

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Appendix A: Climate Change Vulnerabilities......................... A-1

ACRONYMS, ABBREVIATIONS, AND GLOSSARY

A list of acronyms, abbreviations, and glossary terms used in the Climate Action and Adaptation Plan

A

AB – Assembly Bill

Action – The act, policy, or measure that will be implemented and achieved to reduce greenhouse gases and/or increase resilience to climate change.

Adaptation – The process of adjustment to actual or expected climate and its effects, either to minimize harm or exploit beneficial opportunities. In natural systems, human intervention may facilitate adjustment to expected climate.

Anthropogenic – Made by people or resulting from human activities.

Atmosphere – The envelope of gases surrounding the earth. These gases include nitrogen (78.1%), oxygen (20.9%), and argon, helium, GHGs, ozone, and water vapor in trace amounts.

B

BAU – Business-as-Usual Forecast. This forecast estimates emissions into the future if no additional actions were taken.

Berms – Raised bank or land to create barrier against flooding.

Biofuels – A renewable fuel source derived from biomass such as algae or animal waste.

C

CAAP – Climate Action and Adaptation Plan

CARB – California Air Resources Board

Carbon dioxide (CO_2) – A gas produced by burning organic compounds containing carbon and by respiration.

Carbon dioxide equivalent (CO_2e) – A metric measure used to directly compare emissions from various GHGs based on their global warming potential conversion factor.

Carbon Neutrality – Achieving a balance between emitting carbon and atmospheric carbon removal.

Cascading Impact – Climate hazard-caused impacts that compromise infrastructure or disrupt critical services (i.e., power supply or water conveyance) broadening the scope of impact past a singular subject to reliant subsystems and populations.

Climate – The usual condition of temperature, humidity, atmospheric pressure, wind, rainfall, and other meteorological elements in an area of the earth's surface over a long period of time (typically 30 years or more).

Climate Change – A change in the average conditions – such as temperature and rainfall – in a region over a long period of time.

Climate Hazard – A dangerous or potentially dangerous condition created by the effects of the local climate.

Co-benefit – The secondary benefits that occur due to implementation of a program, measure or policy.

D

Decarbonization – The reduction or removal of carbon dioxide.

Distributed Energy Resources – Small-scale energy systems that can be connected to the electric grid or isolated such as rooftop solar panels, battery storage, emergency diesel generators, solar inverters, etc.

DWR – California Department of Water Resources

Dry Weather Diversion – A diversion of non-stormwater and stormwater flows from the storm drain system into the sanitary sewer system.

E

EF – Emissions Factor

EO – Executive Order

Electrification – The process of generating power from electricity, and in many contexts, the transition to such power from an earlier power source.

Emissions – The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.

EV(s) – Electric Vehicle(s)

F

FEMA – Federal Emergency Management Agency

Fossil fuel – A general term for fuel formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust.

G

Greenhouse gas (GHG) – A gas that absorbs infrared radiation, traps heat in the atmosphere, and contributes to the greenhouse effect.

Greenhouse Effect – A process that occurs when gases in Earth's atmosphere traps the Sun's heat.

GWP – Global Warming Potential – total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.

H

I

ICLEI – International Council for Local Environmental Initiatives

Impact – Effects on natural and human systems including effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate hazards and the vulnerabilities of the system or asset effected.

IPCC – United Nations Intergovernmental Panel on Climate Change – prepares comprehensive Assessment Reports about the stat of scientific, technical and socio-economic knowledge on climate change, its impact and future risks, and options for reducing the rate at which climate change is taking place.

J

K

L

LED – Light-emitting diode

M

Methane (CH_4) – A hydrocarbon that is a greenhouse gas that is produced through anaerobic (without oxygen) decomposition of waste in landfills, wastewater treatment plants, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Metric Ton (MT) – common international measurement for the quantity of greenhouse gas emissions – one metric ton is equal to 2,204.6 pounds or 1.1 short tons.

MT CO_2e – Metric tons of carbon dioxide equivalent is the standard units to measure GHG emissions.

MWD – Montecito Water District

N

NZEV – Near zero emission vehicle

Nitrous oxide (N_2O) – A powerful greenhouse gas with a high global warming potential; major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.

O

Offroad Equipment – Any non-stationary device powered by an internal combustion engine or electric motor used primarily off roadways such as agricultural, landscaping or construction equipment.

OPR – California Governor's Office of Planning and Research

P

PSS – Power Safety Shutoffs

PV – Photovoltaic (solar energy)

Q

R

Renewable Diesel – Direct substitute for diesel fuel refined from lower carbon and renewable source material.

Resilience – The capacity of an entity (an individual a community, an organization, or a natural system) to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.

S

SB – Senate Bill

SCADA – Supervisory Control and Data Acquisition

SCE – Southern California Edison

Scope – Categorization of GHG-generating activities based on the level of the entity's operational control of the source.

Service population – Residents receiving services

Swale – A low area or depression of land created to prevent flooding.

SWP – State Water Project

T

U

U.S. EPA – United States Environmental Protection Agency

UWMP – Urban Water Management Plan

V

VMT – Vehicle miles traveled

Vulnerability – The propensity or predisposition to be adversely affected.

W

WBCSD – World Business Council for Sustainable Development

Wet Weather Diversion – A diversion of both non-stormwater and stormwater flows from the storm drain system into the sanitary sewer system.

X

Y

Z

ZEV – Zero emission vehicle

EXECUTIVE SUMMARY

Introduction

The Montecito Water District (MWD) mission is to provide a reliable supply of high-quality water to Montecito and Summerland residents at the most reasonable cost. The Montecito region and surrounding Santa Barbara County face various climate-related hazards, including droughts, wildfires, and debris flows. According to third-party scientific studies, climate change is projected to continue increasing the frequency and intensity of extreme events such as heat waves, droughts, wildfires, and atmospheric river events. These changes can significantly impact MWD operations, infrastructure, and water supplies. Furthermore, MWD facilities will face increased risks. MWD has proactively managed impacts and changes as they have arisen and will continue to adapt its infrastructure and operations to address these challenges, ensuring the primary mission of providing affordable water is maintained.

Purpose

In alignment with MWD's 2022 5-year Strategic Plan and recognizing the risks climate change could pose to its mission, MWD has prepared this Climate Action and Adaptation Plan (CAAP). The CAAP has been developed to provide a comprehensive assessment of MWD's current operations and water supplies as it relates to climate vulnerabilities and to identify strategies to enhance resiliency. The CAAP complements MWD's other long-term planning documents and is intended to be implemented alongside existing programs. The CAAP's intent is to enhance the implementation of existing efforts and identify new measures to complement ongoing efforts. Additionally, the CAAP positions MWD to compete for state and federal funding earmarked for climate and adaptation projects, supporting capital improvements and enhance operational resilience.

Prior Successes

MWD continues to proactively enhance the operational efficiency and climate resilience of its facilities. MWD has historically faced climate-related challenges, including drought, wildfires, and debris flows. In response, MWD has invested in infrastructure changes to adapt to climate hazards, implementing measures to mitigate future wildfire and flood risks, power outages, and service disruptions. Additionally, MWD has initiated projects to reduce greenhouse gas (GHG) emissions by improving energy and operational efficiencies, installing renewable energy projects, and promoting water conservation. Furthermore, MWD has been committed to diversifying its water supply and managing water usage to align with available resources, thereby mitigating the potential impacts of water scarcity during droughts and reducing vulnerability to fluctuations in water availability.

Climate Analysis

The CAAP includes a two-phased examination of MWD’s operations: first, assessing climate vulnerabilities related to water supply, infrastructure, and operations; and second, identifying existing GHG emissions sources and quantities, and forecasted future emissions. Based on these assessments, the CAAP identifies goals and strategies for MWD to proactively anticipate and respond to climate hazards and increase operational efficiencies to reduce GHG emissions.

Using the best available climate data and other datasets developed by the State, a Climate Vulnerability analysis was conducted to model the impact of climate change on MWD operations, water supply, and infrastructure. Based on the projections, climate change-driven temperature and precipitation changes are expected to influence the severity and frequency of climate hazards. MWD’s operations, infrastructure and water supplies will continue to be exposed to hazards such as extreme heat, drought, wildfire, extreme precipitation, flooding, debris flows, sea level rise, and landslides. These hazards could impact customers, operations, and infrastructure within the MWD service area. Utilizing the climate models, the projections for each identified hazard zone within the MWD region were mapped and overlayed with MWD assets to identify critical assets at highest risk to each hazard as well as those assets that are vulnerable to compound risks due to the potential for interaction of multiple coinciding climatic events. Problem statements identifying the type and level of climate hazard risk were developed for MWD’s water sources, infrastructure, and operations. These problem statements and risk ranking were used to then identify and prioritize adaptation and climate resiliency strategies detailed in Chapter 5 of the CAAP.

Additionally, as part of the CAAP development process, an inventory of MWD’s GHG emissions in 2022 and a GHG forecast of emissions from operations between 2030 and 2045 was prepared. MWD has a relatively small GHG emission footprint where operations resulted in 869 MT CO_2e in 2022. A majority (79%) of those emissions are due to electricity consumption with the next largest emission sources due to employee commute (10%) and fleet fuel consumption (8%). All other emission sources result in less than 5% of the overall GHG emission profile. Future MWD emissions will decline to near zero by 2045 due to state legislation impacts on retail electricity. MWD recognizes the benefits of energy and operational efficiency and has elected to establish GHG emission reduction goals in alignment with the state’s regulations to provide a framework for decreasing GHG emissions through increased operational efficiency in future years. When implemented, the strategies in this CAAP will increase operational and energy efficiency, reduce GHG emissions, and align MWD with the required State mandates such as the Advanced Clean Fleet Rule.

Implementation

The CAAP provides specific measures and actions to enhance operational efficiency and resiliency of MWD’s operations, strengthen long-term water supply reliability, and harden infrastructure against climate hazards while also mitigating MWD’s contribution to climate change. Implementation of the CAAP has been designed to occur between 2025 and 2045, with periodic evaluation periods to monitor progress and revising CAAP strategies as necessary. The measures identified in this CAAP will be implemented through MWD's annual budgeting process and Capital Improvement Program. The measures identified in the CAAP are not expected to result in significant costs incurred by the District. All of the proposed short-term measures can be managed by existing staff resources and funding.

The implementation timeline for CAAP measures is prioritized based on their alignment with MWD initiatives, resilience improvement, employee health and safety, regulatory compliance, funding opportunities, and GHG reduction potential. The complete implementation plan is provided in Chapter 6 of the CAAP.

While the CAAP provides the anticipated timeline for implementation for all actions, there are several key actions that MWD is either already implementing or intends to implement in the next 1-3 years. Table ES.1 summarizes those actions that MWD will focus on in the immediate future, the anticipated timeframe of implementation, and how the action is anticipated to be funded.

Table 1-1. ES.1 Near-term Implementation Timeline by CAAP Actions

ID	Action	Timeline	Source of Funding
6.12	Conduct a Zero Emission Vehicles (ZEV) assessment for procurement and infrastructure planning and identification of incentives.	Underway	Included in 10-year capital improvement program
L.1	Assess Highline water main in landslide-prone areas (e.g., Doulton Tunnel to Bella Vista Treatment Plant segment)	Underway	Included in 10-year capital improvement program
10.2	Replace inefficient pumps at Office STA #1 and #2 per Southern California Edison (SCE) Energy Audit recommendations.	2025	Included in current budget
1.2	Create climate hazard protocols for service continuity and safety, including annual drills.	2025	Covered in annual operations budget
4.1 & 4.4	Implement wildfire abatement strategies and hardening upgrades per CAL FIRE standards in high-risk zones.	2025 - 2027	Covered in annual operations budget
4.2	Ensure new projects (e.g. Additional Supplemental Appropriations for Disaster Relief Act [ASADRA]) and facility developments meet current building and fire codes , including defensible space and structure hardening.	2025- 2027	Complete as part ASADRA project
6.9	Implement protocol for reporting to California Air Resources Board (CARB) as required by the Advanced Clean Fleet regulation.	2025	Covered in annual operations budget
9.1	Assess Supervisory Control and Data Acquisition (SCADA) sensor capabilities, identify gaps, and upgrade field instrumentation for pressure and water quality.	2025 -2026	Covered in annual operations budget
10.3	Conduct SCE energy audits on MWD pump stations every five years and replace identified inefficient equipment.	2025	No added cost -covered by SCE
11.2 – 11.5	Conduct waste assessment, comply with SB 1383, and train staff to reduce and divert waste.	2025 - 2026	Conduct in house within annual operations budget
12.1	Conduct a survey of existing natural gas and propane operated equipment.	2025	Conduct in house within annual operations budget
H.1	Prioritize mixer installations at Cold Springs, Doulton, Bella Vista, and Romero reservoirs.	2025	Included in 10-year capital improvement program
PFD.1	Construct nature-based barriers around high-risk facilities like the cistern storage, Casa Dorinda, and Morgan Well.	2025- 2027	Subject to grant funding
W.1	Replace wooden roof at Park Lane Reservoir with metal or concrete.	2025 - 2027	Complete as part ASADRA project

ID	Action	Timeline	Source of Funding
W.2	Replace wood components with fire resistant materials at the MWD office, Buell Pump Station, and other facilities.	2025 - 2027	Subject to grant funding
W.O&M.4	Install ember-resistant vents, screens, and building materials on existing infrastructure.	2025 - 2027	Covered in annual operations budget
4.3	Dedicate staff to find funding for climate hazard upgrades and operational efficiency improvements.	2025 - 2045	Covered in annual operations budget
6.7	Work with Montecito Fire to develop a strategy for reducing diesel and using low-carbon fuels.	2026	Covered in annual operations budget
PFD.2	Consider replacing at-risk pipelines at Lilac/Tollis, Los Alisos, and Theatre Lane bridges.	2027 - 2030	Included in 10-year capital improvement program

Monitoring and Evaluation

As part of the CAAP monitoring and tracking, the measures and strategies and the implementation table will be reviewed annually as part of the annual budget process. This provides an opportunity for MWD to identify which actions and measures to focus on for the coming year, capitalize on efficiency and cost savings with implementation of CAAP actions alongside existing MWD projects and initiatives, and evaluate what funding is needed to implement the CAAP actions. MWD staff will incorporate CAAP implementation into the annual budgeting process when the Board can provide review and direction.

1.

INTRODUCTION

INTRODUCTION

The mission of Montecito Water District (MWD) is to provide an adequate and reliable supply of high quality water to the residents of Montecito and Summerland, at the most reasonable cost. MWD has carried out this mission through severe droughts and a host of natural disasters. Recognizing climate change can increase the level of risk faced by water agencies, this Climate Action and Adaptation Plan (CAAP) provides a strategic framework to address the impacts of climate change on water resources and water infrastructure. The goal of this CAAP is twofold: to identify and address the factors contributing to climate change (climate action) and to adapt operations and infrastructure to reduce the risks associated with a changing climate (climate adaptation). The CAAP showcases MWD's proactive approach to mitigating MWD contributions to climate change and adapting operations to evolving climate conditions.

The CAAP aligns MWD with state-level initiatives, cost-effectively responds to climate-related legislation, provides a framework to pursue funding opportunities supporting capital improvements, and enhances operational resilience to climate hazards, all while continuing to fulfill the mission of providing a reliable supply of high-quality water at reasonable costs.

CAAP OBJECTIVES

Four strategic objectives were developed as part of the CAAP process consistent with MWD's 2022 5-year Strategic Plan.[1]

- **Objective 1:** Harden Infrastructure Against Climate Hazards
- **Objective 2:** Strengthen Long-Term Water Supply Reliability
- **Objective 3:** Enhance Operational Efficiency & Resiliency

These objectives form the framework to increase operational and infrastructure resilience and reduce climate change-contributing greenhouse gas (GHG) emissions over time in a financially responsible and sustainable manner which builds upon existing initiatives.

CAAP PURPOSE

The CAAP is complementary to the District's other long-term planning documents and is intended to be implemented alongside existing programs. Aligned with the objectives, mandates, and legislation of the State of California, the CAAP conducts a two phased examination of MWD's activities. The first phase assesses climate vulnerabilities related to MWD's water supply, infrastructure, and operations. The second phase of the assessment identifies GHG emissions sources, quantities and forecasts of future emissions. Based on these assessments, the CAAP proposes goals and strategies for emissions reduction and climate adaptation.

The CAAP aligns with the long-term strategies included in the MWD 2020 Urban Water Management Plan[2], 2021 Risk and Resilience Assessment[3], 2022 5-Year Strategic Plan[1], and 2023 Local Hazard Mitigation Plan[4]. Specifically, the CAAP:

- Facilitates the acquisition of State and federal funding budgeted for climate change initiatives,
- Identifies both existing and anticipated climate vulnerabilities,
- Incorporates legislation and guidance from State, federal, and international sources,
- Identifies cost-effective energy efficiency and decarbonization measures,
- Identifies partnerships and funding opportunities to aid with implementation,
- Provides co-benefits, such as improved operational resilience and efficiency, and
- Integrates actions to transition away from fossil fuel use in alignment with California's climate neutrality legislation.

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1. *Montecito Water District. 2022 5-year Strategic Plan. 2021. Accessed at:* ***https://montecitowater.com/doc/strategicplan2022/#:~:text=The%20intent%20as%20we%20embark,of%20ongoing%20dependability%20and%20resilience.&text=Reliable%20water%20service%20is%20essential,preserve%20the%20community's%20unique%20character****. Accessed on: January 10, 2024*
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3. *Montecito Water District. Risk and Resilience Assessment America's Water Infrastructure Act (AWIA). 2021. Provided by MWD December 10, 2023. Accessed on: January 10, 2024*
4. *Montecito Water District. 2023 Local Hazard Mitigation Plan An annex to the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan 2023 Update. 2022. Accessed at:* ***https://montecitowater.com/mtgdocs/8797/20230328-Board-Packet.pdf****. Accessed on: January 10, 2024*

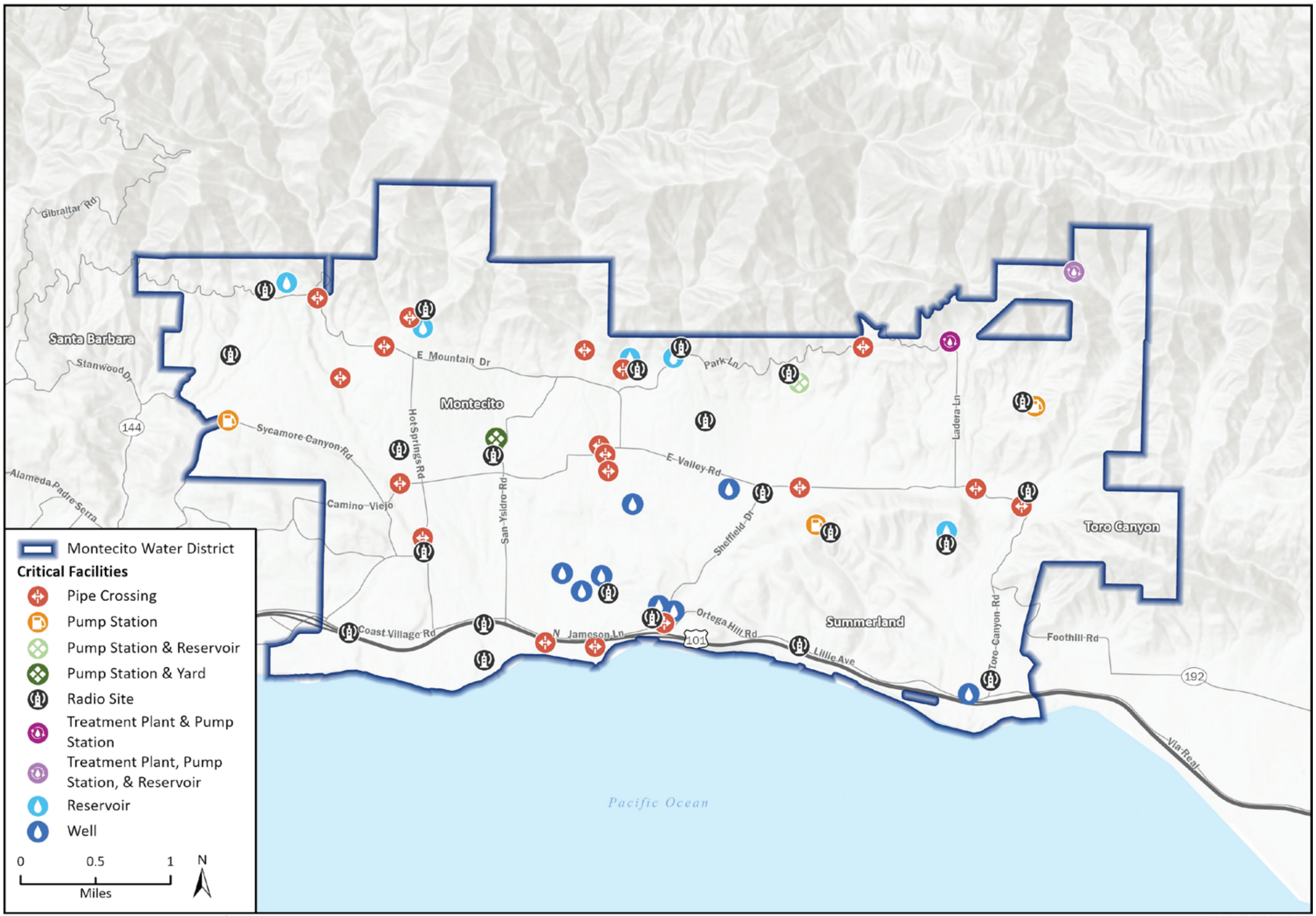
HISTORY AND CURRENT OPERATIONS

A key element of climate change analysis and planning is the scope, scale, and reach of the systems and risks included in the evaluation. Thus, it is important to clearly outline the boundaries of the analysis and look to the historical operations and impacts experienced over the course of MWD's service history. This section provides an overview of the history and operations for MWD, including its water supply sources and infrastructure.

MWD Service Area and System Overview

MWD was formed in 1921 to supply drinking water to residents, institutions, and businesses in the unincorporated communities of Montecito and Summerland, the small segment of Santa Barbara City including Coast Village Road, and portions of Toro Canyon. The MWD service area now spans 15.4 square miles and serves over 13,000 customers with 92 percent of service connections dedicated to single-family residential water users. The remaining connections service multi-family residential, commercial, institutional, agricultural, and non-potable needs. Figure 1-1 shows the MWD service area and critical facilities

Figure 1-1. -MWD Service Areas



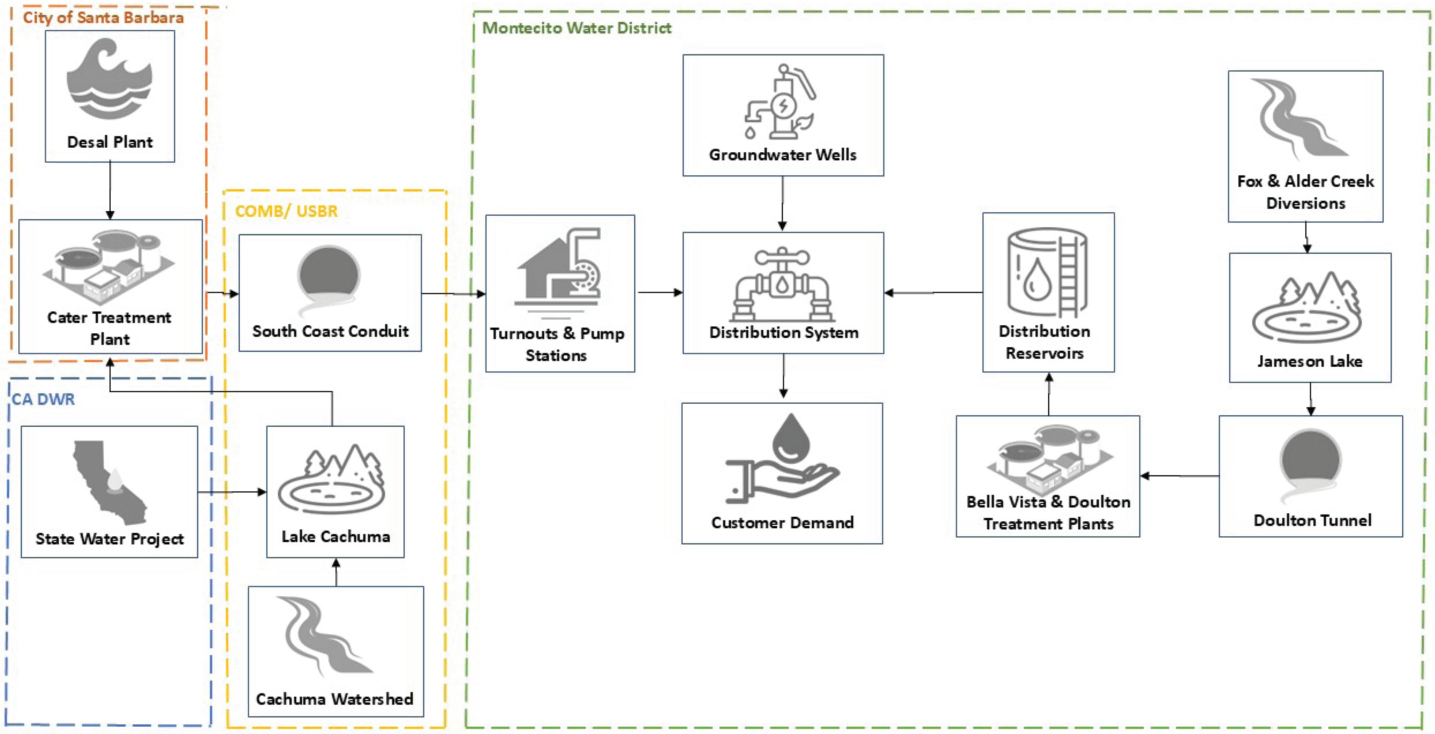
Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022.

23-15187 EPS CAAP.aprx
Fig 1 Montecito Water District

Domestic Water Delivery

MWD operates and maintains an extensive water infrastructure with approx. 4,650 service connections, 114 miles of water distribution pipes, nine reservoirs, six potable water production wells, six non-potable production wells, nine pump stations, and two surface water treatment plants. Figure 1-2 provides a schematic of the MWD system including the routing of water from the State Water Project, Lake Cachuma and City of Santa Barbara into the MWD service area. The GHG emissions associated with operation of the MWD system, and the associated water deliveries, are primarily from the purchase and consumption of electricity used for water pumping, conveyance, treatment, and delivery throughout the service area.

Figure 1-2. MWD System Schematic



Water Sources and Supply

MWD obtains water from various local, regional and State water sources including:

- Jameson Lake – local surface water
- Fox Creek Diversion – local surface water
- Alder Creek Diversion – local surface water
- Doulton Tunnel Infiltration – local groundwater
- State Water Project – imported surface water
- Cachuma Lake/Cachuma Project – regional surface water
- Groundwater Wells – local groundwater from Montecito Groundwater Basin
- Ocean Desalination – City of Santa Barbara

Water resources are carefully managed to enhance water reliability, which includes diversifying water sources and water storage options to meet demand during drought periods.

Long-Range Planning

To be consistent with anticipated growth in operations, water supply and demand projections are incorporated into the CAAP. Water supply and demand projections were obtained from the 2020 Urban Water Management Plan.2

The 2020 Future Water Demand and Water Supply Options Report[5] also includes analyses of current demand and historical MWD sources of water supply, as well as incorporates long-term climate modeling into forecasts for future demand and operations for future water supply. For each water source, the associated future risk and benefits of the water source to MWD is outlined.

In March of 2023, the MWD Board of Directors adopted the 2023 Montecito Water District Annex of the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (2023 Hazard Mitigation Plan).4 The document identified vulnerabilities and recommended actions to minimize such vulnerabilities. As an extension of the County's Multi-Jurisdictional Hazard Mitigation Plan, MWD developed MWD-specific goals and objectives including Goal 5: prepare to adapt and recover from impacts of climate change and ensure regional resilience. The 2023 Hazard Mitigation Plan includes a series of hazard mitigation measures to be implemented by MWD to address climate hazards. This CAAP complements the strategies and hazard mitigation actions detailed in the 2023 Hazard Mitigation Plan.

History and Environmental Stewardship

As identified in the 2020 Future Demand and Supply Options Report, climate change threats have the potential to impact water supplies, including through the effect of wildfires on water quality, loss of reservoir storage caused by siltation, damage to infrastructure due to landslides and debris flows, and potential unsourced demand (water storages) under an extended drought scenario.

Climate resilience, i.e., responding and adapting to the effects of climate change, was identified as key to achieving the Strategic Plan goals. Reducing MWD's GHG emissions while responding and adapting to the effects of climate change are key to achieving the Strategic Plan goals and values. Prior to development of this CAAP, MWD weathered several climate-related hazards including drought, wildfire, and debris flow. In response, MWD hardened infrastructure to adapt to the experienced climate hazards, establishing measures to mitigate future wildfire risk, potential damage to facilities and infrastructure, power outages, and associated service disruptions. Furthermore, MWD undertook projects and efforts to reduce GHG emissions, including achieving operational efficiencies, installation of renewable energy projects, and water conservation. Reduction in water use reduces energy consumption, reducing GHG emissions associated with the energy used for water delivery. Further, water conservation is crucial for adapting to climate change by using limited water resources efficiently and sustainability. This, in conjunction with acquiring diverse water sources, mitigates the impacts of water scarcity faced in times of drought and reduces a community's vulnerability to water availability fluctuations.

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[5] Montecito Water District. Future Water Demand and Water Supply Options Update 2020. 2020. Accessed at: **https://montecitowater.com/doc/6724/**. Accessed on: January 10, 2024

The following timeline summarizes the history of MWD's operations and climate-related impacts and highlights the efforts MWD has taken to adapt to climate change and increase resiliency of MWD operations.

- **1921** - Montecito Water District formed
- **1929** - Start of 6-year extreme drought
- **1924-1930** - Water system, including Juncal Dam / Jameson Lake, constructed and operable to provide new water source in response to drought
- **1949** - Start of 2-year extreme drought
- **1954** - Acquisition of Cachuma Project water to provide additional water source in response to drought and increasing service population
- **1987** - Start of 3-year drought
- **1990** - Commenced study of recycled water as a potential water supply
- **1991** - State Water Project water added to portfolio and Central Coast Water Authority (CCWA) formed, adding and diversifying water supplies
- **1997** - CCWA began State Water deliveries to Lake Cachuma
- **2010** - Start of historic, record-breaking drought
- **2014** - Passed MWD Ordinances in response to water shortage emergency and to implement mandatory water restrictions, meter moratorium, conservation measures, allocations, and penalties resulting in 50% cut in demand
- **2015** - MWD allocated only 5% of its State Water Project contract amount
- **2016** - Jameson Lake and Lake Cachuma below 10% total capacity while Cachuma allocation is zero and SWP allocation is 5%. Adopted Urban Water Management Plan redirects MWD to more reliable future water supplies
- **2017** - Thomas fire sweeps across Ventura and Santa Barbara Counties affecting Jameson Lake watershed, causing temporary water quality issues and exacerbating sedimentation

  MWD participates in the Semitropic Groundwater Bank in the Central Valley, improving water storage for use during drought periods and improving overall water supply resilience

  MWD forms the Montecito Groundwater Basin Groundwater Sustainability Agency (GSA)
- **2018** - Montecito's devastating debris flows following the Thomas Fire severely damages water system and community of Montecito

  Began feasibility studies for recycled water to further diversify water supplies
- **2019** - Initiation of program to replace and install new backup generators, automatic transfer switches, and backup power supply for critical facilities
- **2020** - 50-year Water Supply Agreement executed with the City of Santa Barbara to secure water supply from the desalination plant

  Replaced all meters with "Smart Meters" to improve water use tracking and leak detection
- **2021** – To improve resiliency, pursued ASADRA funding for the Reservoir Retrofit and Replacement Project, which allows for possibility of future solar photovoltaic systems and battery backup at MWD storage reservoirs
- **2022** - Awarded Green Business certification from the County of Santa Barbara recognizing cutting edge environmental and sustainability policies

  Implementation of Water Use Efficiency Plan[6] including rebate programs, free water audits, full time water conservation staff person, and other water conservation programs
- **2023** - MWD initiates studies for potential local groundwater banking in the Montecito Groundwater Basin and Carpinteria Groundwater Basin

  2023 – the Montecito Groundwater Basin GSA adopts the Groundwater Sustainability Plan (GSP)
- **2024** -Design phase begins to replace the 100-year old transmission main "highline" to ensure adequate fire protection during frequent and intensifying wildfires

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[6] *MWD. Water Use Efficiency Plan. 2022. Accessed at:* ***https://montecitowater.com/doc/wue2022/****. Accessed on: January 10, 2024*

LEGISLATIVE AND SCIENTIFIC CONTEXT FOR CLIMATE CHANGE

Climate change is a significant threat to the resources the state relies on, the economy, and the people that live here. Climate change increases the variability of weather patterns and influences the reliability of water and other natural systems. In response, the State of California, and more recently the federal government, have developed sweeping climate change legislation and funding programs meant to both mitigate the effects of climate change while also adapting to the climatic changes already being experienced. Climate change impacts and the associated legislation meant to address it, have the capacity to change the way in which MWD provides water services to its customers. The following chapter provides legislative context for how climate change impacts are discussed and measured in this document and provides an overview of the climate science which underpins the State's climate policies.

Legislative Background

California has been developing legislation designed to combat climate change for nearly two decades. A key piece of California's climate legislation is the California Global Warming Solutions Act of 2006 (AB 32). AB 32 requires the State to measure and report GHG emissions on an annual basis and to develop policies in Scoping Plans that establish California's approach to reduce the state's GHG emissions. Most recently, the California Air Resources Board (CARB) developed the 2022 Scoping Plan Update to assess progress towards the State's statutory target of reducing GHG emissions by 40% below 1990 levels by 2030 and the current trajectory of achieving carbon neutrality no later than 2045.[7] The Scoping Plan update details the State's long-term climate objectives and assesses pathways for improving renewable energy deployment, clean technology, natural and working lands, environmental justice, energy security, and public health and wellbeing. The Scoping Plan further recognizes the fundamental role water districts play in reducing local GHG emissions and the necessity of water districts preparing for a more resilient future.

The California Department of Water Resources (DWR) regularly assesses and forecasts water resource reliability throughout the state. Every two years, a State Water Project Delivery Capability Report is developed to assess delivery capability over a range of hydrologic and climate conditions[8] The Report provides water suppliers and the public information on the capability of the State Water Project (SWP) to deliver water in the future. While MWD has a diverse portfolio and does not currently rely heavily on the

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[7] *California Air Resources Board. 2022 Scoping Plan for Achieving Carbon Neutrality. 2022.* ***https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf*** *Accessed February 2024.*

[8] *State Water Project Delivery Capability Report. 2023.* ***https://data.ca.gov/dataset/state-water-project-delivery-capability-report-dcr-2023*** *Accessed April 2024*

SWP for its water needs, the impacts of climate change on the capacity of the SWP demonstrate the increasing challenge water agencies face in providing water to their customers as the climate evolves. The climate change impacts MWD is vulnerable to are described in more detail in Chapter 2.

In light of the changing regulatory landscape and climate challenges water supplies face, many leading California water agencies such as the Metropolitan Water District of Southern California, Las Virgenes Municipal Water District, East Bay Municipal Utility District, Coachella Valley Water District, and Irvine Ranch Water District, have developed climate action and adaptation plans to align with the State's climate goals and develop strategies to incorporate climate adaptative solutions to increase their resiliency. Furthermore, DWR has adopted a climate action plan to guide the programs, projects, and activities over which it has authority. This includes grant programs to help local water agencies advance their resilience projects.

To help achieve its ambitious GHG reduction targets, the State introduced California's climate commitment and established a multi-year investment of $53.9 billion to fight climate change. This funding is intended to aid entities and individuals in making the necessary upgrades and changes to infrastructure and operations to mitigate climate change impacts and increase resiliency. Early adopters have greater access to these funding opportunities as the State and federal government are incentivizing change. Through development of the CAAP, MWD will increase its competitiveness for funding opportunities for projects which increase its resiliency to climate hazards.

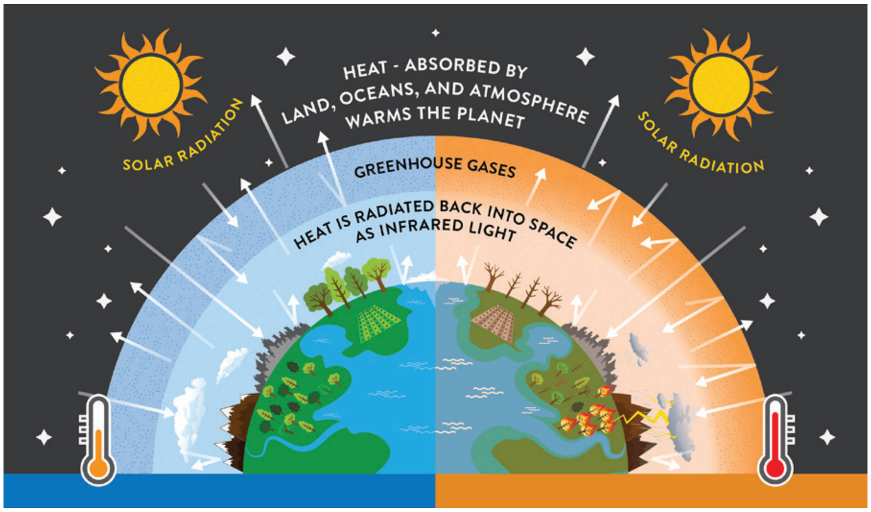
2.

CLIMATE CHANGE VULNERABILITIES

CLIMATE CHANGE EXPOSURE

Climate change is a global issue caused by the cumulative warming effects of GHGs on the Earth's atmosphere. Global temperatures have risen in response to the increased levels of anthropogenic emissions like carbon dioxide (CO_2) and methane (CH_4). These anthropogenic emissions are generally the result of human activities, such as power generation, fossil-fuel dependent industries and the global economy (see Figure 2-1).[9],[10] An increasingly growing set of research indicates climate change has and will continue to make extreme events, including heat waves, drought, atmospheric river events, and wildfires, more likely, more intense, longer-lasting, and larger in scale.[11] These changes are largely due to an increase in global temperature and changing precipitation patterns, which drive local impacts. The data models that inform this analysis predict the MWD service area and water supplies are expected to experience a variety of impacts by the end of the century, including changes in precipitation patterns, wildfire risk, the prevalence of extreme heat events, and changing ocean temperatures and chemistry.

Figure 2-1. Overview of Greenhouse Gas Effect



To evaluate the impact of climate change on MWD operations and infrastructure, future climate conditions were modeled using the State of California's Cal-Adapt tool, California's Fourth Climate Change Assessment, and the California Department of Water Resource's Climate Change

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9. *United States Global Change Research Program. 2023:* ***Fifth National Climate Assessment****. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA.* ***https://doi.org/10.7930/NCA5.2023***

10. *The National Aeronautics and Space Administration (NASA). The Causes of Climate Change. Accessed at:* ***https://science.nasa.gov/climate-change/causes/****. Accessed on: April 2024.*

11. *National Oceanic and Atmospheric Administration. 2020. What is an extreme event? Is there evidence that global warming has caused or contributed to any extreme event? Climate.gov. Accessed at:* ***https://www.climate.gov/news-features/climate-qa/what-extreme-event-there-evidence-global-warming-has-caused-or-contributed. Accessed on: June 2024***

Vulnerability Assessment.[12],[13] The use of this climate data is consistent with the Governor's Office of Planning and Research (OPR) recommendation to use Representative Concentration Pathway (RCP) 8.5 as a conservative approach to assessing and adapting to climate change.[14] RCP 8.5 is a high GHG emissions scenario in which global emissions continue to rise through the end of the twenty-first century, with projections compared to a modeled historical baseline (1961-1990).

Climate Hazards & Impacts

Over the past few decades, MWD faced climate-related challenges such as the Thomas Fire and the Montecito Debris Flow. In response, MWD adapted its operations, strengthened its infrastructure, and refined its processes to improve resilience to climate-related hazards and disasters, thereby reducing its vulnerability. MWD made significant efforts to diversify its water supply and invest in opportunities like groundwater banking to secure its water resources in the face of a changing climate and increasing climate-related hazards. However, the rising severity of these hazards and the growing potential for concurrent climate events mean MWD will need to continue adapting to address new and evolving vulnerabilities.

Climate change driven temperature and precipitation changes are expected to influence the severity and frequency of climate hazards. MWD infrastructure, facilities, operations, and water supplies are and will continue to be exposed to climate hazards including extreme heat, drought, wildfire, extreme precipitation and associated flooding and debris flows, sea level rise and landslides. These hazards will impact customers, operations, and infrastructure in the MWD service area, along with statewide water supplies and delivery systems providing water to MWD (see Figure 2-2). MWD facilities were designed based on historical climate conditions; therefore, as conditions change, vulnerability will increase, with pump stations, conveyance systems, treatment facilities, bridge crossings, MWD Headquarters, and other assets at higher risk.

Long-term persistent hydrologic changes in California will increasingly change snowfall and runoff patterns. Recent DWR analyses predict State Water Project (SWP) delivery performance is at risk of climate change with reduced reliability and lower annual allocations in future.[15] Severe flooding, extreme storms, and wildfire events are projected to place water infrastructure at increasing risk, potentially constraining or disrupting SWP services statewide.[16]

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12. *Cal-Adapt 2.0 is an online tool that presents historical and modeled projections based on 10 different global climate models. The tool was developed and is maintained by the University of California, Berkeley Geospatial Innovation Facility with funding and oversight by the California Energy Commission. This tool was used to present projection data related to minimum and maximum temperature, precipitation, extreme heat, warm nights, drought, and wildfire. Access the tool at:* ***https://cal-adapt.org****.*

13. *California Governor's Office of Planning and Research, California Energy Commission, and California Natural Resources Agency. 2018. California's Fourth Climate Change Assessment: Statewide Summary Report. Accessed at:* ***https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf****. Accessed on: June 2024.*

14. *California Energy Commission (CEC). Cal-Adapt. Which RCP (emissions) scenario should I use in my analysis? Accessed at:* ***https://cal-adapt.org/help/faqs/which-rcp-scenarios-should-i-use-in-my-analysis/****. Accessed on: April 2024.*

15. *California Natural Resources Agency. August 2022. California's Water Supply Strategy: Adapting to a Hotter, Drier Future. Accessed at:* ***https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Water-Resilience/CA-Water-Supply-Strategy.pdf*** *. Accessed on: April 2024.*

16. *California Department of Water Resources. 2019. Climate Action Plan, Phase 3: Climate Change Vulnerability Assessment. Accessed at:* ***https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-III-Vulnerability-Assessment.pdf****. Accessed on: May 2024.*

Figure 2-2. Climate Hazards in MWD Service Area

CLIMATE CHANGE IMPACTS ON MWD SERVICE AREA

EXTREME HEAT

By the end of the century, the average temperature is projected to be 6.3 degrees warmer than observed historically, and the number of extreme heat days per year is expected to increase from two per year to between 8 and 17 days.

DROUGHT

Climate change will increase the likelihood that low-precipitation years will coincide with above-average temperature years, exposing MWD local and imported water sources to drought conditions.

WILDFIRE

The MWD service area is projected to experience increasing wildfire risk through the end of the century. The probability of a wildfire occurring over a span of 10 years is projected to increase from the historical baseline of 20 percent to 30 percent by the end of the century, and average number of burned acres is projected to increase.

EXTREME PRECIPITATION, FLOODING AND DEBRIS FLOWS

The MWD service area contains both 100-year and 500-year FEMA floodplains, with several critical facilities located in or near those floodplains. The frequency of atmospheric river/large storm events may increase in the future, and the peak season of atmospheric rivers is projected to lengthen.

SEA LEVEL RISE

Sea level rise contributes to increased coastal flooding, more severe and frequent tidal inundation, storm surge inundation, wetland loss, coastal erosion, and shoreline retreat. The City of Santa Barbara's Desalination Plant, which provides MWD with 1,430 AF of potable water annually, will likely be exposed to flooding with 6.6 feet of sea-level rise between 2060 and 2100.

LANDSLIDE

Susceptibility to landslides in much of the MWD service area is very high (between 8 and 10 on a scale of 1 to 10). Increased intensity of extreme precipitation events and wildfires may contribute to increased landslide susceptibility in the MWD service area.

In February 2024, MWD staff assessed climate risks to its water sources, systems, and demand. MWD staff developed a risk matrix based on climate risk exposure. An overview of the highest-risk water supplies and water sources, organized by hazard, is shown in Table 2-1. The greatest hazard risk is denoted by the numerical value 7 and the darker shading, while a value of zero and lack of shading indicates the climate hazard is not applicable to the sub-system.

Table 2-1. Hazard Risk Matrix for the MWD Service Area

System	Sub-System	Heat	Drought	Wildfire	Precip.	Flood/Debris	SLR	Landslide
Water Source	Desalinated Water Supply	3	0	5	3	2	7	4
	Reservoirs/Lakes	5	7	6	4	4	0	3
	Imported Water (SWP)	1	7	5	3	2	6	4
	Groundwater Wells	1	7	5	4	4	6	4
Operations	Local Catchment	5	6	7	3	4	0	2
	Potable Use/Demand	5	7	6	4	3	0	0
	Facilities and Operations	5	3	4	6	7	0	2
	Treatment Plants	3	2	7	5	4	0	6
	Distribution System	0	0	7	4	7	3	5

Note: A risk of 0 indicates the climate hazard is not applicable to the sub-system.

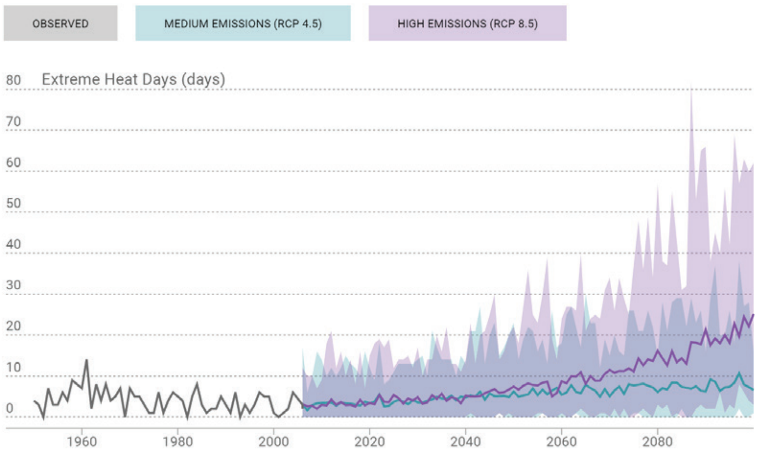
This anecdotal evidence alludes to significant impacts to MWD water sources from extreme heat, drought, wildfire, and sea level rise and to operations from heat, wildfire, drought, precipitation, floods, and landslides. The following section articulates problem statements for each of the sub-system-hazard pairings that scored highest (i.e. greatest risk) by MWD staff. These problem statements are designed to enable MWD to identify adaptation strategies. Landslides were not identified as facing greatest risk by MWD staff so a priority problem statement for that hazard was not developed. An overview of specific hazards, impacts, problem statements and gaps is provided in the following sections, and presented in more detail in Appendix A.

Extreme Heat

MWD is projected to encounter more frequent and intense extreme heat events. During these periods, water demand may surge, straining MWD operational capacity and potentially resulting in supply shortages. Additionally, extreme heat events can trigger equipment failures, power outages, and water quality issues. Moreover, these conditions pose health and safety risks to MWD staff involved in field operations, maintenance, and repairs.

Historically, the MWD service area has experienced two extreme heat days per year on average, with an extreme heat day occurring when the maximum temperature exceeds 87˚F. By the end of the century, the number of extreme heat days per year is expected to increase to between 8 and 17 days per year.[17] As shown in Figure 2-3, light purple indicates the number of extreme heat days predicted under the most conservative emissions

Figure 2-3. Projected change in average number of extreme heat days per year in Montecito, CA



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[17] California Energy Commission. 2023. Cal-Adapt. Accessed at: **https://cal-adapt.org/tools/local-climate-change-snapshot**. Accessed on: February 2024

scenario (RCP 8.5), which assumes global GHG emissions continue to rise. Annual average maximum temperatures are additionally expected to increase in the MWD service area. Compared to the observed baseline of 70.3˚F (1961-1990), average maximum daily temperatures in Montecito (at MWD Headquarters) are expected to rise to 76.6˚F by the end of the century, an increase of 6.3˚F.[18]

Extreme heat events pose risks to MWD infrastructure and water resources. The reservoirs water supply was identified as most vulnerable, with reservoirs and lakes facing additional risk from increased heat-related evaporation. Moreover, harmful algal blooms in water reservoirs statewide, triggered by high temperatures, threaten water quality, posing health risks to both people and wildlife at a local and statewide scale, with increased cost and effort associated with treatment.[19] Additionally, high ambient temperatures may shorten MWD equipment lifespan, increase cooling costs, and trigger power shutdowns, impacting service continuity and employee and customer health, while heightening wildfire risks. The desalinated water supply was identified to be at moderate risk to extreme heat events largely due to the heavy reliance on the electrical grid which is susceptible to power shutdowns during extreme heat events. To help alleviate these risks, implementation of energy resilience measures like increasing energy efficiency, incorporating distributed energy resources, and backup power at critical facilities could improve operational continuity during extreme events. Maintaining heat stress prevention measures for MWD staff working outdoors will also help safeguard well-being.

Drought

Extended drought conditions may result in reduced water availability and supply shortages, potentially leading to more frequent periods of reduced revenue. Extended drought events can also increase water demand as outdoor irrigation needs increase. The effect of more frequent and extended drought conditions in California has also influenced SWP deliveries, resulting in increased use of drought supplies such as groundwater and stored or banked water. Drought conditions may reduce MWD's access to SWP and local water sources, necessitating potential investment in additional alternate sources of drought resistant supplies.

The MWD service area is subject to persistent drought conditions, defined as extended periods of below average rainfall. The drought status of Santa Barbara County for the

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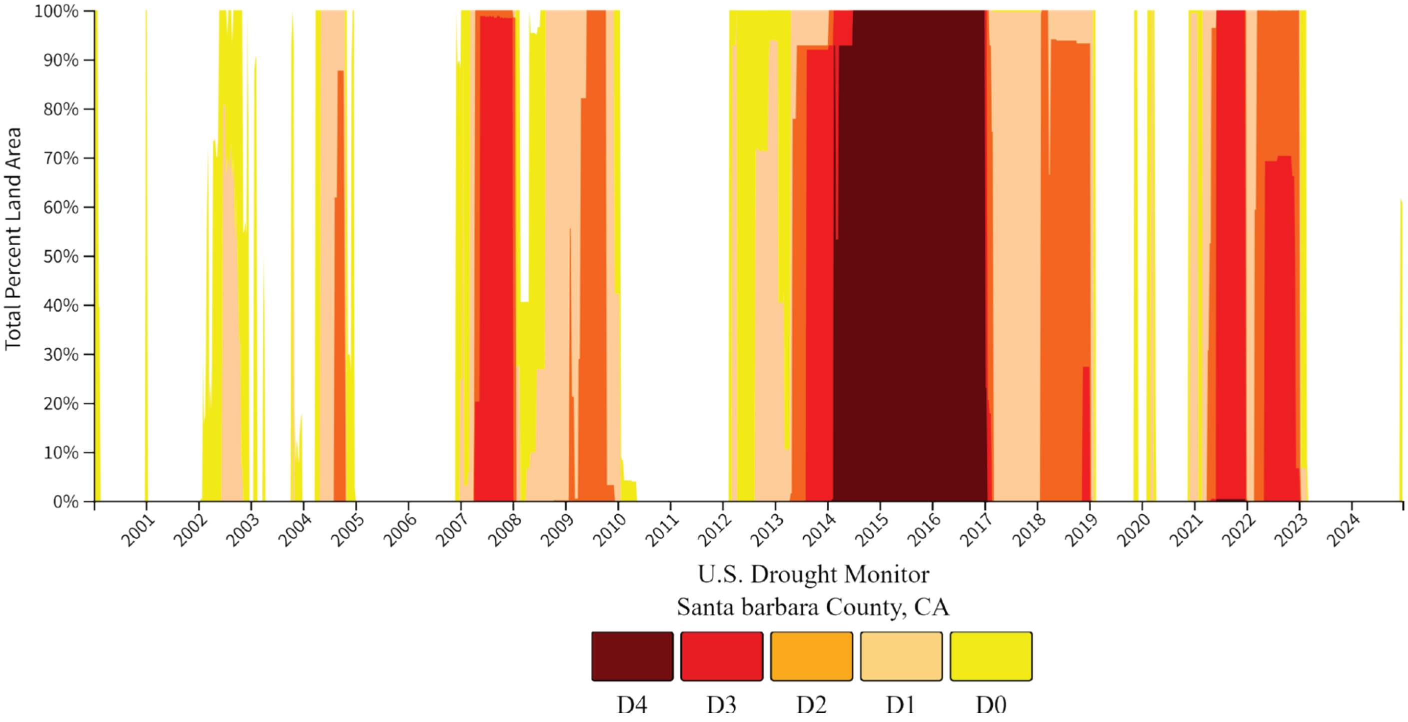
[18] *California Energy Commission. 2023. Cal-Adapt. Accessed at:* ***https://cal-adapt.org/tools/local-climate-change-snapshot****. Accessed on: May 2024.*

[19] *California Water Quality Monitoring Council. 2024. Harmful Algal Blooms Report Map. Accessed at:* ***https://mywaterquality.ca.gov/habs/where/freshwater_events.html*** *Accessed on: June 2024.*

past 23 years is shown in Figure 2-4.[20] The Santa Barbara region experienced moderate to exceptional drought periods in 2002-2003, 2004-2005, 2007-2010, 2012-2019, and 2021-2023, which typically coincided with statewide droughts. In the 2015/2016 water year, severe statewide drought conditions reduced SWP allocations to zero or near zero. Additionally, 2021 and 2022 were the driest consecutive two years in recorded history for Santa Barbara County.

Climate change will increase the likelihood low-precipitation years will coincide with above-average temperature years. The occurrence of extremely dry years is projected to increase over California's Central Coast region, potentially doubling or more in frequency by the late twenty-first century.[21] Drought exposure may impact MWD local and imported sources, potentially affecting DWR's ability to deliver SWP water to Southern California.

Figure 2-4. A Recent History of Drought Conditions in Santa Barbara County



Source: U.S. Drought Monitor Santa Barbara County CA. 2024. Accessed at: ***https://www.drought.gov/states/California/county/Santa%20barbara. Accessed on: June 2024***

Imported water, reservoirs/lakes, groundwater wells, local catchment, and potable use/demand were all identified at high risk from drought impacts. Warming temperatures combined with more frequent dry years will exacerbate drought impacts, including worsening wildfire risk in the MWD service area. Extended drought conditions will impact reliability of local water sources and may lead to a loss of MWD revenue and increased water rates or water restrictions. During periods of drought, local groundwater sources may become unsustainable if there is not consistent, reliable recharge from precipitation. Drought impacts to imported water supplies are further discussed in the State Water Project Climate Hazards section. To alleviate these risks, MWD will continue to invest in additional conservation, storage capacity, local drought resilient water supplies and water supply diversification. MWD developed the Water Shortage Contingency Plan in 2020 outlining actions for varying degrees of drought.

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20. National Oceanic and Atmospheric Administration. U.S. Drought Monitor. ***https://www.drought.gov/states/california/county/Santa%20Barbara***

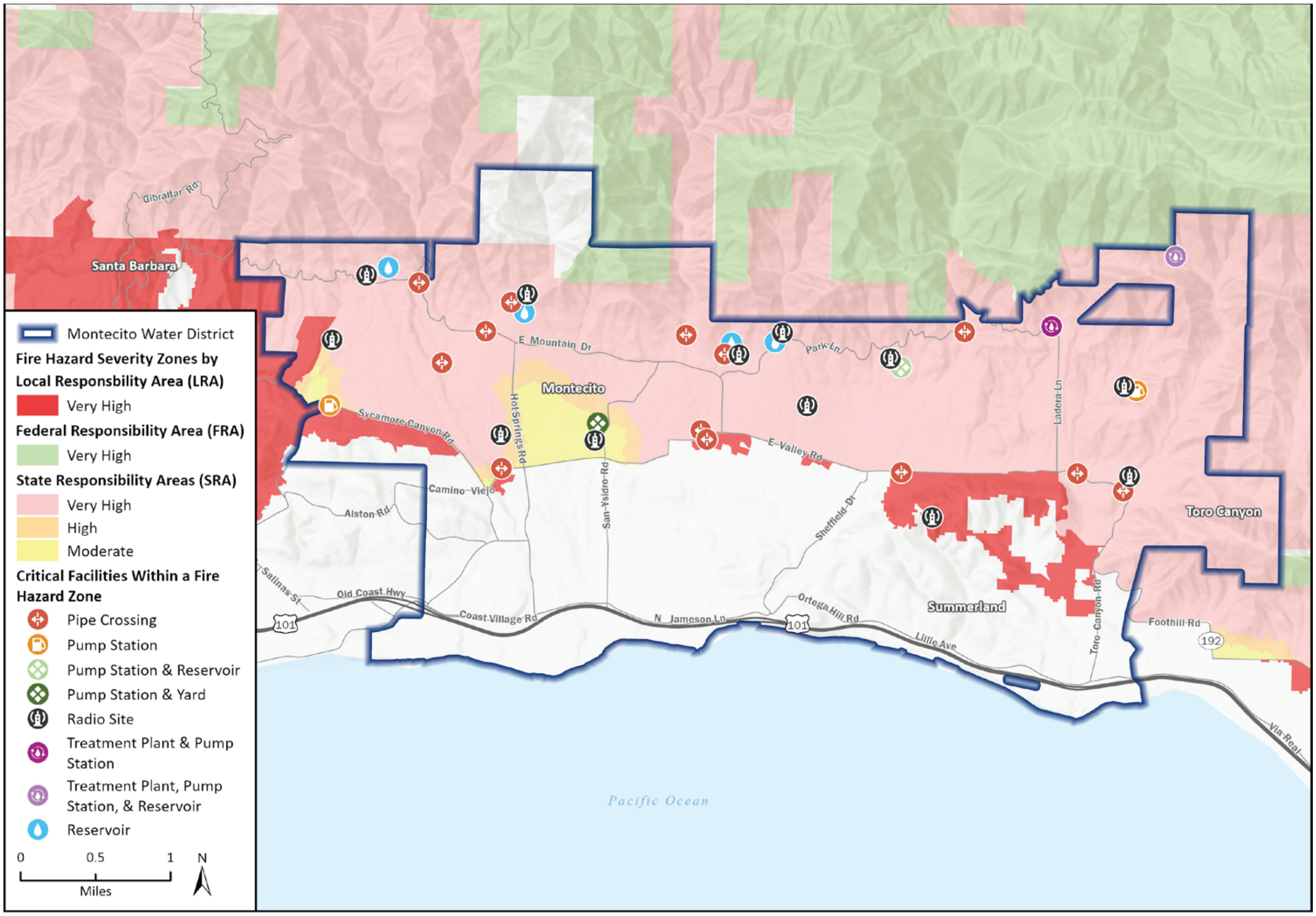
21. : Langridge, Ruth. (University of California, Santa Cruz). 2018. Central Coast Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-006.Accessed at: ***https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf*** *Accessed on: June 2024*

Wildfire

Wildfires pose a significant threat to MWD water supplies, impacting both quality and quantity. Persistent exposure to wildfire events also increases the risk of soil erosion and sedimentation in watershed areas and reservoirs, which can degrade water quality as runoff introduces heavy metals and ash into MWD water sources and reduce storage capacity. Additionally, wildfires can cause power outages and service disruptions, and can damage water supply infrastructure.

Much of the northern portion of the MWD service area is designated by CAL FIRE as High and Very High Fire Hazard Severity Zones. Additionally, many MWD critical facilities are located in Fire Hazard Severity Zones, as shown in Figure 2-5. The MWD service area is projected to experience increasing wildfire risk through the end of the century. Changing climate conditions are expected to accelerate the evaporation of moisture from soil and vegetation, making vegetation more susceptible to ignition and increasing the amount of flammable material. The probability of a wildfire occurring over a 10-year period is projected to increase from the historical baseline of 20 percent to 30 percent by the end of the century, with average number of burned acres projected to increase as well.[22]

Figure 2-5. MWD Critical Facilities within Fire Hazard Severity Zones



Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; CALFIRE, LRA 2008 & SRA 2024.

23-15187 EPS CAAP.aprx
Fig 2 Fire Hazard Severity Zones and Critical Facilities

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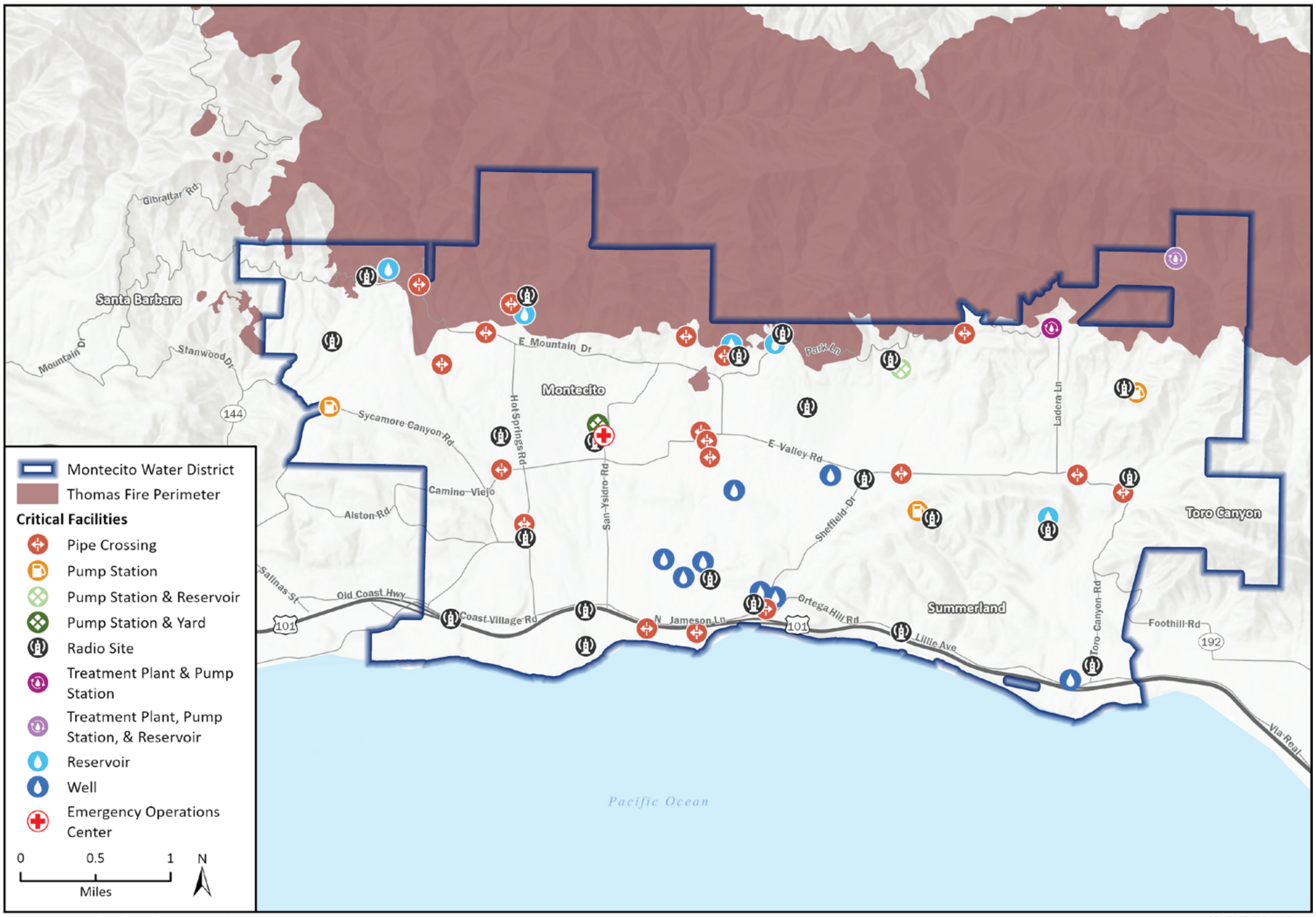
[22] California Energy Commission. 2023. Cal-Adapt. Accessed at: ***https://cal-adapt.org/tools/local-climate-change-snapshot****. Accessed on: May 2024*

On December 4, 2017, the Thomas Fire ignited in Ventura County and, due to a large amount of flammable vegetation and the influence of Santa Ana winds, quickly spread into Santa Barbara County and the MWD service area. The Thomas Fire burned most of the watershed above Jameson Lake and destroyed structures. Subsequent rainfall and corresponding debris flows impacted Jameson Lake water quality, introducing significant organic debris and ash. The Thomas Fire footprint and location of MWD critical facilities are shown in Figure 2-6. Critical facilities, including reservoirs, distribution systems, and treatment plants, were identified as highly vulnerable to wildfire impacts, especially due to their locations in designated fire hazard zones. As exemplified by the Thomas Fire, wildfires pose multifaceted risks, including water quality contamination by ash and organic material, employee injury, damage to critical conveyance and storage facilities, and power outages. Private plastic water pipes in the MWD service areas may also burn during wildfires, potentially contaminating the main water supply with harmful volatile organic compounds (VOCs), like benzene.

To help alleviate risk, identification and hardening of high-risk infrastructure against wildfires and exploration of distributed energy resources such as on-site solar, battery storage or emergency generators that can be isolated from the electrical grid to address power outages are tangible policy opportunities for consideration by MWD.

Figure 2-6. Thomas Fire and MWD Critical Facilities



Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; CALFIRE, FRAP, 2022

23-15187 EPS CAAP.aprx
Fig 3 Thomas Fire and Critical Facilities

Extreme Precipitation, Flooding and Debris Flows

The MWD service area is projected to experience more frequent and intense precipitation events, which may increase the risk of flood events and debris flows that may damage infrastructure, disrupt services, contaminate water supplies, and create safety hazards for its employees.

Climate models project the frequency of atmospheric rivers and large storm events will increase in the future across California, including in the MWD service area. Additionally, the peak season of atmospheric rivers is projected to lengthen, which may extend the flood-hazard season in California's Central Coast region.[23] As shown in Figure 2-7, the MWD service area contains both 100-year and 500-year FEMA floodplains, with critical facilities located in and near them. Future precipitation extremes are likely to cause more frequent flooding in low-lying areas served by MWD, as stormwater systems are more likely to be overwhelmed by high-velocity flows. In addition, areas impacted by recent fires are more vulnerable to debris flows.[24] For example, a month after the Thomas Fire (January 2018), the MWD service area and the surrounding communities experienced a series of mudflows after an estimated 0.5 inch of rain fell in a five-minute period, leading to mudflows up to 15 feet high, and resulting in deaths and severe damage across the community including to MWD facilities and infrastructure.[25], [26]

Certain MWD facilities and operations can be affected by extreme precipitation impacts, including those shown in Figure 2-7. During heavy rainfall, localized flooding may increase runoff into potable water sources like Jameson Lake and Cachuma Lake, necessitating additional treatment and increasing operational time and costs. Increased precipitation can also elevate turbidity and erosion levels in waterways, further compromising water quality and leading to costly upkeep and repairs of waterways and distribution systems. The January 2018 debris flow underscores the severe impacts of precipitation-related hazards. To help mitigate these risks, ongoing collaboration with Santa Barbara County permitting agencies can enhance stormwater drainage by using natural and engineered solutions. Reinforcement of flood-vulnerable infrastructure and relocating facilities from floodplains is worth exploring. Learning from the 2018 Montecito debris flow, protocols for risk management and emergency response can be developed. Additionally, incorporating climate change considerations into capital improvements can further streamline the development of climate-resilient projects and features.

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[23] *Langridge et al. 2018. Central Coast Region Report: California's Fourth Climate Change Assessment. Accessed at:* ***https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf*** *Accessed on: May 2024*

[24] *United States Geological Survey. 2018. Emergency Assessment of Post-Fire Debris Flow Hazards. Accessed at:* ***https://www.usgs.gov/programs/landslide-hazards/science/emergency-assessment-post-fire-debris-flow-hazards****. Accessed on: June 2024*

[25] *Montecito Water District. 2018. MWD Corrects Facts on January 9 Debris Flow Incidents. Accessed at:* ***https://montecitowater.com/news/mwd-corrects-facts-on-jan-9-debris-flow-incidents/*** *Accessed on: June 2024*

[26] *California Governor's Office of Emergency Services. 2024. Montecito Mudslides Anniversary, Reflections Through Images. Accessed at:* ***https://news.caloes.ca.gov/montecito-mudslides-anniversary-reflections-through-images/****. Accessed on: April 2024.*

Figure 2-7. MWD Critical Facilities within FEMA Flood Zones

Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; FEMA, 2021.

23-15187 EPS CAAP.aprx
Fig 4 Flood Zones and Critical Facilities

Sea Level Rise

MWD imported and desalination water supplies are projected to be at increased risk from sea level rise. Saltwater intrusion into the SWP freshwater sources poses threats to water quality and reliability, with potential downstream impacts on MWD allocations. Coastal hazards associated with sea level rise may pose risk to the City of Santa Barbara's Charles E. Meyer Desalination Plant (Desalination Plant), potentially impacting water supply reliability for MWD, and making direct adaptation improvements challenging to implement. However, based on sea level rise projections the Montecito Groundwater Basin is not at a large risk for saltwater intrusion that is common with sea level rise.

Global sea levels have been rising over the last century and are projected to continue rising through the remainder of this century. Sea level rise, which is an increase in the ocean's surface height relative to the land, is primarily driven by the warming of oceans and the addition of freshwater from the melting of land-based ice. Sea level rise contributes to increased coastal flooding, more severe and frequent tidal inundation, storm surge inundation, wetland loss, coastal erosion, and shoreline retreat. By 2080, conservative estimates predict sea levels will rise by 3.8 feet in the Santa Barbara region.[27] To simulate these conditions, the closest sea level rise mapping scenario (4.1 feet predicted by CoSMoS) was used to visualize potential impacts to the

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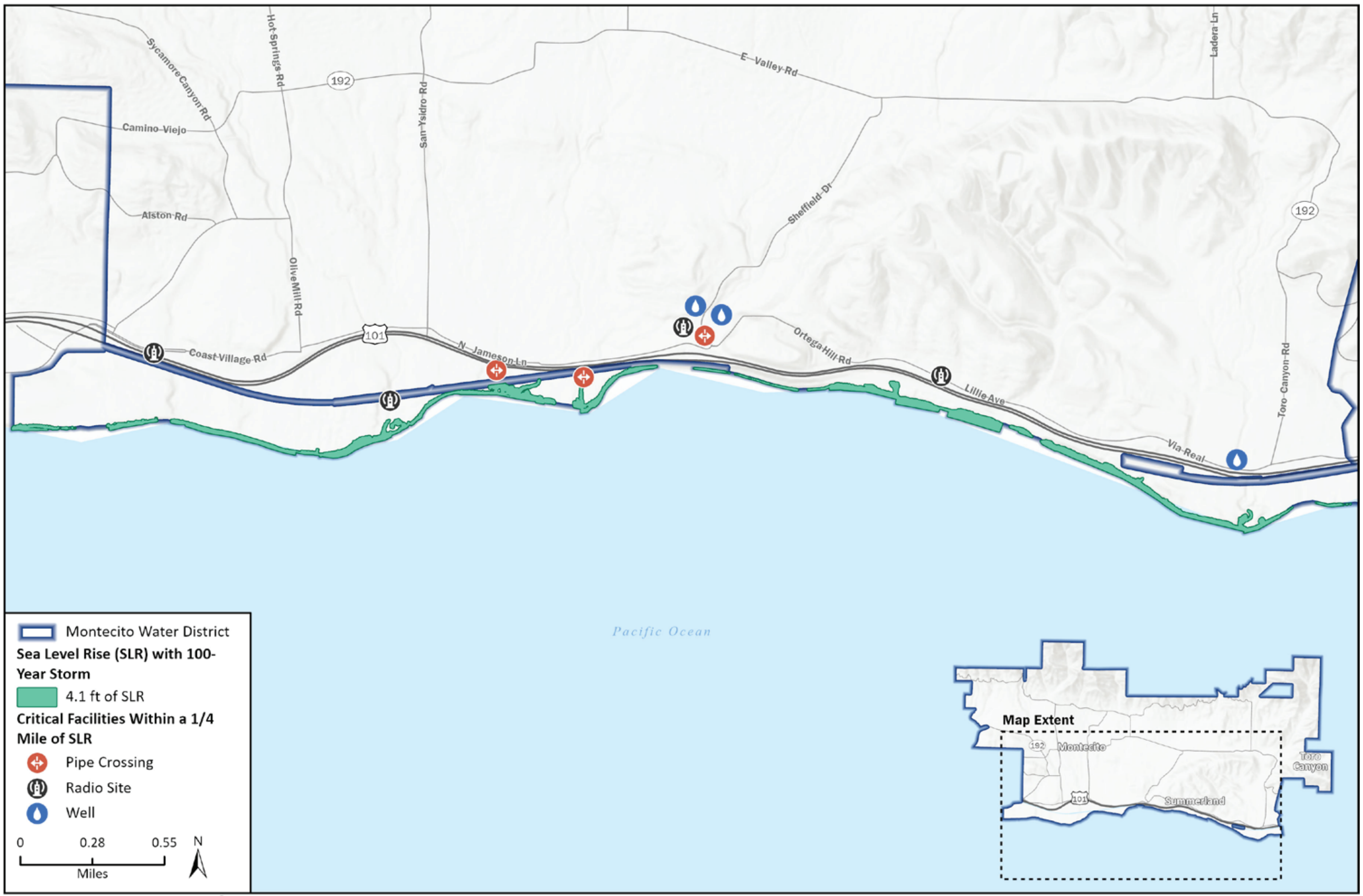
27. *Ocean Protection Council. 2024. DRAFT State of California Sea Level Rise Guidance. Accessed at:* ***https://opc.ca.gov/wp-content/uploads/2024/01/SLR-Guidance-DRAFT-Jan-2024-508.pdf*** *Accessed on: May 2024*

MWD service area, as seen in Figure 2-8.[28] Though MWD water sources can be affected by these factors, a majority of its critical facilities have limited exposure to sea level rise risks through the end of the century. None of the MWD critical facilities fall directly within the projected FEMA sea level rise hazard zone, so a ¼ mile buffer was extended beyond the hazard zone in Figure 2-8 to capture neighboring facilities.

MWD contracts with the City of Santa Barbara's Desalination Plant to receive 1,430 AF of local drought-proof potable water annually. The Desalination Plant, located north of the El Estero Water Resource Center, is not likely to be exposed to increased hazards by 2.5 feet of sea level rise but is projected to be exposed to tidal inundation and storm flooding by 6.6 feet of sea level rise.[29] With 6.6 feet of sea level rise, the plant could suffer infrastructure inundation, leading to damage and severe operational disruptions. Although the plant is not owned by MWD, impacts to it could disrupt MWD water supplies. Additionally, saltwater intrusion from sea level rise may contaminate groundwater wells, requiring data collection, close monitoring, and raising treatment costs.[30] Drought exacerbates these risks, potentially increasing groundwater extraction and land subsidence. To alleviate these risks, efforts can be made to enhance collaboration with the City of Santa Barbara to safeguard the Desalination Plant against potential disruptions. Additionally, ongoing partnerships with the Montecito Groundwater Sustainability Agency can be strengthened. The Montecito Groundwater Sustainability Agency proactively monitors the susceptibility of wells to seawater intrusion and has the authority to restrict well operation if required.

Figure 2-8. MWD Critical Facilities in Close Proximity to Sea Level Rise Projections



Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; Our Coast Our Future, 2024.

23-15187 EPS CAAP.aprx
Fig 6 Sea Level Rise

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[28] CoSMos. 2024. Our Coast Our Future. Hazard Map Scenarios. Accessed at: **https://ourcoastourfuture.org/hazard-map/** Accessed on: May 2024

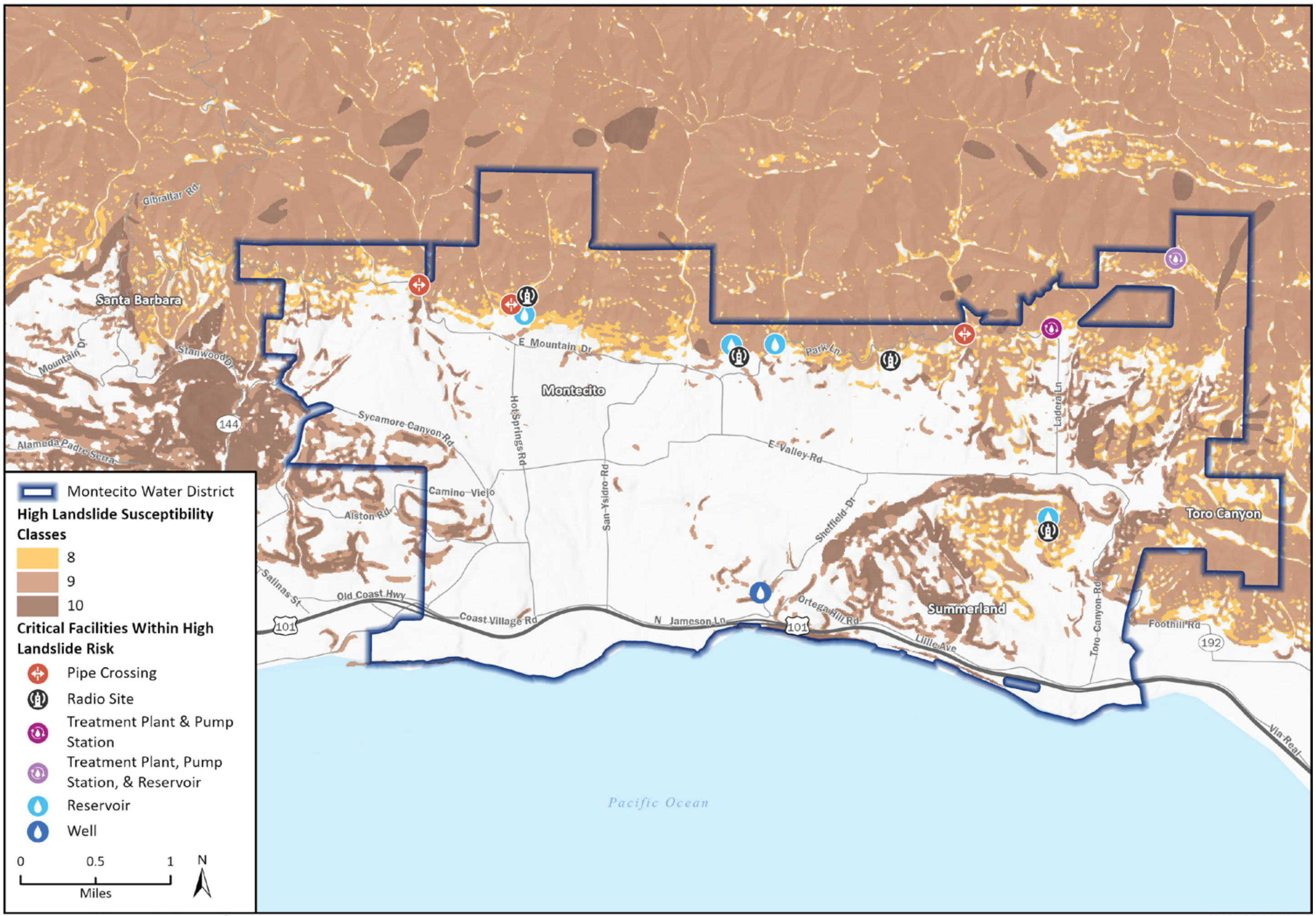
[29] City of Santa Barbara. 2021. Sea-Level Rise Adaptation Plan. Accessed at: **https://santabarbaraca.gov/sites/default/files/documents/Services/SLR%20Adaptation%20Plan/Sea-Level%20Rise%20Executive%20Summary.pdf** Accessed on: May 2024

[30] Montecito Water District. 2021. 2020 Urban Water Management Plan. Accessed at: **https://montecitowater.com/doc/7475/** Accessed on May 2024.

Landslides

Landslide vulnerability is typically greatest in areas with unstable soils, weak rocks, and steep slopes. Landslide susceptibility in the MWD service area is based on a range from 1 to 10, with 10 being the highest susceptibility. As shown in Figure 2-9, high landslide susceptibility risk (defined as class 8-10) is common throughout the MWD service area, particularly in the Montecito Hills, Summerland, and Toro Canyon. Critical facilities located within a high landslide susceptibility area are highlighted in the figure. Increased frequency and intensity of extreme precipitation events and wildfires may further contribute to increased landslide susceptibility in the MWD service area.

Figure 2-9. MWD Critical Facilities within High Landslide Susceptibility Areas

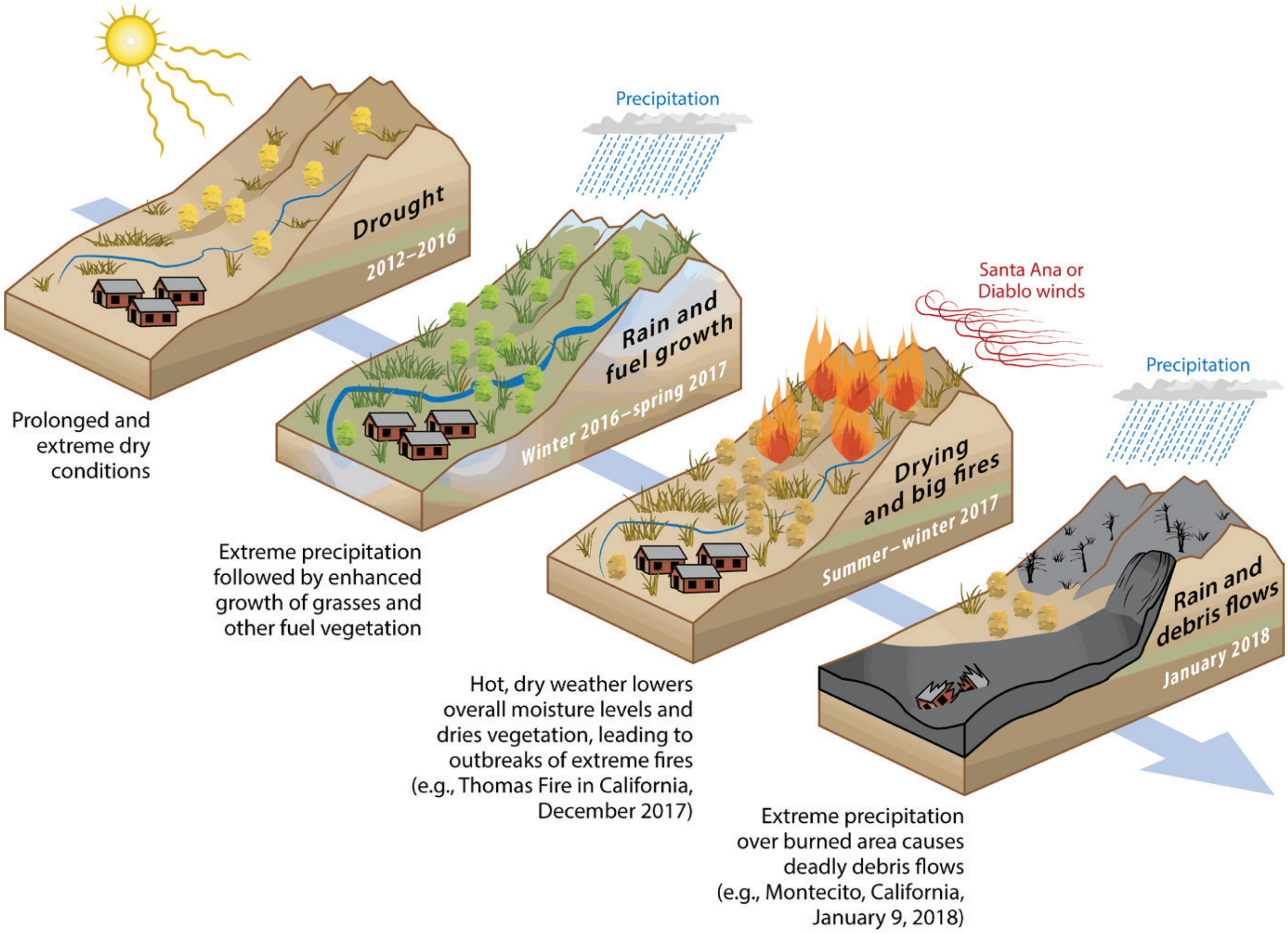


Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; CGS, Map Sheet 58, 2018.

23-15187 EPS CAAP.aprx
Fig 5 Landslide Susceptibility and Critical Facilities

The MWD distribution system and treatment plants were identified as being at high risk from landslides. Damage to these facilities can cause service disruptions, impact community members, and isolate certain areas if roadways are compromised. Landslides can directly damage buildings and facilities by disrupting structural foundations either by deforming the ground on which an asset is located or by physically impacting an asset. Facilities and infrastructure in and up against the Santa Ynez Mountains, including the Doulton Water Treatment Plant, pump station and reservoir, are particularly susceptible to landslides. Landslides may also increase sedimentation in potable water sources, such as Jameson Lake, which may lead to lost storage and water quality impacts. See Figure 2-10 for a visual depiction of how climate change can contribute to landslide risk. While slope stabilization techniques and vegetative management can prevent soil movement and reduce the risk of landslides, such land management projects are largely outside of MWD's jurisdictional control or influence. Reinforcing MWD infrastructure in high landslide susceptible areas or relocating such infrastructure where possible enhances MWD's resiliency in the face of such events.

Figure 2-10. Climate Change Contributions to Landslide Risk

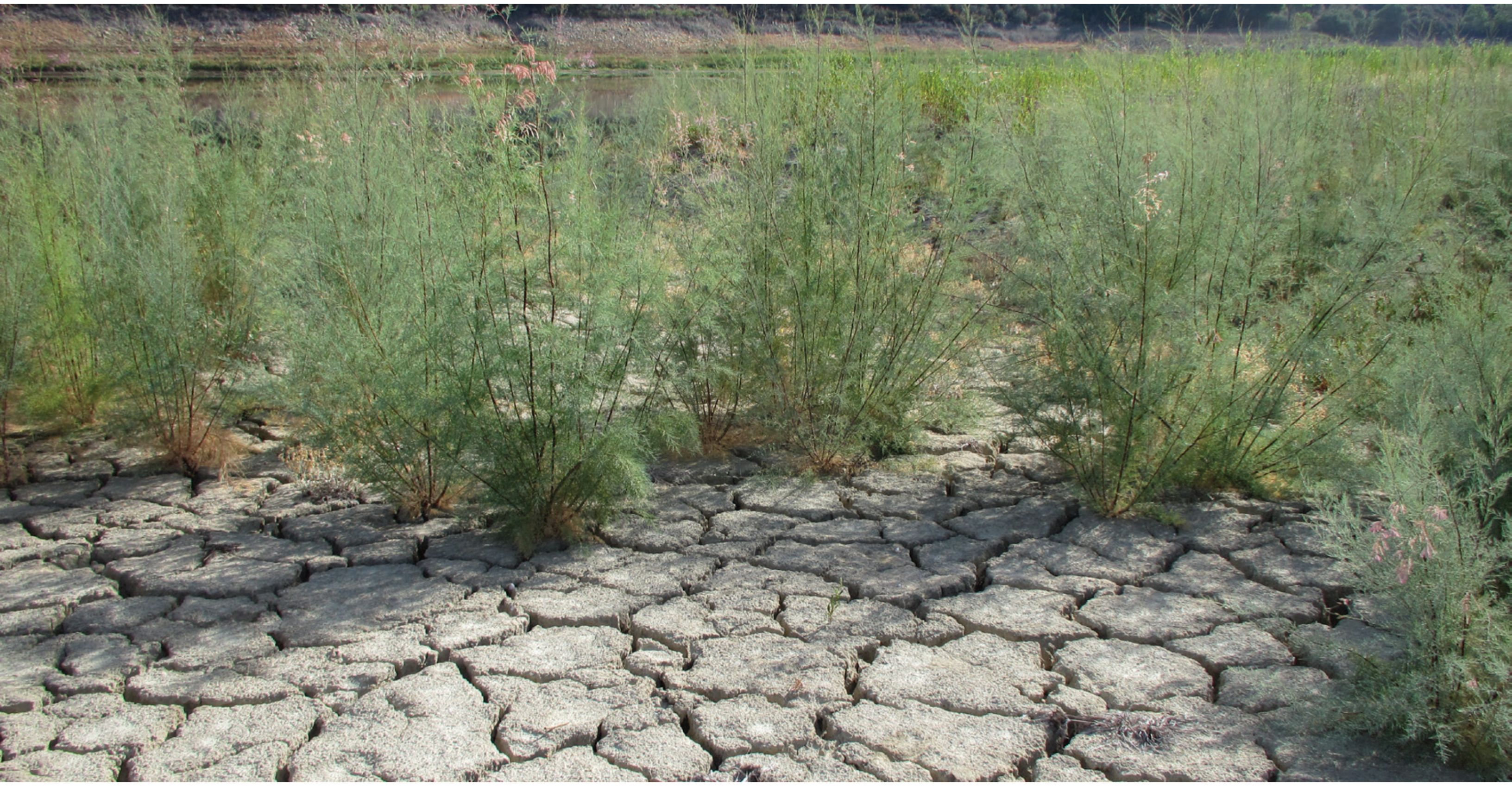


Source: Van Bogaert, R., Bjorkman, A. D., Boucher, J., Caccianiga, M., Fauria, M. M., Jorgenson, M. T., ... & Myers-Smith, I. H. (2023). Cascading effects of climate change and wildfire on a subarctic lake: A 20-year case study of watershed change. *ResearchGate*. Accessed at: ***https://www.researchgate.net/publication/372749486_Cascading_effects_of_climate_change_and_wildfire_on_a_subarctic_lake_A_20-year_case_study_of_watershed_change*** Accessed on: June 2024

State Water Project Climate Hazards

MWD obtains its water supplies from multiple sources, including the SWP. The Sierra snowpack, which supplies approximately 30% of California's water supply, plays an important role in water flow in the Feather River watershed and resulting SWP allocations.[31] Reduced snowpack and higher temperatures result in more runoff in winter, less in late spring and early summer, and increased ocean-bound surface water. These changes in the timing and type of precipitation will complicate, and at times reduce, SWP capture and delivery, challenging the management and availability of SWP deliveries.

According to DWR's Climate Change Vulnerability Assessment, DWR infrastructure is also exposed to various climate hazards which would affect MWD water supplies. Several critical DWR facilities are particularly susceptible to flood hazards, and certain assets owned and managed by DWR are situated in wildfire hazard areas, making them vulnerable to damage. All DWR locations are projected to experience more extreme heat days and higher average maximum temperatures due to climate change. Sea level rise is projected to increase the Sacramento-San Joaquin Delta's salinity, meaning less water is available for distribution through the California Aqueduct to water suppliers and users located south of the Delta, including MWD. This scenario poses a challenge for SWP water availability and management in the region, impacting various communities and water-related operations.[32] Currently MWD does not rely heavily on SWP, however, management of the SWP during climate extremes could impact MWD services and operations. While MWD has diversified its water supplies over the past decade, decreases in future SWP allocations may lead to water shortages and loss of revenue. However, MWD's diversification of water supplies over the last decade have significantly improved MWD's resilience to climate change.



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[31] *California Department of Water Resources. 2024. March Snow Survey Shows Improvement for Sierra Snowpack. Accessed at:* ***https://water.ca.gov/News/News-Releases/2024/Feb-24/March-Snow-Survey-Shows-Improvement-for-Sierra-Snowpack#:~:text=On%20average%2C%20the%20Sierra%20snowpack,as%20California%27s%20%E2%80%9Cfrozen%20reservoir.%E2%80%9D*** *Accessed on: May 2024*

[32] *California Department of Water Resources. 2019. Climate Action Plan, Phase 3: Climate Change Vulnerability Assessment. Accessed at:* ***https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-III-Vulnerability-Assessment.pdf****. Accessed on: May 2024.*

3.

GHG EMISSIONS

While there are other metrics and means to track improved resilience and adaptation to climate change, the State recognizes the amount of GHG emissions as an important metric to track progress in reducing climate change. Metrics for resource consumption, such as fuel use, electricity consumption, and waste generation, can all be translated into GHG emissions. GHG emissions provide a single metric to quantify and compare past and current climate mitigation efforts, which can also aid in accessing grant funding.

Quantifying and tracking GHG emissions allows MWD to identify operational sources and activities with excessive energy usage and/or inefficiencies as well as align with the State's standard methods for reporting on climate change contribution. Strategies that decrease GHG emissions typically increase operational efficiency and cost-effectiveness. The following section provides the context for GHG emissions as they relate to climate change, including how GHG emissions are defined and measured.

MWD OPERATIONAL BOUNDARY AND GHG EMISSIONS SOURCES

As part of the MWD CAAP development process, an inventory of operational GHG emissions was prepared for the calendar year 2022. The 2022 GHG inventory is based on the most recent year in which data is completely available and reflects current conditions. The inventory provides a measurement of GHG emissions within the operational control of MWD. This generally includes GHG emissions associated with the operation and maintenance of MWD infrastructure, including buildings, facilities, fleet, equipment, as well as GHG emissions from activities associated with MWD operations such as employee generated wastewater, waste streams, and employee commutes. Indirect emissions associated with imported water, such as from the SWP, Cachuma Project, and City of Santa Barbara's Charles E. Meyer Desalination Plant are not within the operational control or operational boundary of MWD.

Conducting a GHG inventory is an important component of the CAAP development process, as it allows MWD and interested parties to understand which activities contribute substantially to their GHG emissions footprint. The inventory also provides the groundwork for forecasting future GHG emissions and developing GHG emissions reduction targets.

The MWD GHG emissions inventory is consistent with established reporting protocols from the World Resources Institute (WRI), World Business Council for Sustainable Development (WBCSD), and the International Council for Local Environmental Initiatives (ICLEI).[33],[34] The WBCSD and WRI Corporate Standard GHG Protocol establishes distinct boundary-setting methodologies an entity can use when developing a GHG inventory. The MWD GHG inventory was developed utilizing the "operational control" approach to define the emission boundary. Operational control is defined as having the full authority to introduce and implement its operating policies at the operation. GHG-generating activities are further categorized into three "scopes" which separate GHG emissions under an organization's operational control into direct, indirect energy emissions, and other indirect or supply chain emissions. The MWD GHG inventory includes sources within each scope that are under its operational control, in accordance with established GHG accounting protocols and State guidance. The three scopes of emissions are further defined as follows:

Scope 1 consists of all direct GHG emissions that occur from sources controlled by the organization. For MWD, these sources include natural gas consumption, propane consumption, and fuel combustion in the MWD vehicle fleet and equipment.

Scope 2 consists of indirect GHG emissions associated with the consumption of purchased or acquired power generated off-site by utility providers such as electricity, steam, heat, or cooling. For MWD, these emissions sources include the consumption of purchased electricity.

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[33] *WRI and WBCSD. The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (GHG Protocol). 2004. Revised Edition. Accessed at* ***https://ghgprotocol.org/corporate-standard. Accessed on: January 30****, 2024*

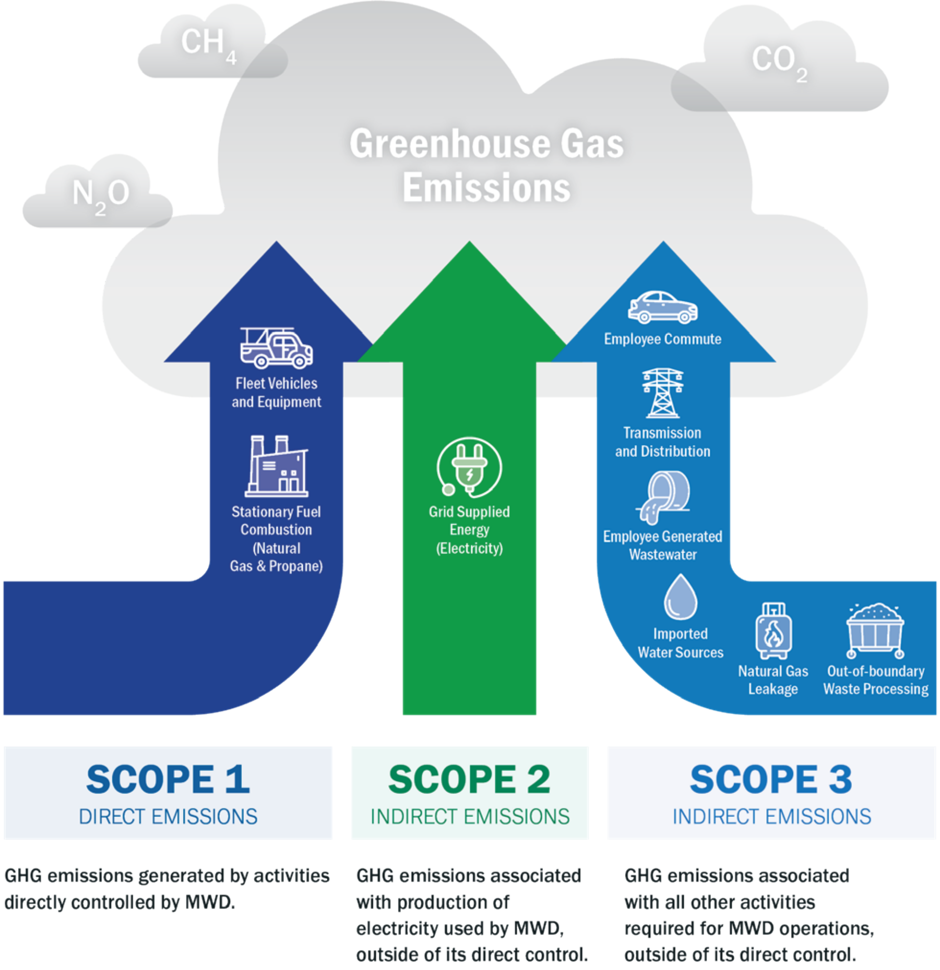
[34] *ICLEI. Local Government Operations Protocol. Version 1.1. 2010. Accessed at* ***https://s3.amazonaws.com/icleiusaresources/lgo_protocol_v1_1_2010-05-03.pdf****. Accessed on: January 30, 2024*

Scope 3 consists of all other indirect GHG emissions resulting from activities fundamental to the organization's operation but which are not from sources fully owned or controlled by the entity. For MWD, this includes emission sources resulting from MWD operations, including natural gas leakage[35], electrical transmission and distribution losses[36], employee commute, solid waste disposal[37], employee generated wastewater, and imported water[38].

Scope 1 and Scope 2 emissions are fully within an organization's operational control or influence and must be reported within an inventory. Reporting Scope 3 emissions is considered optional as these emission sources are not fully within an organization's operational control. While it is not required an entity tracks and reports Scope 3 emissions, it is considered best practice to identify and include Scope 3 emission sources since the entity can "influence" these emission sources. The Scope 3 emission sources described above are included in the MWD 2022 GHG emissions inventory as MWD has some level of influence on the listed sources. GHG-generating activities included in the inventory are categorized by scope as shown in Figure 3-1.

-The inventory for MWD operations includes annual data on each GHG-generating activity shown in Figure 3-1 for 2022, then converts the activity data to GHG emissions using GHG emissions factors such as those from the United States Environmental Protection Agency, ICLEI, and local utilities (e.g., Southern California Edison).

Figure 3-1. MWD GHG Emissions by Scope



(CO_2 = Carbon dioxide | CH_4 = Methane | N_2O = Nitrous oxide)

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[35] *Natural gas leakage occurs along the pipeline during natural gas transmission and at the point of end-use. While GHG emissions associated with natural gas leakage occur upstream and outside of MWD operational control, the quantity of natural gas leaked is directly influenced by the amount of natural gas consumed by MWD operations.*

[36] *Electricity losses occur during the transmission and distribution (T&D) of electricity from the power facility to MWD. While GHG emissions associated with electricity T&D losses occur upstream and outside of MWD operational control, the quantity of T&D losses is directly influenced by the amount of electricity consumed by MWD operations.*

[37] *GHG emissions associated with solid waste generated by MWD operations include GHG emissions associated with fuel combustion for landfill equipment and waste decomposition emissions once the waste is landfilled.*

[38] *GHG emissions associated with imported water sources are driven by the energy intensity (i.e., the relative amount of energy needed for the transport, production, treatment, and distribution of water) of the water source and the emission factor of the energy utilized by the entity responsible for that water source. While MWD may not have control over the energy intensity or source of energy of imported water sources, indirect emissions associated with imported water sources is influenced by the MWD water supply portfolio.*

CURRENT GHG EMISSIONS

In 2022, MWD total GHG emissions were approximately 869 metric tons (MT) of carbon dioxide equivalent (CO_2e).[39] The major sources of GHG emissions were electricity usage (79 percent of total emissions), employee commute (10 percent of total emissions), and vehicle fleet and equipment (8 percent of total emissions). All other sources combined were approximately 3 percent of total emissions. The results of the 2022 GHG emissions inventory are shown in Table 3-1. GHG emissions from the 2022 inventory are shown by sector (e.g., transportation, electricity consumption) in Figure 3-2.

Table 3-1. -MWD 2022 GHG Emissions Inventory

GHG-Generating Activity	Sector	Scope	2022 (MT CO_2e)	Average % Contribution to Total
Vehicle Fleet & Equipment	Transportation	1	69	8%
Natural Gas	Facility Fuel Consumption	1	3	<1%
Propane	Facility Fuel Consumption	1	6	<1%
Electricity	Electricity Consumption	2	652	75%
Electricity T&D Losses	Electricity Consumption	3	29	3%
Natural Gas Leakage	Facility Fuel Consumption	3	1	<1%
Employee Commute	Transportation	3	90	10%
Wastewater Generation	Wastewater	3	1	<1%
Waste Generation	Solid Waste	3	18	2%
Imported Water (Lake Cachuma, Desalination Plant)1	Imported Water	3	0	0%
Total in Metric Tons CO_2e			869	100%

MT CO_2e = metric tons of carbon dioxide equivalents; T&D = transmission and distribution

1. See discussion of Scope 3 – Indirect Emissions for description of imported water sources.

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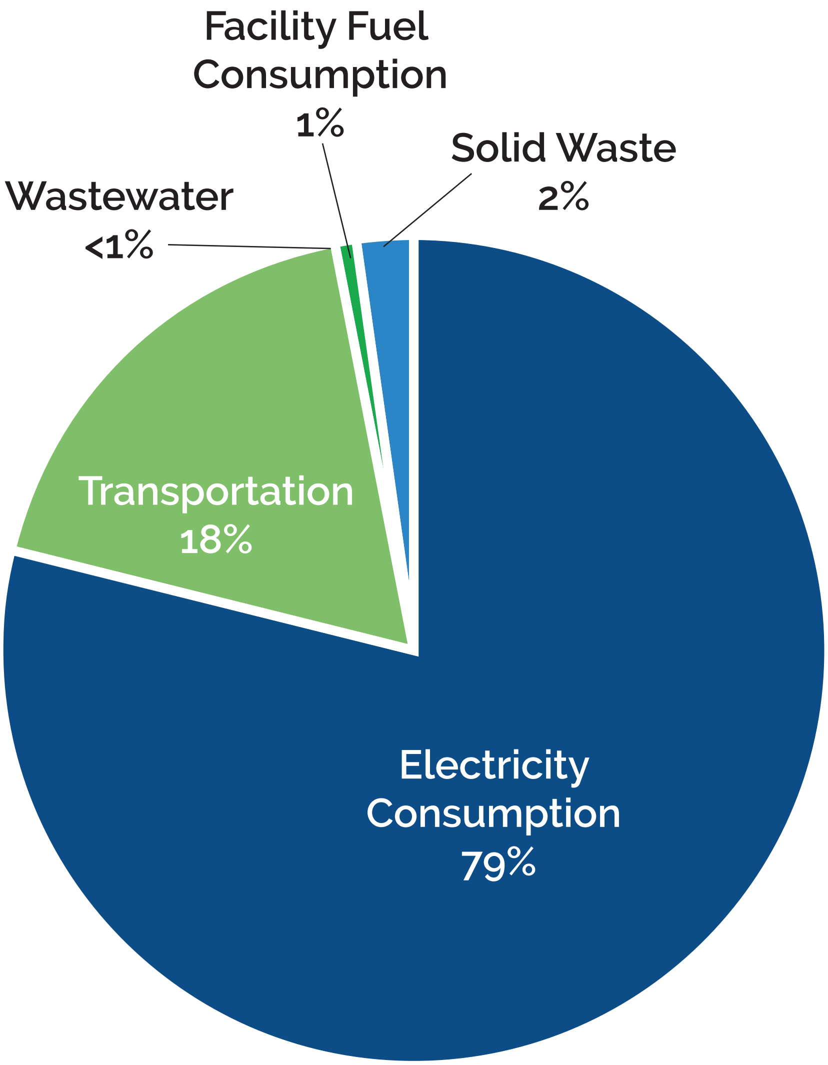
[39] *Each GHG has its own global warming potential, which refers to the extent to which the GHG traps energy in the atmosphere. When GHG are normalized based on their global warming potentials, using CO_2 as the reference point, it is referred to as carbon dioxide equivalents or CO_2e.*

Figure 3--2. MWD GHG Emissions Inventory by Sector



GHG Emissions by Scope

In 2022, the majority of GHG emissions occurred under Scope 2 (75 percent of total emissions), followed by Scope 3 (16 percent of total emissions) and Scope 1 (9 percent of total emissions). A large portion (84 percent) of GHG emissions generated by MWD are fully under MWD operational control and influence (i.e., Scope 1 and Scope 2 emissions). While the emissions generated by an electricity provider, such as Southern California Edison (SCE), are not within MWD control, MWD has direct control over the electricity power program selected (i.e. Green Rate) and the amount of electricity consumed by its operations. Scope 2 emissions associated with electricity use will continue to decrease over time as electricity sources become renewable and carbon free under California's Renewable Portfolio Standard (RPS).[40] GHG emissions by scope (1- direct emissions, 2- indirect energy emissions, and 3- indirect emissions) are shown in Figure 3-3 for 2022.

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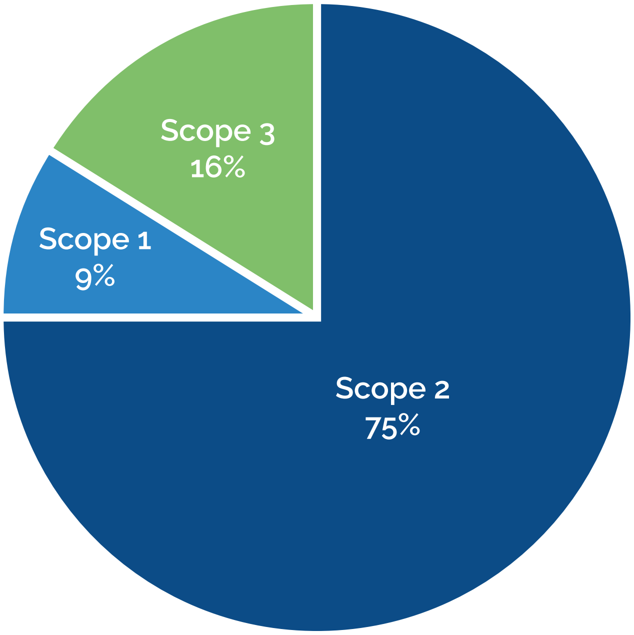
[40] *California's RPS requires all retail electricity providers in California to procure 50 percent of their electricity supply from carbon-free and renewable resources by 2026, 60 percent by 2030, 90 percent by 2035, 95 percent by 2040 and 100 percent by 2045. This will effectively reduce the GHG emissions intensity of electricity across the state, including the electricity MWD purchases from SCE.*

Figure 3--3. MWD GHG Emissions Inventory by Scope



Scope 1 – Direct Emissions

Scope 1 GHG emissions associated with MWD include emissions from vehicle fleet and equipment use and combustion of natural gas and propane in facilities. Vehicle fleet and equipment fuel usage was the largest contributor to Scope 1 GHG emissions in 2022.

Scope 2 – Indirect Emissions

Scope 2 GHG emissions are 100 percent attributable to electricity purchased from SCE and used by MWD for its operations. MWD uses electricity primarily for water production, conveyance, and treatment. Additional electricity is used at administrative facilities and reservoirs. In 2022, approximately 63 percent of total electricity purchased from SCE was utilized at the pump stations, followed by 18 percent used for wells, and 12 percent used for water treatment. Electricity use at the administrative facilities and reservoirs made up the remaining 7 percent of total electricity purchased from SCE.

MWD has several off-grid solar systems that generate electricity and reduce the amount of electricity MWD needs to purchase from SCE. This includes off-grid solar systems installed at the Jameson Lake property that generate an estimated 21,477 kilowatt-hours (kWh) annually and fully support the Jameson Lake property electricity needs. Additional off-grid solar at Bella Vista Forebay, Hot Springs Reservoir, Buena Vista Reservoir, and at various MWD smart meter poles generate an estimated 3,727 kWh annually. MWD also generates hydropower from Jameson Lake at the Picay Hydropower Facility (Picay). Hydropower generated at Picay is used to offset electricity usage at MWD's largest accounts. In 2022, 132,875 kWh of hydropower electricity was generated. Hydropower electricity generated at Picay, is not included in the MWD 2022 GHG inventory as it is carbon-free and does not contribute to the MWD GHG emissions profile.

Scope 3 – Indirect Emissions

Scope 3 GHG emissions include employee commutes, electricity transmission and distribution, natural gas leakage, solid waste disposal, facility wastewater generation, and imported water supplies.

MWD receives imported water from the Cachuma Project, from the City of Santa Barbara Desalination Plant, and from the SWP. Indirect emissions associated with energy used for imported water sources are included in the inventory as MWD has some level of influence over these imported water sources; primarily the level of water acquired from these sources. As detailed in Chapter 2, MWD stores excess SWP water supplies for future use at the Semitropic Water Storage District groundwater banks in California's Central Valley. Semitropic Water Storage District is responsible for accounting and managing the GHG emissions associated with water movement between the San Luis Reservoir and the Semitropic groundwater banks.

In 2022, MWD imported water from the City of Santa Barbara through the Cater Treatment Plant. The City of Santa Barbara utilizes 100% renewable and carbon-free electricity from Santa Barbara Clean Energy; therefore, electricity consumed through the Cachuma Project and Desalination Plant has an emission factor of zero. Consequently, in the 2022 MWD GHG emissions inventory, there were no GHG emissions associated with imported water.

Excluded Emissions

In addition to the imported water sources included in the Scope 3 emission sources, MWD also acquires SWP water through the CCWA. The SWP is a water storage and delivery system that extends more than 705 miles from northern to southern California. This system is owned and operated by the DWR and provides water to urban, agricultural, and industrial water users. DWR defines the water available each year, which is a function of available water supplies within the SWP. SWP water acquired by MWD is either stored in the San Luis Reservoir, stored in Semitropic Groundwater Bank or conveyed to Lake Cachuma where it comingles with Lake Cachuma water. MWD has no control or influence over DWR operations or the SWP. Therefore, SWP water and its associated emissions, were assumed to remain outside of the MWD operational boundary until the water enters MWD-controlled facilities. Thus, upstream emissions associated with the SWP are not included in the MWD GHG emissions inventory and are considered to fall under DWR operational control.

HISTORICAL GHG EMISSIONS

The GHG emissions inventory helps MWD, and interested parties, understand the GHG emissions arising from each GHG-generating activity associated with current operations. This inventory also aids in the development of GHG emissions targets consistent with State goals. As described in Chapter 1, the State goals included in SB 32 and AB 1279 are based on reductions from the 1990 level of emissions.

To establish GHG reduction targets consistent with State goals, 1990 emission levels associated with MWD local operations were estimated by back-casting from the 2022 inventory. The methods used to develop a back-cast to the 1990 emissions level are described in the following section. MWD GHG emissions targets are based on 1990 levels and are discussed in more detail in Chapter 4.

Back-Cast to 1990

To aid in determining the MWD 2030 GHG emissions target, a back-cast of GHG emissions to 1990 was developed based on the 2022 inventory results. The 1990 back-cast is in line with CARB recommendations, per the 2017 Scoping Plan Update[41], which set a trajectory for reducing GHG emissions in alignment with State goals. The 1990 back-cast assumes MWD GHG emissions have followed the same trajectory as the state's emissions such that for a given year, emissions for MWD and the state have increased or decreased approximately the same percentage relative to 1990. For example, the state experienced a thirteen percent decrease in GHG emissions between 1990 and 2021[42]; therefore, MWD 1990 GHG emissions were assumed to be about thirteen percent higher than the 2022 emissions levels quantified in the 2022 GHG emissions inventory. Per guidance from the California Governor's Office of Planning and Research, the back-cast is based on sectors relevant to the entity. For MWD this includes the following sectors: transportation, electric power, commercial & residential, wastewater, and recycling and waste. Table 3.2 shows this calculation in more detail.

Table 3-2. MWD's 1990 GHG Emissions Back-Cast

Emissions	Total
State of CA 1990 Emissions[1] (MMT CO_2e)	307
State of CA 2021 Emissions[1] (MMT CO_2e)	267
1990 Change Factor (%)[1,2]	(13%)
2022 MWD Emissions (MT CO_2e)	869
1990 MWD Emissions (MT CO_2e)	999

MMT CO_2e = million metric tons of carbon dioxide equivalents

1. State-level GHG emissions values used for the 1990 back-cast were sourced from CARB,[43] and exclude emissions from the industrial, agricultural, and high-GWP emissions sectors, for better comparison to the MWD 2022 GHG emissions inventory, which also excludes these sectors.
2. Parathesis indicate a negative number.

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[41] CARB. *California' 2017 Climate Change Scoping Plan the Strategy for achieving California's 2030 greenhouse gas target*. 2017. Accessed at: ***https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf***. Accessed on: January 10, 2024

[42] *At the time of the back-cast development, 2022 State inventory results were not available and therefore 2021 State inventory results were used as a proxy.*

[43] *CARB. California Greenhouse Gas Emission Inventory – 2021. 2022. Accessed at:* ***https://ww3.arb.ca.gov/cc/inventory/data/data.htm****. Accessed on: March 10, 2024.*

MWD GHG EMISSIONS FORECAST

GHG emissions forecasts provide an estimate for how GHG emissions will look in the future, based primarily on projected changes in services over time. They provide useful information on the amount of GHG reduction MWD will need to achieve to meet the GHG emissions reduction targets. Using the 2022 GHG emissions inventory, future MWD operational GHG emissions were forecasted. Projections were based on the projected water demand in the MWD 2020 Urban Water Management Plan (UWMP). Employee commute and employee wastewater generation emissions were projected based on the MWD 2022 employee population, as these sources are not likely to change in the future based on water demand.

Water demand projections used to forecast GHG emissions are based on the UWMP "5-year consecutive drought scenario". This scenario is a conservative estimate of future water deliveries as it reflects the driest 5-year historical sequence and includes the largest water demand through 2045, compared to the other scenarios in the UWMP. Forecasting this scenario also results in the highest emissions scenario. Developing targets based on the highest emissions scenario provides the most flexible target pathway allowing MWD to set goals that will meet the target pathway even in a high-water demand case.

Potable water demand is expected to increase by up to 23 percent between 2022 and 2045, in accordance with the 2020 UWMP projections. The actual increase in potable water demand may be less due to more recent efforts to reduce water demands following recent droughts and implementation of progressive conservation measures. Additionally, MWD will continue to explore the feasibility and benefits of providing recycled water services, which if implemented may impact future water demand and forecasted emissions if recycled water does become part of the MWD water supply portfolio.[44] Regardless, GHG emissions from electricity associated with supplying water will continue to decrease through 2045 due to the requirements for utility providers to provide renewable and carbon-free energy by 2045.

Historical and Projected Water Demand

To clearly demonstrate future MWD emissions, two forecasts were developed – a business-as-usual (BAU) forecast, and an adjusted forecast. The BAU forecast represents what MWD emissions would look like based on water delivery projections alone and assuming current operations and emission factors remain constant into the future. An adjusted forecast adjusts the BAU forecast to account for State-level implementation of policies and programs requiring California reduce its emissions through 2045, as described further below. The adjusted forecast includes California's RPS, which will significantly reduce MWD GHG emissions from electricity through 2045 due to the requirements for utility providers to be carbon-free by 2045. The Advanced Clean Cars program is accounted for in the emission factors for employee commute in the adjusted forecast. Based on review of other State legislation intended to reduce GHG emissions, such as the Title 24 Building Standards Code (Title 24) and SB 1383, they would have limited impact on MWD operations and therefore were not included in the adjusted forecast. While MWD may in the future build a new operations building subject to Title 24, the planning for this building is in the early stages and therefore impacts from Title 24 could not be accounted for in the forecast. It is assumed any new buildings would be compliant with Title 24 requirements. Future inventories will capture energy use at any new buildings and will inherently account for energy efficiencies resulting from meeting Title 24 requirements. Emissions reductions associated with SB 1383 are not included in the adjusted forecast, as it is the local government's responsibility to enforce the regulation and at this time the general requirements are too prescriptive to forecast how regulation implementation will impact MWD generated waste emissions.

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[44] *In January 2023, MWD and Montecito Sanitary District developed an Enhanced Recycled Water Feasibility Analysis:* ***https://montecitowater.com/doc/8927/***

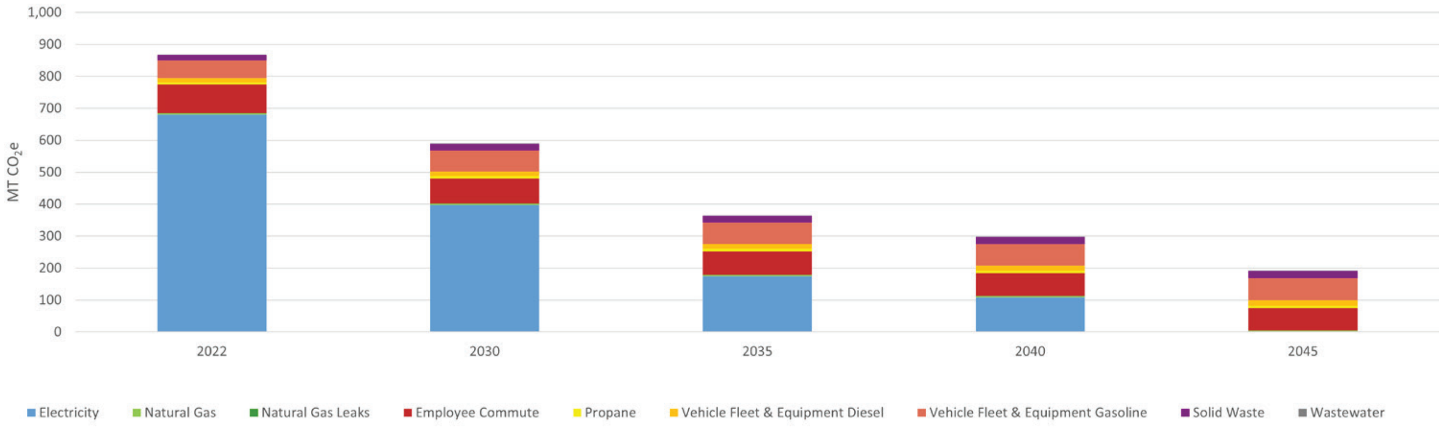
Incorporating State-level policies and programs in the adjusted forecast creates a reasonable picture of future MWD emissions. This forecast allows MWD to estimate how GHG emissions will change based on expected water demand, and how much MWD will need to reduce emissions to meet GHG reduction targets for 2030 and 2045 in line with State goals.

The BAU forecast is useful for comparison with the adjusted forecast, to show the extent to which State-level policies and programs will help to reduce MWD GHG emissions, as seen in Table 3-3. Under the BAU forecast, overall emissions are projected to increase steadily through 2045, as service population and water services continue to grow modestly. However, in the adjusted forecast, electricity emissions will significantly decrease through 2045, decreasing total emissions over time, as shown in Figure 3-4. The results of the forecast are summarized in Table 3-4 and displayed in Figure 3-4.

Table 3-3. MWD GHG Emissions Forecast

Data	2030	2035	2040	2045
Forecasted Water Demand (AF)				
5-year Consecutive Drought Scenario	5,333	5,470	5,613	5,752
Forecast Summary (MT CO_2e)				
BAU Forecast	995	1,018	1,042	1,066
Legislative Reductions	405	654	744	874
Adjusted Forecast	589	364	298	192
Adjusted Forecast Detail (MT CO_2e)				
Vehicle Fleet & Equipment	81	83	85	87
Propane	7	7	7	7
Natural Gas	4	4	4	4
Natural Gas Leakage	1	1	1	1
Electricity and T&D Losses	398	174	108	0
Wastewater Generation	0.3	0.3	0.3	0.3
Employee Commute	79	74	72	70
Solid Waste Generation	21	21	22	22
Imported Water Electricity	0	0	0	0

Figure 3-4. MWD Adjusted GHG Emissions Forecast



4.

CLIMATE ACTION TARGETS

California has established extensive legislation, policies, and programs to reduce GHG emissions within the state over the last decade. The primary drivers of climate action at the State level are AB 32, SB 32, and AB 1279. These regulations chart a path towards a carbon neutral California by 2045, as explained below. California's climate action targets are consistent with international guidelines.

Assembly Bill 32 – Codified the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires the California Air Resources Board (CARB) to prepare a Scoping Plan that outlines the main strategies the State will employ to meet the State's targets. The AB 32 Scoping Plan was adopted in 2014.

Senate Bill 32 – The successor to AB 32 and requires the State of California to achieve a statewide reduction in GHG emissions of 40 percent below 1990 levels by 2030. The SB 32 Scoping Plan was adopted in 2017.

Assembly Bill 1279 – AB 1279, adopted in 2022, codifies the statewide carbon neutrality goal into a legally binding requirement for California to achieve carbon neutrality no later than 2045 and ensure 85 percent GHG emissions reduction under that goal. AB 1279 builds upon Executive Order B-55-18 which originally established California's 2045 goal of carbon neutrality.

Programs and policies that support the goals established in the above bills and which will impact GHG emissions for MWD include the California RPS, which, through SB 1020 and SB 100, requires electricity providers to procure 100 percent of electricity from renewable and carbon-free sources by 2045.[45] The Advanced Clean Fleets (ACF) rule will require MWD to begin transitioning to zero-emission (ZEV) utility fleet starting in 2024. The ACF regulation requires that 50% of vehicle purchases between 2024 and 2026 are ZEV of near zero emission vehicles (NZEV), and 100% of new vehicle purchases are ZEV of NZEV starting in 2027. Under ACF regulation, MWD will be required to replace internal combustion engine vehicles at the end of their useful life with a ZEV or NZEV or elect to meet the State's ZEV milestone targets as a percentage of the total fleet starting with vehicle types most suitable for electrification.[46] The State recognizes there is not a suitable zero emission vehicle for all vehicle types currently and there are limitations for certain fleets to transition to zero emission at this time. As such, the regulation includes several exemptions, some of which may be applicable to the MWD fleet.

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[45] *As part of California's RPS program, SB 100 (signed in 2018) mandated electricity providers increase GHG-free sources to 100 percent of total procurement by 2045. Furthering RPS requirements, SB 1020 established additional requirements that procurement from eligible renewable energy resources increase to 90 percent of total procurement by 2035 and 95 percent of total procurement by 2040.*

[46] *CARB. Advanced Clean Fleets.* ***https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets****.*

MWD PROPOSED CLIMATE ACTION TARGETS

While MWD is not bound to AB 32, SB 32, or AB 1279, and currently faces no legislative requirements to decrease GHG emissions, the State recognizes water agencies as significant contributors to energy-related emissions in California. This is primarily attributed to the substantial electricity consumption involved in water pumping. The State has adopted a series of Scoping Plans designed to establish a pathway to achieve statewide climate action targets that address the need to reduce emissions associated with the water-energy nexus. By developing targets that align with the State's, MWD can develop and implement measures that will help California achieve its near- and longer-term GHG reduction goals. As part of the process of developing a CAAP, climate action targets have been proposed that align with the State's goals. If adopted by the Board, these would serve as targets for MWD facilities and operations going forward and provide a framework for achieving GHG emissions reductions in future years.

The CAAP proposes a 2030 GHG emissions target for MWD in alignment with the annual reduction rate needed to eventually meet the State's 2045 carbon neutrality goal, as set forth by AB 1279. By setting a straight line from 2022 emissions levels to the AB 1279 target, the proposed 2030 MWD target would surpass the SB 32 goal of a 40 percent reduction in GHG emissions from 1990 levels by 2030 and will put MWD on a pathway to achieving carbon neutrality by 2045.47 MWD proposed climate action targets are shown in Table 4-1, along with the 1990 back-cast emissions level from the 2022 inventory, adjusted forecast emissions, percent reduction from 1990 levels and the emissions gap (the difference between the AB 1279 absolute target pathway and adjusted forecast emissions). The target emissions trajectory in absolute emissions is shown in Figure 4-1. Figure 4-1 also shows the BAU forecast, adjusted forecast, and the 1990 baseline inventory back-cast.

Table 4-1. MWD Climate Action Targets

	2030	2035	2040	2045
1990 Baseline	999	999	999	999
Adjusted Forecast	589	364	298	192
Target Pathway developed from 1990 Levels				
AB 1279 Absolute Target Pathway	566	378	189	-
Percent Reduction from 1990 Levels	43%	62%	81%	100%
Emissions Gap	23	(52)	109	192

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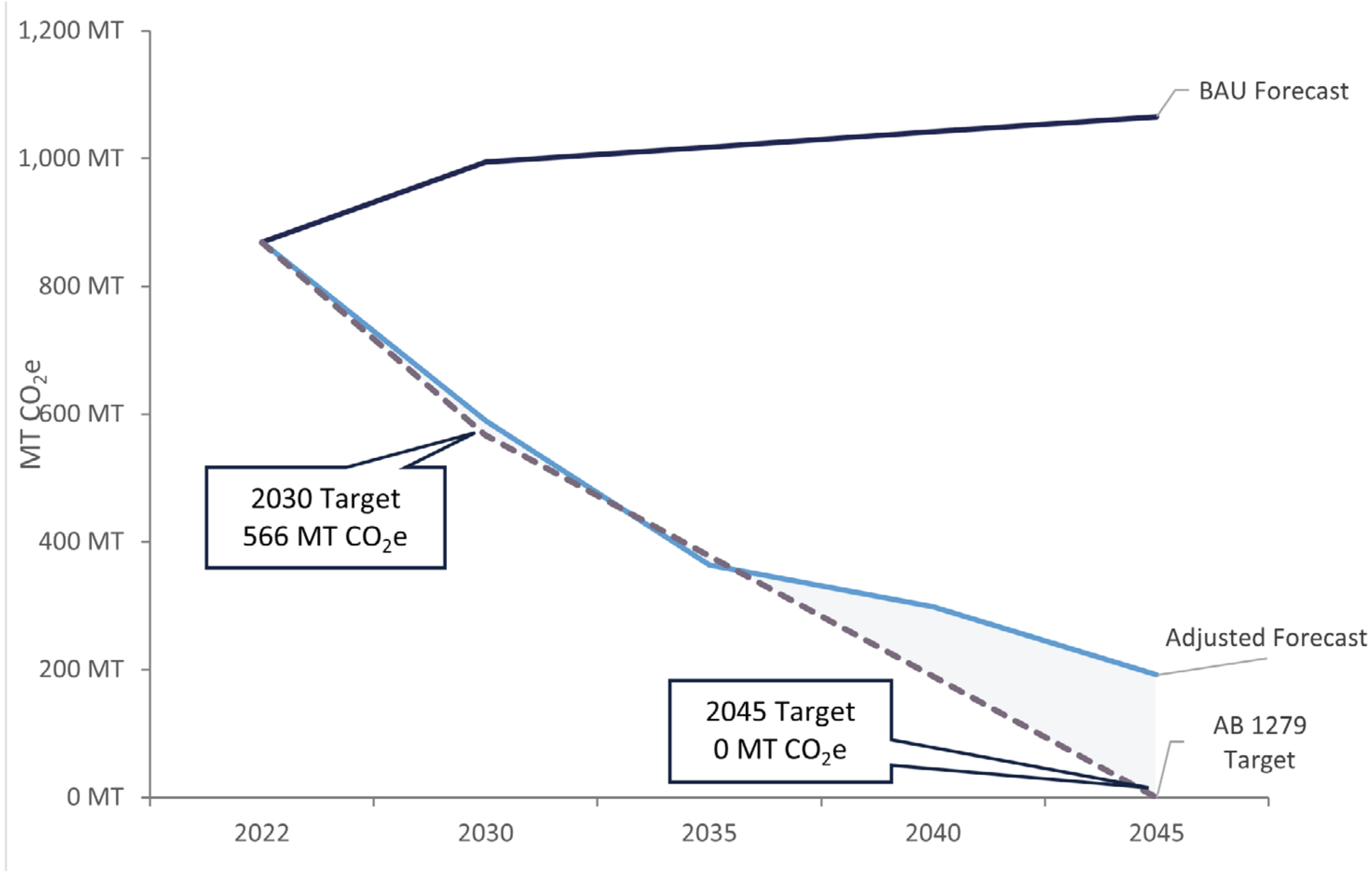
47. Carbon neutrality refers to achieving net-zero CO_2e emissions, such that any GHG emissions created are offset by GHG emissions sequestering activities.

Figure 4-1. MWD Forecast and Climate Action Targets



GHG Emissions Gap

As shown in Figure 4-1, a gap remains between the projected emissions (blue line) and the target emissions (black dotted line), even after accounting for reductions resulting from State legislation. This gap is equal to 23 MT CO_2e in 2030 and 192 MT CO_2e in 2045. This gap represents how much MWD will need to reduce its GHG emissions to meet the target of carbon neutrality by 2045. Reductions to close this gap will occur from implementing measures presented in Chapter 5, new future State legislation, and future updates to the CARB Scoping Plan. Several of the MWD CAAP measures, along with the climate adaptation specific measures, will also increase MWD resilience to climate change in the coming years.

5.

OPERATIONAL EFFICIENCY AND ADAPTATION MEASURES

Recently the Montecito community and region as well as the infrastructure and operations of MWD have been impacted by climate change. As detailed in projected climate impacts and forecasted emissions in Chapters 2 and 3, these impacts will remain and likely increase in the coming decades. This CAAP establishes a diverse array of practical measures and actions to change and adapt infrastructure and operations to climate change and increase operational efficiency. While emission mitigation is important, the capacity for adaptation will play a key role in determining how MWD will stay on mission and prosper now and in the future. Measures and actions included in this chapter are intended to increase MWD's resilience in the face of climate risks and increase operational efficiency in alignment with State goals. Operational efficiency is defined as the reduction in resource consumption while still providing high-quality service and products, generating cost-savings, and mitigating GHG emissions. The CAAP measures account for factors such as legislative requirements, operational viability, and community co-benefits, and aim to achieve three objectives developed by MWD:

1. Harden Infrastructure Against Climate Hazards
2. Strengthen Long-term Water Supply Reliability
3. Enhance Operational Efficiency & Resiliency

A primary benefit of developing planning documents is the identification of clear steps or measures that incrementally allow for progress, through the identification of existing and future issues and alignment with State and regional priorities and goals. This plan identifies existing and future climate hazards and vulnerabilities of MWD operations and infrastructure. Because this plan aligns with many of the State and federal grant programs, this document will facilitate acquisition of available funding budgeted for climate change initiatives which will be essential to MWD's ability to adapt to climate change. This document additionally provides options for upcoming policy and actions related to operations, water resources, capital investments, conservation initiatives, and local resource programs.

OBJECTIVES

The CAAP measures and actions were developed in alignment with the MWD strategic goals of water supply reliability, infrastructure dependability, and operational excellence, as outlined in the 2022 MWD Strategic Plan. These strategic goals guided development of three CAAP objectives which connect the CAAPs goals of increasing operational efficiency and increasing resilience to climate change to the overall strategic goals of MWD. An underlying theme for all objectives is building resilience and adaptation into MWD operations, planning, and infrastructure design by considering climate change data during the decision-making process. By strategically incorporating climate data into planning, MWD can make informed decisions regarding water allocations, infrastructure investments, and emergency preparedness. This proactive approach enables MWD to anticipate and respond to climatic hazards, optimize water resources during prolonged droughts, and reduce infrastructure vulnerabilities. Integrating climate data will also help MWD meet regulatory requirements, align with State policies centered on climate change, and ultimately better secure public funding. The CAAP's specific objectives are outlined and described below.

Objective 1: Harden Infrastructure Against Climate Hazards

Planning for infrastructure hardening will support the continuous and reliable delivery of water services amidst intensifying climate risk. The frequency and severity of extreme weather events put vital infrastructure at risk, potentially compromising water supply systems. By hardening its infrastructure, including pump stations, wells and reservoirs, MWD can reduce the likelihood of service disruptions, reduce the vulnerability of its critical assets, enhance its ability to swiftly respond to emergencies, and safeguard public safety in its service area.

Objective 2: Strengthen Long-Term Water Reliability

Efforts to increase dry and wet weather diversions, minimize reliance on imported water, and develop reliable local water sources will strengthen and increase the resilience of the MWD water supply portfolio. Implementing programs that manage water demand and efficiently allocate supply will allow MWD to continue to provide high-quality water to its service area. By focusing on long-term water reliability, MWD can address the growing demands of its customers, adapt to changing climate conditions, and mitigate the impacts of potential water shortages.

Objective 3: Enhance Operational Efficiency & Resiliency

As MWD plans for climate hazards, energy shortages, power safety shutoffs (PSS), and drought, it is vital for its operational system's capacity to be resilient and effective in a changing environment. Improving operational efficiencies can save costs, cultivate cross-departmental solutions, and improve agency responses when emergencies occur. To maintain fair and equitable rates and financial stability, it will be important to implement projects and programs that reduce risk and improve internal and external communications.

CAAP STRATEGY DEVELOPMENT

As critical service providers to its customers, MWD expects to balance the implementation of climate action and adaptation measures with the cost of water services to ratepayers. Increased rates could have impacts on its customers if not thoughtfully considered, thus, each measure can only be implemented once it is deemed financially feasible or when funding/financing has been identified. Unless otherwise mandated by the State or federal government, cost analysis and feasibility studies will be conducted, and individual mitigation and adaptation measures will be implemented when specific expenses are authorized by the MWD Board of Directors. MWD also understands failing to prepare for climate change could substantially increase costs in the future; striking a balance between investments now and future costs will be key.

The CAAP includes both near-term actions to address climate vulnerabilities at specific facilities and long-term measures that lay the foundation for future capital investments or infrastructure developments, providing MWD with long-term resilience to climate change. MWD staff identified specific infrastructure upgrades that can be implemented in the near-term by building out the capital budget on an annual basis. These facility-specific actions do not require additional feasibility studies or planning. Long-term measures are more complex, requiring extensive planning, securing funding, stakeholder engagement, and comprehensive project management to ensure successful execution and sustained impact. This structured approach ensures both near-term actions and long-term actions are systematically addressed, allowing for continuous progress and adaptation as new technologies, legislation, and funding opportunities emerge. The following sections describe near-term, facility-specific actions as well as long-term measures.

FACILITY- AND HAZARD-SPECIFIC ACTIONS

Over the last decade, MWD has invested heavily in infrastructure resilience through the development of a 2024 Asset Management Plan, execution of the annual Capital Improvement Program and disaster recovery efforts due to the 2017 Thomas Fire and subsequent 2018 Debris Flow. MWD has utilized funding received from State programs and the Federal Emergency Management Agency (FEMA) to further support efforts to increasing the resiliency of MWD infrastructure. While the CAAP measures in a later section outline the medium- and long-term strategies to increase resiliency, certain facilities require near-term upgrades to mitigate vulnerability to current climate hazards. Facilities in multiple climate hazard zones are especially vulnerable to compound risks, where the severity of the risk increases due to the potential for interaction of multiple coinciding climatic events. Chapter 2 details the vulnerability assessment conducted for MWD and its facilities in multiple hazard zones.

The following section outlines specific facility upgrades and general operation and maintenance actions to apply to MWD facilities based on climate hazard vulnerability. For each climate hazard, hazard-specific vulnerable facilities are identified, along with short-term facility-specific upgrades and long-term general upgrades. Short-term facility-specific upgrades were identified by staff and are not comprehensive but rather provide actionable and tangible projects for consideration in the near-term.

Wildfire

MWD has several critical facilities located in wildfire risk areas. The probability of wildfire occurring over a span of 10 years is anticipated to increase from 20 percent to 30 percent; therefore, it is critical to upgrade facilities vulnerable to wildfire. Additionally, there are several maintenance actions that should be conducted regularly or during planned facility upgrades to minimize wildfire risk. The following provides information on specific facility upgrades needed in the near-term and general operation and maintenance actions applicable to all identified critical facilities in the hazard zone.

Critical Facilities Identified in the Wildfire Hazard Zone

- 11 Radio Sites
- 13 Pipe Crossings
- Cold Springs Reservoir
- Hot Springs Reservoir
- Park Lane Reservoir
- Buena Vista Reservoir
- Bella Vista WTP and Pump Station
- Doulton WTP, Pump Station and Reservoir
- Terminal Reservoir and Pump Station
- Buell Property and Pump Station
- Barker Pass Pump Station
- Romero Reservoir and Pump Station
- Office/Yard and Pump Station

Specific Upgrades

W.1. Replace wooden roof at Park Lane Reservoir with metal or concrete.

W.2. Replace wood building components with fire resistant materials at the MWD office, Buell Pump Station, and any other wood facilities.

General Operation and Maintenance Actions

W.O&M.1 . Clear vegetation and construct firebreaks around MWD facilities to create defensible space in adherence with 2022 California Fire Code (or most recent code at the time of activity). Ensure funding and staff resources are available for regular maintenance.

W.O&M.2. Adopt building and design standards for new construction that enhance fire resistance, in compliance with CalFire Design Standards (California Building Code Title 24 Part 9).

W.O&M.3. When retrofitting facilities susceptible to wildfire, replace wooden structures (e.g., buildings, roofs, wooden flumes, etc.) with fire-resistant building materials.

W.O&M.4. Install ember-resistant vents, screens, and building materials on existing infrastructure.

W.O&M.5. Ensure facilities have back-up power systems, including but not limited to generators, on-site solar, and battery storage.

Precipitation, Flooding and Debris Flows

The MWD service area contains both 100-year and 500-year FEMA flood zone, with several critical facilities located in or near those flood zones. MWD is particularly vulnerable to the compounding risks of increased frequency of wildfires and extreme precipitation events that weaken the stability of soils in the MWD service area. MWD experienced the culmination of these climate hazards in 2018, when the Thomas Fire, followed by heavy precipitation, caused a debris flow through Montecito. The following provides information on specific facility upgrades needed in the near-term to harden infrastructure against similar future events and general operation and maintenance actions applicable for all identified critical facilities in the flood hazard zone.

Critical Facilities Identified in the Flood Hazard Zone

- 4 Radio Sites
- 7 Pipe Crossings
- Office/Yard and Pump Station
- Ortega Pump Station
- Paden 2 Well
- Las Fuentes Well
- Ennisbrook 2 Well
- Morgan Well
- Casa Dorinda Pump Station
- Cistern Storage Facility

Specific Upgrades

PFD.1. Construct nature-based barriers, such as berms and swales, around high risk facilities, including but not limited to the cistern storage facility, Casa Dorinda pump station, and Morgan Well.

PFD.2. Consider replacement of at-risk pipelines at bridges near the Lilac Drive/Tollis Avenue intersection, Los Alisos Drive and Theatre Lane.

PFD.3. Consider replacement of the energy inefficient Office pumps (2 pumps), based on age and inefficiency documented by SCE.

General Operation and Maintenance Actions

PFD.O&M.1. Elevate pump stations, wells, and electrical equipment above projected flood levels to minimize flood damage.

PFD.O&M.2. Retrofit MWD buildings and structures with flood-proofing measures such as flood barriers, watertight doors, and sealing openings to prevent water ingress during flood events.

Landslides

MWD facilities are particularly susceptible to landslides due to the geographic nature of the area, compounded by extreme precipitation events that oversaturate the soil, and wildfires that weaken soil stability. The following provides information on specific facility upgrades needed in the near-term to harden infrastructure against landslides, as well as general operation and maintenance actions applicable for all identified critical facilities in the landslide hazard zone.

Critical Facilities Identified in the Landslide Hazard Zone

- 4 Radio Sites
- 3 Pipe Crossings
- Hot Springs Reservoir
- Park Lane Reservoir
- Buena Vista Reservoir
- Bella Vista WTP and Pump Station
- Doulton WTP, Pump Station and Reservoir
- Paden 2 Well
- Las Entradas 2 Well and Masonry Wall

Specific Upgrades

L.1. Assess the Highline water main in areas of high landslide susceptibility including but not limited to the segment between Doulton Tunnel and Bella Vista Treatment Plant.

L.2. Consider replacing water mains in high-movement land areas with restrained joint pipelines.

General Operation and Maintenance Actions

L.O&M.1. Implement slope stabilization measures, including installation of erosion control structures, planting drought and fire-resistant vegetation, and implementing grading and drainage improvements.

L.O&M.2. Install debris flow barriers or catchment structures to intercept and divert debris flows away from MWD facilities.

L.O&M.3. Improve drainage infrastructure around MWD facilities, including installati-on of drainage channels and culverts to control water flow and prevent erosion.

L.O&M.4. Implement vegetation management practices to stabilize slopes, including clearing vegetation from landslide-prone areas, planting erosion-resistant species, and maintaining vegetation buffers to prevent soil erosion.

L.O&M.5. Retrofit MWD facilities with structural reinforcements, including strengthening foundations, reinforcing retaining walls, and upgrading building materials to withstand the forces associated with landslide events

Extreme Heat

The average temperature of the region has been rising over time with projections showing the average temperature will increase by approximately 6 degrees Fahrenheit compared with historical temperatures. Additionally, the number of extreme heat days per year is anticipated to continue to increase. Extreme heat and extreme heat days impact all facilities and operations. This includes water supply and reservoirs, where extreme heat can impact water quality. Additionally, extreme heat can pose a health and safety risk to employees working in the field. The following provides information on specific facility upgrades needed in the near-term to prepare for extreme heat days, as well as general operation and maintenance actions applicable for all facilities and operations.

Critical Facilities Identified in Extreme Heat Hazard Zone

All facilities and operations

Specific Upgrades

H.1. Develop a prioritized schedule for installation of mixers at the remaining reservoirs which do not currently have them including Cold Springs, Doulton, Bella Vista, and Romero.

General Operation and Maintenance Actions

H.O&M.1. Install or upgrade cooling systems for pump stations and electrical equipment to prevent overheating, including fans, ventilation systems, and air conditioning, where feasible.

H.O&M.2. Install mixing systems in all storage reservoirs to reduce potential for water quality issues related to warmer water.

H.O&M.3. Integrate green roofs, permeable pavements, and vegetative buffers around MWD infrastructure facilities to reduce heat island effects, as needed. Where vegetation is planted, ensure it is drought-tolerant and climate-appropriate.

H.O&M.4. Provide shade structures or install insulation at MWD buildings to reduce demand for cooling.

H.O&M.5. Use reflective materials for roofs, walls, and surfaces of buildings and enclosures to minimize thermal stress.

H.O&M.6. Utilize heat-resistant materials in the construction and maintenance of facilities.

Sea Level Rise

MWD does not currently have any critical facilities located in an area identified to be at risk of sea level rise. However, as the sea level rises, there will be increased coastal flooding, storm surge inundation, coastal erosion, and shoreline retreat which could impact MWD facilities or facilities like the City of Santa Barbara Charles E. Meyer Desalination Plant, which MWD relies on for a portion of its water supply. The following provides information on specific upgrades to consider in the near-term to prepare for sea level rise impacts, as well as general operation and maintenance actions applicable should assets be present in the sea level rise hazard zone in future.

Critical Facilities Identified in Sea Level Rise Hazard Zone

No facilities currently located in hazard zone

Specific Upgrades

SLR.1. Reinforce or relocate water mains within 100 feet of cliffs or bluffs, including water mains on Channel Drive.

General Operation and Maintenance Actions

SLR.O&M.1. Elevate critical infrastructure components above projected sea rise hazard zone. This may involve raising structures, installing flood barriers, and reinforcing foundations.

SLR.O&M.2. Retrofit coastal MWD infrastructure to withstand the corrosive effects of saltwater, including use of corrosion-resistant materials and, protective coatings to extend the lifespan of infrastructure assets.

LONG TERM CAAP MEASURES

Measure Structure

CAAP measures include specific goals MWD will work towards in the mid to long-term to improve operational efficiency, adapt to climate change, and comply with State mandates. Several measures also include co-benefits such as resource conservation, waste reduction, GHG emissions reduction, employee health and safety, or potential cost-savings.

CAAP strategies in this section aim to meet the three previously defined objectives and include the following three elements:

1. **Measures:** Measures define metric backed goals that will increase resilience, reduce climate vulnerabilities, increase operational efficiency, and contribute to reducing GHG emissions.
2. **Actions:** Actions consist of the specific activities that will be completed in support of each measure, which together accomplish each measure's goal.
3. **Implementation Metrics:** Quantifiable or trackable indicators of progress that can be used to showcase success of specific measures.

CAAP measures are distinguished as either resilience measures where the primary goal and outcome is increased adaptation to climate change, or mitigation measures where the primary goal is operational efficiency that results in GHG mitigation. Some measures may result in both increased resilience and GHG mitigation. If a measure has a quantifiable GHG mitigation potential, the quantified value is indicated as one of the co-benefits. The total quantifiable GHG mitigation potential with implementation of this CAAP is summarized in the Implementation Plan included in Chapter 6. Resilience and adaptation measures, while not quantifiable for GHG emission reduction potential, are critical to hardening MWD infrastructure and operations against climate change impacts.

Together, the CAAP measures and their actions establish a foundational pathway towards increasing resilience to climate change and aligning with State 2030 and 2045 GHG emissions reduction goals. Measures and actions will be tracked based on clear trackable implementation metrics and re-evaluated on a regular basis to ensure achievement of the measure. Table 5-1 summarizes adaptation and operational efficiency measures detailed in the section that follows as well as identifies the initiative classification of the measure. Measures may support an existing strategic action, establish a new action, and/or may be in response to a state level mandate.

Table 5-1. Adaptation and Operational Efficiency Measures

Measure Number	Mitigation/ Resilience	Measure	Type of Action
1	Resilience	Develop and implement health and safety measures to protect MWD staff working in field, operations, maintenance, and repairs from climate extremes.	☐ New Action ☒ Existing Action ☐ Mandate
2	Resilience	Continue water supply planning initiatives, including identifying local groundwater banking opportunities, increasing Montecito Groundwater Basin resilience and develop alternate water sources at lower risk of drought and extreme heat.	☐ New Action ☒ Existing Action ☐ Mandate
3	Mitigation Resilience	Increase water conservation in alignment with the State's "Making Water Conservation a California Way of Life" policy and the MWD Water Use Efficiency Plan.	☐ New Action ☒ Existing Action ☒ Mandate

Measure Number	Mitigation/ Resilience	Measure	Type of Action
4	Resilience	Develop, implement, and collaborate on wildfire abatement, response, and infrastructure resilience projects.	☒ New Action ☐ Existing Action ☐ Mandate
5	Resilience	Promote operational resilience through continuing to strengthen long-term water supply reliability and integrating the best available climate science into capital improvement planning.	☐ New Action ☒ Existing Action ☐ Mandate
6	Mitigation	Comply with Advanced Clean Fleet Rule1, as technology advancements allow, such that 50% of annual vehicle purchases per calendar year are ZEV starting in 2024 and 100% of annual vehicle purchases are ZEV starting in 2027, if comparable replacements are available.	☒ New Action ☐ Existing Action ☒ Mandate
7	Mitigation Resilience	Increase operational resilience in response to power disruptions by increasing on-site energy generation and energy storage where feasible and cost-effective to offset grid supplied power by 10% by 2030.	☒ New Action ☐ Existing Action ☐ Mandate
8	Resilience	Invest in facility improvements to reduce flooding, landslide and debris flow risks to MWD infrastructure.	☒ New Action ☐ Existing Action ☐ Mandate
9	Resilience	Increase operational response time and capacity by strengthening the Supervisory Control and Data Acquisition (SCADA) system capabilities by improving sensing capabilities.	☒ New Action ☐ Existing Action ☐ Mandate
10	Mitigation	Continue to conserve energy through improved energy efficiency, in alignment with MWD's "Environmental Policy" (Resolution 2247, Appendix X).	☐ New Action ☒ Existing Action ☐ Mandate
11	Mitigation	Create a net zero waste initiative to decrease landfill waste 50% by 2030 and incrementally increase through 2045 in alignment with SB 1383.	☒ New Action ☐ Existing Action ☒ Mandate
12	Mitigation	Continue to reduce use of natural gas and propane use at facilities by 30% by 2030, in alignment with MWD's "Environmental Policy" (Resolution 2247, Appendix X).	☐ New Action ☒ Existing Action ☐ Mandate

MWD = Montecito Water District; ZEV/EV = zero emission vehicle/electric vehicle

Advanced Clean Fleet Regulation is codified in California Code of Regulations, Title 13, Sections 2013, 2013.1, 2013.2, 2013.3, 2013.4, 2014,2014.1, 2014.2, 2014.3, 2015, 2015.1, 2015.2, 2015.3, 2015.4, 2015.5, 2015.6, and 2016

MEASURES

Measure 1: Develop and implement health and safety measures to protect MWD staff working in field, operations, maintenance, and repairs from climate extremes.

Climate change is projected to increase the risk of both regional wildfires and extreme heat events. Regional wildfire risk is expected to contribute to worsened air quality from wildfire smoke and associated toxins, and the combination of extreme heat events and smoke events can create or exacerbate health risks to MWD staff members while working in the field. Title 8, Section 3395 of the California Code of Regulations, which is enforced by Cal/OSHA (California Division of Occupational Safety and Health), provides guidance on heat illness prevention in outdoor industries and will be used to inform specific MWD actions to protect outdoor workers from heat illness.

Developing internal protocols aligned with Cal/OSHA heat illness prevention guidelines protects employees so they are adequately prepared and protected during extreme heat conditions and air quality emergencies, reducing the risk of heat-related illnesses. Protocols for climate hazard emergencies, including annual drills, ensure the agency can maintain service continuity and prioritize employee safety during severe weather events or other climate-related emergencies. Identifying prepositioned resources and establishing bench contracts for increased staffing capacity during emergencies further enhances MWD's ability to mitigate disruptions.

Actions

1.1. Continue to implement and update as necessary internal protocols for employees working under extreme heat conditions and air quality emergencies, in alignment with Cal/OSHA heat illness and prevention guidance and the California Climate Adaptation Strategy.[48]

1.2. Develop protocols for climate hazard emergencies to address service continuity and employee safety. Protocols should include annual practice/drills.

1.3. Provide employees with educational materials on relevant climate hazards and associated health and safety impacts (e.g., extreme heat induced health impacts) to increase awareness of risks and share best practices to increase adaptive capacity.

1.4. Identify prepositioned resources and bench contracts to provide increased staffing capacity in emergency to mitigate disruptions in extreme climate conditions or compounding climate scenarios.

Implementation Metrics

- Formal heat prevention protocols and service continuity adopted by December 2025
- Develop list of prepositioned resources and bench contracts by June 2025
- Revise bench contract policies as necessary to address encountered climate change impacts

Co-benefits

- Employee health and safety
- State legislation compliance

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[48] *The California Climate Adaptation Strategy has established Goal A to reduce urgent public health and safety risks posed by climate change which establish several specific efforts to address public health risks due to climate-change.*

Measure 2: Continue water supply planning initiatives, including identifying local groundwater banking opportunities, increasing Montecito Groundwater Basin resilience and develop alternate water sources at lower risk of drought and extreme heat.

If water supply modeling and forecasting indicate a shortage, pursuing additional resilient water supplies will diversify and strengthen MWD service and operations. The California Water Plan Update 2023 supports this effort, advocating for diversified water supply strategies, including water reuse, conservation, groundwater management, and integrated regional water management to provide for long-term water security. Options such as groundwater banking in the Montecito or Carpinteria Groundwater Basins can provide a buffer during dry periods, providing stored water for use when surface water supplies are low. Using saltwater intrusion well data to monitor groundwater for chloride and indicators of potential seawater intrusion, in coordination with the Montecito GSA, will provide crucial insights into water supply reliability from groundwater sources. Sharing this information with neighboring water providers will foster regional collaboration and a comprehensive approach to managing water resources and mitigating climate impacts. Potable reuse of wastewater from the Montecito Sanitary District presents a sustainable source of water, reducing reliance on imported supplies and enhancing local water security. Securing additional water through agreements with neighboring cities, like Santa Barbara, and coordination with the Montecito Groundwater Sustainability Agency to advance local infiltration initiatives, provide redundancy and improve capacity to manage and distribute local supplies.

Actions

2.1. As needed, update the Future Water Demand and Supply Options Report (2020) with up to date climate change projections to identify the risks and benefits associated with each water source in the context of future climate conditions.

2.2. If a water shortage condition is determined to exist based on updated water supply modeling and forecasting, consider pursuing additional resilient water supplies including but not limited to:

- **a.** Ground water banking in the Montecito Groundwater Basin or Carpinteria Groundwater Basin
- **b.** Potable reuse of wastewater available from the Montecito Sanitary District
- **c.** Additional water from the Water Supply Agreement with the City of Santa Barbara

2.3. Coordinate with the Montecito GSA to advance local infiltration initiatives focusing on increasing infiltration and retention of water in local watersheds.

2.4. Utilize saltwater intrusion well data to inform decisions on water supply reliability from groundwater sources. Monitor groundwater wells for chloride and indicators of potential sea water intrusion in coordination with the Montecito GSA. Share information from studies with neighboring water providers.

Implementation Metrics

- Update Water Demand & Supply Options Report with latest climate projections by December 2025
- Hold two meetings with Montecito GSA by June 2025 to advance local infiltration initiatives
- Conduct annual well monitoring

Co-benefits

- Resource conservation
- Waste reduction

Measure 3: Increase water conservation in alignment with the “Making Water Conservation a California Way of Life” policy and the MWD Water Use Efficiency Plan.

Increasing water conservation is crucial to long-term water availability and reducing vulnerability to droughts and other climate impacts. Adhering to AB 2515, which requires updates to the Model Water-Efficient Landscaping Ordinance, promotes the use of water-efficient landscaping practices that significantly reduce outdoor water usage. Implementing these practices across MWD’s service area can lead to water savings, which is essential for maintaining water supplies during periods of scarcity. Furthermore, the CEC Building Energy Efficiency Standards (Title 24 Parts 6 and 11) encompass mandatory and voluntary water reduction regulations that continually enhance water efficiency in buildings. Compliance with these standards, required for new construction and upgrades, ensures MWD’s infrastructure is designed to minimize water waste.

Policies like SB 555 and SB 1420, which mandate annual water loss audits and reporting of water loss in the UWMP, are pivotal in identifying and mitigating water loss within the distribution system. By regularly quantifying and addressing water loss, MWD can enhance its operational efficiency and ensure water is available for essential uses. The 2014 Sustainable Groundwater Management Act (SGMA), through AB 1739, SB 1168, and SB 1319, establishes a framework for sustainable groundwater management, which is vital for maintaining groundwater resources. Implementing sustainable groundwater practices helps prevent over-extraction and enhances the long-term availability of groundwater, providing a crucial buffer during droughts.

Actions

3.1 Continue water conservation and programs by implementing the 2020 UWMP and conservation measures outlined in the 2022 Water Use Efficiency Plan.

3.2 Expand programs to educate customers on water conservation initiatives through workshops and speaking engagements.

3.3 Host a landscape workshop series to provide information on drought-tolerant landscaping, available rebates for water retrofits, and water efficiency strategies in new buildings.

3.4 Complete the development of a Demonstration Garden at the MWD office property.

3.5 Require new or modified MWD facilities to be low water use through landscaping with drought tolerant plants, permeable paving, green infrastructure, and incorporating other low-impact development design features to allow for increased infiltration, even in heavy rains.

3.6 Develop outreach and engagement materials to increase awareness of the Watersmart program, which provides customers with valuable tools to effectively monitor and manage their water usage.

3.7 Implement water distribution system leak testing and implement repairs

Implementation Metrics

- Develop target water use reduction goal (# of AF) by June 2026
- Demonstration Garden developed by June 2026
- Achieve a 20% increase in customer enrollment in Watersmart by December 2026
- Landscape workshop series completed by December 2025

Co-benefits

- Resource conservation
- Potential cost-savings
- GHG emissions reduction49
- Waste reduction
- State legislation compliance

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49. Reduction in water delivery indirectly reduces operational energy needs and thereby reduced GHG emissions. It is not quantified herein as the level of reduction in GHG emissions is dependent on the level of water conservation and the emissions associated with the electricity serving MWD which are anticipated to change given other measures within this CAAP.

Measure 4: Develop, implement, and collaborate on wildfire abatement, response, and infrastructure resilience projects.

Climate change is increasing the frequency and intensity of wildfire in the MWD service area. MWD assets and infrastructure located in High and Very High Fire Hazard Severity Zones are at greatest risk to impacts from wildfire. This measure seeks to mitigate wildfire risk and potential future impacts through strategies that reduce vegetation and structural ignition, harden infrastructure and assets, and increase fire suppression capabilities. Developing defensible space, fire-safe landscaping, structural ignition reduction, fire-resistant retrofitting, fire suppression water flow, and vegetation management, in alignment with CAL FIRE guidance, better protects MWD facilities and surrounding areas against wildfires. Structural hardening, through the use of fire-resistant building materials and installing ember-resistant features, further reduces the likelihood of fire damage, increasing the potential for continuity of water services during and after wildfire events.[50]

Actions

4.1. Develop and implement wildfire abatement and response strategies including defensible space, fire-safe landscaping, structural ignition reduction, fire-resistant retrofitting, fire suppression water flow, and vegetation management, aligned with CAL FIRE guidance and standards.

4.2. Ensure new projects and facility developments meet current building and fire codes (Title 24 Part 9 – 2022 California Fire Code) for fire mitigation that include but are not limited to:

- **a.** Ensuring defensible space around structures (e.g., vegetation clearing, safe distance from flammable materials, and proper spacing between structures and trees/shrubs)
- **b.** Structure hardening by using fire-resistant building materials, installing ember-resistant vents, sealing gaps and openings to prevent ember entry, install fire-resistant roofs, windows and doors

4.3. Dedicate staff time to identify funding sources (e.g., CAL FIRE or FEMA) for implementing upgrades or retrofits to mitigate wildfire risk, potentially utilizing mechanisms such as green bonds in partnership with Cal FIRE and neighboring jurisdictions.

4.4. Conduct hardening upgrades to structures and facilities within CAL FIRE High and Very High Fire Hazard Severity Zones, with plans for relocation of critical assets if necessary and feasible. Reduce structural ignition risk, replace wood components, install fire suppression systems, and upgrade roofs to non-combustible materials. See Facility and Hazard-Specific Recommendations for details.

4.5. Maintain ongoing coordination with neighboring jurisdictions to guarantee sufficient water availability and peak load water supply for fire suppression efforts, in accordance with CAL FIRE's recommendations.

Implementation Metrics

Implement 100% compliance with fire mitigation codes for all new projects by December 2025

Complete hardening upgrades for 50% of identified structures and facilities by December 2026

Co-benefits

- Resource conservation
- Potential cost-savings
- State legislation compliance
- Employee health and safety

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[50] Note the 2024 California Fire Code is currently undergoing rulemaking and will be adopted in January of 2025.

Measure 5: Promote operational resilience through continuing to strengthen long-term water supply reliability and integrating the best available climate science into capital improvement planning.

Climate change is projected to increase the frequency and severity of extreme conditions (such as precipitation), which will increase the risk of future operational disruptions and asset damage. Limited information about future climate impacts may result in a diminished capacity to identify specific solutions or operational features to avoid future impacts. Thus, it is critical to understand and quantify the risks and associated actions to address future climate risks as part of capital and supply planning to increase resiliency. As such, it is important to review and incorporate current climate change projections to help guide planning and design features. The RCP 8.5 climate change scenario is consistent with the United Nations Intergovernmental Panel on Climate Change (IPCC) Reports, the National Climate Assessment, and California's Climate Assessments and can be referenced to incorporate the best available science and climate design conditions. This measure seeks to increase infrastructure redundancies and operational flexibilities to address service continuity during emergency and hazard scenarios as well as to future-proof MWD infrastructure by designing capital development with future climate conditions and risks in consideration.

By maintaining existing interties with the City of Santa Barbara and Carpinteria Valley Water District, and conducting annual tests and necessary repairs, MWD can enhance a reliable water supply during emergencies and peak demand periods. This interconnectedness provides a safety net, allowing for quick access to additional water resources when needed. Additionally, eliminating end drain and hydrant flushing programs during droughts, and instead using hydraulic modeling, would conserve water while still maintaining system integrity. The continuation of the conjunctive use program for MWD groundwater wells enhances groundwater management by optimizing usage based on climatic conditions. Encouraging private well users to rest wells during wet periods will further aid in groundwater basin recovery. Maintaining ongoing coordination with neighboring jurisdictions contributes to adequate water availability and the collaboration enhances regional resilience and enhances collective preparedness for water supply challenges.

By incorporating best available climate science and forecasting into water supply planning and capital development designs, MWD can proactively plan for potential future climate hazards and vulnerabilities thereby enhancing resiliency. Developing protocols to enhance monitoring capabilities will allow for the continuous identification of vulnerable assets requiring upgrades or retrofits. Utilizing cutting-edge climate science and research will enable MWD to better anticipate and mitigate risks associated with extreme weather events, sea level rise, and other climate-related challenges.

Actions

5.1. Maintain existing interties with the City of Santa Barbara and Carpinteria Valley Water District in good working order, testing annually and making repairs as needed.

5.2. Complete the ASADRA Reservoir Retrofit and Replacement project to reduce vulnerabilities to extreme climate conditions.

5.3. Eliminate end drain and hydrant flushing programs during droughts to reduce water use. Hydraulic modeling can be used in lieu of physical flushing.

5.4. Continue the conjunctive use program for MWD groundwater wells whereby private wells are rested during wet periods and used during drought periods.

5.5. Continue to integrate and regularly update best available climate science and projections into relevant planning documents and programs including the Urban Water Management Plan, Infrastructure Investment Plan, and Hazard Mitigation Plan.

5.6. Develop protocols to enhance monitoring capabilities for continuous identification of vulnerable MWD assets requiring upgrades or retrofits.

5.7. For new projects, perform a Climate Vulnerability Analysis and design projects to address those vulnerabilities. Consider incorporating best available climate science and research into technical guidance (Climate Resilience Design Guidelines).

Implementation Metrics

- ASADRA Reservoir Retrofit and Replacement project completed by December 2025
- Develop and implement monitoring protocols for 100% of critical assets by June 2025
- Adopt a climate vulnerability process to be utilized for new projects

Co-benefits

- Resource conservation
- State legislation compliance

Measure 6: Comply with Advanced Clean Fleet Rule, as technology advancements allow, such that 50% of annual vehicle purchases per calendar year are ZEV starting in 2024 and 100% of annual vehicle purchases are ZEV starting in 2027.

California has developed a robust set of clean transportation policies and goals as part of a strategy to accelerate a large-scale reduction in tailpipe emissions. The Advanced Clean Cars II regulation requires that by 2035 all new passenger cars, trucks, and SUVs sold in California be zero emissions.[51] The rule also requires fleets, businesses, and public entities that own or direct the operation of medium- and heavy-duty vehicles in California transition to 100 percent zero-emission capable utility fleets by 2045. Under the regulation, MWD may choose to purchase only ZEVs beginning in 2024 and remove internal combustion engine (ICE) vehicles at the end of their useful life or elect to meet the State's ZEV milestone targets as a percentage of the total fleet starting with vehicle types most suitable for electrification.[52] Additionally, as mandated by CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation, all diesel off-road vehicles over 25 horsepower must procure and only use R99 or R100 renewable diesel starting in January 2024.[53]

Transitioning fleet vehicles to either electric vehicles (EVs) or other zero-emission technology has the potential to bring this GHG emissions source to zero over time. The State also has several incentive and funding programs to support vehicle replacement and to promote infrastructure development. Through early adoption of the Advanced Clean Fleet Rule, MWD can access early action incentives. Transitioning to ZEV heavy-duty vehicles will be prioritized closer to 2045, as options become technologically and financially feasible. Although zero-emission heavy-duty vehicles are not yet widely available, utilizing low-carbon intensity fuels like renewable diesel in existing vehicles and equipment can reduce GHG emissions without requiring significant modifications. This use of alternative fuels provides additional time to thoroughly evaluate and pilot new zero-emission technologies before making infrastructure investments, potentially enhancing the return on investment. Additionally, amendments to CARB's Off-Road Diesel-Fueled Fleets Regulation require the majority of large, in-use off-road diesel equipment to use renewable diesel (e.g. R99 or R100).[54] The State's Low Carbon Fuel Standard (LCFS) regulation is promoting the availability and reducing the cost of alternative fuels, which could offer financial benefits for switching to these fuels now, without needing technological changes to current equipment and fleet vehicles. Using renewable diesel can lower maintenance costs compared to traditional diesel, as it has fewer impurities such as sulfur, oxygen, and other aromatic compounds, reducing the need for diesel particulate filter services.[55]

Actions

6.1. Develop plan for fleet vehicles as they need to be replaced. Consider vehicle function, potential resilience benefit (e.g. power source during power outage), associated costs, available incentives, and ROI from potential fuel and maintenance savings when identifying vehicles for replacement and their EV/ZEV alternatives.

6.2. Continue monitoring EV/ZEV availability and available rebates to update the vehicle replacement plan annually to purchase best alternative with best ROI for fleet transition.

6.3. Based on ZEV assessment, dedicate staff time evaluate and apply for rebates, incentives, and tax credits as applicable to replace vehicles and equipment. This may include tax credits for Qualified Commercial Clean Vehicles (45W) or Clean Vehicle Credit (30D) through the Inflation Reduction Act (IRA), or loans through the Infrastructure State Revolving Fund (ISRF) Loan Program, or incentives for off-road equipment through the Clean Off-Road Equipment Voucher Incentive Project (CORE)

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[51] *CARB. Advanced Clean Cars II.* ***https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii****. Accessed July 2024*

[52] *CARB. Advanced Clean Fleets.* ***https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets****. Accessed July 2024*

[53] *CARB. In-Use Off-Road Diesel-Fueled Fleets Regulation.* ***In-Use Off-Road Diesel-Fueled Fleets Regulation | California Air Resources Board****. Accessed July 2024*

[54] *CARB. Final Regulation Order Amendments to Sections 2449, 2449.1, and 2449.2 Title 1 2, California Code of Regulations. (2022). Accessed at:* ***https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-roaddiesel/froa-1.pdf****. Accessed June 2024*

[55] *Neste. Fueling Renewed Trust in Public Fleets. Accessed at:* ***https://www.neste.us/neste-my-renewable-diesel/industries/public-fleets****. Accessed July 2023*

6.4. Determine and plan for ZEV infrastructure needs and specific locations. Begin the necessary evaluations (e.g., budgeting, permitting, environmental) for infrastructure installation. Plan should include infrastructure needs for MWD fleet, as well as accounting for future employee and customer use of infrastructure.

6.5. Identify partnerships, such as SCE's Charge Ready Program or other private companies, and rebate or incentive opportunities, such as through LCFS, the California Electric Vehicle Infrastructure Project (CALeVIP) and CALSTART Communities in Charge and Energy Infrastructure Incentives for Zero Emission Commercial Vehicles programs, to plan and fund the installation of ZEV infrastructure at MWD facilities.

6.6. Expand use of vehicle telematics, fleet maintenance procedures, and use fleet operational data to optimize fleet operation to reduce fuel consumption in alignment with MWD's Environmental Policy.

6.7. Coordinate with Montecito Fire staff to develop a fuel management strategy outlining efforts to decrease diesel usage and to identify alternative low-carbon fuels, such as drop in renewable diesel (R99 or R100) or green hydrogen.

6.8. Evaluate existing vehicle fleet and determine whether MWD will be following the standard fleet vehicle replacement plan or will opt-in to the ZEV Fleet Milestone option.

6.9. Establish and implement protocol for reporting to CARB as required by the Advanced Clean Fleet regulation.

6.10. Implement an "ZEV first" purchasing rule for vehicles where a ZEV is available in the needed configuration.

6.11. Identify appropriate exemptions, such as the ZEV Purchase Exemption or Mutual Aid Assistance Exemption, for fleet vehicles and submit exemption request to CARB, as necessary, and maintain records of exemptions. Continue to meet reorting requirements for fleets under the Advanced Clean Fleet regulation.

6.12. Conduct a ZEV assessment of the existing fleet to determine:

- **a.** Planned vehicle procurement or replacement schedules to plan for Rule compliance
- **b.** ZEV alternative for each current fleet vehicle and fleet vehicles without a current alternative
- **c.** Where a ZEV is not available in the needed configuration, purchase a new ICE with a California certified engine
- **d.** Infrastructure needs (e.g. quantity and location) to support fleet conversion to ZEV
- **e.** Return on investment (ROI) assessment including available rebates, incentives and tax credits for initial purchase and operation and maintenance cost over time

Implementation Metrics

- Completed assessment of existing ZEV fleet by December 2025
- ZEV First purchasing rule adopted by December 2025
- 50% of annual vehicle purchases per calendar year are ZEV starting in 2024, if comparable replacements are available
- 100% of annual vehicle purchases are ZEV starting in 2027, if comparable replacements are available
- 20% of fleet is ZEV by 2030 and 100% ZEV by 2045
- 100% of diesel fuel consumption transitioned to R99 or R100 by 2025

Co-benefits

- State legislation compliance
- GHG emissions reduction (18 MT CO_2e in 2030, 83 MT CO_2e in 2045)

Measure 7: Increase operational resilience in response to power disruptions by increasing on-site energy generation and energy storage where feasible and cost-effective to offset grid supplied power by 10% by 2030.

Backup renewable power facilities can provide resilience and redundancy to mitigate service disruptions during power outages.56 Power loss can lead to operational failure as key facilities may not be able to operate. This measure is aligned with the State's electrification policies and will reduce the potential impact of future power disruptions on key facilities and operations providing future continuity of services across a wider range of conditions. Implementing solar installations on MWD reservoirs can significantly reduce energy costs and reliance on grid power. MWD has already leveraged this at some facilities, such as Jameson Reservoir, and is able to offset electricity purchased with the Picay hydropower facility. Incorporation of battery storage can also be used to provide power during outages and conduct rate arbitrage by charging during times when electricity is cheapest and offsetting the peak (most expensive) power periods through use of stored energy. New backup power facilities should be located outside of hazard areas or provided with adequate protection to mitigate potential damage and disruption. Conducting a comprehensive assessment to identify critical facilities suitable for additional on-site solar installations and priority locations for battery storage will guide strategic deployment of resources. Developing specific on-site energy production targets will leverage funding opportunities through state and federal sources, maintaining their economic viability and accelerating the transition to renewable energy sources.

Actions

7.1. Implement solar installations on reservoirs included in the ASADRA Reservoir Retrofit and Replacement Program, where feasible.

7.2. Conduct an assessment to identify: 1) critical facilities where additional on-site solar installations could be feasible; 2) priority locations for battery storage installation; and 3) feasibility of charging on-site batteries with on-site solar. Complete ROI analysis for solar PV and battery storage using known energy rates to evaluate: the ROI, applicability at specific facilities, and opportunities for rate arbitrage to lower energy costs.

7.3. Based on the feasibility study, aim to install solar PV and battery storage systems to offset grid power by 10% by 2030.

7.4. Explore funding opportunities to obtain and install battery storage at critical facilities based on the feasibility study. Identify opportunities through the IRA incentives including Energy Infrastructure Reinvestment Financing and the Solar Investment Tax Credit

Implementation Metrics

- Complete assessment identifying critical facilities and priority locations for solar installation by June 2025
- Establish a goal for on-site energy production and storage by January 2025
- Offset grid power by 10% by 2030
- Complete solar installations and battery storage at top two priority locations by December 2028
- Aim to secure at least $5 million in internal and/or external funding for onsite generation by December 2026

Co-benefits

- Resource conservation
- Potential cost-savings

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56. EPA. Climate Impacts on Water Utilities. ***https://www.epa.gov/arc-x/climate-impacts-water-utilities#tab-3****. July 2023*

Measure 8: Invest in facility improvements to reduce flooding, landslide and debris flow risks to MWD infrastructure.

Climate change is projected to increase the frequency and intensity of extreme precipitation events and wildfires, which can increase landslides and debris flow susceptibility, as experienced by MWD in recent years. Conducting a mapping program for vulnerability associated with critical assets for landslide and debris flow risks allows the agency to identify and prioritize areas most at risk. By using existing design standards with future climate conditions in mind for new assets, MWD can protect infrastructure and renovate identified sites to better withstand these hazards. Conducting hardening upgrades to the most vulnerable assets based on the vulnerability mapping will further strengthen the resilience of the water system, minimizing potential damage during heavy rain events. Assessing the Highline water main in areas of high landslide susceptibility and prioritizing the replacement of water mains in high-movement land areas will mitigate the risk of infrastructure failure due to land movement. Constructing barriers around critical facilities vulnerable to debris flows, and relocating water mains from the upstream side of bridges to the downstream side will protect these critical assets from being damaged by flooding or debris flows. These proactive measures improve MWD's infrastructure to be more resilient to the impacts of climate change, safeguarding the continuous supply of water to the community even during severe weather events.

Actions

8.1. Conduct a hazard vulnerability assessment of critical assets for landslide and debris flow risks

8.2. Use existing design standards for new assets to mitigate vulnerabilities identified for infrastructure and potential future climate conditions in mind.

8.3. Conduct hardening upgrades to critical MWD assets most vulnerable to damage from landslides and debris flows, based on vulnerability assessment.

8.4. Assess the Highline water main in areas of high landslide susceptibility due to extreme slopes and potential for land movement.

8.5. Prioritize replacement consideration of water mains in high-movement land areas.

8.6. Construct barriers around critical facilities vulnerable to debris flows and flooding to prevent inundation

8.7. Relocate water mains from the upstream side of bridges to the downstream side of bridges to protect from future flooding and debris flows.

8.8. Assess all Highline pipeline crossings at creeks and smaller drainages. Bury pipelines where feasible to eliminate possibility of damage due to flooding or debris flows.

Implementation Metrics

- Complete vulnerability mapping for critical assets at risk of landslides by December 2025
- Replace or relocate at least 50% of water mains in identified high-movement land areas by December 2028.
- Complete upgrades for 75% of identified critical assets by December 2028

Co-benefits

- Resource conservation
- Employee health and safety

Measure 9: Increase operational response time and capacity by strengthening the Supervisory Control and Data Acquisition (SCADA) system capabilities by improving sensing capabilities.

A projected increase in the frequency and severity of climate hazards will stress the ability of MWD staff to react and respond to extreme weather. A more advanced SCADA system will enable more efficient reactions and responses to changing conditions. Greater remote connectivity can reduce water loss through faster response times and potentially reduce GHG emissions resulting from operational disruptions. Assessing the current SCADA system's sensor capabilities and identifying gaps in pressure management and water quality monitoring will allow MWD to strategically upgrade or add necessary field instrumentation hardware, such as sensors, actuators, relays, control units, and samplers. By prioritizing sensor deployment at critical points like pump stations, reservoirs, distribution mains, and areas prone to issues, MWD can improve monitoring and control of water systems. Establishing regular maintenance procedures for the SCADA system supports sustained operational efficiency and timely identification of further needed improvements, ultimately leading to enhanced water quality, system reliability, and overall operational effectiveness for MWD.

Actions

9.1. Conduct an assessment on the current SCADA system's sensor capabilities, identifying potential gaps in sensing coverage related to pressure management and water quality monitoring. Through this assessment, identify opportunities to upgrade or add field instrumentation hardware including sensors, actuators, relays, control units, and samplers.

9.2. Based on the assessment, procure field instrumentation hardware to adequately monitor and control all water system processes. Prioritize sensor deployment at key points such as pump stations, reservoirs, distributions mains, and areas prone to pressure fluctuations or water quality issues.

9.3. Explore and apply for potential funding opportunities to finance SCADA system upgrades and improvements.

9.4. Establish procedures to regularly conduct maintenance of SCADA systems to identify potential improvements and operational efficiencies

Implementation Metrics

- Complete a SCADA assessment by June 2025
- Achieve 100% sensor deployment at key points by December 2027
- Establish a budget and funding plan for SCADA system upgrades, and secure grants for upgrades by 2026

Co-benefits

- Resource conservation
- Potential cost-savings
- GHG emissions reduction57
- Waste reduction

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57. GHG emissions are reduced through this measure however, it is not quantified at this time as the reduction in water loss from SCADA deployment would need to be determined to assess GHG emissions reduced.

Measure 10: Continue to conserve energy through improved energy efficiency, in alignment with MWD's "Environmental Policy" (Resolution 2247, Appendix X).

MWD can realize significant benefits by systematically replacing aging equipment with energy-efficient and electric alternatives. Prioritizing energy-efficient electric equipment, such as those with EnergyStar certifications over natural gas and diesel equipment can lead to substantial energy savings and reduced operational costs. Targeted replacements identified through regular SCE energy audits, will address existing inefficiencies and extend the operational life of these facilities. As energy costs are anticipated to continue rising, capital investments aimed at reducing energy consumption are financially justified, considering long-term cost savings and potential financial incentives such as grants and rebates. Implementing a time-of-use program to shift high-electricity use to periods of low cost and high availability of renewable energy can further reduce energy expenses. Finally, exploring artificial intelligence (AI) and machine learning (ML) to optimize treatment processes can enhance energy efficiency, reduce costs, and improve overall operational effectiveness.

Actions

10.1. Continue to identify aging equipment due for replacement throughout MWD facilities and identify energy efficient alternatives to use for the replacement (e.g., EnergyStar certifications). Prioritize energy efficient electric equipment over natural gas and diesel equipment. Include a return on an investment analysis as part of the replacement process that evaluates the capital investment for an energy efficient alternative piece of equipment, cost savings associated with improved energy efficiency, and identifies any grants or rebates associated with such equipment replacement.

10.2. Implement energy efficiency replacements at pump stations identified in the SCE Energy Audit based on age and inefficiencies. In the near-term focus on: Pumps at Office STA #1 and Office STA #2

10.3. Work with SCE to have an updated energy efficiency audit conducted on MWD pump stations every five years starting in 2025. Work with SCE to identify other high energy use equipment for energy audits, as applicable. As feasible and cost-effective, implement energy recommendations with a focus on replacing identified inefficient equipment

10.4. Continue to implement time-of-use program and permanently shift high-electricity use to times when renewable energy is plentiful and cost is low

10.5. Require all new construction and building upgrades to utilize light emitting diode (LED) lighting technology only.

10.6. For new buildings, incorporate resilient design and construction sustainability elements such as fire-resistant building envelopes, geothermal energy, green roofs, high efficiency toilets, etc. Require new buildings to meet LEED (Leadership in Energy and Environmental Design) certification, the nationally accepted benchmark of high-performance green buildings, and new infrastructure to align with the Envision sustainability framework developed by the Institute for Sustainable Infrastructure to increase sustainability and resiliency in civil infrastructure.

10.7. Explore opportunities to employ artificial intelligence (AI) and machine learning (ML) to better optimize treatment processes and to increase energy efficiency.

Implementation Metrics

- Complete inventory of all aging equipment by June 2025
- Number of energy efficiency replacements
- Replace at least 50% of identified aging equipment by December 2028
- Completed SCE energy audit by December 2025 and every five years thereafter
- Achieve a 15% reduction in overall energy consumption by December 2030

Co-benefits

- Resource conservation
- Potential cost-savings
- GHG emissions reduction[58]

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[58] GHG emissions are reduced through this measure however, the quantity is not quantified herein to avoid double counting of emission reductions associated with Measure 3.

Measure 11: Create a net zero waste initiative to decrease landfill waste 50% by 2030 and incrementally increase through 2045.

Implementing a net zero-waste initiative would align with California's waste management legislation and provide environmental and economic benefits for MWD. By continuing to minimize waste generation and maximizing recycling and composting efforts, this initiative would contribute to the State's ambitious waste diversion goals outlined in AB 341, which targets a 75% diversion rate from landfills and adheres to the mandatory commercial recycling requirements. Additionally, AB 1826 requires local jurisdictions to establish organic waste recycling programs, and SB 1383 further intensifies these efforts by setting a 75% reduction target for organic material disposal in landfills by 2025, with enforceable penalties for non-compliance. While MWD is not subject to these regulations, reducing waste sent to landfill supports local and regional goals. Additionally, by embracing a net zero-waste initiative, MWD can help reduce methane emissions, support statewide environmental goals, and reduce costs by minimizing waste disposal fees and developing potential revenue streams from recycling and composting programs.

Actions

11.1. Continue to implement MWD's "Environmental Policy" (Resolution 2247, Appendix X) to maintain the Green Business Certification and minimize waste by:

- **a.** Reducing waste stream with increased recycling and procurement of recycled content products
- **b.** Increasing waste diversion with improved disposal methods
- **c.** Reducing use of disposable products
- **d.** Reduce waste through reuse of products where feasible

11.2. Conduct a waste assessment, including records examinations, facility walkthroughs, and waste sorting, across all facilities to identify waste sources generated, identify purchasing and management practices, examine current waste reduction practices and their effectiveness, and prioritize the most effective waste reduction efforts on an area and materials-focused basis.

11.3. As part of CAAP monitoring, track waste disposal method changes to assess effectiveness of waste reduction method. If waste reduction method does not elicit a 10% or greater change from previous year, reevaluate options from waste assessment to implement additional waste reduction efforts.

11.4. Comply with County of Santa Barbara SB 1383 organic waste diversion implementation requirements.

11.5. Host staff training sessions to provide educational information on waste reduction practices to reduce waste generation and increase waste diversion at MWD facilities.

Implementation Metrics

- Complete waste assessment by June 2025
- Review and revise, if necessary, waste hauler agreement to ensure compliance with local laws and SB 1383 requirements
- Reduce total landfilled waste by 50 percent compared to current baseline by 2030
- Maintain Green Business certification annually by meeting all required standards and submitting necessary documentation by December each year

Co-benefits

- Waste reduction
- Resource conservation
- State legislation compliance
- GHG emissions reduction (10 MT CO_2e in 2030, 11 MT CO_2e in 2045)

Measure 12: Continue to reduce use of natural gas and propane at facilities by 30% by 2030, in alignment with MWD's "Environmental Policy" (Resolution 2247, Appendix X).

Several pieces of State-level legislation, including SB 350[59] and AB 3232[60], promote infrastructure electrification by mandating reductions in energy usage in buildings and facilitating a transition to a low-carbon building stock. SB 350 requires California to double the energy efficiency savings in natural gas usage by 2030. AB 3232 mandates that the California Energy Commission (CEC) develop strategies to reduce GHG emissions from the state's building stock by 40 percent below 1990 levels by 2030. The CEC's Building Energy Efficiency Standards (Title 24, Parts 6 and 11) include codes and standards supporting decarbonization efforts by requiring energy efficiency improvements in building equipment during new construction and upgrades. Additionally, SB 100 was recently adopted and requires the sourcing of California's electricity from 100 percent carbon-free sources. With the implementation of this legislation, all natural gas equipment converted to electric will also become carbon-free.

By transitioning from natural gas to electric equipment, MWD can reduce the GHG emissions associated with its operations. This transition should occur gradually, replacing natural gas infrastructure as it reaches the end of its lifecycle. When upgrading equipment like hot water heaters and Heating, Ventilation, and Air Conditioning (HVAC) units, MWD can install heat pumps, which operate at nearly 400 percent increased efficiency compared to natural gas combustion units.[61] Replacing fossil fuel combustion equipment with electric alternatives will ensure compliance with State policies and Title 24 requirements.

Actions

12.1. Conduct a survey of existing natural gas and propane operated equipment.

12.2. Identify operationally and financially viable electric alternatives or an alternative fuel source (e.g., renewable propane, RNG).

12.3. Electrify equipment at the time of replacement to reduce natural gas consumption over time in alignment with the MWD Environmental Policy.

12.4. Develop and establish guidelines for equipment procurement and replacement that require equipment and appliances acquired by MWD to be electric or the highest level of efficiency available if an electric equipment alternative is determined infeasible. Guidelines should include a process to identify other opportunities for low-carbon alternative stationary equipment if an electric alternative is deemed infeasible (e.g., use of renewable diesel/e-fuel).

12.5. Pursue rebate, grant, or partnership opportunities to fund and accelerate the replacement of natural gas-consuming equipment like HVAC and hot water heaters with electric-powered equivalents like heat pumps.

Implementation Metrics

- Reduce natural gas and propane use by 30% by 2030
- Establish a replacement schedule of existing natural gas equipment by December 2025
- Establish procurement guidelines for equipment by June 2025
- Obtain funding to accelerate natural gas equipment replacement

Co-benefits

- Resource conservation
- Potential cost-savings
- GHG emissions reduction (1 MT CO_2e in 2030, 5 MT CO_2e in 2045)
- State legislation compliance
- Employee health and safety

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[59] *CEC. Clean Energy and Pollution Reduction Act – SB 350.* ***https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350****. Accessed July 2023*

[60] *CEC. Assembly Bill 3232 and the California Building Decarbonization Assessment.* ***https://www.energy.ca.gov/sites/default/files/2021-08/AB3232_Building_Decarbonization_Assessment_Factsheet_ADA.pdf****. Accessed May 2024.*

[61] *Tri-State. 2021. Advantages of Energy Efficient Heat Pumps.* ***https://tristate.coop/advantages-heat-pumps-energy-efficiency#:~:text=What's%20the%20efficiency%20performance%20of,coefficient%20of%20performance%2C%20or%20COP****. Accessed July 2023.*

6.

IMPLEMENTATION AND MONITORING

CAAP IMPLEMENTATION

This CAAP outlines specific measures and actions to enhance operational efficiency and resiliency of MWD's operations, strengthen long-term water supply reliability, and harden infrastructure against climate hazards while also mitigating MWD's contribution to climate change. Implementation of the CAAP has been designed to occur between 2025 and 2045. This section has been developed to maintain a specific schedule to achieve the goals and targets of the plan. Additionally, implementation programs have been developed specifically for monitoring the performance of the CAAP.

Due to the long implementation time-period of the CAAP, measures and actions may evolve over time as MWD tracks progress, new technologies and legislation emerge, and funding opportunities. This section details an implementation plan for the CAAP, which will include transforming measures and actions into implementation programs and projects. Implementation of this CAAP is designed around MWD priorities and is grounded in science, best available data, and current best practices in climate action and adaptation planning.

Measure Prioritization

One of the key elements of this CAAP is the development of an implementation timeline that prioritizes measures and actions that are most impactful at achieving MWDs objectives. The impact of each measure was evaluated based on how well the measures aligned with the following criteria:

- **District Initiative.** The CAAP measure is aligned with the District's initiatives such as those identified in the 2022 Strategic Plan.
- **Improves Resilience.** The CAAP measure will have a meaningful impact on protecting MWDs operations and infrastructure and improving MWD resilience against climate hazards.
- **Employee Health and Safety.** The CAAP measure is focused on adapting a climate safe and healthy work environment for employees.
- **Regulatory Requirements.** The CAAP measure supports and complies with State mandates.
- **Cost/Funding Opportunities.** It is cost effective to implement the CAAP measure. This relates to overall cost for measure implementation and considers whether there are opportunities and availability of outside funding sources that could be leveraged to augment MWD resources, such as grants, or State and Federal incentives, for funding the CAAP measure to offset cost of implementation.
- **GHG Reductions.** The CAAP measure will have a meaningful impact in reducing GHG emissions. Consideration is given to the cost-benefit of the measure as a GHG reduction strategy including upfront cost, operation and maintenance cost, savings from reduction in resource consumption, compliance with regulations[1], and the avoided social cost of carbon.[2]

Measures detailed in Chapter 5 and summarized in Table 5-1 are ordered based on priority. The implementation timeframe considers the priority of the measure given how well it aligns with the criteria described above.

Steps for Implementation

The CAAP will take a phased approach to action implementation. The measures and actions have been distributed across the phases based on identified priorities, the incremental needs associated with full implementation of specific actions and measures, as well as timing aligned with other District initiatives occurring. The end of each phase is marked by an evaluation period, at which point the inventory will be updated and the impact of each measure will be reviewed. This allows for progress to be tracked and the CAAP to be revised as necessary to meet the established goals. This section details the responsible departments and implementation timelines for the actions and measures across each of the three Phases.

Active and Ongoing indicates the actions that have been complete and are an ongoing effort

Phase 1 will occur in the near-term (beginning of 2025–2027).

Evaluation Period 1 will occur at the end of Phase 1 (2027)

Phase 3 will include the implementation of mid-term actions (2027–2030).

Evaluation Period 2 will occur at the end of Phase 2 (2030)

Phase 5 will include the implementation of long-term actions (2030–2045).

The CAAP includes both near-term actions to address climate vulnerabilities at specific facilities that would largely occur in Phase 1 and long-term measures that lay the foundation for future capital investments or infrastructure developments that would occur over time using the phased implementation approach. Many of the infrastructure-hardening facility-specific actions do not require preliminary feasibility studies and can largely be executed through the annual capital budget to immediately enhance MWD's infrastructure resiliency. Such actions can then be followed up with general operation and maintenance actions during the following phases of implementation to address the specific climate hazard risk over time.

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[1] *Cost associated with compliance or incompliance with a regulation, when applicable.*

[2] *Social cost of carbon is defined by the EPA as the value of economic damages caused by climate-related damages (i.e., to property, human health, energy costs, etc.) from each additional ton of carbon added to the atmosphere in a given year.*

For longer-term measures, actions are phased to demonstrate those actions that must be completed first within the measure. For example, there may be initial feasibility analysis or resource acquisition necessary to complete first prior to implementation of the measure at full scale. These initial actions are often designed to occur in Phase 1. However, other actions that may be identified to occur in Phase 1 are those critical to jumpstart and sustain CAAP implementation, and/or are cost-effective and feasible steps to significantly improve resilience and align with existing efforts with the current available resources. Implementation of long-term CAAP measures using this phased approach across incremental actions allows for multiple measures to move forward in parallel. Feasibility studies and surveys can often be completed in the near-term to set a foundation for long-term capital investments or infrastructure developments that will provide MWD with lifecycle cost savings, long-term resilience to the impacts of climate change, and increase operational efficiency.

Table 6-1 provides a summary of the measures and actions organized by priority, as well as their identified phase, responsible department, and metrics for tracking. Over time additional actions may need to be adopted to achieve the long-term goal of carbon neutrality and further adapt to climate change. New technologies and approaches should be monitored and incorporated into future planning initiatives.

RESPONSIBLE PARTIES

Successful implementation and monitoring of the CAAP is critical for MWD to increase resilience to climate change, enhance operational efficiency, and reducing GHG emissions. A key step in implementation planning involves identifying responsible parties for implementation. Several departments within MWD will play a key role in the CAAP's implementation and monitoring. Responsible parties are listed and described below. While the responsibility of CAAP implementation has been spread across the below listed departments, coordination across departments will be necessary to achieve the CAAP goals most efficiently. Further, some actions include coordination with other local and regional agencies, such as the Couty or other local water agencies. Regional cooperation maximizes the effectiveness of CAAP strategies and enhances implementation efficiency.

Administration

Administration includes the General Manager and Assistant General/Engineering Manager. The General Manager is responsible for the day-to-day operations and manager of the District including implementation of policy as established by MWD's Board of Directors. The Assistant General/ Engineering Manager supports the General Manager in implementation of the Districts policies and oversees MWD's Engineering operations. The General Manager and Assistant General/Engineering Manager will provide a critical role in implementing the policies of an adopted CAAP as well as tracking and reporting on progress of CAAP implementation to the Board of Directors.

Finance

The Finance Department is responsible for the Districts' accounting and personnel functions and financial reporting to the board of Directors and public as well as oversees finances and information technology teams. In collaboration with other departments, the Department will play a major role in identifying and administering funding and financing opportunities to support the implementation of CAAP actions, especially those that require significant capital investments including infrastructure hardening, fleet transition, and on-site power generation solutions.

Engineering

The Engineering Department is primarily responsible for project engineering and management, construction, and inspections. The Division will play a key role in conducting feasibility studies and assessments and managing capital improvement projects, such as facility hardening upgrades. The Department will also play a role in implementing energy efficiency measures and several climate hazard mitigation measures at MWD facilities.

Water Treatment

The Water Treatment Department is responsible for the day-to-day operations and maintenance of MWD's ground water wells, pump stations, dams, reservoirs, lakes, and water treatment facilities. This Department will play a key role in implementing several climate hazard mitigation measures at MWD water treatment facilities, as well as implementing energy efficiency, employee health and safety, and waste reduction measures.

Water Distribution & Fleet Facilities

The Water Distribution Department is responsible for the maintenance and operation of the water distribution mains and connections, as well as managing MWD's fleet. The Department will play a key role in implementing several climate hazard mitigation measures at MWD facilities, as well as implementing energy efficiency, employee health and safety, and resource reduction measures. The Department will also be responsible for implementing measures for fleet and stationary equipment decarbonization, as applicable, and maintaining fleet compliance reporting.

Public Information

The Public Information Department manages external communications and works closely with local partners, including schools and community organizations to promote water awareness, water conservation, and environmental stewardship. The Department will play a key role in continuing and developing new outreach and engagement efforts around water conservation and climate resilient landscaping as well as in internal engagement surrounding waste reduction and resource conservation.

Water Conservation

The Water Conservation Department is responsible for the management of water conservation efforts, evaluating and improving District water use efficiency, and providing recommendations to customers for improved water use efficiency. The Department will play a key role in increasing water conservation, expanding rebate programs, and supporting the conversion from water intensive landscaping. The Department will also play a role in improving the SCADA system to increase operational efficiency, optimization, and control.

Human Resources

The Human Resources Department provides guidance and support to all departments for recruitment, selection, classification/salary structures, employee benefits, employee relations, employee training, labor negotiations, performance evaluations, employee development, safety and other personnel programs and processes. The Department will play a critical role in leading efforts to enhancing and implementing employee health and safety protocols and programs to protect staff from climate extremes.

Table 6--1. Implementation Timeline by CAAP Action

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 1	1.1	Continue to implement and update as necessary internal protocols for employees working under extreme heat conditions and air quality emergencies, in alignment with Cal/OSHA heat illness and prevention guidance and the California Climate Adaptation Strategy.	Active and Ongoing	Human Resources, Administration	Update employee safety protocols
Measure 1	1.3	Provide employees with educational materials on relevant climate hazards and associated health and safety impacts (e.g., extreme heat induced health impacts) to increase awareness of risks and share best practices to increase adaptive capacity.	Active and Ongoing	Human Resources, Public Information	Provide employees with climate hazard information
Measure 1	1.4	Identify prepositioned resources and bench contracts to provide increased staffing capacity in emergency to mitigate disruptions in extreme climate conditions or compounding climate scenarios.	Active and Ongoing	Administration	Revise bench contracts as necessary
Measure 2	2.1	As needed, update the Future Water Demand and Supply Options Report (2020) with up to date climate change projections to identify the risks and benefits associated with each water source in the context of future climate conditions. If a water shortage condition is determined to exist based on updated water supply modeling and forecasting, consider pursuing additional resilient water supplies including but not limited to: a. Ground water banking in the Montecito Groundwater Basin or Carpinteria Groundwater Basin b. Potable reuse of wastewater available from the Montecito Sanitary District c. Additional water from the Water Supply Agreement with the City of Santa Barbara	Active and Ongoing	Administration	Update Future Water Demand and Supply Options Report
Measure 2	2.2	Coordinate with the Montecito GSA to advance local infiltration initiatives focusing on increasing infiltration and retention of water in local watersheds.	Active and Ongoing	Administration	Host meeting with Montecito GSA to advance local infiltration initiatives
Measure 3	3.1	Continue water conservation and programs by implementing the 2020 UWMP and conservation measures outlined in the 2022 Water Use Efficiency Plan.	Active and Ongoing	Water Conservation	Implement water conservation programs
Measure 3	3.4	Complete the development of a Demonstration Garden at the MWD office property.	Active and Ongoing	Water Conservation	Complete Demonstration Garden
Measure 3	3.6	Develop outreach and engagement materials to increase awareness of the Watersmart program, which provides customers with valuable tools to effectively monitor and manage their water usage.	Active and Ongoing	Water Conservation, Public Information	Increase customer enrollment in Watersmart program
Measure 3	3.7	Implement water distribution system leak testing and implement repairs	Active and Ongoing	Water Conservation, Water Distribution & Fleet Facilities	Water distribution system leak testing

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 4	4.5	Maintain ongoing coordination with neighboring jurisdictions to guarantee sufficient water availability and peak load water supply for fire suppression efforts, in accordance with CAL FIRE's recommendations.	Active and Ongoing	Administration	Annual coordination with neighboring jurisdictions in advance of wildfire season
Measure 5	5.1	Maintain existing interties with the City of Santa Barbara and Carpinteria Valley Water District in good working order, testing annually and making repairs as needed.	Active and Ongoing	Water Distribution & Fleet Facilities	Annual intertie testing and repairs
Measure 5	5.2	Complete the ASADRA Reservoir Retrofit and Replacement project to reduce vulnerabilities to extreme climate conditions.	Active and Ongoing	Water Treatment, Engineering	Complete project
Measure 5	5.4	Continue the conjunctive use program for MWD groundwater wells whereby private wells are rested during wet periods and used during drought periods.	Active and Ongoing	Administration, Water Conservation	Track implementation of conjunctive use program
Measure 5	5.5	Continue to integrate and regularly update best available climate science and projections into relevant planning documents and programs including the Urban Water Management Plan, Infrastructure Investment Plan, and Hazard Mitigation Plan.	Active and Ongoing	Administration	Update relevant planning documents
Measure 6	6.12	Conduct a ZEV assessment of the existing fleet to determine: a. Planned vehicle procurement or replacement schedules to plan for Rule compliance b. ZEV alternative for each current fleet vehicle and fleet vehicles without a current alternative c. Where a ZEV is not available in the needed configuration, purchase a new ICE with a California certified engine d. Infrastructure needs (e.g. quantity and location) to support fleet conversion to ZEV e. Return on investment (ROI) assessment including available rebates, incentives and tax credits for initial purchase and operation and maintenance cost over time	Active and Ongoing	Water Distribution & Fleet Facilities, Finance	Conduct ZEV assessment
Measure 10	10.1	Continue to identify aging equipment due for replacement throughout MWD facilities and identify energy efficient alternatives to use for the replacement (e.g., EnergyStar certifications). Prioritize energy efficient electric equipment over natural gas and diesel equipment. Include a return on an investment analysis as part of the replacement process that evaluates the capital investment for an energy efficient alternative piece of equipment, cost savings associated with improved energy efficiency, and identifies any grants or rebates associated with such equipment replacement.	Active and Ongoing	Water Treatment, Water Distribution & Fleet Facilities, Finance	Inventory of aging equipment
Measure 10	10.4	Continue to implement time-of-use program and permanently shift high-electricity use to times when renewable energy is plentiful and cost is low	Active and Ongoing	Water Treatment	Tracking of time-of-use impacts on emissions and cost

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 11	11.1	Continue to implement MWD's "Environmental Policy" (Resolution 2247, Appendix X) to maintain the Green Business Certification and minimize waste by: a. Reducing waste stream with increased recycling and procurement of recycled content products b. Increasing waste diversion with improved disposal methods c. Reducing use of disposable products d. Reduce waste through reuse of products where feasible	Active and Ongoing	Administration	Implement MWD's Environmental Policy and minimize waste
Precip., Flooding, and Debris Flow O&M	PFD. O&M.2	Retrofit MWD buildings and structures with flood-proofing measures such as flood barriers, watertight doors, and sealing openings to prevent water ingress during flood events.	Active and Ongoing	Engineering	Complete flood-proofing
Wildfire O&M	W. O&M.5	Ensure facilities have back-up power systems, including but not limited to generators, on-site solar, and battery storage.	Active and Ongoing	Engineering	Upgraded facility back-up power
Landslides Specific Upgrade	L.1	Assess the Highline water main in areas of high landslide susceptibility including but not limited to the segment between Doulton Tunnel and Bella Vista Treatment Plant.	Active and Ongoing	Water Treatment, Water Distribution & Fleet Facilities, Engineering	Complete assessment
Measure 1	1.2	Develop protocols for climate hazard emergencies to address service continuity and employee safety. Protocols should include annual practice/drills.	Phase 1	Human Resources, Administration	Develop employee health and safety protocols specific to climate hazards MWD is vulnerable to
Measure 3	3.5	Require new or modified MWD facilities to be low water use through landscaping with drought tolerant plants, permeable paving, green infrastructure, and incorporating other low-impact development design features to allow for increased infiltration, even in heavy rains.	Phase 1	Water Conservation, Engineering, Administration	Adopt policy to require low water use at MWD facilities
Measure 4	4.1	Develop and implement wildfire abatement and response strategies including defensible space, fire-safe landscaping, structural ignition reduction, fire-resistant retrofitting, fire suppression water flow, and vegetation management, aligned with CAL FIRE guidance and standards.	Phase 1	Administration	Implement guidelines for wildfire abatement
Measure 4	4.2	Ensure new projects and facility developments meet current building and fire codes (Title 24 Part 9 – 2022 California Fire Code) for fire mitigation that include but are not limited to: a. Ensuring defensible space around structures (e.g., vegetation clearing, safe distance from flammable materials, and proper spacing between structures and trees/shrubs) b. Structure hardening by using fire-resistant building materials, installing ember-resistant vents, sealing gaps and openings to prevent ember entry, install fire-resistant roofs, windows and doors	Phase 1	Engineering, Administration	Implement 100% compliance with fire mitigation codes for all new projects

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 4	4.4	Conduct hardening upgrades to structures and facilities within CAL FIRE High and Very High Fire Hazard Severity Zones, with plans for relocation of critical assets if necessary and feasible. Reduce structural ignition risk, replace wood components, install fire suppression systems, and upgrade roofs to non-combustible materials. See Facility and Hazard-Specific Recommendations for details.	Phase 1	Engineering	Harden structures and facilities in High and Very High wildfire hazard zones
Measure 5	5.3	Eliminate end drain and hydrant flushing programs during droughts to reduce water use. Hydraulic modeling can be used in lieu of physical flushing.	Phase 1	Water Distribution & Fleet Facilities, Administration	Replace end drain and hydrant flushing programs with hydraulic modeling during drought
Measure 5	5.6	Develop protocols to enhance monitoring capabilities for continuous identification of vulnerable MWD assets requiring upgrades or retrofits.	Phase 1	Administration	Develop vulnerable asset upgrade protocol
Measure 6	6.1	Implement an "ZEV first" purchasing rule for vehicles where a ZEV is available in the needed configuration.	Phase 1	Public Information, Finance	Adopt "ZEV first" policy
Measure 6	6.11	Identify appropriate exemptions, such as the ZEV Purchase Exemption or Mutual Aid Assistance Exemption, for fleet vehicles and submit exemption request to CARB, as necessary, and maintain records of exemptions. Continue to meet reporting requirements for fleets under the Advanced Clean Fleet regulation	Phase 1	Water Distribution & Fleet Facilities, Engineering	Submit documentation to CARB
Measure 6	6.6	Expand use of vehicle telematics, fleet maintenance procedures, and use fleet operational data to optimize fleet operation to reduce fuel consumption in alignment with MWD's Environmental Policy.	Phase 1	Water Distribution & Fleet Facilities, Finance	Reduce fuel consumption
Measure 6	6.8	Evaluate existing vehicle fleet and determine whether MWD will be following the standard fleet vehicle replacement plan or will opt-in to the ZEV Fleet Milestone option.	Phase 1	Finance	Establish compliance protocol
Measure 6	6.9	Establish and implement protocol for reporting to CARB as required by the Advanced Clean Fleet regulation.	Phase 1	Water Distribution & Fleet Facilities, Engineering	Submit compliance reports
Measure 8	8.2	Use existing design standards for new assets to mitigate vulnerabilities identified for infrastructure and potential future climate conditions in mind.	Phase 1	Engineering	Incorporate future climate conditions and design standards to new assess
Measure 9	9.1	Conduct an assessment on the current SCADA system's sensor capabilities, identifying potential gaps in sensing coverage related to pressure management and water quality monitoring. Through this assessment, identify opportunities to upgrade or add field instrumentation hardware including sensors, actuators, relays, control units, and samplers.	Phase 1	Water Conservation, Engineering	Complete assessment
Measure 10	10.2	Implement energy efficiency replacements at pump stations identified in the SCE Energy Audit based on age and inefficiencies. In the near-term focus on: Pumps at Office STA #1 and Office STA #2	Phase 1	Water Treatment	SCE identified energy efficiency replacements at pump stations

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 10	10.3	Work with SCE to have an updated energy efficiency audit conducted on MWD pump stations every five years starting in 2025. Work with SCE to identify other high energy use equipment for energy audits, as applicable. As feasible and cost-effective, implement energy recommendations with a focus on replacing identified inefficient equipment	Phase 1	Water Treatment, Finance	Complete SCE updated energy efficiency audit; track energy consumption trends on annual basis
Measure 10	10.5	Require all new construction and building upgrades to utilize light emitting diode (LED) lighting technology only.	Phase 1	Engineering	New and replaced LED lighting
Measure 10	10.6	For new buildings, incorporate resilient design and construction sustainability elements such as fire-resistant building envelopes, geothermal energy, green roofs, high efficiency toilets, etc. Require new buildings to meet LEED (Leadership in Energy and Environmental Design) certification, the nationally accepted benchmark of high-performance green buildings, and new infrastructure to align with the Envision sustainability framework developed by the Institute for Sustainable Infrastructure to increase sustainability and resiliency in civil infrastructure.	Phase 1	Engineering	LEED building and Envision infrastructure certifications
Measure 11	11.2	Conduct a waste assessment, including records examinations, facility walkthroughs, and waste sorting, across all facilities to identify waste sources generated, identify purchasing and management practices, examine current waste reduction practices and their effectiveness, and prioritize the most effective waste reduction efforts on an area and materials-focused basis.	Phase 1	Public Information	Complete waste assessment
Measure 11	11.4	Comply with County of Santa Barbara SB 1383 organic waste diversion implementation requirements.	Phase 1	Administration	Maintain Green Business certification and align with County waste reduction requirements
Measure 11	11.5	Host staff training sessions to provide educational information on waste reduction practices to reduce waste generation and increase waste diversion at MWD facilities.	Phase 1	Public Information	Host internal waste reduction trainings
Measure 12	12.1	Conduct a survey of existing natural gas and propane operated equipment.	Phase 1	Water Treatment, Water Distribution & Fleet Facilities, Administration	Equipment due for replacement identified and schedule developed
Extreme Heat Specific Upgrade	H.1	Develop a prioritized schedule for installation of mixers at the remaining reservoirs which do not currently have them including Cold Springs, Doulton, Bella Vista, and Romero.	Phase 1	Water Treatment, Engineering	Installed mixers
Precip., Flooding, and Debris Flow Specific Upgrade	PFD.1	Construct nature-based barriers, such as berms and swales, around high risk facilities, including but not limited to the cistern storage facility, Casa Dorinda pump station, and Morgan Well.	Phase 1	Water Treatment, Engineering	Barriers constructed
Precip., Flooding, and Debris Flow Specific Upgrade	PFD.3	Consider replacement of the energy inefficient Office pumps (2 pumps), based on age and inefficiency documented by SCE.	Phase 1	Water Treatment, Engineering	Office pumps replaced
Wildfire Specific Upgrade	W.1	Replace wooden roof at Park Lane Reservoir with metal or concrete.	Phase 1	Water Treatment, Engineering	Park Lane Reservoir wooden roof replaced

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Wildfire Specific Upgrade	W.2	Replace wood building components with fire resistant materials at the MWD office, Buell Pump Station, and any other wood facilities.	Phase 1	Engineering	Replaced wood building components at the MWD office and Buell Pump Station
Wildfire O&M	W. O&M.1	Clear vegetation and construct firebreaks around MWD facilities to create defensible space in adherence with 2022 California Fire Code (or most recent code at the time of activity). Ensure funding and staff resources are available for regular maintenance.	Phase 1	Engineering	Clear vegetation and construct firebreaks around MWD facilities
Wildfire O&M	W. O&M.2	Adopt building and design standards for new construction that enhance fire resistance, in compliance with CalFire Design Standards (California Building Code Title 24 Part 9).	Phase 1	Administration, Engineering	Adopt CalFire Design Standards for new construction
Wildfire O&M	W. O&M.4	Install ember-resistant vents, screens, and building materials on existing infrastructure.	Phase 1	Engineering	Installed ember-resistant vents, screens, and building materials
Measure 3	3.3	Host a landscape workshop series to provide information on drought-tolerant landscaping, available rebates for water retrofits, and water efficiency strategies in new buildings.	Phase 1-2	Water Conservation, Public Information	Host landscape workshop
Measure 4	4.3	Dedicate staff time to identify funding sources (e.g., CAL FIRE or FEMA) for implementing upgrades or retrofits to mitigate wildfire risk, potentially utilizing mechanisms such as green bonds in partnership with Cal FIRE and neighboring jurisdictions.	Phase 1-2	Finance	Identify and obtain funding for wildfire abatement projects
Measure 7	7.2	Conduct an assessment to identify: 1) critical facilities where additional on-site solar installations could be feasible; 2) priority locations for battery storage installation; and 3) feasibility of charging on-site batteries with on-site solar. Complete ROI analysis for solar PV and battery storage using known energy rates to evaluate: the ROI, applicability at specific facilities, and opportunities for rate arbitrage to lower energy costs.	Phase 1-2	Administration, Engineering, Finance	Complete feasibility assessment
Measure 8	8.3	Conduct hardening upgrades to critical MWD assets most vulnerable to damage from landslides and debris flows, based on vulnerability assessment.	Phase 1-2	Engineering	Harden critical MWD assets
Measure 9	9.3	Explore and apply for potential funding opportunities to finance SCADA system upgrades and improvements.	Phase 1-2	Finance	Identify and apply for funding
Extreme Heat O&M	H. O&M.2	Install mixing systems in all storage reservoirs to reduce potential for water quality issues related to warmer water.	Phase 1-2	Water Treatment, Engineering	Installed mixing systems in all storage reservoirs
Landslides O&M	L. O&M.1	Implement slope stabilization measures, including installation of erosion control structures, planting drought and fire-resistant vegetation, and implementing grading and drainage improvements.	Phase 1-2	Engineering	Complete slope stabilization
Measure 5	5.7	For new projects, perform a Climate Vulnerability Analysis and design projects to address those vulnerabilities. Consider incorporating best available climate science and research into technical guidance (Climate Resilience Design Guidelines).	Phase 1-3	Engineering, Administration	Incorporate climate vulnerability analysis for new projects

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 7	7.4	Explore funding opportunities to obtain and install battery storage at critical facilities based on the feasibility study. Identify opportunities through the IRA incentives including Energy Infrastructure Reinvestment Financing and the Solar Investment Tax Credit	Phase 1-3	Finance	Identify and apply for funding
Landslides O&M	L. O&M.5	Retrofit MWD facilities with structural reinforcements, including strengthening foundations, reinforcing retaining walls, and upgrading building materials to withstand the forces associated with landslide events.	Phase 1-3	Engineering	Retrofitted MWD facilities
Wildfire O&M	W. O&M.3	When retrofitting facilities susceptible to wildfire, replace wooden structures (e.g., buildings, roofs, wooden flumes, etc.) with fire-resistant building materials.	Phase 1-3	Engineering	Replacement of wooden structures with fire-resistant building materials
Measure 2	2.3	Utilize saltwater intrusion well data to inform decisions on water supply reliability from groundwater sources. Monitor groundwater wells for chloride and indicators of potential sea water intrusion in coordination with the Montecito GSA. Share information from studies with neighboring water providers.	Phase 2	Water Treatment	Annual well monitoring for saltwater intrusion
Measure 3	3.2	Expand programs to educate customers on water conservation initiatives through workshops and speaking engagements.	Phase 2	Water Conservation, Public Information	Expand water conservation initiatives
Measure 6	6.1	Develop plan for fleet vehicles as they need to be replaced. Consider vehicle function, potential resilience benefit (e.g. power source during power outage), associated costs, available incentives, and ROI from potential fuel and maintenance savings when identifying vehicles for replacement and their EV/ZEV alternatives.	Phase 2	Administration, Water Distribution & Fleet Facilities, Finance	Develop vehicle replacement plan
Measure 6	6.2	Continue monitoring EV/ZEV availability and available rebates to update the vehicle replacement plan annually to purchase best alternative with best ROI for fleet transition.	Phase 2	Administration, Water Distribution & Fleet Facilities	Update replacement plan; track % vehicle replacement
Measure 6	6.3	Based on ZEV assessment, dedicate staff time evaluate and apply for rebates, incentives, and tax credits as applicable to replace vehicles and equipment. This may include tax credits for Qualified Commercial Clean Vehicles (45W) or Clean Vehicle Credit (30D) through the Inflation Reduction Act (IRA), or loans through the Infrastructure State Revolving Fund (ISRF) Loan Program, or incentives for off-road equipment through the Clean Off-Road Equipment Voucher Incentive Project (CORE)	Phase 2	Administration, Water Distribution & Fleet Facilities	Funding, incentives, and rebates identified
Measure 6	6.4	Determine and plan for ZEV infrastructure needs and specific locations. Begin the necessary evaluations (e.g., budgeting, permitting, environmental) for infrastructure installation. Plan should include infrastructure needs for MWD fleet, as well as accounting for future employee and customer use of infrastructure.	Phase 2	Administration, Water Distribution & Fleet Facilities	Install ZEV infrastructure

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 6	6.5	Identify partnerships, such as SCE's Charge Ready Program or other private companies, and rebate or incentive opportunities, such as through LCFS, the California Electric Vehicle Infrastructure Project (CALeVIP) and CALSTART Communities in Charge and Energy Infrastructure Incentives for Zero Emission Commercial Vehicles programs, to plan and fund the installation of ZEV infrastructure at MWD facilities.	Phase 2	Administration, Water Distribution & Fleet Facilities, Finance	Funding and partnership opportunities identified
Measure 6	6.7	Coordinate with Montecito Fire staff to develop a fuel management strategy outlining efforts to decrease diesel usage and to identify alternative low-carbon fuels, such as drop in renewable diesel (R99 or R100) or green hydrogen.	Phase 2	Water Distribution & Fleet Facilities, Finance	Track renewable diesel vs diesel usage
Measure 7	7.3	Based on the feasibility study, aim to install solar PV and battery storage systems to offset grid power by 10% by 2030.	Phase 2	Water Treatment, Engineering	Solar and battery installations
Measure 8	8.1	Conduct a hazard vulnerability assessment of critical assets for landslide and debris flow risks	Phase 2	Engineering, Administration	Complete hazard vulnerability assessment
Measure 8	8.4	Assess the Highline water main in areas of high landslide susceptibility due to extreme slopes and potential for land movement.	Phase 2	Engineering, Water Distribution & Fleet Facilities	Conduct assessment on Highline water mains
Measure 8	8.5	Prioritize replacement consideration of water mains in high-movement land areas.	Phase 2	Engineering, Water Distribution & Fleet Facilities	Replace high-priority water mains in high-movement areas
Measure 8	8.6	Construct barriers around critical facilities vulnerable to debris flows and flooding to prevent inundation	Phase 2	Engineering	Construct barriers at critical facilities
Measure 9	9.2	Based on the assessment, procure field instrumentation hardware to adequately monitor and control all water system processes. Prioritize sensor deployment at key points such as pump stations, reservoirs, distributions mains, and areas prone to pressure fluctuations or water quality issues.	Phase 2	Water Conservation, Finance, Water Treatment	Procure and deploy field instrumentation
Measure 9	9.4	Establish procedures to regularly conduct maintenance of SCADA systems to identify potential improvements and operational efficiencies	Phase 2	Water Conservation, Water Treatment	Maintenance procedure established
Measure 11	11.3	As part of CAAP monitoring, track waste disposal method changes to assess effectiveness of waste reduction method. If waste reduction method does not elicit a 10% or greater change from previous year, reevaluate options from waste assessment to implement additional waste reduction efforts.	Phase 2	Public Information, Administration	Continuous monitoring of waste disposal
Measure 12	12.2	Identify operationally and financially viable electric alternatives or an alternative fuel source (e.g., renewable propane, RNG).	Phase 2	Engineering	ROI analysis for alternatives completed
Measure 12	12.4	Develop and establish guidelines for equipment procurement and replacement that require equipment and appliances acquired by MWD to be electric or the highest level of efficiency available if an electric equipment alternative is determined infeasible. Guidelines should include a process to identify other opportunities for low-carbon alternative stationary equipment if an electric alternative is deemed infeasible (e.g., use of renewable diesel/e-fuel).	Phase 2	Administration	Establish equipment replacement guidelines

Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Extreme Heat O&M	H. O&M.1	Install or upgrade cooling systems for pump stations and electrical equipment to prevent overheating, including fans, ventilation systems, and air conditioning, where feasible.	Phase 2	Water Treatment, Engineering	Installed electrical equipment cooling systems
Extreme Heat O&M	H. O&M.3	Integrate green roofs, permeable pavements, and vegetative buffers around MWD infrastructure facilities to reduce heat island effects, as needed. Where vegetation is planted, ensure it is drought-tolerant and climate-appropriate.	Phase 2	Engineering	Installed green roofs, permeable pavements, and vegetative buffers
Extreme Heat O&M	H. O&M.4	Provide shade structures or install insulation at MWD buildings to reduce demand for cooling.	Phase 2	Engineering	Provided shade structures and installed building insulation
Extreme Heat O&M	H. O&M.5	Use reflective materials for roofs, walls, and surfaces of buildings and enclosures to minimize thermal stress.	Phase 2	Engineering	Added reflective materials for roofs, walls, and surfaces to structures
Extreme Heat O&M	H. O&M.6	Utilize heat-resistant materials in the construction and maintenance of facilities.	Phase 2	Engineering	Retrofitted facilities with heat-resistant material
Landslides O&M	L. O&M.2	Install debris flow barriers or catchment structures to intercept and divert debris flows away from MWD facilities.	Phase 2	Engineering	Installed barriers or catchment structures
Landslides O&M	L. O&M.3	Improve drainage infrastructure around MWD facilities, including installation of drainage channels and culverts to control water flow and prevent erosion.	Phase 2	Engineering	Improved drainage infrastructure
Landslides O&M	L. O&M.4	Implement vegetation management practices to stabilize slopes, including clearing vegetation from landslide-prone areas, planting erosion-resistant species, and maintaining vegetation buffers to prevent soil erosion.	Phase 2	Engineering	Implement vegetation management
Precip., Flooding, and Debris Flow Specific Upgrade	PFD.2	Consider replacement of at-risk pipelines at bridges near the Lilac Drive/Tollis Avenue intersection, Los Alisos Drive and Theatre Lane.	Phase 2	Water Distribution & Fleet Facilities	Pipelines replaced
Sea Level Rise Specific Upgrade	SLR.1	Reinforce or relocate water mains within 100 feet of cliffs or bluffs, including water mains on Channel Drive.	Phase 2-3	Water Distribution & Fleet Facilities, Engineering	Reinforced/relocated water mains
Measure 7	7.1	Implement solar installations on reservoirs included in the ASADRA Reservoir Retrofit and Replacement Program, where feasible.	Phase 3	Water Treatment, Engineering	Solar installations at reservoirs
Measure 8	8.7	Relocate water mains from the upstream side of bridges to the downstream side of bridges to protect from future flooding and debris flows.	Phase 3	Engineering	Relocate water mains from upstream to downstream side of bridges
Measure 8	8.8	Assess all Highline pipeline crossings at creeks and smaller drainages. Bury pipelines where feasible to eliminate possibility of damage due to flooding or debris flows.	Phase 3	Engineering, Water Distribution & Fleet Facilities	Assess Highline pipeline crossings and bury where feasible
Measure 10	10.7	Explore opportunities to employ artificial intelligence (AI) and machine learning (ML) to better optimize treatment processes and to increase energy efficiency.	Phase 3	Engineering, Finance, Water Treatment	Complete feasibility assessment
Measure 12	12.3	Electrify equipment at the time of replacement to reduce natural gas consumption over time in alignment with the MWD Environmental Policy.	Phase 3	Water Treatment, Water Distribution & Fleet Facilities, Engineering	Equipment replaced; natural gas consumption monitored

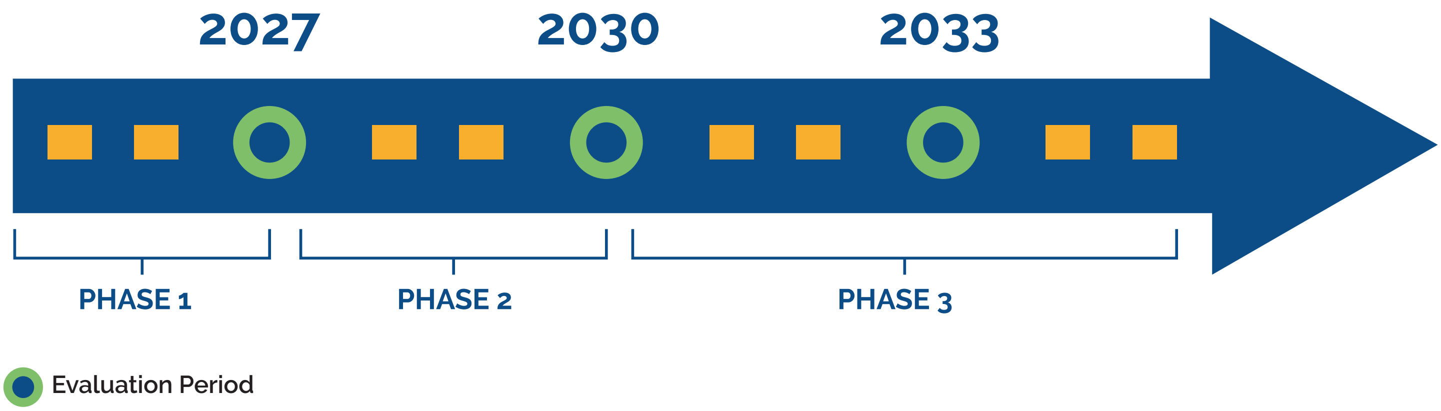
Measure	ID	Action	Phase	Responsible Departments	Implementation Metric
Measure 12	12.5	Pursue rebate, grant, or partnership opportunities to fund and accelerate the replacement of natural gas-consuming equipment like HVAC and hot water heaters with electric-powered equivalents like heat pumps.	Phase 3	Finance	Pursued funding opportunities for eligible projects
Landslides Specific Upgrade	L.2	Consider replacing water mains in high-movement land areas with restrained joint pipelines.	Phase 3	Water Distribution & Fleet Facilities, Engineering	Replace water mains
Precip., Flooding, and Debris Flow O&M	PFD. O&M.1	Elevate pump stations, wells, and electrical equipment above projected flood levels to minimize flood damage.	Phase 3	Water Treatment, Engineering	Equipment elevated
Sea Level Rise O&M	SLR. O&M.1	Elevate critical infrastructure components above projected sea rise hazard zone. This may involve raising structures, installing flood barriers, and reinforcing foundations.	Phase 3	Engineering	Elevated critical infrastructure
Sea Level Rise O&M	SLR. O&M.2	Retrofit coastal MWD infrastructure to withstand the corrosive effects of saltwater, including use of corrosion-resistant materials and, protective coatings to extend the lifespan of infrastructure assets.	Phase 3	Engineering	Retrofit coastal MWD infrastructure

Notes: Precip. = precipitation; O&M = Operation and Maintenance

CAAP MONITORING AND REPORTING ON PROGRESS

The climate action and adaptation planning process is intended to be iterative. As strategies and actions are implemented, it is imperative to assess success by tracking progress over time through tracking metrics such as action completion, cost, operational efficiency, and additional benefits achieved to understand the overall impact of each strategy. If, over time the monitoring of implementation indicates that specific strategies are not achieving the anticipated resilience improvement or operational efficiency, the strategy may have to be revised or replaced to establish a path forward to meet the ultimate goal of carbon neutrality by 2045. Figure 6-1 demonstrates the phased approach of implementation with the set evaluation periods to assess CAAP progress and update strategies as necessary.

Figure 6--1. CAAP Implementation and Monitoring Schedule



MWD CAAP Update Timeline

The General Manager and Assistant General/Engineering Manager will report results on monitoring and implementation of each action to MWD's Board of Directors annually. Every three years, during the evaluation period, an updated inventory shall be prepared and the CAAP measure progress will be reviewed. If, at the evaluation period, progress review indicates that the CAAP is not on track to meet MWD's targets, measures and actions shall be revised as necessary. At the second evaluation period, in 2030, the CAAP should be updated to include a revised assessment of climate change vulnerabilities, a revised GHG emissions forecast, implementation status, and/or revised measures and actions with a focus on the 2045 target year. Technology, State legislation, funding, and operational changes over time may impact the rate of implementation and need for modification of the CAAP measures and actions. Therefore, the General Manager and Assistant General/Engineering Manager will work with responsible department and Department leaders to re-evaluate climate action and adaptation progress and factors influencing implementation. Through the evaluation process, MWD may consider revising measures and actions in future CAAP updates.

Targets will be re-evaluated and assessed on a periodic basis to gauge progress made, address new regulations, and best practices, and evaluate MWD's ability to achieve GHG emissions reduction through the measures and actions outlined in Chapter 5. Additionally, climate change projections and potential impacts should be updated, as part of the Climate Change Vulnerability chapter (Chapter 2), in alignment with best available climate science. Measures and actions should be adjusted as more data and information become available to MWD. They should also be tracked congruently with future State GHG reduction and climate adaptation legislation to ensure alignment.

Monitoring and Reporting Timeline

The CAAP implementation metrics will be monitored on an annual basis to track climate action and adaptation progress. This will be done through integration of the CAAP implementation plan with MWD's existing standard operating procedures for each department and during annual budget review and long-term capital improvement planning (CIP) review. CAAP implementation is intended to occur in coordination with the District's existing planning documents and programs to ensure that scheduling of action implementation algins with Districts overall priorities, both on an annual and long-term basis. As part of the annual review process, the implementation schedule may be adjusted and sequencing of actions may change over time to accommodate the available annual budget, align with other planned District projects or regional projects, or to capitalize on emerging opportunities, such as the release of grant opportunities.

The General Manager and Assistant General/Engineering Manager will prepare an update on the implementation status of the CAAP's Measures (Table 6-1) on an annual basis, starting in 2025. As new technologies become available and new State mandates are adopted, MWD may need to develop new or updated measures and actions. Re-evaluation of the CAAP's measures and actions will occur approximately every three years or more frequently. The General Manager and Assistant General/Engineering Manager will report implementation monitoring results for each action, GHG inventory update results, and CAAP re-evaluation results to MWD Board of Directors every three years.

Montecito
Water District

CLIMATE ACTION & ADAPTATION PLAN

Appendix A: Climate Change Vulnerabilities

Climate Change Exposure

Climate change is a global issue caused by the cumulative warming effects of greenhouse gases (GHGs) on the Earth's atmosphere. Global temperatures have risen in response to the increased levels of anthropogenic emissions like carbon dioxide (CO_2) and methane (CH_4) These anthropogenic emissions are generally the result human activities such as power generation, fossil-fuel dependent industries and the global economy. [1,2] An increasingly growing set of research indicates that climate change has made and will continue to make extreme events, including heat waves, drought, atmospheric river events, and wildfires, more likely, more intense, longer-lasting, or larger in scale.[3] These changes are largely due to an increase in global temperature and changing precipitation patterns, which drive local impacts. The data models that inform this analysis predict that MWD's service area and water supplies are expected to experience a variety of impacts by the end of the century, including changes in precipitation patterns, wildfire risk, the prevalence of extreme heat events, and changing ocean temperatures and chemistry.

To evaluate the impact of climate change on MWD's operations and infrastructure, future climate conditions were modeled using the State of California's Cal-Adapt tool[4] and California's Fourth Climate Change Assessment.[5] These models predict that MWD's service area and water supplies are expected to experience a wide variety of impacts by the end of the century. According to California's Fourth Climate Change Assessment, the service area may be affected by changes in precipitation patterns, wildfire risk, the prevalence of extreme heat events, and changing ocean temperatures and chemistry.

The climate data that informs this analysis are consistent with the Governor's Office of Planning and Research (OPR) recommendation to use Representative Concentration Pathway (RCP) 8.5 as a conservative approach to assessing and adapting to climate change. RCP 8.5 is a high GHG emissions scenario in which global emissions continue to rise through the end of the twenty-first century. Additionally, projections are forecasted to mid-century (2035-2064) and end-of-century (2070-2099) as 30-year averages and are compared to a modeled historical baseline (1961-1990). Climate data from California's 4th Climate Assessment includes global-scale models that have been localized (downscaled) to 3.7-mile by 3.7-mile grids (California Energy Commission [CEC] 2021). Additional climate projections and impact information included in this analysis are consistent with the California Fourth Climate Change Assessment, Central Coast Regional Report[6]. Other reports, including the California Department

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1 United States Global Change Research Program. 2023: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023

2 The National Aeronautics and Space Administration (NASA), The Causes of Climate Change, https://science.nasa.gov/climate-change/causes/ (Accessed April 2024)

3 National Oceanic and Atmospheric Administration. 2020. What is an extreme event? Is there evidence that global warming has caused or contributed to any extreme event? Climate.gov. Retrieved Month Day, Year, from https://www.climate.gov/news-features/climate-qa/what-extreme-event-there-evidence-global-warming-has-caused-or-contributed

4 Cal-Adapt 2.0 is an online tool that presents historic and modeled projections based on 10 different global climate models. The tool was developed and is maintained by the University of California, Berkeley Geospatial Innovation Facility with funding and oversight by the CEC. This tool was used to present projection data related to minimum and maximum temperature, precipitation, extreme heat, warm nights, drought, and wildfire.

5 Bedsworth et al. 2018. California's Fourth Climate Change Assessment. Statewide Summary Report.

6 Langridge et al. 2018. Central Coast Region Report: California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf

of Water Resource's Climate Change Vulnerability Assessment, provide information regarding climate change projections and impacts to the State Water Project and water supplies.

Climate Drivers

Climate drivers are factors or phenomenon that directly or indirectly influence the Earth's climate system and contribute to changes in climate patterns over time. [7] Climate drivers relevant to MWD include temperature and precipitation. Changes in temperature and precipitation can influence and exacerbate climate hazards, as outlined in the following sections.

Temperature

Annual average maximum temperatures are expected to increase in MWD's service area. Compared to the observed baseline (1961-1990), average maximum temperatures in Montecito (District Headquarters) are expected to rise up to by 6.3 °F by the end of the century.[8] Temperature increases influence the potential for more extreme heatwaves, increased ocean temperatures, drought events, and wildfires, as discussed further in this Assessment.

Precipitation

Precipitation in MWD's service area is highly variable from year to year. According to California's Fourth Climate Change Assessment, Central Coast Region Report (2018), atmospheric rivers are the dominant drivers of locally extreme rainfall events. While average annual precipitation totals vary across different climate models aggregated results project small changes in average annual precipitation compared to the region's historic baseline.[9]

Climate models indicate an increase in the variability of weather patterns and an increase in the severity of both wet weather and dry weather patterns. While the overall precipitation levels are anticipated to remain relatively consistent year over year, it is anticipated that the overall number of days with precipitation will decrease though the days during a precipitation period will be wetter. As such, increased intensity of precipitation events is expected for the Santa Barbara County, through the end of the century. Conversely, extremely dry years, characterized by an increase in length of dry periods, are expected to increase in the Central Coast region, potentially doubling or more in frequency by the end of the century.[10]

Regional Climate Hazards

Climate change driven temperature and precipitation changes are expected to influence the severity and frequency of climate hazards. MWD infrastructure, facilities, and water supplies are exposed to climate hazards including drought, wildfire, extreme heat, extreme precipitation events, floods, debris flows, landslides, and sea level rise.

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[7] U.S. Global Change Research Program. 2017. Climate Science Special Report. https://science2017.globalchange.gov/

[8] California Energy Commission (CEC). 2023. Cal-Adapt. https://cal-adapt.org/tools/local-climate-change-snapshot.

[9] Langridge et al. 2018. Central Coast Region Report: California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf

[10] California Energy Commission (CEC). 2023. Cal-Adapt. https://cal-adapt.org/tools/local-climate-change-snapshot.

Extreme Heat

Historically, MWD's service area experiences two extreme heat days per year on average. The number of extreme heat days per year is expected to increase in MWD's service area. In this area, an extreme heat day occurs when the maximum temperature exceeds 87 °F. By the end of the century, the average maximum temperature is projected to be 6.3 degrees warmer than observed historically. the number of extreme heat days per year is expected to increase from two per year to between 8 and 17 days.[11]

Droughts

Droughts are prolonged periods of abnormally low rainfall. The U.S. Drought Monitor characterizes areas within MWD as not experiencing a drought as of March 2024. Drought intensity ranges from None to Exceptional Drought (D4). [12] The drought status of Santa Barbara County for the past 23 years is shown in Figure A-1. In the figure, dark red corresponds to exceptional drought (D4), red corresponds to extreme drought (D3), orange corresponds to severe drought (D2), light orange corresponds to moderate drought (D1), and yellow corresponds to abnormally dry (D0). The county experienced moderate to exceptional drought periods in 2002-2003, 2004-2005, 2007-2010, 2012-2019, and 2021-2023. Water sources from Lake Cachuma and Jameson Lake were particularly unreliable during the drought period of 2012-2016. In the 2015/2016 water year, allocations were reduced to at or near zero. Climate change may increase the likelihood that low-precipitation years will coincide with above-average temperature years. Warming temperatures increase seasonal dryness and the likelihood of drought due to decreased supply of moisture and increased atmospheric demand for moisture as evaporation from bare soils and evapotranspiration from plants increases. Extremely dry years are projected to increase over California's Central Coast region, potentially doubling or more in frequency by the late-twenty-first century.[13] Drought exposure may impact MWD's local and imported sources.

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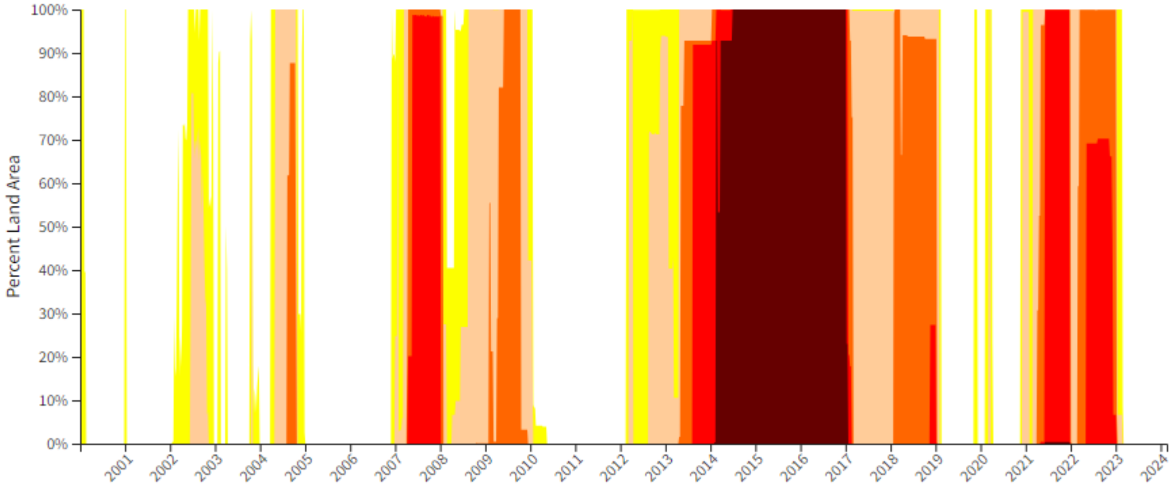
11 California Energy Commission (CEC). 2023. Cal-Adapt. https://cal-adapt.org/tools/local-climate-change-snapshot. Accessed February 2024

12 National Oceanic and Atmospheric Administration. U.S. Drought Monitor. https://www.drought.gov/states/california/county/Santa%20Barbara

13 Langridge et al. 2018. Central Coast Region Report: California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf

Figure A-1. A Recent History of Drought Conditions in Santa Barbara County



Source: U.S. Drought Monitor Santa Barbara County CA. 2024. https://www.drought.gov/states/California/county/Santa%20barbara

Wildfire

Wildfires in California have occurred with increased frequency and intensity over the past two decades. There are many areas in MWD's service area designated by CAL FIRE as High and Very High Fire Hazard Severity Zones, with the greatest risk in the Santa Ynez Mountains. Additionally, many of MWD's critical facilities are in Fire Hazard Severity Zones, as seen in Figure A-2. Critical facilities located in or within a ¼ mile of a fire hazard severity zone are highlighted in the figure.

On December 4, 2017, the Thomas Fire broke out in Santa Barbara County and, due to large amount of flammable vegetation and the influence of Santa Ana winds, spread into MWD's service area. The Thomas Fire burned 100 percent of the watershed above Jameson Lake and destroyed the dam caretaker residence and other MWD maintenance structures. Water supplies at Jameson Lake were contaminated with high concentrations of organics and water was temporarily not available for customers from December 2017 to May 2019.[14] The Thomas Fire footprint and location of MWD critical facilities are shown in Figure A-3.

The MWD service area is projected to experience increasing wildfire risk through the end of the century due to a variety of factors including an increase in temperatures and prevalence of drought conditions. Higher temperatures and drier conditions can accelerate the evaporation of moisture from soil and vegetation, making vegetation more susceptible to ignition and increasing the amount of flammable material. The probability of a wildfire occurring over a span of 10 years is projected to increase from the historical baseline of 20 percent to 30 percent by the end of the century, and average number of burned acres is projected to increase.[15]

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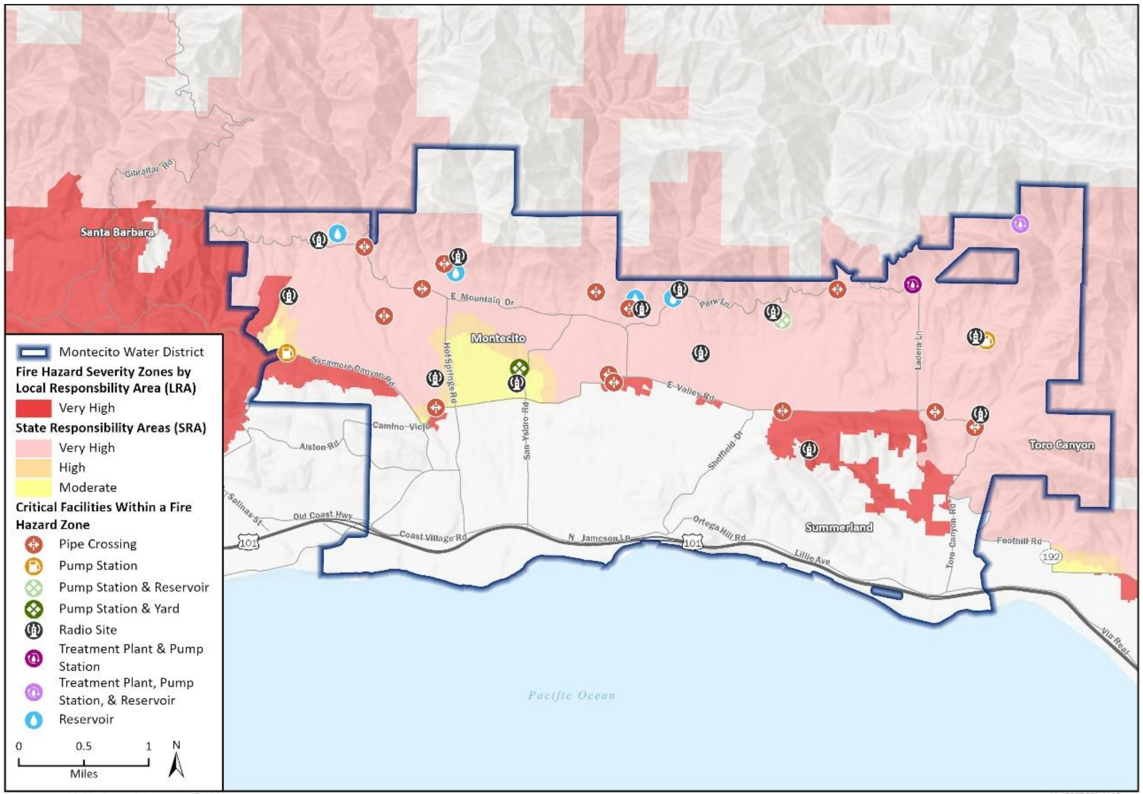
[14] MWD. 2020. UWMP. https://montecitowater.com/doc/7475/

[15] California Energy Commission (CEC). 2023. Cal-Adapt. https://cal-adapt.org/tools/local-climate-change-snapshot.

Figure A-2. Fire Hazard Severity Zones and Critical Facilities



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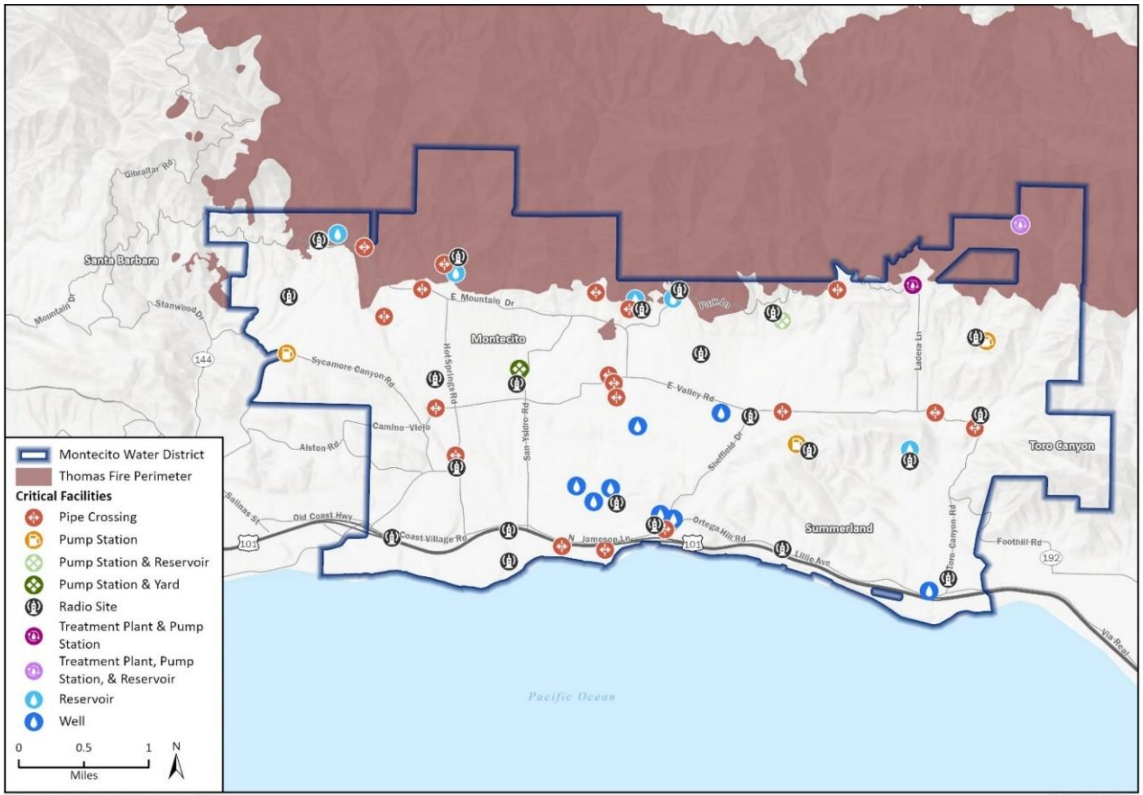
Additional data provided by DWR, Water Districts, 2022; CALFIRE, LRA 2008 & SRA 2024.

23-15187 EPS CAAP.aprx
Fig 2 Fire Hazard Severity Zones and Critical Facilities

Figure A-3. Thomas Fire and Critical Facilities



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Additional data provided by DWR, Water Districts, 2022; CALFIRE, FRAP, 2022.

23-15187 EPS CAAP.aprx
Fig 3 Thomas Fire and Critical Facilities

Extreme Precipitation, Flooding and Debris Flows

Low-lying areas in MWD's service area are expected to experience more frequent flooding because of climate change. Riverine flooding is expected to increase as precipitation extremes increase. Waterways including the San Ysidro Creek and Romero Creek, are particularly susceptible to riverine flooding. Extreme precipitation events often produce large and high velocity flows, which may overwhelm stormwater systems, causing localized flooding. Areas impacted by recent fires are especially prone to debris flow. Debris flow events are particularly dangerous because they often have little warning during severe storm events and are fast moving. Post-wildfire debris flows are likely to occur in burn scar for between 2-5 years after a wildfire, during significant rainfall events.[16]

A month after the Thomas Fire (January 2019), MWD's service area and the surrounding communities experienced a series of mudflows after around 0.5 inches of rain fell within a five-minute period. Rain rates recorded during the event correspond to a 25-50 year event according to the National Oceanic and Atmospheric Administration (NOAA).[17] The extreme precipitation events occurred in the Thomas Fire burn scar, leading to mudflows up to 15 feet high.[18] This caused mud and boulders from the Santa Ynez

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16 U.S. Geological Survey (USGS). 2018. Emergency Assessment of Post-Fire Debris Flow Hazards. https://www.usgs.gov/programs/landslide-hazards/science/emergency-assessment-post-fire-debris-flow-hazards.

17 Scripps Institution of Oceanography at UC San Diego. 2018. Meteorological Conditions Associated with the Deadly 9 January 2018 Debris Flow on the Thomas Fire Burn Area Impacting Montecito, CA: A Preliminary Analysis. https://cw3e.ucsd.edu/meteorological-conditions-associated-with-the-deadly-9-january-2018-debris-flow-on-the-thomas-fire-burn-area-impacting-montecito-ca-a-preliminary-analysis/

18 California Governor's Office of Emergency Services. Montecito Mudslides Anniversary, Reflections Through Images. https://news.caloes.ca.gov/montecito-mudslides-anniversary-reflections-through-images/. Accessed April 2024.

Mountains to flow down creeks and valleys into Montecito, resulting in severe damage to MWD facilities and infrastructure, leading to over 300 leaks in the distribution system through nine transmission pipeline breaks, 15 distribution main breaks, 25 sheared off fire hydrants, and approximately 290 damage service connections.[19]

Climate models project that the frequency of atmospheric river/large storm events may increase in the future. Additionally, the peak season of atmospheric rivers is projected to lengthen, which may extend the flood-hazard season in California Central Coast Region.[20] MWD's service area contains both 100-year and 500-year FEMA floodplains, with several critical facilities located in or near those floodplains, as seen in Figure A-4. Critical facilities located within a ¼ mile of a flood hazard zone are highlighted in Figure A-5.

Figure A-4. FEMA Flood Zones and Critical Facilities

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Additional data provided by DWR, Water Districts, 2022; FEMA, 2021.

23-15187 EPS CAAP.aprx
Fig 4 Flood Zones and Critical Facilities

Sea Level Rise

Global sea levels have been rising over the last century and are projected to continue rising through the 21st century. Sea level rise is primarily driven by thermal expansion caused by the warming of oceans and the addition of freshwater from the melting of land-based ice such as glaciers and polar ice caps.

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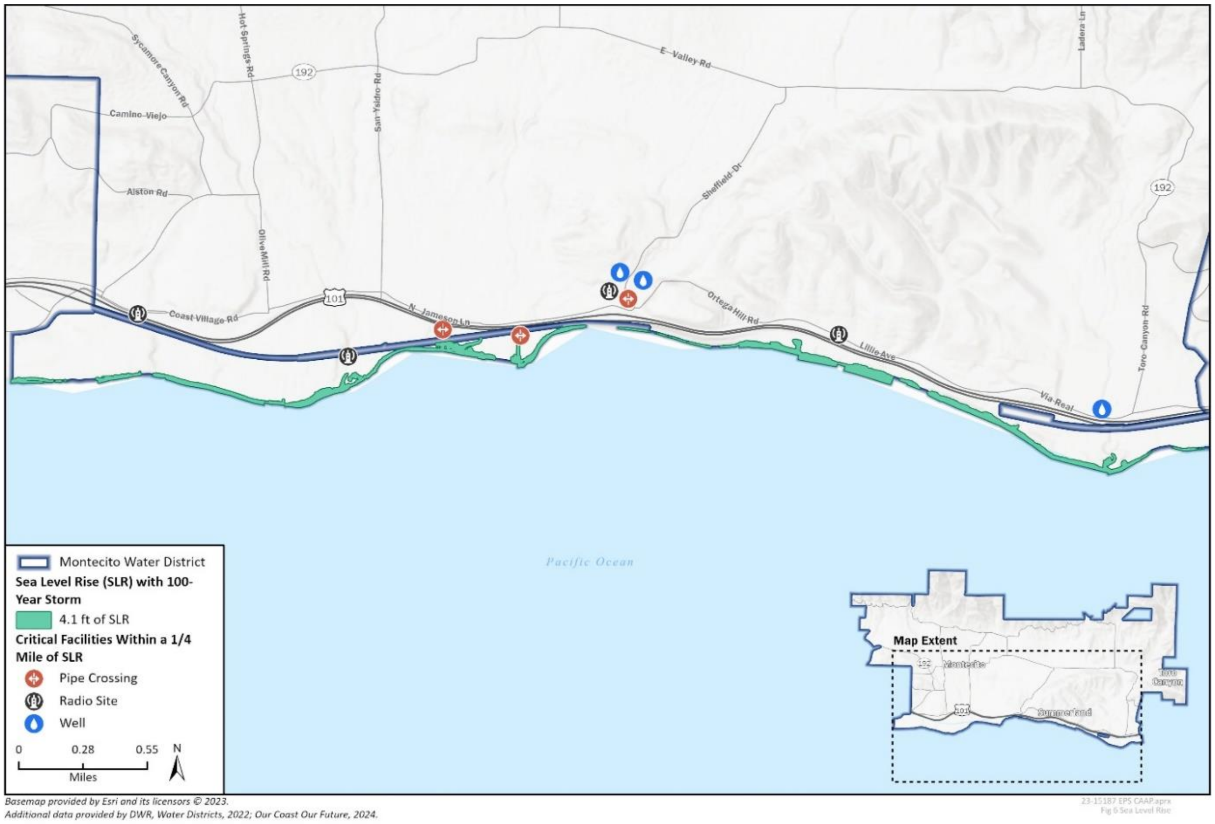
[19] MWD Corrects Facts on January 9 Debris Flow Incidents. 2018. https://montecitowater.com/news/mwd-corrects-facts-on-jan-9-debris-flow-incidents/

[20] Langridge et al. 2018. Central Coast Region Report: California's Fourth Climate Change Assessment. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-006_CentralCoast_ADA.pdf

Sea level rise contributes to increased coastal flooding, more severe and frequent tidal inundation, storm surge inundation, wetland loss, coastal erosion, and shoreline retreat. By 2080, conservative estimates predict that sea levels will rise by 3.8 feet in the Santa Barbara region.[21] To simulate these conditions, the closest sea level rise mapping scenario (4.1 feet predicted by CoSMoS) was used to visualize potential impacts to MWD's service area, as seen in Figure 3-4.[22] Though MWD's service area will be affected by these events, a majority of MWD's critical facilities will not be vulnerable to changes in sea level due to sharp jumps in elevation along the coast. None of MWD's critical facilities fall within the sea level rise hazard zone, so a ¼ mile buffer was applied in Figure 3-4 to capture adjacent facilities.

MWD contracts with the City of Santa Barbara's Charles E. Meyer Desalination Plant (Desalination Plant) to receive 1,430 AF of local drought-proof potable water annually. The Desalination Plant is located north of the El Estero Water Resource Center and is not likely to be exposed to increased hazards by 2.5 feet of sea-level rise but is projected to be exposed to tidal inundation and storm flooding by 6.6 feet of sea-level rise.[23] Sea level rise may also trigger saltwater intrusion into coastal aquifers. Saltwater intrusion from sea level rise may impact MWD's groundwater wells in the future.

Figure A-5. Sea Level Rise and Critical Facilities



Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; Our Coast Our Future, 2024.

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[21] Ocean Protection Council. 2024. DRAFT State of California Sea Level Rise Guidance. https://opc.ca.gov/wp-content/uploads/2024/01/SLR-Guidance-DRAFT-Jan-2024-508.pdf (Accessed May 2024)

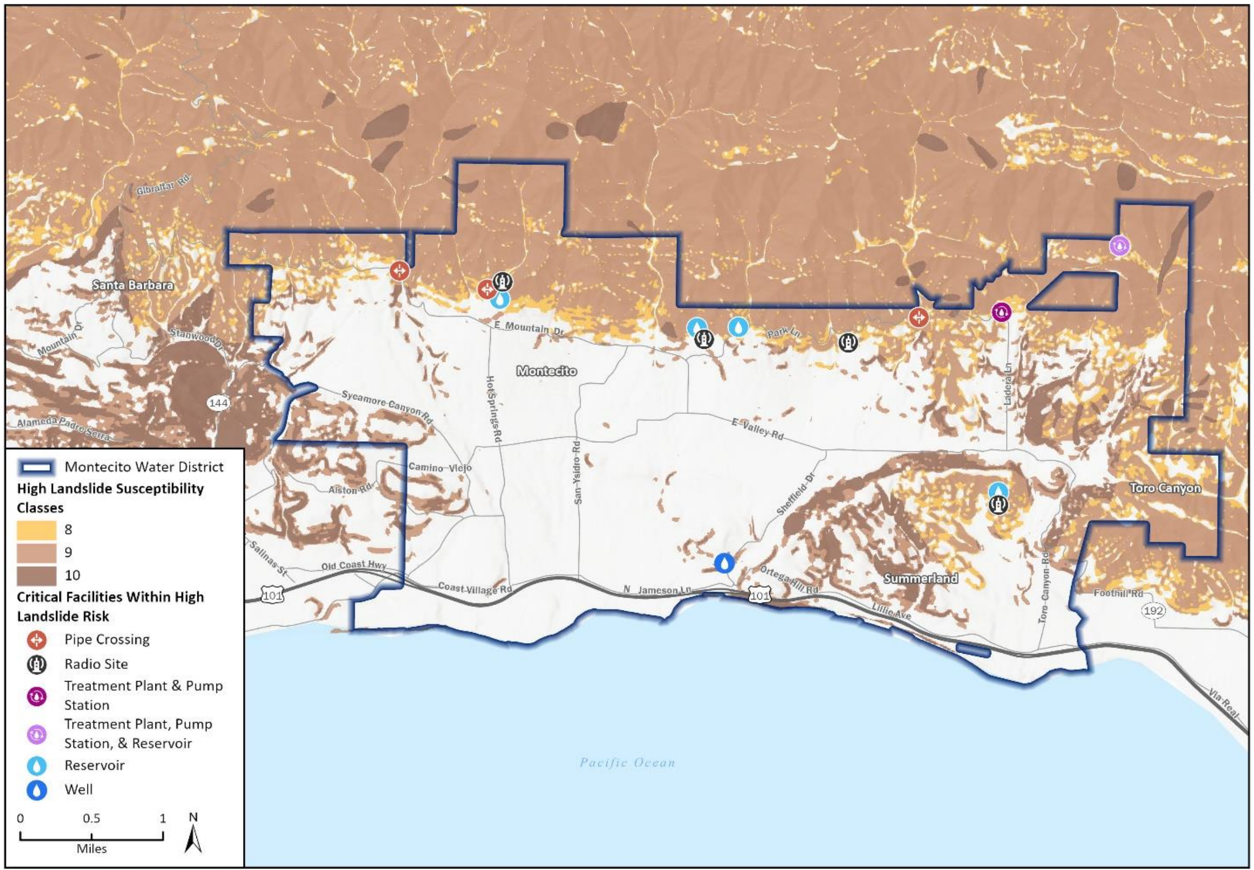
[22] CoSMos. Our Coast Our Future. Hazard Map Scenarios. https://ourcoastourfuture.org/hazard-map/ (Accessed May 2024)

[23] City of Santa Barbara. 2021. Sea-Level Rise Adaptation Plan. https://santabarbaraca.gov/sites/default/files/documents/Services/SLR%20Adaptation%20Plan/Sea-Level%20Rise%20Executive%20Summary.pdf

Landslides

Landslide susceptibility is typically highest in areas with unstable soils, weak rocks, and steep slopes. Landslide susceptibility in MWD's service area is based on a range from 1 to 10, with 10 being the highest susceptibility. As seen in Figure A-6, susceptibility levels of 8 to 10, are common throughout MWD's service area, particularly in the Montecito Hills, Summerland, and Toro Canyon. Critical facilities located within a high landslide susceptibility area are highlighted in the figure. Increased frequency and intensity of extreme precipitation events and wildfires may contribute to increased landslide susceptibility in MWD's service area.

Figure A-6. Landslide Susceptibility Areas and Critical Facilities



Basemap provided by Esri and its licensors © 2023.
Additional data provided by DWR, Water Districts, 2022; CGS, Map Sheet 58, 2018.

23-15187 EPS CAAP.aprx
Fig 5 Landslide Susceptibility and Critical Facilities

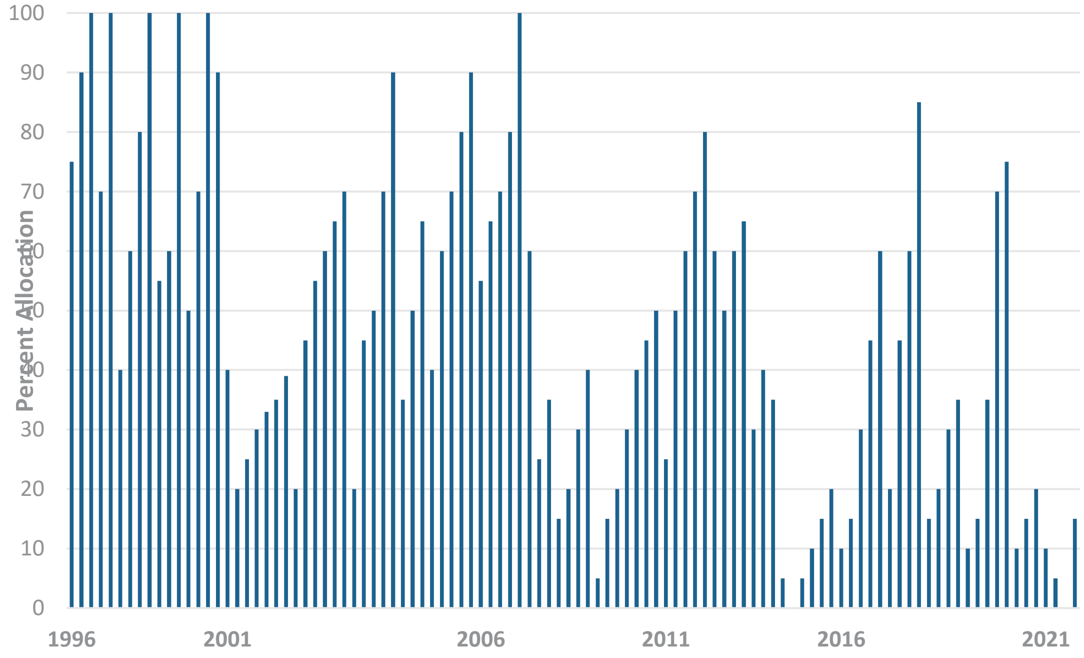
State Water Project and California Department of Water Resources Climate Hazards

MWD obtains its water supplies from multiple sources, including the State Water Project (SWP). MWD receives water allocations from the SWP, a state water management project supervised by the California Department of Water Resources (DWR). The District signed a contract for long-term water storage of SWP supplies at Semitropic Groundwater Banks in the Central Valley, to bank SWP water for future use.

Through the twenty-first century, there is expected to be increased evaporation, less snowfall, and increased consumption of water by soil, vegetation, and the atmosphere itself.[24] Over the past 40 years, there has been a clear downward trend in SWP (Table A) allocations, as seen in Figure A-7. In this context, imported water supply from the SWP is likely to be significantly impacted by climate change through the end of century as currently configured. Several key reasons for SWP impacts include higher temperatures and shorter winters leading to reduction in Sierra Nevada and Colorado River Basin snowpack volume and increased evapotranspiration of watersheds from heightened temperatures.

The Sierra snowpack supplies about 30 percent of California's water needs, on average. [25]Smaller snowpack results in decreased flows in the Feather River Watershed and greatly impacts SWP sourced water, which is designed to capture and store winter and spring runoff to prevent downstream flooding and deliver stored water during summer and fall months when it is needed. However, a diminished snowpack would result in larger volumes of runoff entering reservoirs during the winter and early spring and less runoff arriving in late spring and early summer, when it is needed. A reduced snowpack from increased temperatures also creates less retainable water and more surface water flowing to the ocean. This would lead to higher downstream flow during flood events and reduced late summer storage levels. Climate change is projected to bring about longer and more frequent periods of drought for the entire region. This prolonged drought occurrence may further impact MWD as SWP allocations are likely to be reduced during such periods. These factors collectively pose significant challenges for SWP water management and availability in the state.

Figure A-7. State Water Project Table A Allocations



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24 California Natural Resources Agency et al. 2022. California's Water Supply Strategy: Adapting to a Hotter, Drier Future. https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Water-Resilience/CA-Water-Supply-Strategy.pdf.

25 DWR. 2024. March Snow Survey Shows Improvement for Sierra Snowpack. https://water.ca.gov/News/News-Releases/2024/Feb-24/March-Snow-Survey-Shows-Improvement-for-Sierra-Snowpack#:~:text=On%20average%2C%20the%20Sierra%20snowpack,as%20California%27s%20%E2%80%9Cfrozen%20reservoir.%E2%80%9D

DWR infrastructure is also exposed to various climate hazards that may have downstream impacts on MWD. With anticipated climate hazards, DWR faces an elevated exposure to increased short-term extreme hydrologic events. Several critical DWR facilities are particularly susceptible to flood hazards, potentially affecting SWP deliveries and overall operational continuity. Due to MWD's reliance on the SWP, DWR's management of the SWP during climate extremes could significantly impact MWD's services and operations.

Furthermore, certain assets owned and managed by DWR are situated in wildfire hazard areas, making them vulnerable to damage or disruption. All DWR locations are projected to experience more extreme heat days and higher average maximum temperatures due to climate change. Sea level rise is projected to increase the Sacramento-San Joaquin Delta's salinity, requiring extra Delta outflow to dilute the increasingly brackish Delta water to meet environmental standards. The extra Delta outflow comes at a cost of reducing Delta exports, meaning less water is available for distribution through the California Aqueduct to water suppliers and users located south of the Delta, including MWD. This scenario poses a challenge for SWP water availability and management in the region, impacting various communities and water-related operations.[26]

Climate Change Impacts

Climate Change Impacts in the Service Area

The vulnerability of MWD's critical facilities is increasing as climate extremes are becoming more severe and frequent. Critical facilities, assets, and infrastructure have been designed based on historical climate conditions. Therefore, vulnerabilities will increase as the historic record is no longer a suitable basis for design standards. Critical facilities that are sensitive to the different types of climate hazards include pump stations, treatment facilities, MWD Headquarters, Jameson Lake, and other buildings and assets associated with the potable water system. Pipe creek and bridge crossings are also considered critical facilities as they often are particularly vulnerable.

MWD, with support from a consultant team, hosted a Climate Action and Adaptation Plan Strategy Workshop in February 2024 to assess climate risks to water sources and operations. As part of the workshop, a climate risk matrix was developed to assign a numerical risk score for each water system and water source based on each climate exposure. The matrix ranked each water system and water source from 1 to 7, with 1 indicating a system/source less impacted by a certain climate risk and 7 indicating a system most impacted by a certain climate risk. MWD systems and water sources included in the matrix are seen below:

- Water Source
    - Imported Water (SWP)
    - Desalinated Water Supply
    - Reservoirs/Lakes
    - Groundwater Wells

1. Operations
    - Distribution System
    - Treatment Plants

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[26] California Department of Water Resources. 2019. Climate Action Plan, Phase 3: Climate Change Vulnerability Assessment. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-III-Vulnerability-Assessment.pdf.

- Local Catchment
- Potable Use/Demand
- Facilities and Operations

Impacts from the following climate hazards will require increased resources and/or staffing to manage operational changes associated with climate change.

Extreme Heat

Various infrastructure, equipment, and resources can be damaged, strained, or diminished during extreme heat events. Staff ranked desalinated water supply, reservoirs/lakes, local catchment, potable use/demand, and facilities and operations at high to moderate risk to extreme heat, as seen in Table A-1. As average maximum temperatures and extreme heat days, both in MWD's service area and throughout California, are projected to increase throughout the century, evaporation of imported water and local water sources (i.e., Jameson Lake) is expected to increase. This may lead to or exacerbate future water scarcity issues.[27] Extreme heat and increased average maximum temperatures can lead to harmful algal blooms which can contaminate water supplies and require increased water treatment capacities.[28] Additionally, certain types of algal blooms produce dangerous toxins that can sicken people and wildlife. The overgrowth of algae consumes oxygen and blocks sunlight from underwater plants, potentially leading to the die off of aquatic life, increased bacteria, and degraded water quality.[29]

Table A-1 Extreme Heat – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score
Water Source	Desalinated Water Supply	3
	Reservoirs/Lakes	5
	Imported Water (SWP)	1
	Groundwater Wells	1
Operations	Local Catchment	5
	Potable Use/Demand	5
	Facilities and Operations	5
	Treatment Plants	3
	Distribution System	N/A

Additionally, the ambient operating temperature within which the equipment operates is a significant factor in the equipment's lifespan. High ambient operating temperatures may lead to a reduction of the lifespan for motors and related equipment within MWD. MWD may face increased costs associated with the additional cooling required for certain facilities and assets.[30] During an extreme heat event, electricity utilities may turn off power in a PSPS in order to mitigate wildfire risk. If a PSPS event lasts

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27 Friedrich et al. 2018. Reservoir Evaporation in the Western Unites States: Current Science, Challenges, and Future Needs. https://journals.ametsoc.org/view/journals/bams/99/1/bams-d-15-00224.1.xml.

28 EPA. 2013. Impacts of Climate Change on the Occurrence of Harmful Algal Blooms. https://www.epa.gov/sites/default/files/documents/climatehabs.pdf

29 EPA. The Effects: Dead Zones and Harmful Algal Blooms. https://www.epa.gov/nutrientpollution/effects-dead-zones-and-harmful-algal-blooms#:~:text=Dead%20zones%20are%20areas%20of,excess%20nutrients%20from%20upstream%20sources.

30 Water Utility Climate Alliance and Association of Metropolitan Water Agencies. 2020. It's Hot and Getting Hotter: Implications of Extreme Heat on Water Utility Staff and Infrastructure, and Ideas for Adapting. https://www.amwa.net/system/files/linked-files/Heat%20Impacts%20copy.pdf

several days and involves the entire grid serving MWD's systems, service continuity may be disrupted, and service disruptions may result to some or all customers. Future extreme heat events may pose significant health risk to MWD employees and customers who may suffer from heat stroke, heat exhaustion, or dehydration. Extreme heat may also lead to vegetation die-off, which can exacerbate wildfire risk in areas surrounding MWD facilities.

Drought

MWD staff ranked imported water, reservoirs/lakes, groundwater wells, local catchment, and potable use/demand at high risk to drought impacts, as seen in Table A-2. Warming temperatures combined with more frequent dry years will exacerbate drought impacts. Drought can lead to vegetation stress and die-off, which may exacerbate wildfire risk in MWD's service area. Extended drought conditions may lead to a loss of District revenue and increased water rates or water restrictions. Drought can also impact the reliability of local water resources. MWD sources a small percentage of groundwater supplies from the Montecito Groundwater Basin.[31] During periods of drought, local groundwater sources may run dry if there is not enough consistent reliable recharge from precipitation. Drought conditions may also have impacts to water stored in Jameson Lake and Cachuma Lake, which store potable water for MWD. Specific drought impacts to imported water supplies are discussed below in the Climate Change Impacts to Imported Potable Water Supplies section.

Table A-2 Drought – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score
Water Source	Imported Water (SWP)	7
	Reservoirs/Lakes	7
	Groundwater Wells	7
	Desalinated Water Supply	N/A
Operations	Potable Use/Demand	7
	Local Catchment	6
	Facilities and Operations	3
	Treatment Plants	2
	Distribution System	N/A

Wildfire

Staff ranked the reservoirs/lakes, distribution system, treatment plants, local catchment as high risk to wildfire impacts, as shown in Table A-3. These facilities are located in CAL FIRE Moderate, High, or Very High Fire Hazard Severity Zones and are susceptible to impacts from wildfire. During the recent Thomas Fire, MWD suffered damage to Juncal Dam structures, water quality impacts to Jameson Lake, and damage to surrounding property. [32]

Table A-3 Wildfire – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score

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[31] MWD. 2020. Urban Water Management Plan. https://montecitowater.com/doc/7475/

[32] MWD 2017 Thomas Wildfire and 2018 Montecito Debris Flow Claims. 2019. https://montecitowater.com/news/montecito-water-district-announces-8-million-settlement-with-southern-california-edison-for-2017-thomas-wildfire-and-2018-montecito-debris-flow-claims/

Water Source	Reservoirs/Lakes	6
	Imported Water (SWP)	5
	Desalinated Water Supply	5
	Groundwater Wells	5
Operations	Distribution System	7
	Treatment Plants	7
	Local Catchment	7
	Potable Use/Demand	6
	Facilities and Operations	4

Wildfire can create risk of injury or death, damage to properties, critical facilities, and infrastructure, and need for evacuation. It can also trigger cascading impacts and hazards of worsened air quality, debris flows, power outages and other service disruptions. During a wildfire event, private water pipes in MWD's service areas, both underground and above-ground, may burn due to the heat from a wildfire. This challenge will particularly affect areas where homes are lacking backflow devices, which would typically prevent contamination of the main water supply if in place. This may lead to contaminated drinking water which may threaten local public health and disrupt the District's service continuity. Wildfire may threaten the safety of MWD employees and customers and impede access to assets in need of repair or maintenance. Water supply availability may be disturbed if MWD water supplies are prioritized for fire suppression. Additionally, sedimentation rates may increase in Jameson Lake and/or Cachuma Lake if there is a large and/or frequent wildfire events in the area surrounding either lake. Recent research conducted by the United States Geological Survey, shows that an increase in magnitude and frequency of wildfires is expected to double the rates of sedimentation in one-third of the West's large watersheds, reducing reservoir storage and affecting water supplies. Increased sedimentation can result in lost reservoir storage and decrease water quality. MWD may face additional challenges treating water from Jameson Lake if it is contaminated with ash, organic material and sediments created by active burning.[33]

Utility providers may temporarily shut off power to MWD's service areas when wildfire risk is particularly high; this is referred to as a Public Safety Power Shutoff (PSPS). If a PSPS event lasts several days (beyond the capacity of MWD's generators) and involves the entire grid serving the District's water systems, service continuity may be disrupted, and staff may not be able to provide customers with water. Wildfire can also lead to smoke and associated air toxins which can lead to worsening air quality, creating or exacerbating respiratory issues for sensitive customers and employees and impact indoor areas without adequate air filtration systems.

Extreme Precipitation

MWD staff ranked the facilities and operations at high risk to extreme precipitation impacts, as seen in Table A-4. During extreme precipitation events, power conveyance and distribution infrastructure can be damaged by wind and heavy rain which may cause service disruptions. Electrical equipment, operational, and administrative assets can be vulnerable if exposed to water damage. During heavy precipitation events, localized flooding may occur if storm-drain infrastructure or waterways in MWD's service area becomes overwhelmed. Heavy rainfall may increase pollutant runoff and sedimentation into Jameson Lake and other potable water sources, including Cachuma Lake. Contaminated runoff and

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[33] Bland. 2017. The West's Wildfires Are Taking a Toll on Reservoirs. https://static1.squarespace.com/static/55dc9bade4b05820bf02d414/t/5a149cfe53450a59dc531297/1511300351736/Watershed1%28NewsDeeply%29.pdf.

sedimentation may require extra treatment capacities which may increase costs to MWD.[34] Increased precipitation may lead to greater flows into Jameson Lake and local waterways which may increase turbidity, contamination, and erosion.

Table A-4 Extreme Precipitation – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score
Water Source	Reservoirs/Lakes	4
	Groundwater Wells	4
	Imported Water (SWP)	3
	Desalinated Water Supply	3
Operations	Facilities and Operations	6
	Treatment Plants	5
	Distribution System	4
	Potable Use/Demand	4
	Local Catchment	3

Flood & Debris Flow

MWD staff ranked the distribution system and facilities and operations at high risk to flooding and debris flow impacts, as seen in Table A-5. Localized flooding may damage or inundate properties, structures, infrastructure, and other assets. It may also close streets and inhibit mobility of certain locations. Heavy rainfall, especially in a short period, can trigger debris flows by saturating soil and causing rapid runoff. Debris flows and flooding can damage water infrastructure, including pipelines, treatment facilities, and reservoirs. This damage can disrupt the water supply to customers, leading to potential service disruptions. The January 9, 20218 debris flow in Montecito disrupted water deliveries to all customers for 17 days except for the community of Summerland whose water system is separated from the rest of the MWD system. Water service was restored to nearly all customers on January 26, 2018. Debris flows and flooding can introduce sediment, pollutants, and other contaminants into water sources, affecting water quality and requiring additional treatment. Debris flows and flooding can hinder the operation and maintenance of water infrastructure, requiring significant resources for cleanup and repairs. MWD and the surrounding area experienced severe debris flows following the Thomas Fire which lead to widespread infrastructure damage at major creek crossings, highway crossings, and mud flow areas.

Table A-5 Flood and Debris Flow – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score
Water Source	Reservoirs/Lakes	4
	Groundwater Wells	4
	Imported Water (SWP)	2
	Desalinated Water Supply	2
Operations	Facilities and Operations	7
	Distribution System	6
	Treatment Plants	4

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[34] EPA. 2023. Climate Adaptation and Source Water Impacts. https://www.epa.gov/arc-x/climate-adaptation-and-source-water-impacts

	Local Catchment	4
	Potable Use/Demand	3

Sea Level Rise

MWD staff ranked imported water, desalinated water supply, and groundwater wells as high risk to sea level rise, as seen in Table A-6. As sea levels rise, daily tides along Santa Barbara County's coastline heighten and threaten assets and structures. The Desalination Plant, located near the City of Santa Barbara's coastline, is exposed to tidal inundation and storm flooding by 6.6 feet of sea-level rise. This may lead to the inundation of infrastructure or assets at the Desalination Plant which may lead to physical damage and/or disruption of operations. Though the Desalination Plant is not owned by MWD, tidal inundation and stormwater flooding impacts may cause water supply disruptions to MWD, potentially leading to downstream water service impacts. MWD's groundwater wells may be impacted by saltwater intrusion triggered by sea level rise. This may lead to water contamination and increased water treatment costs. [35] Sea level rise impacts can be compounded by drought as there may be an increase in the extraction of groundwater, which can lead to land subsidence.

Table A-6 Sea Level Rise – Climate Risk Matrix Scoring

System	Sub-System	Climate Risk Score
Water Source	Desalinated Water Supply	7
	Imported Water (SWP)	6
	Groundwater Wells	6
	Reservoirs/Lakes	N/A
Operations	Distribution System	3
	Treatment Plants	N/A
	Local Catchment	N/A
	Potable Use/Demand	N/A
	Facilities and Operations	N/A

Landslide

MWD staff ranked the distribution system and treatment plants at high risk to landslides, as seen in Table A-7. Landslides may damage critical facilities, structures, and infrastructure. This can cause service disruptions, impact community members, and isolate certain areas if roadways are compromised. Landslides can directly damage buildings and facilities by disrupting structural foundations either by deforming the ground on which an asset is located or by physically impacting an asset. Facilities and infrastructure in and up against the Santa Ynez Mountains, including the Doulton Water Treatment Plant, pump station and reservoir, are particularly susceptible to landslides. Landslides may increase sedimentation in potable water sources, such as Jameson, which may lead to lost storage and water quality impacts.

Table A-7 Landslide – Climate Risk Matrix Scoring

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[35] City of Santa Barbara. 2021. Sea Level-Rise Adaptation Plan. https://santabarbaraca.gov/sites/default/files/documents/Services/SLR%20Adaptation%20Plan/Sea-Level%20Rise%20Executive%20Summary.pdf

System	Sub-System	Climate Risk Score
Water Source	Imported Water (SWP)	4
	Desalinated Water Supply	4
	Groundwater Wells	4
	Reservoirs/Lakes	3
Operations	Treatment Plants	6
	Distribution System	5
	Local Catchment	2
	Facilities and Operations	2
	Potable Use/Demand	N/A

Climate Change Impacts to Imported Potable Water Supply

Long-term persistent hydrologic changes in California, including increases in the frequency, duration, and severity of dry periods and earlier Sierra Nevada snowmelt-based runoff, may significantly impact the operations of the SWP. Hydrologic changes can affect water quantity and quality, and therefore the ecosystems supported by the Sierra Nevada watersheds SWP relies on. Recent DWR analysis predicts that SWP delivery performance is at risk of climate change and will most likely have reduced reliability and lower annual allocations in the future. While MWD has diversified its water supplies over the past several years, such as contracting with the City of Santa Barbara for desalinated water supplies starting in 2022, decreases in future SWP allocations may lead to significant water shortages and loss of revenue for MWD. Wildfire, flooding, and landslides in the Sierra Nevada's or in other areas adjacent to SWP infrastructure and supplies, may lead to water quality impacts (i.e. from ash, contaminants, or sediments), which may have downstream impacts to imported water supplies. Severe flooding, extreme storms, and wildfire events may physically damage infrastructure, potentially disrupting SWP services statewide, including those to MWD.[36]

Problem Statements and Gaps Assessment

The following problem statements were developed for climate hazard and system/water source pairings that scored the highest in the climate risk matrix exercise. Each problem statement is a concise description of a climate change challenge or issue that MWD will need to address. The problem statements are designed to enable MWD to implement needed interventions effectively and with the greatest impact. Table A-8 shows the climate hazard and system/water source pairings, problem statements, relevant planning documents, and gaps/needs.

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[36] California Department of Water Resources (DWR). 2019. Climate Action Plan, Phase 3: Climate Change Vulnerability Assessment. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAP-III-Vulnerability-Assessment.pdf.

Table A-8 Problem Statements and Gap Assessment

Climate Hazard and System/Water Source Pairing	Problem Statement	Gaps/Needs
Drought Risk to Water Resources	There has been an increase in variability of SWP deliveries, accompanied by a rise in consecutive low SWP delivery allocation years. Local and regional surface water sources, including Jameson Lake, Fox, and Alder Creeks diversions, and Cachuma Lake, are expected to face increased variability of precipitation and potential reduced diversion capacities to MWD. The Montecito Groundwater Basin reached its lowest historical level during the 2012-2016 drought. Future prolonged drought conditions may further limit MWD's annual deliveries from SWP and access to local water sources, necessitating alternate sources of supply to mitigate a potential decline of supplies.	• Update existing studies modeling climate change trends related to MWD's water sources and potential future impacts from drought. • Identify additional storage capacity and opportunities for increase diversification of water sources to reduce dependency on water sources with highest drought risk. • Investigate additional opportunities for water banking to buffer against low delivery years and prolonged drought conditions. • Consider developing a drought contingency plan that integrates climate change projections. • Continue coordination with the Montecito Groundwater Sustainability Agency to monitor basin conditions. • Continue investing in water conservation measures and community education as described in the 2021 *Water Use Efficiency Plan*
Wildfire Risk to Water Sources	Wildfires can significantly impact MWD's water supplies, affecting both quality and quantity. They heighten the risk of soil erosion and sedimentation in watershed areas and reservoirs, leading to degradation of water quality. Additionally, pollutants like heavy metals and ash can be introduced into MWD's water sources through runoff. Moreover, wildfires can diminish water availability by disrupting hydrological processes and necessitating the use of water supplies for firefighting efforts. -	• Consider opportunities to collaborate with neighboring wildfire management agencies, U.S. Forest Service, and local governments to implement proactive measures to reduce the risk of wildfires in watersheds. • Investigate opportunities for fuel reduction projects, vegetation management, prescribed burns, and establishment of defensible space around critical infrastructure and facilities. • Explore Supervisory Control and Data Acquisition (SCADA) improvements to detect damage related to wildfire such as leaks or system malfunctions to protect the reliability of water system and improve response times. • Track regulatory changes related to water quality as emerging contaminants are added.

Wildfire Risk to Operations	MWD's potable water supply infrastructure, including treatment plants, pump stations, and storage facilities, are located within CAL FIRE's high and very high fire hazard severity zones and faces high wildfire risk. These critical facilities will experience heightened wildfire risk in the future due to changing climate conditioning including increased temperatures and prevalence of drought conditions. Already, MWD has experienced significant infrastructure damage and operational disruptions associated with the Thomas Fire (December 2017). Wildfires may damage critical facilities, injure MWD staff, trigger power outages, and consequently result in service disruptions.	• Identify infrastructure and facilities that are at high-risk wildfire and develop a robust wildfire hardening program. • Develop additional capacity for advanced treatment methods, considering operational changes based on impacts from the Thomas Fire. • Explore opportunities to develop a renewable microgrid to provide resilient and reliable power supply during power outages. • Identify prepositioned resources and on call contracts to provide firefighting and emergency services to mitigate disruptions from hazards. • Maintain Emergency Response Plan and procedures
Sea Level Rise Risk to Water Source	MWD's imported and desalination water supplies are projected to be at increased risk from sea level rise. Saltwater intrusion into SWP's freshwater sources poses threats to water quality and reliability, with potential downstream impacts on MWD's allocations. Coastal hazards associated with sea level rise may damage the City of Santa Barbara's Desalination Plant or the State Water Project, potentially impacting water supply reliability for MWD, and making direct adaptation improvements challenging to implement.	• Coordinate with the City of Santa Barba to identify procedures to mitigate supply disruptions at the Desalination Plant associated with sea level rise, tidal inundation, and coastal storm impacts. • • Continue coordination with the Montecito Groundwater Sustainability Agency to monitor sea water intrusion risk areas
Extreme Heat Risk to Operations	MWD is projected to encounter more frequent and intense extreme heat events. During these periods, water demand may surge, straining MWD's operational capacity and potentially resulting in supply shortages. Additionally, extreme heat events can trigger equipment failures, power outages, and water quality issues. Moreover, these conditions pose health and safety risks to MWD staff involved in field operations, maintenance, and repairs.	• Identify energy resilience and back-up power options including battery storage and generators (using biofuels) at critical facilities. • Maintain heat stress prevention measures to protect MWD staff working in field operations, maintenance, and repairs during extreme events. • Increase water storage levels in reservoirs for surges in demand during extreme heat events • Conduct a study to assess the susceptibility of equipment to extreme heat risk. Account for future case scenarios and cascading impacts (e.g., algal blooms and bacteria growth) • Continue public education and outreach during extreme heat events.
Drought Risk to Operations	Extended drought conditions may result in reduced water availability and supply shortages, potentially leading to revenue loss if MWD lacks sufficient water supplies to meet customer demand. Prolonged	• Consider increasing the percentage of fixed costs allocation during the next 5-year cost of service study.

	drought periods can also drive-up water demand as customers attempt to offset diminished natural water availability by increasing irrigation or consumption.	• Consider implementing tiered pricing structure during periods of decreased water availability and heightened demand. • Continue coordination with the Montecito Groundwater Sustainability Agency to monitor private groundwater well usage during droughts. • Consider implementation of parcel water budgets to provide parcel specific water use targets and apply a drought factor to lower water use during drought periods. • Explore additional demand management measures included in the 2021 *Water Use Efficiency Plan*
Extreme Precipitation/Flood Risk to Operations	MWD faces significant risk from extreme precipitation, particularly during atmospheric river events. MWD is projected to experience more frequent and intense precipitation events, potentially overwhelming systems and resulting in rapid runoff, which can trigger flash floods. Such events may cause infrastructure damage, water supply contamination, service disruptions, and safety hazards for employees.	• Coordinate with the County of Santa Barbara to increase capacity of stormwater drainage channels and implement natural and engineered solutions such as green infrastructure and floodplain restoration to manage excess runoff. • Develop planning efforts and allocate budget for the hardening of infrastructure most susceptible to flood impacts. • Consider relocating facilities within the floodplain
Debris Flow Risk to Operations	Debris flow risk to MWD's operations is a significant concern due to the area's susceptibility to, and history of, flash floods and mudslides, especially following wildfires. Post-fire flooding and debris flow can transport sediments and contaminants into water sources, causing damage to infrastructure and compromising water quality. Impacts to MWD's facilities and water supplies can result in service disruptions and revenue loss.	• Develop protocols to document debris flow risk management efforts and emergency response procedures, as learned through the 2018 Montecito debris flow event. • Incorporate climate change projections and risks into the capital improvement program. • Improve monitoring (SCADA) in high-risk areas. • Develop planning efforts and allocate budget for the hardening of infrastructure most susceptible to debris flow impacts.

Appendix G

Water Shortage Contingency Plan

2025 Water Shortage Contingency Plan

prepared by

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May **2026**

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Acronyms and Abbreviations

Below is the full list of acronyms and abbreviations used in the Water Shortage Contingency Plan.

AWSDA	Annual Water Supply and Demand Assessment
AWWA	American Water Works Association
CWC	California Water Code
DMMs	Demand Management Measures
DWR	California Department of Water Resources
SWP	State Water Project
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan
WUEP	Water Use Efficiency Plan

1 Introduction

This Water Shortage Contingency Plan (WSCP) describes how the Montecito Water District (District) intends to predict and respond to foreseeable and unforeseeable water shortages, which may occur when available water supplies are reduced to a level that cannot support typical demand at any given time. The WSCP serves as a planning document to guide the District's Board of Directors, staff, and the public by identifying response actions that allow for efficient and accountable management of water shortages with predictability and transparency. While the Plan does not provide absolute direction, it offers a range of response options to address varying water shortage conditions.

Water shortages may be triggered by hydrologic limitations in supply—such as prolonged periods of below-normal precipitation and runoff—failures or limitations in supply or treatment infrastructure, or a combination of both. Hydrologic or drought-related shortages typically develop and subside gradually, whereas infrastructure-related shortages tend to occur more suddenly and unpredictably. Water supplies may be interrupted or substantially reduced due to events including droughts, fires effecting the watershed, earthquakes that damage delivery or storage facilities, or degradation of water quality such as a harmful algae bloom.

This WSCP describes the following:

- **Water Supply Reliability Analysis.** Summarizes the District's water supply analysis and reliability and identifies the key issues that may trigger a shortage condition.
- **Annual Water Supply and Demand Assessment (AWSDA) Procedures.** Describes the key data inputs, evaluation criteria, and methodology for assessing water supply reliability for the coming year and the steps to formally declare any water shortage levels and response actions, if necessary.
- **Six Standard Shortage Stages.** Establishes water shortage levels to identify and prepare for shortages.
- **Shortage Response Actions.** Describes the response actions that may be implemented for each stage to reduce gaps between supply and demand and minimize social and economic impacts to the community.
- **Communication Protocols.** Describes communication protocols under each stage to ensure customers, the public, and District Board of Directors are informed of shortage conditions and demand management measures (DMMs).
- **Compliance and Enforcement.** Defines compliance and enforcement actions available to administer demand reductions.
- **Legal Authority.** Lists the legal documents that grant the District the authority to declare a water shortage and implement and enforce response actions.
- **Financial Consequences of WSCP Implementation.** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
- **Monitoring and Reporting.** Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced.

- **WSCP Refinement Procedures.** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
- **Special Water Features Distinctions.** Identifies exemptions for ponds, lakes, fountains, pools, and spas, etc.
- **Plan Adoption, Submittal, and Availability.** Describes the process for the WSCP adoption, submittal, and availability after each revision.

This WSCP was prepared in conjunction with the District's 2025 Urban Water Management Plan (UWMP). This document is compliant with the California Water Code (CWC) Section 10632 and incorporated guidance from the California Department of Water Resources (DWR) 2025 UWMP Guidebook, and the American Water Works Association (AWWA) Manual of Water Supply Practices Drought Preparedness and Response.

The District has extensive experience in drought water supply management that began with its inception in 1921. As a community without reliable water supplies in the 1920s, the District embarked upon establishing a reliable water supply for its customers that resulted in the construction and operation of Jameson Lake, Juncal Dam, Doulton Tunnel, groundwater wells, and a District-wide water transmission, distribution, and storage system. Subsequent droughts impacted water supply availability in the region, with new supplies and infrastructure added over time such as: Cachuma Project, State Water Project (SWP), desalination supplies, temporary supplemental supplies, and surface water stored in the Semitropic Groundwater Bank. The District has also enacted demand-side measures during drought times through ordinances such as drought surcharge, allocations and penalties, new connection moratorium, and a water use efficiency program and outreach efforts. These actions have substantially strengthened the District's water reliability, lowering the risk of shortages and lessening the need for future demand-reduction measures.

2 Water Supply Reliability Analysis

The supply reliability projections presented in Chapter 7 of the 2025 UWMP demonstrate that the District will have sufficient supplies during normal hydrologic years.

Demand is assumed to rise during hotter and drier conditions associated with drought. The District faces several supply vulnerabilities during drought, including:

- Reduced surface water inflows to **Jameson Lake** and the **Cachuma Project**
- Reduced **Doulton Tunnel** infiltration
- Declining **Groundwater** levels
- Reduced **SWP** allocations
- Water quality degradation in surface water reservoirs
- Natural disaster risks (earthquakes, wildfires)

To compensate for reductions in regional supply sources, the District can increase imported deliveries such as SWP water, banked water or supplemental water purchases, and local groundwater pumping.

In normal hydrologic years, the District has more than sufficient supplies to meet demands without implementing DMMs through 2050. The District also has sufficient supplies to satisfy demands in all single dry year scenarios analyzed, which means the District is well prepared to weather short droughts without needing to reduce customer demands. In these scenarios, supplies will comfortably exceed demand and result in a surplus without requiring additional DMMs. During years 1-4 of the multiple dry year scenario, water supplies are anticipated to be sufficient to meet project demands. However, in the fifth year, a minor shortage is projected to occur due to conveyance constraints that limit the delivery of both Cachuma Project and imported supplies. The District’s implementation of Stage 1 of the WSCP is likely sufficient to manage demand and fully mitigate the water shortage. This same pattern is observed in the Drought Risk Assessment for years 2026-2030 that is modeled after local demand and supply response in the 2012-2016 and 2021-2022 droughts.

3 Annual Water Supply and Demand Assessment Procedures

As established by CWC Section 10632.1, urban water suppliers must conduct an AWSDA and submit an annual water shortage assessment report to DWR. The AWSDA is an evaluation of the short-term outlook for supplies and demands to determine whether the potential for a supply shortage exists and whether there is a need to trigger a WSCP shortage level and response actions in the upcoming fiscal year to maintain supply reliability. Beginning in 2022, the District began preparing and submitting their AWSDA to DWR.

The District analysis incorporates numerous data sources used as evaluation criteria to project probable demands and supply availability for the coming year. Sources to consider include:

- Projected weather conditions
    - National Oceanic and Atmospheric Administration 3-month projections
    - US Drought Monitor current status
    - Precipitation versus historical on monthly basis for state and local forecasts.
- Projected Unconstrained Demand
    - Production versus historic on monthly basis
    - New customer growth
    - Identify artificially supplied water features separate from swimming pools and parks (required per CWC 10632(b)
    - Gallons per capita per day and acre-foot/acre monthly tracking
- Projected Supply Availability
    - Water Supply Agreement with the City of Santa Barbara in connection with its desalination facility
    - Lake Cachuma/Cachuma Project – regional surface water
    - Jameson Lake surface water from the Santa Ynez River
    - Doulton Tunnel groundwater infiltration
    - Montecito Groundwater Basin well production
    - SWP – State surface water
    - Supplemental water purchases
    - Stored water in Semitropic Groundwater Bank

The general procedure is listed below. The District may modify this process based on available data, significant events, process restrictions, or other external factors that may impact the process. If no water shortage exists, staff provide an informational item to the Board of Directors on the results of the AWSDA. If the AWSDA shows a water shortage, the AWSDA is presented to the District's Board of Directors for discussion and questions. Staff will modify/update the assessment per direction from the Board. The Board can also provide direction to implement specific management strategies at that time.

Step 1. Projected Weather Conditions

Compile existing weather data to characterize past 12 months' conditions. Considering recent conditions and available forecasts, select a projected dry year scenario from the historical record of allocations for each source. Dry year scenario assumes the following:

- No additional inflow to Jameson Lake or Cachuma Project
- No additional recharge of Montecito Basin
- Low rainfall year across Northern California, the source of SWP water

Step 2. Projected Unconstrained Demand

Project unconstrained monthly demand for the next 12 months factoring in existing demands, water use budgets, weather projections, and growth projections.

Step 3. Projected Supply Availability

Summarize the current supply availability over the next 12 months for each supply source assuming no supply restrictions. Project next year supply availability over the next 12 months assuming the next year is a dry year as selected in Step 1. For each supply source, utilize the existing conditions coupled with historic availability and other known conditions to project probable monthly availability.

Step 4. Supply Infrastructure Restraints

Identify and describe any projected infrastructure restrictions to delivering supply in the next 12 months.

Step 5. Project Next Year Supply Deliverability

Using results from Steps 3 and 4, identify the current conditions and dry year projected supply delivery for the next 12 months.

Step 6. Projected Dry Year Supply to Demand Comparison

Compare the projected next year unconstrained demand to the next year dry-year projected supply deliverability. Identify any projected monthly shortfall in supply to meet the unconstrained demand, cross-referencing the condition to one of the six water shortage levels identified in this WSCP.

Step 7. Water Resource Strategies

Develop and propose water resource management strategies to address the projected demand to supply comparison, including reference to one of the water shortage stages identified in this WSCP, if necessary.

3.1 Six Standard Water Shortage Levels

Pursuant to CWC §10632(a)(2), the District adopted the State's six standard water shortage levels representing 10 percent, 20 percent, 30 percent, 40 percent, 50 percent, and >50 percent supply shortages. These standardized stages, developed by DWR, provide a consistent statewide method for identifying and communicating shortage conditions.

The District adopted the six standard water shortage levels as presented per CWC Section 10632(a)(3) and summarized in Table 1. This WSCP outlines response actions for each stage, including associated demand reduction or supply augmentation estimates, as required by CWC §10632(a)(3). During a shortage, the District will select only those actions appropriate to the specific conditions; not all actions will be used in every event.

3.2 Shortage Response Actions

Per CWC Section 10632(a)(4) and 10632.5(a), WSCP response actions that must be implemented or considered for each stage to minimize social and economic impacts to the community. This WSCP identifies various actions to be considered by the District's Board of Directors.

In the event of a water shortage, the District will evaluate the cause of the shortage to help inform which response actions should be implemented. Depending on the nature of the water shortage, the District can elect to implement one or several response actions to mitigate the shortage and reduce gaps between supply and demand. The District imposes DMMs within the corresponding shortage stage in addition to DMMs within preceding stages (e.g., if a Stage 2 drought is declared by the District, the District will impose both Stage 2 and Stage 1 DMMs). Table 1 identifies the six shortage stages used as a basis for creating District DMMs.

In August 2024, the District adopted Ordinance No. 99 establishing water use efficiency policies and recommendations. This ordinance provides standing authorization for water use restrictions and prohibitions to become effective upon adoption of a water supply shortage stage at any regular or special meetings by the District Board of Directors.

Table 1 Shortage Stages

Stage	Supply Shortage	Water Shortage Condition
Normal	None	Normal conditions
1	Up to 10 percent	Supply reduction of up to 10 percent from normal annual supply availability, or over any two consecutive months.
2	Up to 20 percent	Supply reduction of up to 20 percent from normal annual supply availability, or over any two consecutive months.
3	Up to 30 percent	Supply reduction of up to 30 percent from normal annual supply availability, or over one month.
4	Up to 40 percent	Supply reduction of up to 40 percent from normal annual supply availability, or over any 2-day time period. This is considered the threshold stage for catastrophic interruption to District supplies.
5	Up to 50 percent	Supply reduction of up to 50 percent from normal annual supply availability, or over any 1-day time period. This condition unlikely with current supply portfolio but could occur due to natural disaster.
6	Greater than 50 percent	Supply reduction of greater than 50 percent from normal annual supply availability, or over any discrete time period. This condition unlikely with current supply portfolio but could occur due to natural disaster.

3.2.1 Demand Reduction

The District supports efficient water use at all times. As such, the District has permanent water use restrictions and measures in place during normal supply conditions described in the District's 2022 *Water Use Efficiency Plan* (WUEP) and 2024 Ordinance No. 99 *Establishing Water Use Efficiency Policies and Recommendations* (Ordinance No. 99). The District promotes individual actions on an on-going basis through its education and outreach resources. As a result of District efforts toward water use efficiency implemented since the 2012-2016 drought, water demand within the District service area has decreased approximately 40 percent since 2016.

The District has identified a variety of DMMs to offset supply shortages. Demand reduction measures are strategies intended to decrease water demand to close the gap between supply and demand. The District employs a variety of techniques to encourage community members to be more involved and educated about water conservation and efficient water use. These techniques include actions planned to be taken at the consumer level including, but not limited to:

- Implementation of the 2022 WUEP, including public outreach of various WUEP programs through the District's website, bill inserts, enews, and press releases
- Use of smart water meters and the WaterSmart customer portal which work in concert to provide real-time water use monitoring and leak detection
- Providing property-specific Water Budgets, a data-driven tool that provides each customer with a unique, science-based guide for efficient indoor and outdoor water use based on their specific property characteristics
- Providing Smart Rebates targeting property improvements that result in a reduction in long-term water use
- Providing onsite water use audits to identify inefficient uses of water

Since implementation of WUEP programs, the District has found these methods to be effective in reducing overall water consumption and managing demands during periods of normal water supply and water shortage conditions. The District will rely on its regular water use efficiency program as well as additional measures to respond to the range of water supply shortages that may arise. A full list of demand reduction methods preformed at various supply shortage stages are provided in Table 2.

Table 2 Demand Reduction Actions

		How much is this going to reduce the shortage gap?		
Shortage Level	**Demand Reduction Actions**	**Volume or Percentage**	**Shortage Gap Reduction Value**	**Penalty, Charge, or Other Enforcement?**
1+	Increase communication to customers about parcel specific Water Budgets	Percentage	0-10%	No
1+	Increase Customer’s use of WaterSmart, expanding leak alerts	Percentage	0-10%	No
1+	Promote Rebates program, Customer Water Audits and other water efficiency campaigns	Percentage	0-10%	No
1+	Expand public information campaign to enhance awareness of water use efficiency and conservation	Percentage	0-10%	No
2+	Targeted outreach to customers using water in excess of their Water Budget	Percentage	11-20%	No
2+	Targeted outreach to highest water users	Percentage	11-20%	No
2+	Expand conservation communication campaign using methods such as electronic signage	Percentage	11-20%	No
2+	Discourage discretionary uses such as the filling of pools, fountains, and water features	Percentage	11-20%	No
2+	Increase property specific water use efficiency audits	Percentage	11-20%	No
2+	Increased rebates specifically for landscape conversions	Percentage	11-20%	No
2+	Limit sale of water for construction occurring outside the District’s service area	Percentage	11-20%	No
2+	Increase system water loss reduction efforts	Percentage	11-20%	No
2+	Implement or Modify Drought Rate Structure or Surcharge	Percentage	11-20%	No
3+	Apply a Drought Factor to Water Budgets aimed at reducing outdoor irrigation for residential and CII customers	Percentage	21-30%	Yes
3+	Establish penalty for water use in excess of Water Budgets; consider establishing budget based rates	Percentage	21-30%	Yes
3+	Pool, spa, and pond refills prohibited; topping off is permitted	Percentage	21-30%	Yes
3+	Limit hydrant flushing	Percentage	21-30%	Yes
3+	Prohibit the sale of water for construction purposes	Percentage	21-30%	Yes
4+	Increase Drought Factor and apply it to Water Budgets	Percentage	31-40%	Yes
4+	Limit outdoor irrigation for residential and CII customers to 1 day per week	Percentage	31-40%	Yes

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap? Volume or Percentage	Shortage Gap Reduction Value	Penalty, Charge, or Other Enforcement?
4+	Use of mechanical devices to restrict flow through service lines on severely over-budget accounts that are non-responsive to outreach, and other mandatory restrictions and enforcement	Percentage	31-40%	Yes
5+	Increase Drought Factor and apply it to Water Budgets	Percentage	41-50%	Yes
5+	Prohibit outdoor irrigation for all customers. Use limited to public health and safety water	Percentage	41-50%	Yes
6+	Prohibit all outdoor use except as necessary to protect public health and safety.	Percentage	Over 50%	Yes
6+	Issue-specific measures developed as needed	Percentage	Over 50%	Yes

3.2.2 Supply Augmentation

During a water shortage, the District may pursue supply augmentation measures to help maintain supply reliability and reduce the need for additional demand reductions. These actions are intended to supplement existing supplies and provide flexibility when conditions limit normal water supply availability. The District will evaluate potential supply augmentation options based on feasibility, cost, and availability at the time of implementation, using them as needed to support overall supply and demand balance during shortage events. During a water shortage, the District may pursue a range of supply augmentation measures to help maintain the reliability of its water system and reduce the severity of required demand reductions. Supply augmentation actions provide additional sources of water or enhance access to existing supplies, allowing the District to stabilize its supply and demand balance when conditions warrant. These actions are intended to complement the District's established water use efficiency measures and provide operational flexibility during both short-term and prolonged shortages. Specific supply augmentation options will be evaluated based on availability, cost, feasibility, and the District's overall water management objectives at the time of implementation.

3.2.3 Operational Changes

During shortage conditions, operations may be affected by demand reduction responses. Operational changes to address a water shortage may be implemented based on the severity of the reduction goal. The District, with Board of Directors approval as needed, will consider their operational procedures at the time of a shortage to identify changes they can take to maximize supply and reduce demand during a water shortage.

These potential actions, depending on shortage levels, could include, but are not limited to:

- Expansion of public information campaign to educate and inform customers of the water shortage emergency and required water use reductions
- Provide information regarding rebates for plumbing fixtures and landscape irrigation
- Implement or modify drought rate structure or surcharge or water emergency tiered pricing, pursuant to the requirements of Proposition 218 and in accordance with California Law
- Review opportunities to reduce overhead and defer non-critical Capital Improvement Projects and/or major maintenance expenditures to help manage a decrease in revenue from lower retail water sales
- Review non-critical facility replacement projects for any opportunities to extend the master planned replacement schedule

3.2.4 Additional Mandatory Restrictions

In addition to any shortage response level being declared, the District maintains the following prohibitions and restrictions at all times.

Pursuant to the District's Ordinance No. 99, the following wasteful uses of water are prohibited:

- Washing of hard surfaces such as driveways, sidewalks, patios and parking lots except where necessary to protect health and safety. Pressure washing for maintenance or repair is not considered water waste.
- Applying water to landscaping during, and within 48 hours after, measurable rainfall of at least one-quarter inch of rain.
- Applying water to outdoor landscaping in a manner that causes significant runoff such that water flows onto an adjacent property, non-irrigated areas, private and public walkways, parking lots or structures.
- Washing a vehicle without the use of a bucket and/or hose equipped with a hand operated shut off nozzle.
- Using potable water in ornamental fountains or other decorative water features that do not use a water recirculating system.
- Irrigating turf on public street medians or publicly owned or maintained landscaped areas between the street and sidewalk where the turf does not serve a community or neighborhood function such as for picnicking, sports, pet walking, etc.
- Irrigating outdoor landscaping during the warmest part of the day when evaporation is the greatest. Irrigation is most efficient between evening and mid-morning, such as between the hours of 6 p.m. and 10 a.m.
- Draining and refilling a swimming pool, spa or hot tub more than once every five years.
- Using potable water to fill new ponds and maintaining the water level for unlined ponds.
- Allowing an identified water line break or leak to continue without immediately making the necessary repairs or turning off the water service to the property temporarily to prevent water loss until such time as the repair has been completed.

3.2.5 Seismic Risk Assessment, Mitigation Plan, and Emergency Response Plan

The District completed a comprehensive *Hazard Mitigation Plan* in 2023, *Emergency Response Plan* in 2026, a *Risk and Resilience Assessment* in 2026, and 2015 *Structural and Seismic Evaluation for District Storage Reservoirs*. Combined, the plans provide the District with an analysis of potential emergencies or events with a coordinated response and recovery strategy. Each plan is updated periodically with the most recent version available on the District's website, unless confidential. The County of Santa Barbara also maintains the *Multi-Jurisdictional Hazard Mitigation Plan* which serves as an umbrella document for the District's service area.

In addition to the District's *Hazard Mitigation Plan* and *Emergency Response Plan*, the District also implements the following procedures to contend with a catastrophic water supply interruption:

- Available water supply is diverse consisting of major supply provided by a local and regional surface water reservoir and local desalination that have separate and independent storage and conveyance facilities.
- Emergency back-up generators have been installed at both District water treatment facilities as well as at all critical District pump stations.
- District's administrative office is supplied by an emergency back-up generator to ensure operations can continue during power outage or other emergency.
- District has a Supervisory Control and Data Acquisition system that allows for remote monitoring and control of the District's water facilities, which have battery back-up provisions and radio telemetry not dependent on public utilities.
- District maintains an up-to-date Geographic Information System web maps which clearly illustrates all District water facilities to allow for proper isolation of pipes, reservoirs, etc. in the event of an emergency.
- District has staff members from two separate departments (Treatment and Distribution) are "on-call" 24-7 to monitor and control District water facility operations at all times.
- District has a full-time dam caretaker that resides at the Juncal Dam/Jameson Lake facility to monitor dam performance.
- District's staff is cross-trained and can perform emergency repairs to the water system including immediate response and repair to water main breaks.
- District maintains heavy equipment including back-hoes and dump trucks which trained staff utilize to make emergency repairs to the water system. The District also maintains additional equipment needed to make water system repairs including but not limited to; sump pumps, jackhammers, compaction equipment, trench shoring, and saws.
- District maintains an inventory of materials at its District Yard including pipe, valves, fittings, repair couplings, etc. to ensure repairs can be made at all hours.
- District coordinates with local contractors as needed to ensure they are familiar with District standards in the event outside contracting assistance is required to make emergency repairs.
- District maintains an Federal Communications Commission-licensed radio system with vehicle mounted radio communication equipment as well as radio equipment stationed at the District office and Bella Vista Treatment Plant to allow for communication in the event cellular communication is unavailable.
- District participates in California Water/Wastewater Agency Response Network, a statewide agency that makes equipment, supplies, and staffing available from outside participating agencies available when called upon during an emergency.
- The District's staff conducts both tabletop exercises and mock field emergency exercises to ensure familiarity with the District's Emergency Response Plan and practice emergency response procedures.

Catastrophic supply interruptions differ from the six drought response stages. Catastrophic interruptions are considered to be sudden interruptions in supply that can immediately reduce the District's available water supply. While it is not possible to identify every potential catastrophic water supply interruption scenario, the District's *Hazard Mitigation Plan* has compiled a range of plausible scenarios that could impact the availability of its existing water supply sources under normal hydrologic conditions. The seismic risk scenario is summarized below, with many other scenarios presented in the *Hazard Mitigation Plan*.

Earthquake vulnerability for the region is described in the Santa Barbara County's *Multi-jurisdictional Hazard Mitigation Plan* and the *Structural and Seismic Evaluation for District Storage Reservoirs*. According to maps developed by the County of Santa Barbara Office of Emergency Management, minor fault lines run through the District's service area, with some areas being subject to moderate severity liquefaction. While District pipelines and reservoirs are not seismically designed to current codes, District facilities have aged well, with no resulting damage from historical earthquakes such as the Long Beach Earthquake (1931), the Sylmar Earthquake (1971), the Goleta Earthquake (1978), the Loma Prieta Earthquake (1989) and the Northridge Earthquake (1994). District pipelines and reservoirs are vulnerable to the impacts of an earthquake. To date, an earthquake has not been the cause of pipe breakage or reservoir damage, but the District is cognizant of the possible damage during a significant seismic event. Mitigation efforts are developed and presented in the *Hazard Mitigation Plan* and include seismic upgrade projects for existing facilities, including seismic response considerations in new designs, establishing emergency water distribution logistics, routine updates of the *Emergency Response Plan*, and training in Incident Command System Emergency Management.

In addition to the specific seismic event mitigation efforts, the District's efforts to diversify its supply sources also greatly increase its resiliency to seismic as well as other hazard events. The District's robust supply portfolio offers multiple alternative supply sources should one source become unavailable.

3.2.6 Shortage Response Action Effectiveness

The District routinely tracks water production, distribution, and customer billing data. During a water shortage, this information is compared to normal year demand or to a designated State-required baseline to evaluate progress toward meeting shortage stage objectives. Estimated water savings for each WSCP action are provided in Table 2, with higher savings achieved when multiple actions are implemented together. Some measures provide substantial reductions at advanced shortage stages. For example, prohibiting outdoor irrigation in Stage 5 is estimated to reduce the shortage gap by up to 50 percent. These estimates guide the District in selecting and adjusting response actions to meet demand reductions.

3.3 Communication Protocols

The District uses its established communications program to keep customers and stakeholders informed during a water shortage. Public notifications for Board meetings related to the AWSDA or potential shortage declarations follow standard Board noticing and press release procedures.

When the Board declares a shortage stage, the District announces the declaration and associated restrictions through press releases, billing statements, enews and updates to the District website, which will feature the current stage, restrictions, and available customer resources. Ongoing Board meetings will review conditions, customer response, and any recommended adjustments to the shortage actions.

3.4 Compliance and Enforcement

CWC Section 10632(a)(6) requires description of compliance and enforcement provisions. Ordinance No. 99 establishes fines for violating mandated water waste restrictions. Fines for water waste will fund water use efficiency initiatives and targeted outreach toward those who fail to avoid wasteful water use practices or conserve water; increased costs required to manage water waste; and the purchase, if necessary, of additional water supplies to offset wasteful consumption and protect the health and safety of all customers.

Measures will be enforced through the following procedures, in addition to any enforcement measures identified in ordinances. District will modify and adjust the compliance strategy as necessary for each respective situation.

- First violation: Written warning.
- Second and subsequent violations: A $250 fine, which doubles with each additional violation up to a maximum of $1,000 per violation.
- Fourth violation (or earlier if warranted): The General Manager may require installation of a flow restrictor on the customer's service line.
- The District may apply additional penalties or charges as needed to enforce prohibitions on specific water uses.

These measures support effective implementation of shortage response actions and ensure adherence to District water-use requirements.

3.5 Legal Authorities

The District is organized under the County Water District Law [Water Code §§30000-33901] and is authorized to do any act necessary to furnish sufficient water in the district for any present or future beneficial use [Water Code §31020]. This authorization is consistent with California Constitution Article X, Section 2, which declares and requires that water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use of water be prevented.

The District's authority to enact and enforce its WSCP is found in Water Code §31026, which authorizes the District to restrict the use of water during any threatened or existing water shortage and to prohibit wastage of water during such periods. The District is authorized to prescribe and define by ordinance such restrictions, prohibitions and exclusions as the District determines to be necessary [Water Code §31027]. The District's findings as related to its adopted restrictions, prohibitions and exclusions continue unchanged unless and until a contrary finding is made by the Board by resolution or ordinance [Water Code §31028].

The aforementioned powers derived from the District's organizing statutes are in addition to general powers granted to water distributors in Water Code §§350-359. Water Code §350 authorizes the governing body of a distributor of a public water supply to declare a water shortage emergency whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent there would be insufficient water for human consumption, sanitation, and fire protection. Upon a finding of such an emergency condition, the distributor can adopt such regulations and restrictions on the delivery and consumption of water as will conserve the water supply for the greatest public benefit, with particular regard to domestic use, sanitation, and fire protection [Water Code §353]. The regulations and restrictions remain in force and effect until the supply of water available for distribution within such area has been replenished or augmented, and restrictions may include the right to deny new service connections and discontinue service for willful violations. [Water Code §355 and §356]

The District also coordinates with any city or county within which it provides water supply services for the possible proclamation of a "local emergency" under California Government Code, California Emergency Services Act (Article 2, Section 8558).

The District will declare a water shortage emergency within its service area boundaries when it determines through its best judgement that normal demands and requirements of its customers cannot be met with the projected supplies. Once a water shortage stage has been declared, the District will enforce compliance through a multitude of measures commensurate with each reduction goal. The District will either implement measures per this WSCP or will provide further discrete requirements through ordinances.

3.6 Financial Consequences of WSCP Implementation

Per CWC Section 10632(a)(6), this section describes the financial consequences of implementing the WSCP and potential mitigation strategies.

Implementing any stage of the WSCP is expected to impact the District's financial status. As experienced during previous droughts, revenues will decrease with decreasing usage, and expenses will increase with additional monitoring and enforcement responsibilities, as well as additional costs for replacement supplies if needed.

The District maintains a rate structure with two main components: a fixed charge component (monthly service charge) and a variable volumetric rate (water usage rate), and certain customers have a monthly fire line charge for private fire protection services. Monthly fixed charges are determined by meter size, with larger meters having the capacity to consume more water. Monthly fire line service charge is established based on the diameter of the fire line serving the property. Volumetric component of the water bill is based on the units of water delivered to the property multiplied by the unit rate by customer class. Residential customers have three tier water usage rates, and commercial, institutional, agriculture, and non-potable have a uniform monthly rate.

Enforcement, enhanced outreach, and increase of customer data tracking can add to the District's costs around a water shortage condition. Often times, these additional efforts are prioritized for current staff, and other normal work efforts are delayed or reassigned. If conditions warrant, the District will seek assistance through additional staffing or third-party service providers. These costs depend on the level of support and will be evaluated on a case-by-case basis. An increase in cost can also be associated with additional equipment obtained to support the District's outreach, enforcement, tracking, and management efforts.

Depending on the situation, the District may also be able to obtain supplemental water supplies to mitigate the water shortage condition. These supplies are expected to be more costly than regular supplies and will be evaluated for each specific opportunity.

The District maintains a strong financial management position. However, it is reasonable to expect financial impacts or changes in cash flow during a prolonged water shortage condition. The District will enact a range of management and financial resources depending on the specific situation that includes:

- Utilizing financial reserves
- Capital project deferment
- Operational and maintenance expense deferment
- Increased revenue from penalties
- And others as identified

The District has enacted a drought rate surcharge in the past to address revenue reductions. Since that time, the District has developed an enhanced rate structure and base rates which are updated approximately every four to five years. These rates are based on updated projected water use forecasts. Projected water use is determined using the best available data and information. During an extended drought, demand is assumed to decrease due to the implementation of DMMs, which may require the District to revisit the need for a surcharge structure or new rates.

3.6.1 Property-Specific Water Budgets

In April 2025, the District introduced property-specific Water Budgets,[1] a data-driven tool that provides each customer with a unique, science-based guide for efficient indoor and outdoor water use based on their specific property characteristics. The District provides calculated property-specific Water Budgets to all customers on their monthly bill. More information about Water Budgets, including the methodology for calculations are available at https://www.montecitowater.com/conservation/water-budgets/.

Water Budgets could be used to implement demand reduction during water shortages.

3.7 Monitoring and Reporting

CWC Section 10632(a)(9) requires reporting and monitoring procedures to implement the WSCP and track and evaluate the response action effectives. The WSCP aims to ensure demands are reduced and/or supply is augmented to balance supply and demand. The District will enact various actions commiserate with each respective stage. The District will then monitor results to maintain the supply/demand balance. Similar to the supply and demand projections used to establish a shortage condition, the District will monitor the same data to determine effectiveness and efficacy. District staff will report to the Board of Directors at least quarterly on status and results. Data reporting will include:

- Actual vs. projected demands by customer class and total use
- Actual vs. projected supply availability for each water source
- Supply projections for the next 36 months
- Any additional reporting required by the State

Data will also be submitted to DWR per any future reporting requirements.

Based on the results, the District will evaluate whether adjustments to the shortage stage or response actions are needed. If necessary, the District may adopt additional measures, update

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[1] Montecito Water District. 2025. Water Budgets. https://www.montecitowater.com/conservation/water-budgets/

ordinances, or revise the WSCP through the Board process unless urgent conditions require earlier action.

3.8 WSCP Refinement Procedures

Per CWC Section 10632 (a)(10), the WSCP is intended to be adapted as needed to respond to foreseeable and unforeseeable water shortages.

To maintain a useful and efficient standard of practice in water shortage conditions, the requirements, criteria, and response actions need to be continually evaluated and improved upon 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. Results from the monitoring and reporting program will be part of the evaluation.

Potential refinements will be documented and integrated in the next WSCP update. Potential changes that would warrant an update could include, but are not limited to, any changes to shortage level triggers, changes to the shortage stage structure, and/or changes to the response actions.

3.9 Special Water Feature Distinction

CWC Section 10623 (b) requires that suppliers analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas. Under normal conditions, District Ordinance No. 99 prohibits operating decorative water features without recirculation and limits draining/refilling pools and spas to once every five years. At Stage 2+, refilling of pools, spas, and ponds is prohibited, while topping off remains permitted.

3.10 Plan Adoption, Submittal, Availability, and Amendment Procedures

This 2025 WSCP was presented for adoption by the District Board of Directors at the June 23, 2026 public meeting. As described in Table 3, notifications were sent to the City of Santa Barbara, Santa Barbara County Water Agency, Central Coast Water Authority, Montecito Sanitary District, Summerland Sanitary District, Carpinteria Sanitary District, and Carpinteria Valley Water District. To comply with the notice to the public, the District published notices in the local newspaper at least two weeks in advance with 5 days between publications. The WSCP was also made available prior to the public hearing.

The WSCP was formally adopted on DATE, by the District Board of Directors by Resolution XXXX. The WSCP was made available to all staff, customers, and any affected cities, counties, or other members of the public at the District’s office and online within 30 days of its adoption.

The WSCP was submitted to DWR via the Water Use Efficiency Data Portal at the same time as the 2025 UWMP. A hard copy of the 2025 UWMP and WSCP were submitted to the California State Library within 30 days of adoption. Electronic and/or hard copies were provided to all cities and counties within the District’s service area within 30 days of adoption.

The District will make amendments to its adopted WSCP, as required and directed by DWR following its review. If the District revises its WSCP, an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.

Table 3 Notification to Cities and Counties

Entity Name	60 Day Notice	Notice of Public Hearing
City/Special District Name		
City of Santa Barbara	Yes	Yes
Carpinteria Valley Water District	Yes	Yes
Carpinteria Sanitary District	Yes	Yes
Montecito Sanitary District	Yes	Yes
Summerland Sanitary District	Yes	Yes
County Name		
Santa Barbara County Water Agency	Yes	Yes
Other Agency Name		
Central Coast Water Authority	Yes	Yes

Appendix H

Ordinance 99 Demand Management Measures

ORDINANCE NO. 99
AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE MONTECITO WATER DISTRICT ESTABLISHING WATER USE EFFICIENCY POLICIES AND RECOMMENDATIONS

WHEREAS, the Montecito Water District ("District") is a County Water District formed under and pursuant to Section 30000, et seq. of the California Water Code, located in and serving the unincorporated areas of Montecito and Summerland within the County of Santa Barbara; and

WHEREAS, the mission of Montecito Water District is to provide an adequate and reliable supply of high-quality water to the residents of Montecito and Summerland, at the most reasonable cost. In carrying out this mission, the District emphasizes providing outstanding customer service, conducting its operations in an environmentally sensitive manner, and working cooperatively with other agencies.

WHEREAS, the District has a diverse water supply portfolio comprised of both rainfall dependent and rainfall independent sources including local and regional surface water, groundwater, and ocean desalination supplies; and

WHEREAS, the District may do any act necessary to furnish sufficient water in the District for any present or future beneficial use [Water Code § 31020]; and

WHEREAS, consistent with its Urban Water Management Plan ("UWMP"), the District has taken extraordinary actions since 2017 to become less reliant on rainfall dependent water sources and improve water supply reliability. These actions include: securing a right to store surplus water supplies in the Semitropic Groundwater Banking and Exchange Program for future use; participating in a 50-year water supply agreement with the City of Santa Barbara backed by the City's desalination facility; electing to manage groundwater supplies in the Montecito Groundwater Basin through the formation of a Groundwater Sustainability Agency in accordance with the Sustainable Groundwater Management Act; evaluating water reuse; and strongly encouraging voluntary reductions in water use and efficient water use; and

WHEREAS, in 2022, the District adopted a 5-year Strategic Plan, building on the UWMP and outlining actions for achieving the goal of water supply reliability, which actions include managing customer demands and establishing community partnerships for efficient water use; and

WHEREAS, declared State and local drought emergencies over the past decade illustrate the impacts of climate change including increasingly erratic hydrologic conditions, which impact the potential availability of the District's water supplies and foster water supply challenges; and

WHEREAS, the District may establish rules and regulations for the sale, distribution and use of water [Water Code § 31024] and to restrict the use and prohibit the wastage of water [Water Code §§ 31026 – 31029]; and

WHEREAS, over the last decade, the District has adopted various ordinances in response to State and local drought emergencies which include provisions declaring water shortage conditions, implementing mandatory and voluntary water use reduction measures, and recommending water use efficiency measures. Ordinance 98 is the District's latest ordinance addressing water use, and was adopted in early 2023 following an above average 2022/23 winter bringing drought reprieve statewide, thereby lessening water use restrictions and resulting in the downgrade of the declared water shortage emergency to a Stage 1 condition, and

WHEREAS, the District's reactive responses to changing hydrologic conditions, coupled with extraordinary proactive measures to shore up water supply reliability since 2017, have fostered community awareness to the ongoing water supply challenges and the importance of using water wisely and efficiently as evidenced by District customers having reduced overall water use over the past decade by over 40% consistently; and

WHEREAS, in 2022, recognizing the importance of efficient water use, the District adopted its first Water Use Efficiency Plan (WUEP), a long-term plan targeting permanent reductions in customer water use achieved through various voluntary customer actions supported by District initiatives; and

WHEREAS, supported by the WUEP, the District provides effective customer tools focusing on water use efficiency. These tools include: the installation of smart water meters and the implementation of the Watersmart user interface which work in concert to provide real-time water use monitoring and leak detection; data-driven evaluations and determinations of unique and efficient water use needs for every property; Smart Rebates targeting property improvements that result in a reduction in long-term water use; onsite water use audits to identify inefficient uses of water; and extensive public outreach providing real-time water use notices and educational materials; and

WHEREAS, despite current conditions and a favorable water supply outlook resulting from recent consecutive winters that have produced above average rainfall statewide filling surface water reservoirs and replenishing the groundwater basin, water use efficiency remains a top District initiative and is mandated by the State through its Urban Water Use Objective regulations. Water use efficiency helps extend the availability of the District's limited water resources and enhances long-term water reliability and security.

NOW, THEREFORE, IT IS HEREBY ORDAINED BY THE BOARD OF DIRECTORS OF THE MONTECITO WATER DISTRICT AS FOLLOWS:

On the basis of the District's favorable water supply outlook and the importance of ongoing water use efficiency irrespective of hydrologic conditions, the Board of Directors maintains a prohibition on water waste and encourages all customers to adhere to recommended water use best practices as follows:

1. **Water Use Efficiencies and Best Practices**. The following measures are widely publicized, encouraged and/or recommended by the State and/or the District to further enhance water use efficiency and to reduce water waste:
    a. Use District-provided smart water meters and the customer interface, WaterSmart to monitor real-time water use and to identify potential leaks.

b. Redesign landscape to replace some or all vegetation with drought-tolerant or native plants.

c. Water lawns and outdoor areas only when needed. Most landscapes do not need to be watered daily and excess watering not only wastes water but can cause harm to the landscape.

d. Improve irrigation management with the installation of a soil moisture sensor for measuring soil moisture and determining when irrigation is needed.

e. Replace or upgrade old irrigation systems with state-of-the-art efficient drip or spray systems.

f. Place 3” to 4” of mulch around trees and plants to retain moisture in the soil.

g. Set lawn mower blades at 3" to 4" to keep lawn longer and retain moisture in the soil.

h. Install water harvesting and diversion features, such as rain gutters, rain barrels, in-ground storage, and rain gardens to capture runoff from roofs and pavement for use on the property and/or groundwater recharge.

i. Install or replace plumbing fixtures with water-conserving plumbing fixtures such as high-efficiency toilets, showerheads, and faucets.

j. Reduce the length of showers or the amount of water used for baths.

k. Turn off the water while brushing your teeth or shaving.

l. Install high efficiency appliances including washing machines and dishwashers.

m. Only wash laundry and dishes with full loads.

n. If on a septic system, install a “laundry-to-landscape” graywater system.

o. For pre-cleaning dishes, use a filled sink instead of running water.

p. Consider installing an instant water heater on sinks that are located far from the main water heater and/or hot water recirculating system.

q. Wash vehicles using a waterless car wash product. A waterless car wash is an eco-friendly and efficient car wash that uses little or no water. Alternatively use a commercial car washing facility.

r. Report broken, poorly timed or misaligned sprinklers around the community.

s. After a power outage, irrigation timers often reset to default. Check irrigation timers often.

t. Replace batteries in irrigation timers annually.

u. Cover swimming pools, spas, and hot tubs to reduce water loss due to evaporation.

v. Hotels, motels, etc., offer an option of not laundering towels and linens daily and displaying a notice of this option.

w. Implement additional, available property specific efficiencies as appropriate.

For any measure set forth above that requires compliance with a permit or regulation for implementation, such compliance is the responsibility of the individual(s) and/or owner(s) pursuing implementation, not the District.

2. **Prohibition Against Waste of Water**. It shall be unlawful for any District customer obtaining any water from the District to waste any of that water. Examples of water waste include:

   a. Washing of hard surfaces such as driveways, sidewalks, patios and parking lots except where necessary to protect health and safety. Pressure washing for maintenance or repair is not considered water waste.

   b. Applying water to landscaping during, and within 48 hours after, measurable rainfall of at least one-quarter inch of rain.

   c. Applying water to outdoor landscaping in a manner that causes significant runoff such that water flows onto an adjacent property, non-irrigated areas, private and public walkways, parking lots or structures.

   d. Washing a vehicle without the use of a bucket and/or hose equipped with a hand-operated shut off nozzle.

   e. Using potable water in ornamental fountains or other decorative water features that do not use a water recirculating system.

   f. Irrigating turf on public street medians or publicly owned or maintained landscaped areas between the street and sidewalk where the turf does not serve a community or neighborhood function such as for picnicking, sports, pet walking, etc.

   g. Irrigating outdoor landscaping during the warmest part of the day when evaporation is the greatest. Irrigation is most efficient between evening and mid-morning, such as between the hours of 6 p.m. and 10 a.m.

   h. Draining and refilling a swimming pool, spa or hot tub more than once every five years.

   i. Using potable water to fill new ponds and maintaining the water level for unlined ponds.

   j. Allowing an identified water line break or leak to continue without immediately making the necessary repairs or turning off the water service to the property temporarily to prevent water loss until such time as the repair has been completed.

3. **Fines for Water Waste**.

   a. Fines for water waste under this Ordinance are authorized pursuant to Water Code §§ 375- 378 et seq. and will fund conservation initiatives and targeted conservation outreach toward those who fail to avoid wasteful water use practices or conserve water; increased costs required to manage water waste; and the purchase, if necessary, of additional water supplies to offset wasteful consumption and protect the health and safety of all customers. The Board finds that the fines established under this section:

   - i. Are not expected to exceed the funds required to provide water service.
   - ii. Will not be used for any purpose other than to provide water service.
   - iii. Will not exceed the proportional cost of water service attributable to any parcel.
   - iv. Are imposed only where water service is actually used by, or immediately available to, a parcel.

- b. A written warning will be issued for the first identified incident of water waste. The District will impose a fine in the amount of $250 for the second identified incident of water waste, and doubling with each subsequent identified incident, up to a maximum of $1,000 for any single identified incident. Upon a fourth incident, or upon an earlier incident, if the General Manager determines the violations create a significant threat to the goals of this Ordinance, the General Manager may issue a written order for the installation of a flow restrictor on the service line or lines in question. The Board will be informed of flow restrictor orders when issued and any appeal shall be heard as quickly as possible to allow a flow restrictor to be removed promptly should the Board grant the appeal.

4. **Appeals and Exceptions**.

- a. Any customer may appeal any decision made or fine imposed under this Ordinance to the Board of Directors by filing a written appeal with the District within 30 days of written notice of the decision or fine. A committee of the Board will hear the appellant and make a recommendation to the Board of Directors. The Board of Directors shall consider the recommendations of the committee. The District shall give the appellant written notice of the meetings at which the appeal will be considered by the committee and the Board of Directors.
- b. The Board of Directors may, in its discretion, continue a hearing, affirm, reverse, or modify the committee's recommendation and make any adjustments and impose any conditions it deems just and proper, if it finds one or more of the following: (1) the restrictions of this Ordinance would cause an undue hardship; (2) the granting of the appeal will not significantly adversely affect the goals of this Ordinance; (3) due to peculiar facts and circumstances, none of the provisions of this Ordinance are applicable to the situation under consideration; or (4) error in the application of this Ordinance or other applicable rules or law.
- c. The Board's decision shall be in writing and provided to the appellant and any other person who requests notice of the decision in writing. Such decisions are final as

to the District and not subject to further appeal unless the Board of Directors' decision expressly provides otherwise. Judicial review of final decisions shall be available pursuant to the California Code of Civil Procedure § 1094.5.

5. **Suspension of Conflicting Ordinances and Rules and Regulations**. To the extent that the terms and provisions of this Ordinance are inconsistent, or in conflict with the terms and provisions of any prior District Ordinances, Resolutions, Rules, or Regulations, the terms of this Ordinance shall prevail, and inconsistent and conflicting provisions of prior Ordinances, Resolutions, Rules, or Regulations shall be suspended during the effective period of this Ordinance.

6. **Severability**. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid, that invalidity 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 and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases may be invalid.

7. **Customer Water Use Limitation**. Water use within the District's service area continues to be limited to that allowed under Ordinance 89, or any future amendments, modifications and/or revisions thereto.

8. **Effective Date**. This Ordinance shall become effective upon adoption, and hereby rescinds Ordinance 98 in its entirety.

PASSED, APPROVED AND ADOPTED by the Board of Directors of the Montecito Water District this 25th day of June 2024.

AYES: Coates, Goebel, Hayman, Plough, Wicks

NAYS:

ABSENT:

ABSTAIN:

APPROVED:

Coates

Kenneth Coates, Board President

ATTEST:

Nick Turner, Board Secretary

Appendix I

District American Water Works Association Water Audit

AWWA Free Water Audit Software:
Worksheet

FWAS v6.1

Water Audit Report for: **Montecito Water District**

Audit Year: **2024** | **Jan 01 2024 - Dec 31 2024** | **Calendar**

Click 'n' to add notes

Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

Water Supplied Error Adjustments
choose entry option:

VOS	Volume from Own Sources:	n	g	3	1,252.460	Acre-ft/Yr	n	g	8		volume	9.720	acre-ft/yr	under-registration	VOSEA
WI	Water Imported:	n	g	3	2,360.950	Acre-ft/Yr	n	g	3	0.25%	percent			under-registration	WIEA
WE	Water Exported:	n	g	n/a	0.000	Acre-ft/Yr									WEEA

WATER SUPPLIED: 3,629.047 Acre-ft/Yr

AUTHORIZED CONSUMPTION

BMAC	Billed Metered:	n	g	9	3,368.150	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a	0.000	Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	10	2.160	Acre-ft/Yr	choose entry option:	
UUAC	Unbilled Unmetered:	n	g	3	8.420	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 3,378.730 Acre-ft/Yr

WATER LOSSES

250.317 Acre-ft/Yr

Apparent Losses

choose entry option:

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	8.420	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	6	51.325	Acre-ft/Yr	1.50%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	8.420	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 68.165 Acre-ft/Yr

Real Losses

Real Losses: 182.152 Acre-ft/Yr

WATER LOSSES: 250.317 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 260.897 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	117.7	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	10	4,858		(active *and* inactive)
	Service connection density:				41	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp n g 10

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP Average Operating Pressure: n g 7 110.4 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	10	$11.80	$/100 cubic feet (ccf)	
VPC	Variable Production Cost:	n	g	8	$1,877.93	$/acre-ft	

Total Annual Operating Cost: $22,917,826 $/yr (optional input)

Click here to calculate carbon emissions ---> carbon

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier III (51-70). See Dashboard tab for additional outputs. ***** go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Water Imported (WI)
2: Volume from Own Sources (VOS)
3: Unauthorized Consumption (UC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses^{A}:		gal/conn/day
Unit Real Losses^{B}:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

Appendix J

District Resolution Adopting the UWMP and WSCP