

Action Item 13B

2025 URBAN WATER MANAGEMENT PLAN
~~JUNE 2026~~MAY 2026 / FINAL DRAFT / CAROLLO

EXECUTIVE SUMMARY

ES.1 Introduction and UWMP Overview

Mesa Water District (Mesa Water) prepared this 2025 Urban Water Management Plan (UWMP) to submit to the California Department of Water Resources (DWR) to satisfy the UWMP Act of 1983 (UWMP Act or Act) and subsequent California Water Code (Water Code) requirements. UWMPs are comprehensive documents that present an evaluation of a water supplier's reliability over a long-term (20-25 year) horizon. This 2025 UWMP provides an assessment of the present and future water supply sources and demands within Mesa Water's service area. It presents an update to the 2020 UWMP on Mesa Water's water resource needs, water use efficiency programs, water reliability assessment, and strategies to mitigate water shortage conditions. It also presents Mesa Water's updated 2025 Water Shortage Contingency Plan (WSCP), designed to prepare for and respond to water shortages. This 2025 UWMP contains all elements required by the UWMP Act.

ES.2 UWMP Preparation

Mesa Water coordinated the preparation of this 2025 UWMP with other key entities, the Municipal Water District of Orange County (MWDOC), the regional wholesaler of imported water for Orange County, and the Orange County Water District (OCWD), Orange County Groundwater Basin (OC Basin) manager and provider of recycled water in north Orange County. Mesa Water also coordinated with other entities that provided valuable, regionally consistent data for the analyses prepared in this UWMP, including population projections from the Center for Demographic Research (CDR) at California State University, Fullerton, and the Orange County Water Demand Projection Model Technical Memorandum (TM).

ES.3 System Description

Mesa Water is governed by a five-member Board of Directors and is located in a community that originated in about 1906. After the Costa Mesa District Merger Law was signed on June 30, 1959, Mesa Water (formerly known as the Costa Mesa County Water District) commenced operations on January 1, 1960, by acquiring the assets and obligations and assumed the responsibility of consolidating the City of Costa Mesa's Water Department, Fairview County Water District, Newport Mesa Irrigation District, and Newport Mesa County Water District.

Mesa Water's water service area covers approximately 18 square miles, along the coast of Southern California within the County of Orange and includes most of the City of Costa Mesa, portions of the City of Newport Beach and a small portion of unincorporated Orange County. Mesa Water operates nine wells, including seven clear water wells and two amber wells, two reservoirs with a total storage of 29 million gallons (MG), four metered imported water connections, and 15 emergency interconnections. Mesa Water's potable water distribution system consists of one pressure zone with approximately 317-miles of water mains system with approximately 24,425 service connections.

ES.4 Water Use Characterization

ES.4.1 Water Use in the Last Five Years

Total water use within Mesa Water’s service area has fluctuated over the past five years (fiscal year [FY] 2021-25), with an annual average of approximately 16,557 AF. FY 2020-21 through FY 2021-22 saw the highest water use over the last five years due to region-wide drought conditions. FY 2022-23 proved to be one of the wettest years on record in the State and Mesa Water saw a general decrease in water demand following this wet year, as precipitation offsets landscape irrigation demands. These year-to-year fluctuations in precipitation will continue to influence Mesa Water’s annual demands. In general, Mesa Water saw a decrease in demand of 6.7 percent over the 5-year reporting period.

ES.4.2 Projected Water Use

Mesa Water recently completed its 10-year water capital improvement plan, which included water use projections through 2035. Water use projections from 2035 through 2050 are based on the 2025 Orange County Water Demand Projection Model Technical Memorandum (TM).

Over the next 25 years, Mesa Water’s total water demands are projected to increase by 7.6 percent from 16,515 acre-feet (AF) in 2025 to approximately 17,767 AF by 2050. The Orange County Groundwater Basin is expected to continue meeting a notable share of total water demand between 2025 and 2050.

ES.5 Conservation Target Compliance

Mesa Water participated in the Orange County 20x2020 Regional Alliance along with all other Orange County water agencies. The alliance was created by MWDOC in collaboration with all its retail member agencies as well as the Cities of Anaheim, Fullerton, and Santa Ana, to assist Orange County retail agencies in complying with the requirements of the Water Conservation Act of 2009, also known as SBx7-7 (Senate Bill 7 as part of the Seventh Extraordinary Session). Signed into law on February 3, 2010, it required the State of California to reduce urban water use by 20 percent by 2020.

Retail water suppliers are required to comply with SBx7-7 individually or as a region in collaboration with other retail water suppliers, to be eligible for water-related state grants and loans. Orange County, as a region, achieved its 2020 target water use of 159 gallons per capita per day (GPCD) prior to 2020, indicative of the collective efforts in reducing water use in the region. All Orange County water retailers, achieved individual compliance prior to 2020. By 2020, Mesa Water achieved a per capita per day water use of 85 GPCD (compared to its 143 GPCD target) and continues to implement water use efficiency measures.

ES.6 Water Supply Characterization

Mesa Water’s main source of water supply is groundwater from the OC Basin. Recycled water makes up the rest of Mesa Water’s water supply portfolio. In FY 2024-25, Mesa Water used 100 percent local water supplies, relying on 94 percent groundwater and 6 percent recycled water. Imported water is available as an emergency backup or supplemental supply, but Mesa Water has met all potable water demands with local groundwater in recent years. Imported water supply has not been a significant supply source for

Mesa Water since 2013. This supply portfolio is projected to remain stable for the next 25 years through 2050.

ES.7 Water Service Reliability and Drought Risk Assessment

Every urban water supplier is required to assess the reliability of their water service to its customers under a normal year, a single dry year, and multiple dry years. The water service reliability assessment compares projected supply to projected demand for three long-term hydrological conditions. Mesa Water's water sources are local groundwater from the OC Basin and imported water purchased from MWDOC/MET.

The OC Basin manager, OCWD, has developed programs and projects to improve groundwater recharge and augment groundwater through recycled water, conjunctive use, and water transfers. OCWD assesses groundwater conditions and sets its BPP, which determines how much water will be pumped from the basin year, and the Basin Equity Assessment (BEA), which is a surcharge for exceeding the BPP. The BPP is set at 85 percent and is forecasted to remain so through 2050. Mesa Water also has two wells that pump amber-colored groundwater from a deeper aquifer and are treated at the Mesa Water Reliability Facility.

MET, the Southern California regional wholesaler of imported water, has also invested in numerous programs and projects to augment its direct deliveries of imported water, such as water transfers, groundwater banking, and use of its reservoir storage. MET's 2025 UWMP demonstrates that MET will be able to meet its projected water demands for its entire service area for the next 25 years under normal, dry, and five consecutive dry year conditions.

Overall, Mesa Water's service area is projected to meet full-service demands from 2026 through 2050 under normal years, single dry year, and five consecutive dry year conditions.

ES.8 Water Shortage Contingency Planning

The Water Shortage Contingency Plan (WSCP) is a standalone document adopted by Mesa Water serving as the guidance document used to prepare for and respond to water shortages and service disruptions of Mesa Water's water supplies through proactive mitigation measures. A water shortage, when water supply available is insufficient to meet the normally expected customer water use at a given point in time, may occur due to a number of reasons, such as water supply quality changes, climate change, drought, and catastrophic events (e.g., earthquake). Mesa Water's WSCP provides a water supply availability assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation will help maintain reliable supplies and reduce the impacts of supply interruptions.

The WSCP contains the processes and procedures that will be deployed when shortage conditions arise so that Mesa Water's governing body and its staff can easily identify and efficiently implement pre-determined steps to mitigate a water shortage to the level appropriate to the degree of water shortfall anticipated.

ES.9 Demand Management Measures

Mesa Water has demonstrated its commitment to water use efficiency through multi-faceted and holistic water use efficiency programs. Mesa Water's water use efficiency implementation can be described broadly under five categories: *Operations Practices* (e.g., conservation pricing, water waste prevention, water loss control, and metering with commodity rates), *Education and Outreach* (e.g., public outreach

programs, K-12 school programs, Water Awareness Poster Contest, Qualified Water Efficiency Landscaper Training Program), *Residential Indoor Program* (e.g. various rebates), *Commercial, Industrial, and Institutional Program* (e.g., rebates, Water Savings Incentive Program, On-site Retrofit Program), and Landscape Programs (e.g., turf replacement, spray-to-drip irrigation rebate, residential landscape design assistance).

ES.10 Plan Adoption, Submittal, and Implementation

The Water Code requires both the UWMP and the WSCP to be adopted by the Supplier's governing body. Before the adoption of the UWMP, Mesa Water notified the public and the cities and counties within its service area that MWDOC was in the process of preparing an UWMP and WSCP per the Water Code. Mesa Water circulated the final draft of the UWMP and WSCP to facilitate public review and held a public hearing to receive input from the public on the UWMP and WSCP. Upon completion of the public hearing, Mesa Water moved to adopt both the UWMP and WSCP. Post adoption, Mesa Water submitted the UWMP to DWR and other key agencies and made the document available for public review within 30 days after filing with DWR.

The UWMP serves as a legal and technical water management foundation for Mesa Water and can be referenced as needed, until its next required update cycle in 2030. With approval from DWR, Mesa Water shall implement this plan into its public resources, providing Mesa Water staff, the public, and elected officials with an understanding of past, current, and future water conditions and management. Furthermore, the WSCP serves as a strategic planning document designed to prepare for and respond to water shortages and service disruptions of Mesa Water's water supplies.

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CHAPTER 1 INTRODUCTION AND UWMP OVERVIEW

Mesa Water District (Mesa Water) prepared this 2025 Urban Water Management Plan (UWMP) to submit to the California Department of Water Resources (DWR) to satisfy the UWMP Act of 1983 (UWMP Act or Act) and subsequent California Water Code (Water Code) requirements.

Mesa Water is a retail water supplier that provides water to its residents and other customers sourced from the Orange County Groundwater Basin (OC Basin), which is managed by the Orange County Water District (OCWD), and recycled wastewater from OCWD's Green Acres Project (GAP). Mesa Water, as one of MWDOC's 27 member agencies, prepared this 2025 UWMP in collaboration with MWDOC, Metropolitan Water District of Southern California (MET), OCWD, and other key agencies.

UWMPs are comprehensive documents that present an evaluation of a water supplier's reliability over a long-term (20-25 year) horizon. In response to the changing climatic conditions since the 2020 UWMP, MWDOC has been assisting its member agencies and surrounding communities to manage both their water supplies and demands. The water loss audit program, water conservation measures, public outreach and education on conservation and efforts for increased self-reliance to reduce dependency on imported water from the Sacramento-San Joaquin Delta (the "Delta") are some of the water management actions that Mesa Water has taken to maintain the reliability of water supply for its service area. In addition, Mesa Water has been proactive in managing local water supplies through the addition of two new water supply wells. Lastly, Mesa Water has worked towards increasing supply resilience through the evaluation of a brackish groundwater desalination project with neighboring agencies.

This UWMP provides an assessment of the present and future water supply sources and demands within Mesa Water's service area. It presents an update to the 2020 UWMP on Mesa Water's water resource needs, water use efficiency programs, water reliability assessment and strategies to mitigate water shortage conditions. It also includes Mesa Water's updated 2025 Water Shortage Contingency Plan (WSCP) designed to prepare for and respond to water shortages. This 2025 UWMP contains all elements required by the Act.

1.1 Overview of Urban Water Management Plan Requirements

The UWMP Act enacted by California legislature requires every urban water supplier (Supplier) providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually to prepare, adopt, and file an UWMP with the DWR every five years in the years ending in six and one.

For this 2025 UWMP cycle, DWR continues to place emphasis on achieving improvements for long term reliability and resilience to drought and climate change in California. Despite there being no new statutory requirements, Suppliers must now report progress on meeting their 2028 Water Loss Standards and continue to state their compliance with Senate Bill (SB) X7-7 2020 Targets. Additional guidance on stored water accounting and recommendations on identifying the need for future or proposed water supply projects are provided by DWR as well.

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

1.2 UWMP Organization

This UWMP is organized into 10 chapters aligned with the DWR Guidebook recommendations. The sections within each chapter are customized to include Mesa Water's water supply reliability and future projections as well as plans to overcome any water shortages over a planning horizon of the next 25 years. The Chapters for this UWMP are listed below:

Chapter 1 Introduction and UWMP Overview gives an overview of the UWMP fundamentals and requirements for the 2025 UWMP.

Chapter 2 UWMP Preparation identifies this UWMP as an individual planning effort of Mesa Water, lists the type of year and units of measure used and introduces the coordination and outreach activities conducted by Mesa Water to develop this UWMP.

Chapter 3 System Description gives a background on Mesa Water's water system and its climate characteristics, population projections, demographics, socioeconomics, and predominant current and projected land uses of its service area.

Chapter 4 Water Use Characterization provides historical, current, and projected water use by customer category for the next 25 years for Mesa Water and the projection methodology used by Mesa Water to develop the 25-year projections.

Chapter 5 Conservation Target Compliance restates that Mesa Water's 2020 per capita water use in gallons per capita per day (gpcd) met the compliance target defined by SB X7-7.

Chapter 6 Water Supply Characterization describes the current water supply portfolio of Mesa Water as well as the planned and potential water supply projects and water exchange and transfer opportunities.

Chapter 7 Water Service Reliability and Drought Risk Assessment describes the assessment of the reliability of Mesa Water's water supply service to its customers for a normal year, single dry year and five consecutive dry years scenarios. This section also includes a Drought Risk Assessment (DRA) of all the supply sources for a consecutive five-year drought period beginning 2026.

Chapter 8 Water Shortage Contingency Planning is a brief summary of the standalone WSCP document which provides a structured guide for Mesa Water to deal with water shortages, incorporating prescriptive information and standardized action levels, lists the appropriate actions and water use efficiency measures to be taken to ensure water supply reliability in times of water shortage conditions, along with implementation actions in the event of a catastrophic supply interruption.

Chapter 9 Demand Management Measures provides a description of Mesa Water's current and planned measures and programs to help the retail customers in its service area be water efficient and comply with its urban water use reduction targets.

Chapter 10 Plan Adoption, Submittal, and Implementation provides a record of the process Mesa Water followed to adopt and implement its UWMP.

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CHAPTER 2 UWMP PREPARATION

Mesa Water District’s (Mesa Water) 2025 Urban Water Management Plan (UWMP) is prepared to meet the California Water Code (Water Code) compliance as a retail water supplier to its customers. The development of this UWMP involved close coordination with its wholesale supplier, the Municipal Water District of Orange County (MWDOC), along with other key entities within the region.

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2.1 Individual Planning and Compliance

As described in Chapter 1, every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually must prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years to meet the compliance requirements of the UWMP Act. As shown in Table 2.1. Mesa Water meets this requirement as it has 24,425 municipal connections and supplied 16,375 AF in Fiscal Year 2025.

Table 2.1 Submittal Table 2-1 Retail: Public Water Systems

Submittal Table 2-1 Retail: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (AF)
CA3010004	Mesa Water District	24,425	16,515
Total		24,425	16,515
DWR NOTES:			
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Table 2-3.			
NOTES:			

Mesa Water opted to prepare its own UWMP (Table 2.2) and comply with the Water Code individually, while closely coordinating with MWDOC and various key entities as discussed in Chapter 2.2 to streamline regional integration. The UWMP Checklist was completed to confirm the compliance of this UWMP with the Water Code (Appendix A). All DWR standardized tables are provided in Appendix B. Mesa Water has selected to report demands and supplies using fiscal year as the basis (Table 2.3).

Table 2.2 Submittal Table 2-2: Plan Identification

Submittal Table 2-2: Plan Identification		
Select One or Both	Type of Plan	Name of Regional Alliance or RUWMP (Drop Down List)
<input checked="" type="checkbox"/>	Individual UWMP	
	If Water Supplier is also a member of a SB X7-7 Regional Alliance, select name from the drop-down.	Orange County 20x2020 Regional Alliance
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
	If Supplier selected RUWMP, select name from the drop-down.	

Table 2.3 Submittal Table 2-3: Supplier Identification

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
<input type="checkbox"/>	Supplier is a wholesale supplier
<input checked="" type="checkbox"/>	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables are in calendar years
<input checked="" type="checkbox"/>	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
7/1	
Units of measure used in UWMP (select from drop down)	
Unit	AF
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	

2.2 Coordination and Outreach

2.2.1 Integration with Other Planning Efforts

Mesa Water, as the retail supplier to its customers, coordinated the preparation of this UWMP with its water supplier wholesaler MWDOC, the Orange County Water District (OCWD) as the manager of the Orange County Groundwater Basin, its regional wastewater management agency, Orange County Sanitation District (OCSD). Mesa Water has also developed this Plan in conjunction with other regionally consistent efforts such as population projections from the Center for Demographic Research at California State University, Fullerton (CDR) and the Orange County Water Demand Projection Model Technical Memorandum.

Key planning and reporting documents that were used to develop this UWMP are:

- **Metropolitan Water District of Southern California’s (MET) 2025 UWMP** uses assumptions that fall within the plausible futures contemplated in MET’s Integrated Water Resources Plan to evaluate MET’s future imported water supply reliability.
- **MET’s 2020 Integrated Water Resources Plan (IRP) Regional Needs Assessment** is a long-term, scenario-based planning document that guides Metropolitan’s programs and investments to ensure reliable water supplies in Southern California and provides a basis for water supply reliability in Orange County.
- **MET’s Climate Adaptation Master Plan for Water (CAMP4W)** is an ongoing planning and decision-making tool that accounts for the complexities and uncertainties of climate change. Part of the second phase of MET’s long-term IRP planning process, CAMP4W incorporates the results and findings of MET’s 2020 IRP Regional Needs Assessment into a collaborative process to identify and evaluate integrated regional solutions.

- **MET's 2025 Water Shortage Contingency Plan (WSCP)** provides a water supply availability assessment and guide for MET's intended actions during water shortage conditions.
- **MWDOC's 2025 WSCP** provides a water supply availability assessment and structured steps designed to respond to actual conditions that will help maintain reliable supplies and reduce the impacts of supply interruptions.
- **MWDOC's 2023 Orange County Water Reliability Study** is a planning document to help guide planning for future water supply reliability for water providers in Orange County and provide input on regional water supply issues for MET.
- **2025 Orange County Water Demand Projection Model Technical Memorandum** is a collaborative effort amongst MWDOC, OCWD, and all retail water suppliers in Orange County that developed water demand projections to produce regionally consistent forecasts across all Orange County water agencies.
- **OCWD's 2025 Groundwater Resilience Plan (GRP)** was completed in February 2025. The GRP is an adaptive strategies management plan outlining strategic projects to secure reliable future water supplies in the Orange County Groundwater Basin (OC Basin).
- **OCWD's 2023-24 Engineer's Report** provides information on the groundwater conditions, water supply and basin utilization of the OC Basin.
- **2022 Basin 8-1 Alternative** is an alternative to the Groundwater Sustainability Plan (GSP) for the OC Basin, provides significant information related to sustainable management of the basin in the past and hydrogeology of the basin, including groundwater quality and basin characteristics, and addresses DWR's recommendations to ensure long-term basin sustainability.
- **Orange County Water & Wastewater Multi-Jurisdictional Hazard Mitigation Plan (2024)** provides the basis for the seismic and other natural and natural disaster risk analysis of the water system facilities.
- **Mesa Water District Capital Improvement Plan** of Mesa Water's service area provides information on water infrastructure planning projects and plans to address any required water system improvements.

2.2.1.1 Statewide Water Planning

In addition to regional coordination with the various agencies described above, Mesa Water as a MWDOC member agency, is currently a part of MET's statewide planning effort to reduce reliance on the water imported from the Sacramento-San Joaquin Delta (Delta).

It is the policy of the State of California to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, technology innovation, partner collaborations and water use efficiency measures. This policy is codified through the Delta Stewardship Council's Delta Plan Policy WR P1 (Cal. Code Regs., tit. 23, § 5003) requires state and local water suppliers to reduce reliance on the Delta by improving regional water self-reliance. It mandates that water exported from, transferred through, or used in the Delta must demonstrate efforts in water conservation, recycling, and supply diversification.

Progress towards achieving the goal of WR P1 is measured through Supplier reporting in each Urban Water Management Planning cycle. WR P1 is relevant to water suppliers that plan to participate in

multi-year water transfers, conveyance facilities, or new diversions in the Delta. Additionally, with the recent amendments to the Bay Delta Plan, tributary flow objectives to the Delta are being updated to account for quality and habitat improvements for local environmental resources. This results in reduced reliance on Delta water supplies. Since 2022, the Bay-Delta Plan Amendment update has been in development. This effort considers additional tributaries from the southern San Joaquin Valley, triggering a re-evaluation of Delta flow requirements and conservation objectives, which ultimately may impact available supply to the State Water Project (SWP).

Through significant local investment, collaboration at both a local and regional scale and integration with MWDOC’s water use efficiency strategies and conservation programs, Mesa Water has demonstrated a reduction in Delta reliance. For member agencies of MWDOC that receive imported water from MET, or in Mesa Water’s case, have the ability to receive imported water from MET, these agencies have passively demonstrated a reduction in Delta reliance and a subsequent improvement in regional self-reliance by participating in MWDOC led regional strategies. A detailed description and documentation of Mesa Water’s consistency with Delta Plan Policy WR P1 is included in Chapter 7.4 and Appendix C.

2.2.2 Wholesale and Retail Coordination

Mesa Water developed its UWMP in conjunction with MWDOC’s 2025 UWMP. As a retail water supplier, Mesa Water provided its historical water use and water use projections data to MWDOC (Table 2.4).

Table 2.4 [Submittal Table 2-4 Retail: Water Supplier Information Exchange](#)

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use.
Wholesale Water Supplier Name
Add additional rows as needed
Municipal Water District of Orange County
Orange County Water District
NOTES:

2.2.3 Public Participation

For further coordination with other key agencies, and to encourage public participation in the review and update of this Plan, Mesa Water held a public hearing on June 24, 2026, and notified key entities and the public per the Water Code requirements.

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CHAPTER 3 SYSTEM DESCRIPTION

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Mesa Water's water service area covers approximately 18 square miles, along the coast of Southern California within the County of Orange and includes most of the City of Costa Mesa, portions of the City of Newport Beach and a small portion of unincorporated Orange County. Mesa Water operates nine wells, including seven clear water wells and two amber wells, two reservoirs with a total storage of 29 million gallons (MG), four metered imported water connections, and 15 emergency interconnections. Mesa Water's potable water distribution system consists of one pressure zone with approximately 317-miles of water mains system with approximately 24,425 service connections.

Mesa Water's climate is characterized by southern California's "Mediterranean" climate with mild winters, warm summers and moderate rainfall. In terms of land use, Mesa Water is almost built out with predominantly single and multi-family residential units. The City of Costa Mesa has some medium and high-density ongoing development projects. Most recently planned project is the One Metro West Project which will bring several 100's of high-density housing units. The current population (2025) of 110,432 is projected to increase by 9.5 percent over the next 25 years to 120,958. This equates to an annual growth rate of 0.38 percent.

3.1 Agency Overview

This section provides information on the formation and history of Mesa Water, its organizational structure, roles, and relationship to the Municipal Water District of Orange County (MWDOC).

3.1.1 Formation and Purpose

Mesa Water is located in a community that originated in about 1906. The La Habra Valley Land and Water Company, which drilled the first well in 1910, developed the first water system in the area. In 1913, the Fairview Farms Mutual Water Company constructed a system for agricultural purposes, and in 1918, the Newport Heights Irrigation District was formed to serve domestic and irrigation water. These two agencies acquired the facilities of the La Habra Water Company. With continued growth in the early 1900's the Newport Mesa Irrigation District and Santa Ana Heights Mutual Water Company were created. Fairview Farms Mutual Water Company later became the Fairview County Water District; Newport Mesa Irrigation District became the Newport Mesa County Water District. In 1953, the City of Costa Mesa became an incorporated city and in 1955 created a municipal water system to serve the areas beyond the four existing Mesa Water boundaries. On June 30, 1959, the Governor of the State of California signed Senate Bill 1375 (Costa Mesa District Merger Law), as introduced by Senator Murdy. The general provisions of this law called for the consolidation of four predecessor agencies: the Newport Heights Irrigation District, the

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

Fairview County Water District, the Newport Mesa County Water District, and the City of Costa Mesa Water Department.

On January 1, 1960, Mesa Water, formerly called the Costa Mesa County Water District, commenced operations pursuant to Sections 33200 et. seq. of the California Water Code (Water Code). The Santa Ana Heights Water Company was originally involved in merger discussions but withdrew before consolidation. Mesa Water set a precedent with this merger because it was the first water agency in California to consolidate two or more water agencies and assume both their assets and debt obligations.

Mesa Water represents a specific geographic area, is not subject to the State's Public Utility Commission, and is not part of any city or the government of the County of Orange. Mesa Water has maintained strong and cooperative relationships with cities and related public agencies that border or interact with it.

3.1.2 Board of Directors

A five-member Board of Directors governs Mesa Water, whose service area is divided into five geographic divisions of approximately equal population. One individual from each division is elected by the voting public to serve alternating four-year terms on the Board.

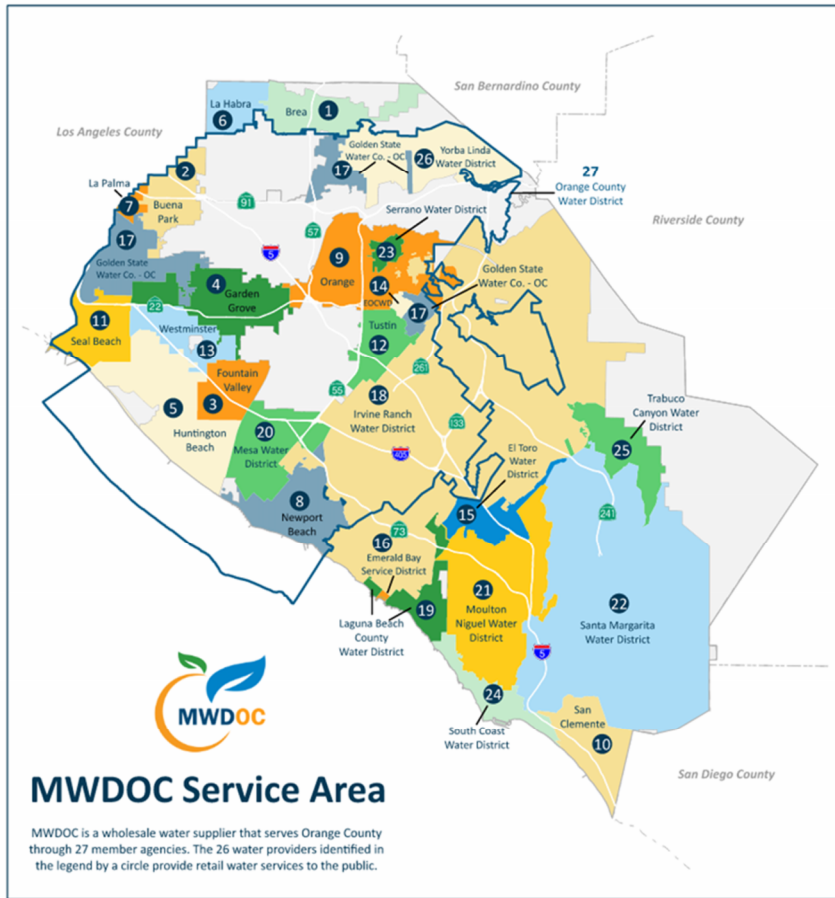
Mesa Water Board of Directors is responsible for establishing policies. The Board elects one of its members to serve as President and another to serve as First Vice President. The Board appoints a General Manager who serves at the discretion of the Board, as does (R Water Secretary, and Treasurer/Auditor. The General Manager is responsible for the administration of policies and the day-to-day operations.

The current members of the Board of Directors include:

- Marice H. DePasquale – President (Division 3).
- Shawn Dewane – Vice President (Division 5).
- Jim Atkinson – Director (Division 4).
- Fred R. Bockmiller, Jr., P.E. – Director (Division 1).
- James R. Fisler – Director (Division 2).

3.1.3 Relationship to MWDOC

Mesa Water is one of MWDOC's 27 member agencies with the ability to purchase imported water from MWDOC, Orange County's wholesale water supplier and a member agency of Metropolitan Water District of Southern California (MET), however Mesa Water relies on its local groundwater supply to provide water to its customers. Mesa Water's location within MWDOC's service area is shown on Figure 3.1.



- 1 City of Brea
- 2 City of Buena Park
- 3 City of Fountain Valley
- 4 City of Garden Grove
- 5 City of Huntington Beach
- 6 City of La Habra
- 7 City of La Palma
- 8 City of Newport Beach
- 9 City of Orange
- 10 City of San Clemente
- 11 City of Seal Beach
- 12 City of Tustin
- 13 City of Westminister
- 14 East Orange County Water District
- 15 El Toro Water District
- 16 Emerald Bay Service District
- 17 Golden State Water Co. - OC
- 18 Irvine Ranch Water District
- 19 Laguna Beach County Water District
- 20 Mesa Water District
- 21 Moulton Niguel Water District
- 22 Santa Margarita Water District
- 23 Serrano Water District
- 24 South Coast Water District
- 25 Trabuco Canyon Water District
- 26 Yorba Linda Water District
- 27 Orange County Water District (Groundwater Wholesaler)

Figure 3.1 Regional Location of Mesa Water District and Other MWDOC Member Agencies

3.2 Water Service Area and Facilities

3.2.1 Water Service Area

Mesa Water's water service area is located along the coast of Southern California within the County of Orange. Mesa Water is between one-eighth of a mile to almost six miles inland of the Pacific Ocean. It is also approximately 37 miles southeast of Los Angeles, 88 miles north of San Diego and 475 miles south of San Francisco. The service area is approximately 18 square mile that includes most of the City of Costa Mesa, portions of the City of Newport Beach and a small portion of unincorporated Orange County. Mesa Water shares borders with the County of Orange, the Cities of Huntington Beach, Fountain Valley, Irvine, Santa Ana, and Newport Beach.

Mesa Water is located within the County of Orange, which has one of the most robust economies in California. Mesa Water's service area includes notable landmarks and major regional facilities such as the John Wayne Orange County Airport, State of California's Fairview Development Center, Segerstrom Center for the Arts, Orange County Fairgrounds, Orange Coast College, and South Coast Plaza shopping complex.

Unlike most typical coastal areas, elevation ranges from 30 to 110 feet above sea level near the ocean mesa and declines in elevation inland from the mesa. Mesa Water's geographic location places it over a portion of the Orange County Basin, a large underground aquifer that lies beneath the northern service area, and much of the rest of northern Orange County. Orange County Water District (OCWD) has managed the groundwater basin since 1933. A map of Mesa Water's water service area is shown as Figure 3.2.

3.2.2 Water Facilities

Mesa Water typically supplies 100 percent of its water demands from groundwater. Mesa Water can use imported water as an emergency backup supply and serves recycled water from the Green Acres Project (GAP). Mesa Water operates seven wells that pump clear groundwater from the main production aquifer of the Orange County Basin, as well as two wells that pump amber-tinted water located below the main production aquifer. The amber-tinted water wells are treated at the Mesa Water Reliability Facility (MWRF), an advanced membrane treatment plant, before being pumped into the distribution system. Mesa Water has approximately 328 miles of water mains and two reservoirs with pump stations for operational and emergency storage. The reservoirs have a total storage of 29.45 MG. Mesa Water has four metered imported water connections. Additionally, Mesa Water has four emergency interconnections with the City of Santa Ana, and emergency interconnections with the City of Newport Beach, and five emergency interconnections with Irvine Ranch Water District (IRWD).

3.3 Climate

Mesa Water's service area is located within the South Coast Air Basin (SCAB) that encompasses all of Orange County, and the urban areas of Los Angeles, San Bernardino, and Riverside counties. The climate in the SCAB area is characterized by southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers, and moderate rainfall.

Local rainfall has limited impacts on reducing water demand in Mesa Water, except for the case of landscape irrigation demand. For example, in August 2023, Orange County as a region experienced the lowest seasonal water demand due to significant summer precipitation events from Tropical Storm Hilary. The increase in precipitation allowed landscape irrigation systems to be turned off, however other municipal and industrial uses (e.g., consumption, processing, and washing remained the same).

Water that infiltrates into the soil may enter groundwater supplies depending on the local geography. However, due to the large extent of impervious cover in Southern California, rainfall runoff quickly flows to a system of concrete storm drains and channels that lead directly to the ocean. OCWD has successfully captured stormwater along the Santa Ana River and in recharge basins for years and used it as an additional source of supply for groundwater recharge. Based on the 2022 Basin 8-1 Alternative Plan Update, OCWD captured an average annual stormwater volume of approximately 54,000 acre-feet (AF) over the period of five years, from Water Year 2016-17 to 2020-21.

MET's water supplies come from the State Water Project (SWP) and the Colorado River Aqueduct (CRA) are influenced by climate conditions in northern California and the Colorado River Basin, respectively. Both regions have variable hydrologic conditions that can significantly affect MET's supplies from year to year. This past decade has seen dramatic swings in annual precipitation, especially in the form of snowpack, which directly affect SWP supply allocations. Similarly, the Colorado River Basin also experienced year-to-year swings in hydrology, and due to the prolonged drought conditions since 2000, storage within the Colorado River system has declined to less than half of its reservoir capacity and has been fluctuating at that level (MET, 2025).

3.4 Population, Demographics, and Socioeconomics

3.4.1 Service Area Population

Mesa Water serves a 2025 population of 110,432 according to Mesa Water’s Capital Improvement Program. The Center for Demographic Research at California State University, Fullerton (CDR) provided more long-term population projections. Overall, the population is projected to increase 9.5 percent by 2050. Table 3.1 shows the population projections in five-year increments out to the year 2050 within Mesa Water’s service area.

Table 3.1 Submittal 3-1 Retail: Population - Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)						
Population Served	2025	2030	2035	2040	2045	2050(opt)
	110,432	114,184	119,811	120,548	122,460	120,958

Notes:

Source (up to 2035): Transportation Analysis Zone level data provided by Southern California Association of Governments as used in 2024 Connect SoCal.

Source (from 2040 onwards): Center for Demographic Research at California State University, Fullerton, 2025.

3.4.2 Demographics and Socioeconomics

As shown below in Table 3.2, the total number of dwelling units in Mesa Water service area is expected to increase by 28.4 percent in the next 25 years from 42,899 in 2025 to 55,078 in 2050.

Table 3.2 Mesa Water District Service Area Dwelling Units by Type

Dwelling Units	2025	2030	2035	2040	2045	2050
Single Family	15,981	17,073	17,125	17,171	17,211	17,470
All Other ⁽¹⁾	26,918	30,091	33,423	35,688	37,423	37,608
Total	42,899	47,164	50,548	52,859	54,634	55,078

Notes:

Source: Center for Demographic Research at California State University, Fullerton, 2025.

(1) Includes duplex, triplex, apartment, condo, townhouse, mobile home, etc. Yachts, houseboats, recreational vehicles, vans, etc. are included if is primary place of residence. Does not include group quartered units, cars, railroad box cars, etc.

In addition to the types and proportions of dwelling units, various socio-economic factors such as age distribution, education levels, general health status, income and poverty levels affect Mesa Water’s water management and planning. Based on the United States Census Bureau’s [2023 American Community Survey](#), the City of Costa Mesa, which covers majority of Mesa Water service area, has about 12 percent of population of 65 years and over, 67 percent between the ages of 18 and 64 years, and 21 percent under the age of 18 years. Of Mesa Water’s population over 25 years of age, 89.5 percent is at minimum a high school graduate, with 48.4 percent of this age group having at least a bachelor’s degree.

3.4.3 Demographic Projection Methodology

CDR is a collaborative research center established in 1996 to provide accurate and timely demographic data on population, housing, and employment in Orange County. CDR serves as Orange County’s

authoritative source for demographic information. Mesa Water obtains its service area population and dwelling unit data from MWDOC via CDR.

MWDOC contracts with CDR to update the 2010 population estimates through the current year and to provide an annual estimate of population served by each of its retail water suppliers within its service area. CDR uses geographic information system (GIS) mapping and data from the 2000, 2010, and 2020 United States Decennial Censuses, State Department of Finance (DOF) population estimates, and the CDR annual population estimates and Housing Inventory System (HIS). These annual estimates incorporate annual revisions to the DOF annual population estimates, often for every year back to the most recent Decennial Census. As a result, all previous estimates are set aside and replaced with the most current set of annual estimates. Annexations and boundary changes for water suppliers are incorporated into these annual estimates.

Demographic projections used for this UWMP reflect the most recently available set of projections developed by CDR based on its 2022 Orange County Projections. Demographic projections for Orange County are updated every 4 years, with the next set of projections expected in the late fall of 2026. The 2022 Orange County Projections accounted for Draft RHNA rezone sites with jurisdictions including the number of dwelling units that are most likely to occur/get built by the end of 2050 under assumptions and trends existing at the time of the forecasting effort, including a parcel-level inventory of additional housing capacity from sites that were to be rezoned to accommodate the 6th RHNA cycle. In the summer of 2025, projections by water supplier for population and dwelling units by type were estimated using the 2022 Orange County Projections dataset. Growth for each of the five-year increments was allocated using GIS and a review of the traffic analysis zones (TAZ) data with a 2023 aerial photo. The growth was added to the 2025 estimates for each respective water supplier.

3.5 Land Uses

3.5.1 Current Land Uses

Mesa Water's service area can best be described as a predominantly residential community located along the coast in central Orange County, close to scenic beaches and natural preserves. The influx of tourists during the summer months creates higher demands within Mesa Water's service area, especially at the beach facilities, hotels and restaurants:

Based on the zoning designation collected and aggregated by Southern California Association of Government (SCAG) around 2018, the current land use within Mesa Water's service area can be categorized as follows:

- Single family residential: 1.8 percent.
- Multi-family residential: 40.4 percent.
- Commercial: 13.2 percent.
- Industrial: 10.3 percent.
- Institutional/Governmental: – 19.5 percent.

- Agriculture: 1.0 percent.
- Open space and parks: 12.0 percent.
- Other: 1.8 percent (e.g., Undevelopable or Protected Land, Water, and Vacant).

3.5.2 Projected Land Uses

Mesa Water’s service area is close to being built out, except for limited infill development of vacant legal parcels in the existing residential neighborhoods and commercial areas. Some increase in water demands is also anticipated for redevelopment of existing, underutilized lands with increased densities. A few pending developments are listed in Table 3.3 that will change water demands in the future.

Table 3.3 Mesa Water District Major Planned Developments

Project Address	Project Description	Information
2501 Harbor Boulevard	Fairview Development Center	Minimum of 2,300 dwelling units and potentially 4,000 dwelling units with 35,000 square feet (sf) of commercial
2301 S. Shelley Circle	Southern Region Emergency Operations Center (SREOC)	The proposed project includes (2) two buildings: A +/-34,000 gross sf Main Office Building containing the Emergency Operation Center (EOC) and a +/- 20,000 gross sf warehouse building. In addition to the buildings, a 120-foot-tall communication tower, helipad, guard shack, trash enclosures, diesel generators, water storage tank (24-hour capacity), and a sanitary sewer tank (24-hour capacity) are part of the project scope.
1683 Sunflower	One Metro West	15 acres, Mixed-Us, Multi-Family Residential (957 dwelling units via Bldgs. A, B and C) and 6,000 sf retail. 1.5 acres open space.
3150 Bear Street	140-Unit Residential Single Family Homes	
W. 17th Street and Pomona Avenue	425 apartment complex and 46 multi-family residences	

It should be noted that the 2025 Orange County Water Demand Projection Model discussed in Chapter 4 was based on CDR’s 20202 Orange County projections. The developments listed above may have been added or modified since. As a result, the future demands associated with these developments may increase Mesa Water’s water demand beyond what is presented in this Urban Water Management Plan (UWMP).

In addition to the above developments, new developments may potentially also include accessory dwelling units (ADU) beyond 2025, which are separate small dwellings embedded within residential properties. There has been an increase in the construction of ADUs in California in response to the rise in interest in providing affordable housing supply.

The following requirements and changes in laws will impact Mesa Water's future land use moving forward:

- **Regional Housing Needs Assessment (RHNA)** - State law requires jurisdictions to provide their share of the RHNA allocation. SCAG determines the housing growth needs by income for local jurisdictions through RHNA. The cities lying in the service area of Mesa Water will continue planning for their RHNA allocation requirements as outlined in their respective General Plan Housing Elements.
- **Accessory Dwelling Units (ADUs)** – ADUs are separate small dwellings embedded within residential properties. There has been an increase in the construction of ADUs in California in response to the rise in interest to provide affordable housing supply. Since 2020, several landmark laws were passed by State Legislature, updating ADU law to simplify the construction, rental, and sale of ADUs in California. The most significant laws that have recently come into effect include:
 - » [AB-1033 Accessory dwelling units: local ordinances: separate sale or conveyance](#) which authorizes local governments to adopt ordinances permitting the sale of ADUs separately from the primary residence as condominiums.
 - » [AB-976 Accessory dwelling units: owner-occupancy requirements](#) which prohibits a local agency from requiring owner-occupancy for property owners to build and rent an ADU.
 - » [AB-1154 Junior accessory dwelling units](#) which no longer requires owner-occupancy for Junior ADUs (JADU) as long as they have their own bathroom.
 - » [AB-1332 Accessory dwelling units: preapproved plans](#) which requires local agencies to develop a program for pre-approved ADU plans, with projects using these plans having to be approved or denied within 30 days.
 - » [SB-543 Accessory dwelling units and junior accessory dwelling units](#) which requires local agencies to determine if an ADU/JADU application is complete within 15 business days of submittal, revises ADU size to now be measured by "interior livable space", and now re-defines a JADU to be no more than 500 square feet of interior livable space.
 - » [SB-1211 Land use: accessory dwelling units: ministerial approval](#) which authorizes multi-family property owners to build up to eight detached ADUs on a single lot, provided that the number of ADUs does not exceed the number of existing primary units.
 - » [AB-2533 Accessory dwelling units: junior accessory dwelling units: unpermitted developments](#) which prohibits local agencies from denying permits for unpermitted ADUs/JADUs constructed before January 1, 2020, based on code violations unless the structure is a health or safety hazard.

In 2024, a total of 6,162 new residential units were permitted in Orange County, including those for ADUs (CDR, 2025). CDR projects that by 2050, approximately 13,000 more ADUs will be built in Orange County, with 1,206 ADUs expected within Mesa Water's service area. The increase in ADUs is likely to result in an increase in number of people per lot of land. Depending on whether the addition of ADUs results in a net replacement of irrigated area (or other high water use features such as swimming pools), ADUs could increase or decrease water demands.

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CHAPTER 4 WATER USE CHARACTERIZATION

One of the main objectives of an Urban Water Management Plan (UWMP) is to provide an insight into the projected future water demands and supplies. This chapter describes Mesa Water District's (District) current and future water demands for their service area, factors that influence demands, and the methodology used to forecast future water demands over the next 25 years. For this 2025 UWMP, water demand projections will span from planning year 2025 through planning year 2050.

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

Known for its suburban coastal communities and densely populated inland areas, Orange County has evolved greatly from its beginnings as an agricultural region. As some of the earliest cities in Orange County, the Cities of Anaheim, Fullerton, and Santa Ana all joined with 10 other southern California cities to form the Metropolitan Water District of Southern California (MET) in 1928 with the ambitious dream to bring Colorado River water across the Mojave Desert. The Municipal Water District of Orange County (MWDOC) later joined MET as a member agency in 1951, and with the merger with Coastal Municipal Water District in 2001, now represents the remainder of Orange County to provide and manage the imported water supplies within its service area. Orange County is now mostly comprised of residential, mixed-use, and commercial developments, with less industry in the region. Agriculture in the region has also declined significantly as Orange County has grown more suburban. Thus, modern-day water use within Orange County can be largely summarized by the following four demand sectors:

- Single-family Residential.
- Multifamily Residential.
- Commercial, Industrial, and Institutional (CII).
- Dedicated Irrigation (potable, recycled and raw water).

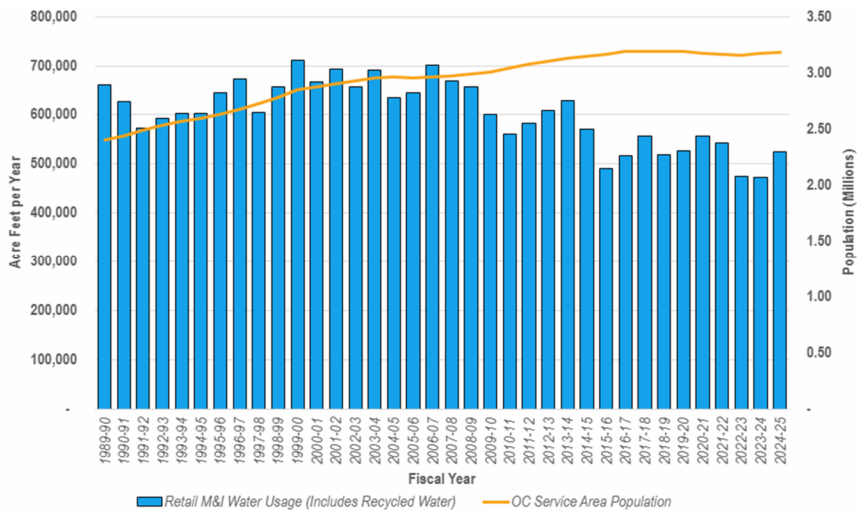


Figure 4.1 Historical Water Use and Population in Orange County

Figure 4.1 shows Orange County’s overall historical water usage compared to population since 1990, when local water conservation programs were first established. As shown, from the early 1990s through the mid-2000s, Orange County’s water usage increased as the population increased. Population figures slowed significantly in 2018 and began to decrease during the COVID-19 Pandemic in 2020-2021. Since 2007, retail, municipal, and industrial water use in Orange County has declined due to multiple contributing factors. Decades of sustained investments in water-use efficiency and public education have led to significant adoption of water-efficient appliances and fixtures, and increased public awareness of the need to use water wisely. Furthermore, in response to recurring droughts, growing urban demand, and increasingly limited water supplies, multiple regulatory requirements to promote water conservation have evolved and been implemented over the past two decades throughout California and Orange County.

Orange County’s trending decline in water usage can most notably be attributed to Orange County water agencies’ past efforts to achieve regional and individual compliance with Senate Bill (SB) X7-7, the Water Conservation Act of 2009, through the Orange County 20x2020 Regional Alliance and compliance with Executive Order (EO) B-29-15. EO B-29-15 mandated 25 percent reduction in potable water use in response to the 2013-2014 drought. Furthermore, Orange County water agencies’ ongoing progress towards achieving SB 606 and Assembly Bill (AB) 1668, the “*Making Conservation a California Way of Life*” legislation, water use objectives continue to exemplify Orange County water agencies’ commitment to water conservation, water use efficiency, and overall reduction in potable water usage in recent decades.

In 2025, MWDOC and Orange County Water District (OCWD), in collaboration with MWDOC’s member agencies and the Cities of Anaheim, Fullerton, and Santa Ana, led the effort to develop the 2025 Orange County Water Demand Projection Model. The Orange County Water Demand Projection Model (MWDOC, 2025) was used to project long-term water demand under three hydrologic conditions (normal year, single dry year, and five consecutive dry years) over a 25-year horizon in 5-year increments, consistent with the 2025 UWMP requirements.

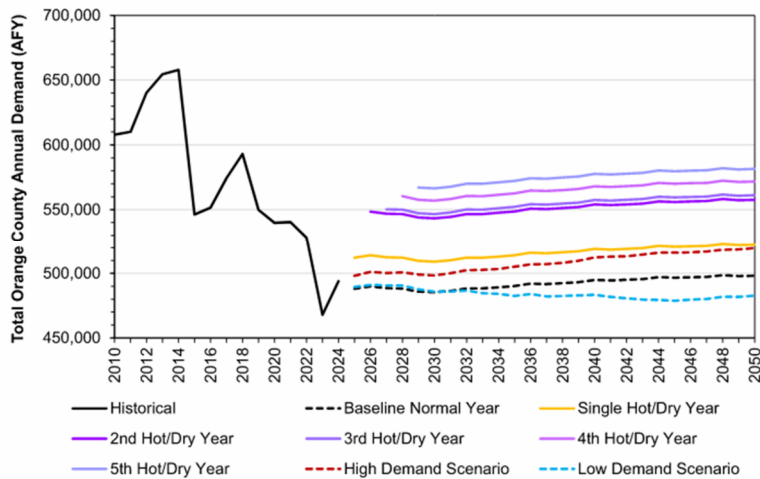


Figure 4.2 Projected Water Use Across All Orange County Water Agencies

Although Orange County demands are forecast to be relatively flat into the future, with water use efficiency efforts counterbalancing new growth, Figure 4.2 shows that annual variations in weather could cause high fluctuations. Some examples of this are described below:

- Single-family consumption is highly seasonal, and the model correlates well with seasonality and temperature by capturing fluctuations in single-family outdoor irrigation.
- Multi-family use is generally less responsive to weather than single-family demands, as much of multi-family outdoor irrigation has been shifted into the irrigation-specific water use sector (dedicated irrigation meters), and generally newer multi-family dwellings in Orange County have comparatively less landscaped area than generally older single-family dwellings due to Model Water Efficient Landscape Ordinances (MWELO) mandated since 1993. Seasonal price elasticity varies the least between months for the multi-family sector.
- Commercial, Industrial and Institutional use is positively correlated to each job proportion as well as gross domestic product throughout Orange County, which means a higher amount of CII jobs and production value trend in an increase in water demands.
- Irrigation is the most responsive to temperature and precipitation compared to the other sectors.

In terms of future development, north Orange County is substantially built out, with a majority residential land uses with some mixed-use areas dedicated to commercial, institutional, and governmental uses. Future developments planned in north Orange County are mainly redevelopment and infill projects. As for Mesa Water's service area specifically, future developments include a number of mixed use, industrial, and residential projects, housing to meet the Regional Housing Needs Assessment (RHNA) allocations for the cities within its service area, and Accessory Dwelling Units (ADU), which will all shape Mesa Water's future water use.

Water use within Mesa Water's service area has fluctuated in the past five years (Fiscal Year [FY] 2020-21 through FY 2024-25), with an annual average total water use of approximately 16,557 acre-feet (AF). Following one of the worst droughts in California history between 2017 and 2022, the significant wet year in 2023 saw a decrease in overall water use from FY 2021-22 to FY 2022-23 in Mesa Water's service area.

Water use in FY 2024-25 included 15,667 AF of potable water and 847 AF of non-potable water for landscape irrigation. Mesa Water's water use is primarily residential. The projected water use in 2050 is 17,590 AF for potable water and 577 AF for non-potable water.

4.1 Water Use in the Last Five Years

The five-year average water use within Mesa Water's service area is approximately 16,557 acre-feet per year (AFY) provided by potable and non-potable sources. Demand trends have remained flat due to water-use efficiency efforts and increased precipitation in recent wet years, such as FY 2023. As mentioned in Chapter 3, population within the service area is expected to increase in the long term. However, total demands have remained relatively stable due to ongoing water conservation programs and improved water use efficiency efforts.

FY 2020-21 through FY 2021-22 saw the highest water uses over the last five years due to region-wide drought conditions. FY 2022-23 proved to be one of the wettest years on record in the State and Mesa Water saw a general decrease in water demand following this wet year, as precipitation offsets landscape irrigation demands. These year-to-year fluctuations in precipitation will continue to influence Mesa

Water’s annual demands. In general, Mesa Water saw a decrease in demands of 6.7 percent over the 5-year reporting period.

Table 4.1 presents Mesa Water’s service area existing water use by source for direct uses. There are no indirect uses within Mesa Water’s service area. As shown, Mesa Water’s service area total water usage in FY 2024-25 was 16,515 AF. The total usage was met through a combination of potable and non-potable sources, including groundwater and recycled water. In FY 2024-25, about 94.9 percent of the total demand was met through Orange County Basin groundwater. In FY 2024-25, the total potable demand was 15,667 AFY, while 847 AFY or about 5.1 percent of the total demand was served with non-potable supplies for landscape irrigation.

Table 4.1 Submittal Table 4-1 Retail: Total Uses for Potable and Non-Potable Water – Actual

Submittal Table 4-1 Retail: 2025 Actual Total Uses for Potable and Non-Potable Water Water Code Section 10631(d)(1)			
Use Type	Additional Description (as needed)	2025 Actual Water Use	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool		Potable or Non-Potable (OPTIONAL) Drop down list	Volume (AF)
Single Family		Potable	4,247
Multi-Family		Potable	4,931
Institutional/Governmental		Potable	1,667
Commercial		Potable	3,414
Industrial		Potable	235
Landscape		Potable	54
Other (optional)	Hydrant Meters and Construction	Potable	27
Landscape	Title 22 tertiary treated recycled water	Non-Potable	847
Distribution System Water Loss		Potable	1,093
		Subtotal Potable	15,667
		Subtotal Non-Potable	847
		Total	16,515
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3. This table identifies the unit of measure selected in Submittal Table 2.3.			
NOTES: Distribution System Water Loss is calculated as the difference between total potable production and use for FY 2025.			

4.1.1 Potable Municipal and Industrial Use

Table 4.1 summarizes Mesa Water’s potable water demand for FY 2024-25. As shown, a total of 15,667 AF of potable water was used. Mesa Water has a mix of single and multi- family residential water use which account for 58.6 percent of their total potable water demand. Combined CII use accounts for 33.9 percent of total potable demand while landscape irrigation accounts for 0.3 percent of total potable demand and other uses account for 0.2 percent of total potable demand. The total [distribution system water loss nonrevenue water](#) to match supply and metered demand was calculated to be 1,093 AFY in FY 2024-25, or

Commented [K12]: Karyn comment.

7 percent of total potable water demand. It should be noted that this differs from Mesa Water’s 653 AFY of water loss reported in the American Water Works Association (AWWA) Water Loss Audit for FY 2025, as the total Water Loss Audit accounts for authorized, unmetered demand such as Costa Mesa Sanitary District Sewer Clean In Place and Costa Mesa Fire Department’s use of Mesa Water District fire hydrants.

Considering the planned developments mentioned in Chapter 3, potable water demands are expected to increase in the future given the possibility of population increases.

4.1.2 Non-Potable Municipal and Industrial Use

Table 4.1 summaries Mesa Water’s non-potable, or outdoor irrigation, water demand for FY 2024-25. As shown, a total of 847 AF was used. Landscape irrigation accounts for 100 percent of total non-potable demand and encompasses delivery of Title 22 tertiary treated recycled water to the 43 recycled water customers within Mesa Water’s service area. Non-potable demands are not expected to increase in the future.

4.2 Projected Water Use

The water use projection for this UWMP is separated into a near-term period covering the next five years (2026-2030) and a long-term period extending from 2030 through 2050. Mesa Water recently completed their 10-year water capital improvement plan which included water use projections through 2035. For this UWMP, Mesa Water included these water use projections in Table 4.2. Furthermore, water use projections from 2035 through 2050 are based on the 2025 Orange County Water Demand Projection Model Technical Memorandum (TM), which is included in Appendix H of this UWMP. The methodology used in this demand forecast links water use statistically to a set of explanatory variables through a regression, or econometric, model. Section 4.3 offers a description of the methodology used to calculate Mesa Water’s demand projections.

4.2.1 Water Use Projections for 2026-2030

Total demands (direct) are met through groundwater and recycled water. Mesa Water’s total water demand projection for the next five years is shown in Table 4.2. As shown, Mesa Water’s total service area water demands are expected to have a net increase over the next five years (2026 to 2030) due to projected growth in the service area’s Municipal and Industrial (M&I) demands.

Table 4.2 Mesa Water District’s Service Area Total Potable and Non-Potable Demand for 2026-2030

Fiscal Year Ending	2026	2027	2028	2029	2030
Total Water Demand (AF)	16,794	17,073	17,353	17,632	17,911

Notes:
 AF – acre-feet

4.2.2 Water Use Projections for 2030-2050

Mesa Water’s service area’s total water demands (by use type) for the next 25 years are shown in Table 4.3. As described in section 4.2, water use projections to 2035 were provided by Mesa Water’s recently completed water system capital improvement plan and projections from 2035 to 2050 were provided by the 2025 Orange County Water Demand Projection TM. By 2050, total water demand is

projected to be 17,767 AF, a 7.6 percent increase from the 2025 demand of 16,515 AFY. Table 4.4 indicates additional information for both future conservation efforts and low-income water demands included in the projections, while Table 4.5 presents the passive water savings included in Table 4.3 projections for 2030-2050.

Table 4.3 Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected

Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected Water Code Section 10631(d)(1)							
Use Type	Additional Description (as needed)	Projected Water Use (Report To the Extent that Records are Available)					
		Potable or Non-Potable (OPTIONAL) Drop down list	2030 ⁽¹⁾ (AF)	2035 ⁽¹⁾ (AF)	2040 ⁽²⁾ (AF)	2045 ⁽²⁾ (AF)	2050 ⁽²⁾ (opt) (AF)
Single Family		Potable	5,130	5,383	4,490	4,464	4,464
Multi-Family		Potable	5,673	5,953	5,947	6,087	6,063
Commercial	Includes Institutional and Industrial uses	Potable	5,139	5,139	3,711	3,707	3,713
Landscape	Includes Agriculture use	Potable	14	14	1,606	1,598	1,598
Landscape	Includes Agriculture use	Non-Potable	1,084	1,084	1,084	1,084	1,084
Distribution System Water Loss	Includes Other uses	Potable	871	898	842	847	846
Subtotal Potable			16,827	17,387	16,597	16,703	16,683
Subtotal Non-Potable			1,084	1,084	1,084	1,084	1,084
Total			17,911	18,471	17,681	17,787	17,767
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2.3. This table identifies the unit of measure selected in Submittal Table 2.3.							
NOTES:							
(1) Source (up to 2035): Mesa Water District CIP Update.							
(2) Source (from 2040 onwards): 2025 Orange County Water Demand Projection Model Forecast for Mesa Water District.							

Table 4.4 Submittal Table 4-3 Retail: Inclusion in Water Use Projections

Submittal Table 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? Drop down list (y/n)	Yes
If "Yes" to above, state the section or page number , in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found. Optional Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Chapter 4.3
Are Lower Income Residential Demands Included In Projections? Drop down list (y/n)	Yes
Optional If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found.	Chapter 4.3
DWR NOTES: Additional guidance is provided in Appendix K.	
NOTES: Future water savings include passive conservation (defined as water savings that occur without incentives). Active conservation (defined as water savings that occur with incentives) is not included in the projections. The demand projection methodology accounted for the entire population of the service area (i.e., all income levels).	

Table 4.5 Optional Submittal Table 4-4 Retail: Passive Water Savings Projections

OPTIONAL Submittal Table 4-4 Retail: Passive Water Savings Projections Water Code Section 10631(d)(4)(A)					
Description (Codes, Standards, Ordinances, or Plans)	Passive Savings				
	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	2050 opt (AF)
Add additional rows as needed					
Passive Water Savings	187	194	199	201	201
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2.3. This table identifies the unit of measure selected in Submittal Table 2.3.					
NOTES: Passive conservation here is defined as water savings that occur without incentives. Based on the 2025 Orange County Water Demand Projection Model, passive conservation is assumed to equal a 1.9 percent decrease in residential demand due to conservation by 2030 (linearly extrapolated), then remains constant in subsequent years.					

4.2.2.1 Potable Municipal and Industrial Use

As shown in Table 4.3, the total potable water demands are projected to reach 16,683 AF by the year 2050, a decrease of about 0.9 percent between 2030 and 2050. It is projected that combined single- and multi-family residential water use will account for 63.1 percent of total potable water demand, CII water use is expected to account for 22.3 percent, and landscape irrigation water use will account for 9.6 percent of total potable water use for Mesa Water by 2050. Combined distribution system water losses and other uses are expected to account for 846 AFY or 5.1 percent of total potable water demand by 2050.

4.2.2.2 Non-Potable Municipal and Industrial Use

As shown in Table 4.3, the total non-potable, or outdoor irrigation, water demands are projected to remain relatively constant and be 1,084 AF by the year 2050, per the 2025 Orange County Water Demand

Projection Model. Mesa Water does not anticipate any more users being connected to Mesa Water's recycled water system in the future.

4.3 Water Demand Projection Methodology

As described in section 4.2, Mesa Water used two different projection methodologies for water use from 2025 to 2035 and 2035 to 2050. The following sections briefly describe each one.

4.3.1 Water Demand Projections From 2025 to 2035

A population-based method was used to forecast water demand through 2035 for Mesa Water District Capital Improvement Program Update. Socioeconomic projections of population were provided by Southern California Association of Governments, a joint powers authority that encompasses six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura). The data was originally prepared for the 2024-2050 Regional Transportation Plan and Sustainable Communities Strategy, also known as Connect SoCal 2024. The Regional Housing Needs Assessment is included in the population projections, a process mandated by the State of California's housing laws to determine existing and future housing needs. The population within Mesa Water's service area is expected to increase from 108,360 in 2019 to 119,811 in 2035 according to an analysis of Transportation Analysis Zone level data provided by Southern California Association of Governments. This projection equates to an annual growth rate of approximately 0.6 percent.

4.3.1.1 Forecasted Demands

Discussed in detail in Technical Memorandum 1 – Water Demand of Mesa Water District Capital Improvement Plan Update (Appendix H), residential demand accounted for 67 percent of potable water billing in FY 2022 with the remaining 33 percent being non-residential demand. The residential indoor and outdoor per capita water demand during this year is 85.6 gallons per capita day. Assuming no increases due to employment or conservation, the projected demand is based on population growth only.

4.3.2 Water Demand Projection from 2035 to 2050

In 2025, MWDOC and OCWD, in collaboration with MWDOC's member agencies and the Cities of Anaheim, Fullerton, and Santa Ana, led the effort to develop the 2025 Orange County Water Demand Projection Model, (MWDOC, 2025). This effort developed a demand model by regressing historical water consumption data provided by each Orange County water agency against several explanatory variables known to influence water demand (including weather, water price, regional economic conditions, and housing density). The water demand projections were for the Orange County region as a whole and provided retail agency specific demands, spanning the years of 2025-2050. The full TM can be found in Appendix H.

The demand projections created four econometric, or regression, demand models representing the following four water billing sectors for each Orange County retail agency:

- Single-family Residential.
- Multifamily Residential.
- Commercial, Industrial, and Institutional (CII).
- Dedicated Irrigation (potable, recycled and raw water).

Prior to developing the forecasts, model calibration and fine tuning for each of the four demand sectors occurred at the individual retail agency level. The demand across all four models, plus other uses for each agency, is summed to a total forecast for each agency, the MWDOC service area, the OCWD service area, and total Orange County.

The demand projection methodology accounted for the entire population of each individual retail agency's service area (i.e., all income levels), thus accounting for the water demand projections for lower income households within Mesa Water's service area.

4.3.2.1 Econometric Approach, Data Acquisition, and Model Development

A regression, or econometric, approach to demand forecasting statistically links retail level water use to weather, economic, and socioeconomic factors (explanatory variables). The model relies on a comprehensive dataset of historical water-use data for almost 40 different billing sectors collected from Orange County retail agencies. MWDOC obtained explanatory variables from reputable sources, including weather databases and Census-based reports. The explanatory variables used in the regression were based on industry experience regarding what factors affect water use nationwide and in Southern California.

By statistically linking water use to explanatory variables, the econometric models provide a robust foundation for understanding variability and projecting future consumption patterns. Modeled water use is the product of the driver count (e.g., number of accounts), and the rate of water use per driver:

$$\text{Water Use} = \text{Driver Count} \times \text{Rate of Use per Driver}$$

Each of the four demand sectors modeled (single family, multifamily, CII, and irrigation) has a separate equation. Driver units change into the future based on housing, employment, and population projections. The rate of water use per driver is based on the historical response of the use rate to explanatory variables (measured by coefficients) and the future values of those same explanatory variables.

Linear regression produces the coefficients for each explanatory variable to closely reproduce the historical rate of use per driver unit. The coefficients explain how (both in terms of magnitude and sign) water use responds to changes to explanatory variables.

MWDOC identified driver units based on data provided by agencies and the Center for Demographic Research at California State University, Fullerton (CDR) that can be easily projected into the future. The rate of water use per driver is based on agency provided billing sector uses from 2010 through 2024. Table 4.6 shows the driver units and rate of use for each of the four models.

Table 4.6 Summary of Demand Sectors

Sector	Driver Units	Rate of Use Definition
Single-Family Residential	Accounts	Gallons/account/day
Multi-Family Residential		Gallons/account/day
Commercial, Institutional, Industrial (CII)	Jobs	Gallons/job/day
Dedicated Irrigation (potable, recycled & raw water)	Accounts	Gallons/account/day

The rates of water use for each sector model are based on the historical responses to explanatory variables, and the future values of those explanatory variables. Addressing multiple influences on demand improves the accuracy and precision of all estimated parameters, and the modeling team identified a large range of explanatory variables based on past experience with demand modeling and available data. Table 4.7 displays the explanatory variables.

Table 4.7 Summary of Historical Data Collected for Model Development

Dataset	Data Source(s)
Observed weather (monthly precipitation, monthly maximum temperature)	Parameter-elevation Regressions on Independent Slopes Model (PRISM)
Water Price	Retail agency provided (2010 – 2024)
Drought Restrictions	State Water Resources Control Board
Gross Domestic Product (GDP)	Federal Reserve Bank of St. Louis Real Gross Domestic Product: All Industries in Orange County, CA
Median Income	US Census American Community Survey (ACS)
Housing Density	US Census American Community Survey (ACS), California State University Fullerton Center for Demographics Research (CDR), Southern California Association of Government (SCAG) land use data
Persons Per Household	US Census American Community Survey (ACS), California State University Fullerton Center for Demographics Research (CDR), Southern California Association of Government (SCAG) land use data
Relative Sectoral Economic Activity	US Census LODES, CDR
Passive Efficiency Estimates	Analysis of trend indicators and MWDOC/FLUME insight
COVID-19 Binary Indicator	Assumed active from March 2020 – May 2023

The MWDOC Water Use Efficiency Group provided annual water savings achieved by various active conservation measures. To avoid potential errors in the classification of historical conservation data, total historical conservation was modeled in each sectoral regression model using a linear trend to capture steady change over time. While historical conservation is captured in a linear trend, projected passive conservation is based on best available data from the 2021 Orange County Residential Water Efficiency Potential and Opportunities Study and assumes a 1.9 percent decrease in annual residential demand from 2025 to 2030, at which point passive conservation is projected to remain constant. Future active conservation is not accounted for in baseline demand forecast, as water savings from active programs (programs that require customers to change behavior) are highly specific to retail agencies and to the formulation and timing of their implementation.

The process of identifying the explanatory variables to include in the regression equation and developing coefficients that accurately measure the response of water use to changes in these variables is the most time-intensive part of the demand forecasting process.

Prior to developing the forecasts, model calibration and fine tuning for each of the four demand sectors occurred at the individual retail agency level. The modeling team worked with each retail agency to

calibrate sectoral model equations and quantify other uses (those not included in the single-family, multifamily, irrigation, or CII demand sectors).

Figure 4.3 presents the iterative process undergone to develop the econometric demand forecasts.

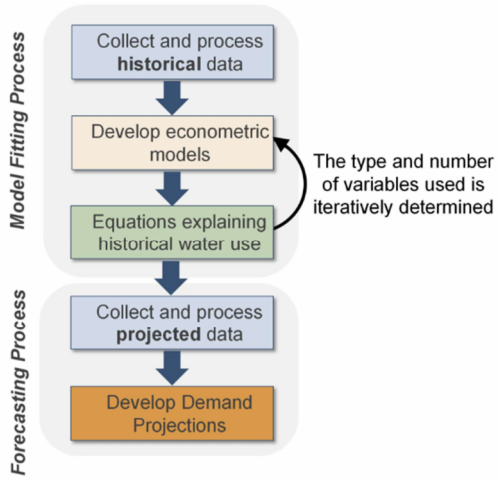


Figure 4.3 Econometric Demand Forecast Development Process

4.3.2.2 Forecasted Demands

Forecasted demand is a function of both the change in driver units into the future as well as the change in explanatory variables. Table 4.8 summarizes the future drivers and variables and assumptions for the baseline forecast. It should be noted that the CDR demographic forecast accounts for both the RHNA allocations and projected increase in ADUs. The 2022 Orange County Projections accounted for Draft RHNA rezone sites¹ with jurisdictions including the number of dwelling units that are most likely to occur/get built by the end of 2050 under assumptions and trends existing at the time of the forecasting effort.

Table 4.8 Future Model Parameters

Data Category	Variable	Source	Assumptions
Driver Units	Single-family and multifamily accounts	CDR	Historical households per account; averages are multiplied by households projected by CDR
	Irrigation accounts	Agency Billing Data	Accounts are assumed to be constant into the future
	Sectoral Employment	CDR	Proportion of jobs within CII sectors projected by CDR
Explanatory Variables	Monthly Maximum Temperature and Total Precipitation	PRISM	30-year historical normal weather
	Water Price	Retail Agencies	Prices increase by 3% per year above inflation for 2025-2030 and keeps pace with inflation thereafter (zero difference from inflation trend)
	Water Use Restrictions	State and Local Restrictions	None
	Seasonality		Sine/cosine functions to capture monthly pattern
	Median Income	US Census	Constant income at 2022 value (real dollars)
	Housing Density	CDR	Derived from CDR housing unit projections, assuming residential area remains at 2024 levels
	Persons Per Household	CDR	CDR projected demographics
	Gross Domestic Product	Federal Reserve	Long-term GDP trend
	Relative Sectoral Employment	CDR	Calculated based on CDR projections
	Passive Efficiency Estimates	Flume Insight	Assumes a 2% decrease in residential demand due to conservation by 2030 (linearly extrapolated), then no change
COVID-19 Binary Indicator		None (occurred between March 2020 and May 2023)	

¹ For the 2022 Orange County Projections, CDR collected initial draft input from local jurisdictions in September 2021 on their anticipated jurisdiction-level housing growth for each projection year. In December 2021-February 2022, CDR reviewed and extracted data from jurisdictions' draft housing elements to create a parcel-level inventory of additional housing capacity from sites that were to be rezoned to accommodate the 6th RHNA cycle. These were reviewed by jurisdictions in spring 2022. Jurisdictions completed the rezoning of the final sites after their housing elements were certified by the State Housing and Community Development Department starting in 2022. The final adopted rezone sites will feed into CDR's 2026 Orange County Projections.

The normal year scenario was provided by the baseline forecast. In this model, the single dry year scenario used a hot-dry index (HDI) to identify the year with the most weather-sensitive demand, with 2014 selected for most agencies. The multiple dry year was developed to describe the potential impact of consecutive dry years.

The forecasts for individual agencies, including Mesa Water’s, were then summed to the regional level, providing regionally consistent forecasts for all of Orange County.

4.4 Water Loss

Mesa Water has conducted annual water loss audits since 2015 per the American Water Works Association (AWWA) methodology per SB 555 to understand the relationship between water loss, operating costs and revenue losses. Non-revenue water for FY 2020-2024 consists of three components: real losses (e.g., leakage in mains and service lines, and storage tank overflows), apparent losses (unauthorized consumption, customer metering inaccuracies and systematic data handling errors), and unbilled water (e.g., hydrant flushing, firefighting). Table 4.9 summarizes the status of the last five years of water loss audit reporting for the water system. Reports can be found online at [WUEdata - Water Audit Plans](#). Understanding and controlling water loss from a distribution system is an effective way for the City to achieve regulatory standards and manage their existing resources.

Table 4.9 Submittal Table 4-5 Retail: Water Loss Audit Reporting

Submittal Table 4-5 Retail: Water Loss Audit Reporting Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report submittal status for all five years for each Public Water System as available. Add rows as needed		
CA3010004	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
DWR NOTES: Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
NOTES: Water Loss Audits reported in Fiscal Years (FY).		

Signed in 2018 and adopted in 2024, the “*Making Conservation a California Way of Life*” legislation (SB 606 and AB 1668) establishes a new framework for long-term improvements in urban water use efficiency and drought planning as California adapts to climate change impacts. Under the regulation, Suppliers must annually calculate Urban Water Use Objectives based on standards applied at the service-area scale, including the Water Loss Performance Standard developed by the State Water Resources Control Board to minimize water waste through system leaks. The Water Loss Performance Standard requires that Suppliers must meet the real water loss standard and apparent water loss standard by 2028.

Table 4.10 presents Mesa Water’s progress towards compliance with the 2028 Water Loss Standard, as of the time of writing this UWMP. The most recent AWWA Water Loss Audit for FY 2025 was utilized for the calculations presented.

Table 4.10 Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard Water Code Section 10631(d)(3)(C)												
Public Water System ID # Reported in Submittal Table 2.1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	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			Apparent Water Loss Per Unit per Day
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss Drop down list	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit)	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 (from AWWA Water Loss Audit)		
			(AF)					(AF)				
Add additional rows as needed.												
CA3010004	Yes	16.7	Gallons per Service Connection per Day (GPSCD)	22,529	382.89	15.2	11.4	Gallons per Service Connection per Day (GPSCD)	22,529	270.54	10.7	
Water Board's Calculated Water Loss Standards												
DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss MUST remain consistent with units reported in Submittal Table 2.3. The units reported in Submittal Table 2.3 are used in this table's calculations.												
NOTES: Uses the Water Board's calculated water loss standards updated as of 01/30/2026 and AWWA Water Loss Audit for FY 2025. Connection count may differ from what is reported in Table 2.1 R for FY 2025.												

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CHAPTER 5 CONSERVATION TARGET COMPLIANCE

The Water Conservation Act of 2009, also known as Senate Bill (SB) X7-7, mandated a 20 percent reduction in urban per-capita water use across California by 2020. To achieve this goal, the Act required each retail water supplier to establish an urban water-use target, contributing to the State's collective efforts. The Legislature stated that the combined reductions from all retail suppliers would fulfill the statewide legislative mandate.

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

The goal of this chapter is to allow the retail water supplier to report on their progress toward meeting their urban water-use targets in their Urban Water Management Plan (UWMP), pursuant to Water Code Section 10608.40. Suppliers that did not meet their 2020 target in 2020 are required to compare their 2025 water use to the 2020 target.

Retail water suppliers are required to comply with SB X7-7 individually or as a region in collaboration with other retail water suppliers or demonstrate they have a plan or have secured funding to be in compliance, in order to be eligible for water related state grants and loans.

When determining water use in an UWMP, two terms are often used interchangeably:

- **Daily Per-Capita Water Use.** The amount of water used per person per day. In the UWMP calculations, this is total water use within a service area, divided by population, and it is measured in gallons.
- **Gallons Per-Capita Per Day (GPCD).** This is the "daily per-capita water use" measured in gallons. Therefore, the term commonly used when referring to "daily per-capita water use" is "gallons per-capita per day" or GPCD¹.

5.1 Reporting Requirements

Municipal Water District of Orange County's (MWDOC) Water Use Efficiency (WUE) programs helped Orange County meet the state's 20x2020 mandate by coordinating conservation efforts across its member agencies, funding and implementing regionally cost-effective efficiency programs, and enabling compliance through the Orange County 20x2020 Regional Alliance. By aligning its WUE portfolio directly with SB X7-7 requirements, supporting high-impact measures (especially outdoor water savings), documenting eligible indirect potable reuse credits, and centrally handling regional target calculations and reporting, MWDOC allowed participating retailers to comply collectively rather than individually resulting in regional per-capita water use well below the required 2020 target.

As a result of MWDOC's WUE program, all Orange County water retailers, including all MWDOC's member agencies and the participating cities of Anaheim, Fullerton, and Santa Ana, achieved compliance prior

¹ It is important to distinguish GPCD (as used in UWMPs) from the Residential Gallons Per Capita Per Day (R GPCD) that is used in some reporting to the California State Water Resources Control Board (SWRCB). GPCD is the total water use from all sectors within a service area (residential, commercial, institutional, and any others) minus allowable exclusions (as defined in SB X7 7), then divided by the population. This is used in UWMPs. R-GPCD is only a part of the GPCD; it is the estimated residential water use in a service area divided by population.

to 2020. The following table with information taken from the 2020 UWMP verifies that Mesa Water District met their SB X7-7 requirement. A discussion of programs implemented to support the achievement of the agency’s per capita water reduction goals is covered in Section 9 – Demand Management Measures of this UWMP.

Table 5.1 Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress						
Water Code Section 10608.40						
<input type="checkbox"/> Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Proceed to the next table.						
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target? Drop down list	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	Only for suppliers that did not meet the Target in 2020 See DWR NOTES below.	
					Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
No	Individual Target	143	85	Yes		NA
DWR NOTES: Suppliers calculating a 2025 GPCD will need to complete and submit SB X 7-7 Compliance Tables to verify the use of SB X7-7 Methodologies. Suppliers that were part of a merger or consolidation since 2020 see Chapter 5 and Appendix P for guidance. NA=Not Applicable						
NOTES: Supplier met the 2020 target, actual 2025 GPCD not required.						

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CHAPTER 6 WATER SUPPLY CHARACTERIZATION

Orange County has a water supply portfolio made up from a variety of local and imported sources. Groundwater is produced from the Orange County Basin, which is managed by the Orange County Water District (OCWD). To enhance the reliability of groundwater, OCWD has implemented projects and programs over the years that include: (1) the Groundwater Replenishment System (GWRS), which is the world's largest water purification system for indirect potable reuse; (2) increased stormwater capture for groundwater recharge; and (3) participation in the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP), a collaborative, watershed-scale approach for groundwater basin management, replenishment, and water transfers.

Imported water is provided by the Metropolitan Water District of Southern California (MET), the wholesale water provider to 26 member agencies in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. MET's imported water sources are delivered through its own Colorado River Aqueduct (CRA) and the California Aqueduct, under contract with the State Water Project (SWP). To enhance its reliability of its imported water, MET has implemented many programs such as canal lining and transfers of agricultural water, land following programs with irrigation districts, water banking programs, and use of its storage reservoirs.

Local and imported water sources in Orange County are managed in such a way that they complement each other. For example, during wet and normal years additional MET water is purchased for groundwater replenishment in the Orange County Basin. During dry and drought years, when imported water is more limited, more groundwater can be produced to meet Orange County water demands. This coordinated management of water supplies has resulted in reliable water service even during multi-year droughts. Based on the water supply assessment described in this chapter and in Chapter 7, the Orange County region will continue to receive a reliable water supply through the next 25 years.

Specifically, this chapter includes: (1) descriptions of each water supply source and their management; (2) quantification of water supply sources through 2050 under normal, dry, and multi-dry weather conditions; (3) opportunities for exchanges and transfers; and (4) discussion regarding any planned or potential future water supply projects. This chapter also includes the energy intensity of the water service.

6.1 Water Supply Overview

Mesa Water meets all of its potable water demands with local groundwater. Mesa Water works together with the Municipal Water District of Orange County (MWDOC) and OCWD to ensure a safe and reliable water supply that will continue to serve the community in periods of average, dry and drought hydrologic conditions. MWDOC is the Orange County wholesaler of imported water and one of MET's 26 member agencies. MET's imported water is delivered from the California SWP and MET's CRA to Southern California. If Mesa Water needs imported water to supplement its local groundwater supplies, Mesa Water can purchase imported water through MWDOC.

Local supplies developed by other entities and retail agencies include groundwater, recycled water, and surface water. Local sources presently account for 100 percent of Mesa Water's water supplies, whereby groundwater is the major source of local supply. The primary source of groundwater originates from the

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

Orange County Basin (OC Basin), which is located in the middle portion of MWDOC’s service area and is managed by OCWD. The GWRS is a joint project between OCWD and the Orange County Sanitation District (OC San). Using advanced treatment, recycled wastewater is transformed into a high-quality water supply for groundwater replenishment.

Commented [K12]: GM edit is to add the percent of Basin recharge water that comes from GWRS here.

Mesa Water’s main source of water supply is groundwater from the OC Basin. Recycled water makes up the rest of Mesa Water’s water supply portfolio. In Fiscal Year (FY) 2024-25, Mesa Water used 100 percent local water supplies, relying on 94 percent groundwater and 6 percent recycled water (Table 6.1). Imported water is available as an emergency backup or supplemental supply, however Mesa Water has met all of its potable water demands with local groundwater. Imported water supply has not been a significant supply source for Mesa Water since 2013. In FY 2018, Mesa Water accepted MET water “in lieu” of pumping groundwater to help MET clear space in its reservoirs for snowmelt.

In 2025, MWDOC developed a water demand forecast model for its participating water agencies that statistically correlates municipal and industrial (M&I) water use with demographic, socioeconomic, conservation and weather variables—as reported in the 2025 Orange County Water Demand Projection Model Technical Memorandum (TM) (MWDOC, 2025). Because the model isolates weather, future water demand projects can be estimated under single and multiple-year droughts and under future climate change scenarios.

It is projected that by 2050, Mesa Water’s water portfolio be approximately 94 percent groundwater and 6 percent recycled water (Table 6.2 and Figure 6.1). It should be noted that these representations of supply match the projected demand. Note that the GWRS supplies are included as part of groundwater pumping numbers.

The following subsections provide a detailed discussion of Mesa Water’s water sources as well as the future water supply portfolio for the next 25 years.

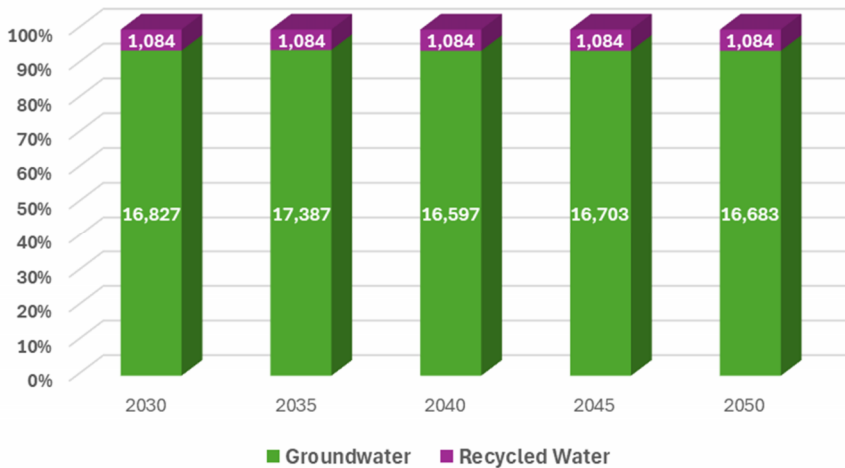


Figure 6.1 Projected Water Supply

Table 6.1 Submittal Table 6-8 Retail: Water Supplies – 2025 Actual

Submittal Table 6-8 Retail: Water Supplies — 2025 Actual Water Code Section 10631(b)			
Water Supply	Additional Description	2025	
		Water Type (after treatment if treated)	Actual Volume (AF)
Groundwater (not desalinated)	Orange County Groundwater Basin	Potable	15,667
Recycled Water	OCWD	Non-Potable	847
Subtotal Potable			15,667
Subtotal Non-Potable			847
Total			16,515

NOTES: Sources - MWDOC, 2025 for groundwater, Mesa Water District for recycled water.

Table 6.2 Submittal Table 6-9 Retail: Water Supplies – Projected

Submittal Table 6-9 Retail: Water Supplies — Projected Water Code Section 10631 (b)							
Water Supply	Additional Detail on Water Supply	Water Type (after treatment if treated)	Projected Water Supply (Report to the Extent Practicable)				
			2030	2035	2040	2045	2050 (opt)
			Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)	Reasonably Available Volume (AF)
Groundwater (not desalinated)	Orange County Groundwater Basin	Potable	16,827	17,387	16,597	16,703	16,683
Recycled Water	OCWD	Non-Potable	1,084	1,084	1,084	1,084	1,084
Subtotal Potable			16,827	17,387	16,597	16,703	16,683
Subtotal Non-Potable			1,084	1,084	1,084	1,084	1,084
Total			17,911	18,471	17,681	17,787	17,767

NOTES: Sources – Mesa Water CIP for groundwater projections through 2035, MWDOC, 2025 for groundwater projections from 2040 through 2050, Mesa Water, 2026 for recycled water.

Commented [K13]: GM comment is to add a row here to show Groundwater (Desalinated). He wrote 1000. Do I need to get clarification on this?

6.2 Imported Water

If needed, Mesa Water can supplement its water supply with imported water purchased from MET through MWDOC. In FY 2024-25, Mesa Water relied on no imported water to meet its demands.

MET's two principal sources of water are the Colorado River and the SWP. MET receives water from the Colorado River through the CRA and from the SWP through the California Aqueduct. For Orange County, the water obtained from these sources is treated at the Robert B. Diemer Filtration Plant located in Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the MET Lower Feeder and SWP water through the Yorba Linda Feeder.

6.2.1 Metropolitan Water District of Southern California

MET is the largest water wholesaler in California, serving approximately 19 million customers in a 5,200 square mile service area. MET wholesales imported water supplies to 26 member agencies located in the six southern California counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura.

MET is governed by a Board of Directors comprised of 38 appointed individuals with a minimum of one representative from each of MET's 26 member agencies. The allocation of directors and voting rights is determined by each agency's assessed valuation. Each member of the Board is entitled to cast one vote for each ten million dollars of assessed valuation of property taxable for district purposes, in accordance with Section 55 of the Metropolitan Water District Act. Directors may be appointed by the chief executive officer of the member agency or by a majority vote of the agency's governing board. Directors are not compensated by MET for their service (The Metropolitan Water District Act, 1969).

MET is responsible for importing water into the region through its operation of the CRA, which brings Colorado River supply to its service area, and its SWP contract, which brings water from northern California via the California Aqueduct. MET supplements its direct deliveries of imported supplies with its storage reservoirs, water transfers, agricultural irrigation water conservation, and water banking programs. Major imported water aqueducts bringing water to southern California are shown in Figure 6.2. The Los Angeles Aqueduct, shown in the figure, is owned and operated by the Los Angeles Department of Water and Power, and not part of MET's imported water supplies. Member agencies receive water from MET through various delivery points and pay for service through a rate structure comprising volumetric rates, capacity charges, and readiness-to-serve charges. Member agencies provide MET with estimates of imported water demand in April each year, indicating the amount of water they anticipate they will need to meet their demands over the next five years.

MWDOC purchases both treated potable and untreated water from MET to supplement its retail agencies' local water supplies and for groundwater replenishment. Figure 6.3 illustrates the MET feeders and major transmission pipelines that deliver water within Orange County.

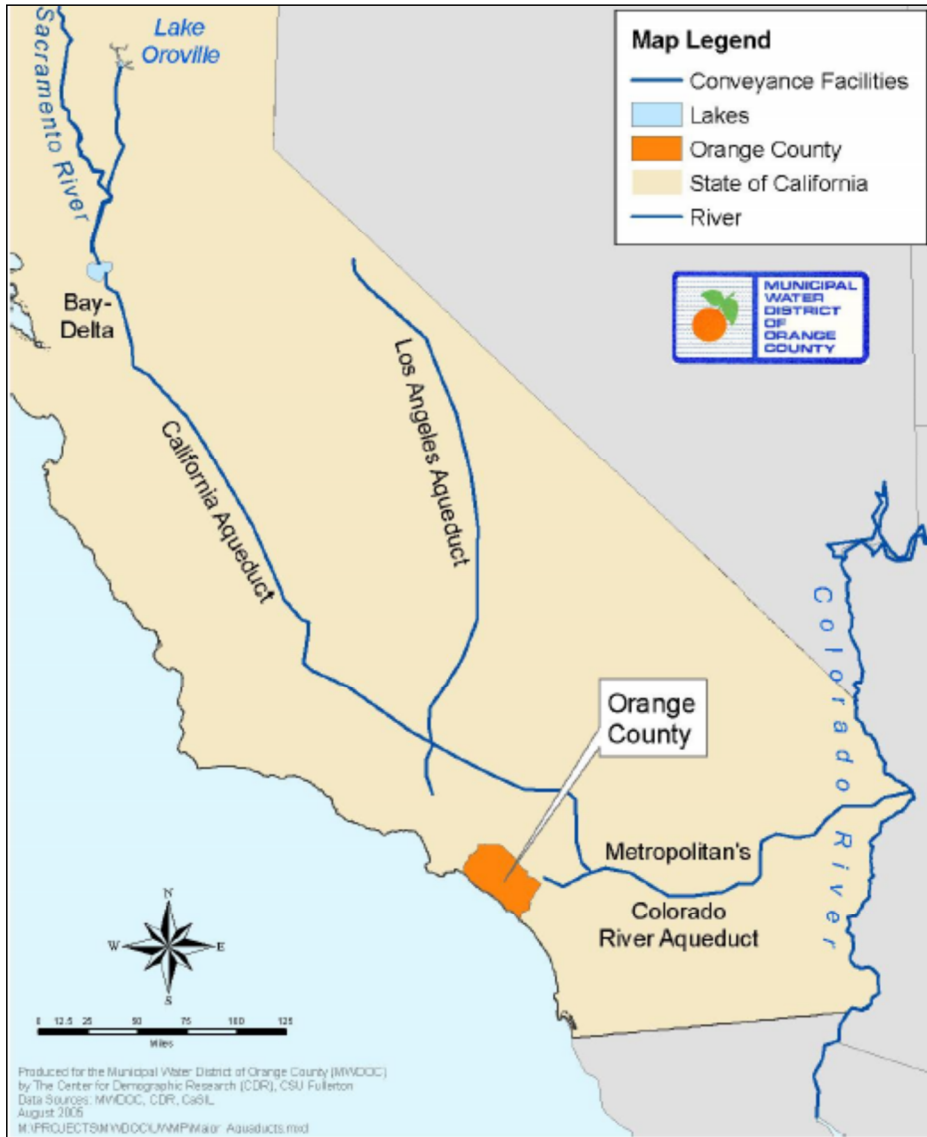


Figure 6.2 Major Aqueducts that Supply Imported Water to Southern California (MET, 2025)

6.2.2 Colorado River Aqueduct

6.2.2.1 Background

The Colorado River was MET's original source of water after MET's establishment in 1928. The original founding members created MET with the goal to build the CRA to bring water to Southern California. The CRA, which is owned and operated by MET, transports water from the Colorado River to its terminus Lake Mathews, in Riverside County. The actual amount of water per year that may be conveyed through the CRA to MET's member agencies is subject to the availability of Colorado River water. Approximately 40 million people rely on the Colorado River and its tributaries for potable water with 5.5 million acres of land using Colorado River water for irrigation. The CRA includes supplies from the implementation of the Quantification Settlement Agreement (QSA) and its related agreements to transfer water from agricultural agencies to urban uses. The 2003 QSA enabled California to implement major Colorado River water conservation and transfer programs to stabilize water supplies and reduce the state's demand on the river to its 4.4 million acre-feet (MAF) entitlement. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis. Water from the Colorado River or its tributaries is available to users in California, Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming, and Mexico. California is apportioned the use of 4.4 MAF of water from the Colorado River each year plus one-half of any surplus that may be available for use collectively in Arizona, California, and Nevada. In addition, California has historically been allowed to use Colorado River water apportioned to, but not used by, Arizona or Nevada. MET has fourth-priority rights, with a basic entitlement of 550,000 acre-feet per year (AFY) of Colorado River water, plus surplus water up to an additional 662,000 AFY when the following conditions exist (MET, 2025):

- Water is unused by the California holders of priorities 1 through 3.
- Water is saved by the Palo Verde land management, crop rotation, and water supply program.
- When the U.S. Secretary of the Interior makes available either one or both of the following:
 - » Surplus water.
 - » Colorado River water that is apportioned to but unused by Arizona and/or Nevada.

6.2.2.2 Current Conditions and Supply

The Colorado River supply faces current and future imbalances between water supply and demand in the Colorado River Basin due to reductions in snowpack, long-term drought conditions, and climate change. The last 25-year period has been called a megadrought, with Lake Mead's elevation dropping from a high of 1,215 feet in 2000 to its lowest level of 1,040 feet in July 2022. While extreme wet conditions resulted in lake levels exceeding 1,077 feet in February 2024, levels have been persistently hovering around 1,057 feet since May of 2025. The United States Bureau of Reclamation (USBR) projects that there is a 53 percent likelihood that Lake Mead elevation could fall below 1,035 feet, which would trigger water shortages for MET under the current operating guidelines. As of August 2025, Lake Mead storage was approximately 31 percent of capacity per USBR's 24-Month Study, which also projected continued Lower Basin shortage conditions in 2026 (MET, 2025).

The current operating guidelines for the Colorado River expire at the end of 2026, and a new, long-term operating plan must be in place by November 2026 to manage the river's water supply. The ongoing Colorado River allocation negotiations are focused on creating a post-2026 operating plan, with states

and the federal government aiming for consensus on how to manage the river's declining water supply due to the severe, prolonged drought in the Colorado River Basin. The drought on the Colorado River began around 2000 and has continued, in various degrees of severity, for over two decades, making it a historic megadrought that has significantly reduced water flow into the river and lowered water levels in reservoirs like Lake Powell and Lake Mead. Although some periods, like the wet winter of 2023, brought temporary relief with increased snowfall, they were not enough to fully replenish the system or overcome the prolonged lack of water and effects of climate change, such as aridification and increased evaporation according to the United States Geological Survey (USGS) 2024. Under the 2007 Interim Guidelines, together with the Lower Basin Drought Contingency Plan (2019), the Intentionally Created Surplus (ICS) program has allowed MET to store conserved water in Lake Mead for subsequent recovery; these frameworks sunset with the Guidelines at the end of 2026 and are expected to be addressed in the post-2026 rules (MET, 2025).

The USBR, which is part of the U.S. Department of the Interior, is the federal agency leading the negotiations and responsible for managing the river system. The ongoing Colorado River negotiations aim to find a fair and sustainable way to allocate the available water, which is significantly less than in the past. Talks are centering on a "natural flow" proposal that divides water based on current river conditions, rather than historical allocations. However, states remain at odds over how much water to allocate to the Upper and Lower Basins, with the federal government planning to impose its own plan if an agreement is not reached by the November 2026 deadline. Some key challenges that remain to be resolved are the different interests of the Upper Basin states (Colorado, Utah, Wyoming, New Mexico) and the Lower Basin states (California, Arizona, Nevada) to reach consensus on how much water the Upper Basin should send downstream. In addition, Tribal nations are also seeking recognition of their rights and a role in the future management of the river. Given MET's junior priority status within California's Colorado River priority system, reductions to MET's supplies are a possibility under future operating criteria; MET's planning reflects this risk (MET, 2025).

Consistent with MET's 2025 Urban Water Management Plan (UWMP), supply capability planning uses USBR's August 2023 Colorado River Simulation System assumptions, including a climate-adjusted flow reduction factor of approximately 9.3 percent per 1°C of warming over the planning horizon (2025-2050). MET continues to utilize supply, storage, transfer, and conservation programs, including ICS participation under the current Guidelines, to manage risk and buffer shortages. In addition, conserved QSA-related transfer water delivered at Lake Havasu (including Imperial Irrigation District and canal-lining exchanges) is categorized in MET's 2025 UWMP as Colorado River imported supply (previously treated as local supply), aligning accounting with current practice (MET, 2025).

6.2.2.3 MET Colorado River Current Programs

Over the years, MET has helped fund and implement various programs to improve Colorado River supply reliability and help resolve the imbalance between supply and demand. Implementation of such programs has contributed to achievements such as a record-low diversion of the Colorado River in 2019, a level not seen since the 1950s. Colorado River water management programs include:

- **Imperial Irrigation District / MET Conservation Program** – Under agreements executed in 1988 and 1989, this program allows MET to fund water efficiency improvements within Imperial Irrigation District's service area in return for the right to divert the water conserved by those investments. An average of 105,000 AFY of water has been conserved since the program's implementation.

- **Palo Verde Land Management, Crop Rotation, and Water Supply Program** – Authorized in 2004, this 35-year program allows MET to pay participating farmers to reduce their water use, and for MET to receive the saved water. Over the life of the program, an average of 84,500 AFY has been saved and made available to MET.
- **Bard Seasonal Fallowing Program** – Authorized in 2019, and subsequently expanded, this program allows MET to pay participating farmers in Bard to reduce their water use between the late spring and summer months of selected year. Under expanded program authorizations through 2026 (Quechan Seasonal Fallowing Program), this program can provide up to approximately 12,000 AFY in certain years.
- **Management of MET-Owned Land in Palo Verde** – Since 2001, MET has acquired approximately 21,000 acres of irrigable farmland that are leased to growers, with incentives to grow low water-using crops and experiment with low water-consumption practices. MET continues to evaluate opportunities to formally account for verified long-term water savings associated with these lands as part of its Colorado River supply reliability strategy.
- **Southern Nevada Water Authority (SNWA) and MET Storage and Interstate Release Agreement** – Entered in 2004, this agreement allows SNWA to store its unused, conserved water with MET, in exchange for MET to receive additional Colorado River water supply. MET has relied on the additional water during dry years, especially during the 2011-2016 California drought, and SNWA is not expected to call upon MET to return water until after 2026.
- **Lower Colorado Water Supply Projects** – Authorized in 1980s, this project provides up to 10,000 AFY of water to certain entities that do not have or have insufficient rights to use Colorado River water. A contract executed in 2007 allowed MET to receive project water left unused by the project contractors along the River – nearly 10,000 acre-feet (AF) were received in recent years when unused supplies were available.
- **Exchange Programs** – MET is involved in separate exchange programs with the USBR, which takes place at the Colorado River Intake and with San Diego County Water Authority (SDCWA), which exchanges conserved Colorado River water.
- **Lake Mead Storage Program** – Executed in 2006 and subsequently integrated with Lower Basin Drought Contingency Plan (DCP) operations, MET may intentionally leave conserved water in Lake Mead for exclusive future use. MET has significantly expanded its use of ICS storage in recent years, including record storage creation (450,000 AF) in 2023 under DCP-related conservation programs.
- **Quagga Mussel Control Program** – Developed in 2007, this program introduced surveillance activities and control measures to combat quagga mussels, an invasive species that impact the Colorado River's water quality.
- **Lower Basin Drought Contingency Plan** – Signed in 2019, this agreement incentivizes storage in Lake Mead through 2026 and overall, it increases MET's flexibility to fill the CRA as needed (MET, 2025).
- **Lower Basin Conservation and System Efficiency Programs** – In recent years, MET has participated in new, multi-agency conservation and system efficiency programs implemented between 2023 and 2026. These programs incentivize agricultural conservation, system efficiency improvements, urban conservation, and groundwater storage in the Lower Colorado River Basin, with the goal of

reducing system demands and increasing storage in Lake Mead during critically dry conditions. This includes programs such as the Quechan Diversion Forbearance program.

The Colorado River faces long-term challenges of water demands exceeding available supply with additional uncertainties due to climate change. Climate change impacts expected in the Colorado River Basin include the following:

- More frequent, more intense, and longer lasting droughts, which will result in water deficits.
- Continued dryness in the Colorado River Basin, which will increase the likelihood of triggering a first-ever shortage in the Lower Basin.
- Increased temperatures, which will affect the percentage of precipitation that falls as rain or snow, as well as the amount and timing of mountain snowpack (MET, 2025).

Given these uncertainties, MET plans to continue implementing and expanding Colorado River conservation, storage, exchange, and transfer programs, while also supporting increased water recycling and system efficiency improvements within the Colorado River Basin. MET continues to evaluate additional transfer and conservation opportunities to further enhance regional supply reliability through the 2025 UWMP planning horizon.

6.2.3 State Water Project

6.2.3.1 Background

The SWP consists of a series of pump stations, reservoirs, aqueducts, tunnels, and power plants operated by California Department of Water Resources (DWR) and is an integral part of the effort to ensure that business and industry, urban and suburban residents, and farmers throughout much of California have sufficient water. Water from the SWP originates at Lake Oroville, which is located on the Feather River in Northern California. Much of the SWP water supply passes through the Sacramento-San Joaquin Delta (Delta). The SWP is the largest state-built, multipurpose, user-financed water project in the United States. Nearly two-thirds of residents in California receive at least part of their water from the SWP, with approximately 70 percent of SWP's contracted water supply going to urban users and 30 percent to agricultural users. The primary purpose of the SWP is to divert and store water during wet periods in Northern and Central California and distribute it to areas of need in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and Southern California (MET, 2025).

The Delta is key to the SWP's ability to deliver water to its agricultural and urban contractors. All but five of the 29 SWP contractors receive water deliveries below the Delta (pumped via the Harvey O. Banks or Barker Slough pumping plants). However, the Delta faces many challenges concerning its long-term sustainability, such as climate change posing a threat of increased variability in floods and droughts. Sea level rise complicates efforts in managing salinity levels and preserving water quality in the Delta to ensure a suitable water supply for urban and agricultural use. Furthermore, other challenges include continued subsidence of Delta islands, many of which are already below sea level, and the related threat of catastrophic levee failure as water pressure increases or following a major seismic event.

In May 2019, DWR withdrew its permit for the two-tunnel WaterFix project in favor of a smaller one-tunnel project alternative. In July 2022, the draft Environmental Impact Report (EIR) for the recommended Delta Conveyance Project alternative was issued, with the project potentially operational by 2040, though its implementation faces strong opposition by environmental organizations and other

interests in the Delta. The maximum value of the Delta Conveyance Project, when coupled with 250,000 AF of new regional storage, is estimated to be 367,000 AFY for MET and 63,000 AFY for Orange County. The Delta Conveyance Project also reduces the probability that any shortage occurs by about 10 percent, meaning a doubling of the time between shortage conditions from once every 5 years to once every decade (MWD, 2023).

6.2.3.2 Current Conditions and Supply

Just like the Colorado River, the amount of water that can be delivered from the SWP to its 29 contractors varies annually based on hydrology and reservoir storage along the SWP. The DWR publishes the maximum entitlement of SWP water for each water contracting agency in “Table A.” DWR sets these allocations to balance the needs for human health and safety, agricultural, and municipal water, considering factors like reservoir storage, runoff forecasts, and Endangered Species Act (ESA) requirements. The primary drivers that influence allocations are hydrologic conditions (precipitation and snowmelt) along with storage levels, especially in Lake Oroville. Actual deliveries typically average less than 50 percent of Table A due to hydrologic and regulatory constraints (MET, 2025). MET’s actual annual allocations based on springtime Table A values for the past UWMP cycles are summarized in Table 6.3.

Table 6.3 MET SWP Program Capabilities

Year	Average Annual Table A Spring Allocation (MAF)
2015	0.38
2020	0.38
2025	0.96
Percent Change⁽¹⁾	+252.6%

Notes:

(1) Percent change is between the years 2020 and 2025. Source: SWP Allocations 1996-2026.

SWP contractors may additionally receive Article 21 water on a short-term basis in addition to Table A water if requested. Article 21 of SWP contracts allows contractors to receive additional water deliveries only under specific conditions, generally during wet months of the year (December through March). Because a SWP contractor must have an immediate use for Article 21 supply or a place to store it outside of the SWP, there are few contractors like MET that can access such supplies (MET, 2025).

Carryover water is SWP water allocated to an SWP contractor and approved for delivery to the contractor in a given year but not used by the end of the year. The unused water is stored in the SWP’s share of San Luis Reservoir, when space is available, for the contractor to use in the following year (MET, 2025).

Turnback pool water is Table A water that has been allocated to SWP contractors who have exceeded their demands. This water can then be purchased by another contractor depending on its availability (MET, 2025).

The following factors affect the ability to estimate existing and future water delivery reliability:

- **Water availability at the source:** Availability can be highly variable and depends on the amount and timing of rain and snow that fall in any given year. Generally, during a single dry year or two, surface and groundwater storage can supply most water deliveries, but multiple dry years can result in critically low water reserves. Fisheries issues can also restrict the operations of the export pumps even when water supplies are available.

- **Water rights with priority over the SWP:** Water users with prior water rights are assigned higher priority in DWR’s modeling of the SWP’s water delivery reliability, even ahead of SWP Table A water.
- **Climate change:** Mean temperatures are predicted to vary more significantly than previously expected. This change in climate is anticipated to bring warmer winter storms that result in less snowfall at lower elevations, reducing total snowpack. From historical data, DWR projects that by 2050, the Sierra snowpack will be reduced from its historical average by 25 to 40 percent. Increased precipitation as rain could result in a larger number of “rain-on-snow” events, causing snow to melt earlier in the year and over fewer days than historically, affecting the availability of water for pumping by the SWP during summer. Furthermore, water quality may be adversely affected due to the anticipated increase in wildfires. Rising sea levels may result in potential pumping cutbacks on the SWP and CVP. DWR’s recent planning documents and the Draft 2025 DCR describe climate-adjusted “existing conditions” baselines and future scenarios used by agencies for UWMPs.
- **Regulatory restrictions on SWP Delta exports:** The federal Biological Opinions (BiOps) protect special-status species such as delta smelt and spring- and winter-run Chinook salmon and imposed substantial constraints on Delta water supply operations through requirements for Delta inflow and outflow and export pumping restrictions. Restrictions on SWP operations imposed by state and federal agencies contribute substantially to the challenge of accurately determining the SWP’s water delivery reliability in any given year (DWR, [2020]b).
- **Ongoing environmental and policy planning efforts:** Following the 2019 withdrawal of WaterFix, DWR certified the Delta Conveyance Project Final EIR and approved the Bethany alignment in December 2023, a key modernization initiative for the SWP. EcoRestore and related habitat efforts continue to advance.
- **Delta levee failure:** The levees are vulnerable to failure because most original levees were simply built with soils dredged from nearby channels and were not engineered. A breach of one or more levees and island flooding could affect Delta water quality and SWP operations for several months. When islands are flooded, DWR may need to drastically decrease or even cease SWP Delta exports to evaluate damage caused by salinity in the Delta.

It can be concluded that the federal regulatory framework affecting the Bay-Delta’s ecosystem, species, and water supply are constantly evolving by adapting to new scientific information, changing climate conditions, and legal challenges. This dynamic and complex regulatory landscape, along with hydrologic and storage conditions along the SWP, continues to result in water supply uncertainties that impact all SWP contractors, including MET, MWDOC, and its member agencies (MET, 2025).

6.2.3.3 SWP Programs/Plans

In the past five years, MET has updated and implemented planning, regulatory, infrastructure, and operational programs to improve the reliability of the SWP supplies while addressing environmental, seismic, and climate-related risks in the Delta and along the California Aqueduct. Key SWP programs and planning efforts include:

- **SWP BiOps and California Incidental Take Permit** – Updated federal BiOps and a California ITP issued in 2024 provide a new operating framework intended to improve flexibility and species

protection. The 2025 MET UWMP characterizes the net reliability benefit at approximately +60,000 AFY relative to prior permits, subject to hydrologic and regulatory conditions.

- **Healthy Rivers and Landscapes (HRL) Voluntary Agreements** – MET supports the State’s proposed Healthy Rivers and Landscapes program, which establishes a voluntary framework for improving Delta ecosystem conditions through coordinated flow contributions and habitat restoration projects. The HRL approach is intended to provide regulatory stability while supporting environmental objectives consistent with SWP operations.

6.2.4 Storage, Transfers, and Conveyance Programs

Storage is a major component of MET’s dry year resource management strategy. MET’s likelihood of having adequate supply capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP) depends on its storage resources. Following a significant drawdown during the 2020-2022 drought, MET rebuilt storage as hydrologic conditions improved. By the end of 2023, MET had approximately 3.4 MAF of regional dry-year storage. Storage increased to 3.8 MAF by the end of 2024, with levels projected to reach approximately 3.9 MAF by the end of 2025. MET also maintains approximately 750 TAF of emergency storage dedicated to catastrophic supply interruption conditions, including a major seismic failure of the Delta levees.

In its 2025 UWMP, MET evaluates storage based on median starting storage at the beginning of each five-year increment, representing a 50 percent probability that actual storage will be higher or lower. This approach differs from earlier UWMPs, which relied on average storage assumptions, and provides a more conservative and realistic representation of storage availability. All storage capability values incorporate conveyance and recovery constraints associated with SWP terminal reservoirs, the CRA, and MET’s in-region and out-of-region groundwater banking programs.

Lake Oroville continues to serve as the SWP’s largest storage facility with a capacity of approximately 3.5 MAF. Water released from Oroville moves to the Feather River and then to the Sacramento River before being pumped south at the Harvey O. Banks pumping plant into the California Aqueduct. MET’s storage portfolio includes surface reservoirs such as Diamond Valley Lake, Lake Mathews, and Lake Skinner; SWP terminal storage in San Luis Reservoir; groundwater banking programs including Semitropic, Arvin-Edison, the High Desert Water Bank, Kern Delta, and Mojave; and ICS storage in Lake Mead. These storage assets provide operational flexibility during dry years and help maintain supplies during extended droughts or emergency events.

MET endeavors to increase the reliability of water supplies through the development of flexible storage and transfer programs including groundwater storage (MET, 2025). These include:

- **Semitropic Storage Program:** The maximum storage capacity of the program is 350,000 AF, and the minimum and maximum annual yields available to MET are 34,700 AF and 236,200 AF, respectively. The specific amount of water MET can expect to store in and subsequently receive from the program depends on hydrologic conditions, any regulatory requirements restricting MET’s ability to export water for storage and demands placed by other program participants. During wet years, MET has the discretion to use the program to store portions of its SWP supplies which are in excess, and during dry years, the Semitropic Water Storage District returns MET’s previously stored water to MET by direct groundwater pump-in or by exchange of surface water supplies.

- **Arvin-Edison Storage Program:** The storage program is estimated to deliver 75,000 AF, and the specific amount of water MET can expect to store in and subsequently receive from the program depends on hydrologic conditions and any regulatory requirements restricting MET's ability to export water for storage. During wet years, MET has the discretion to use to program to store portions of its SWP supplies which are in excess, and during dry years, the Arvin-Edison Water Storage District returns MET's previously stored water to MET by direct groundwater pump-in or by exchange of surface water supplies.
- **Antelope Valley-East Kern (AVEK) Water Agency Exchange and Storage Program:** Under the exchange program, for every 2 AF MET receives, MET returns 1 AF back to AVEK, and MET will also be able to store up to 30,000 AF in the AVEK's groundwater basin, with a dry-year return capability of 10,000 AF.
- **High Desert Water Bank Program:** Developed in partnership with Antelope Valley-East Kern Water Agency, this regional groundwater banking program allows MET to store up to 280,000 AF of SWP Table A or other available supplies in the Antelope Valley groundwater basin. The program provides a put-and-take capability of up to approximately 70,000 AF per year, with infrastructure including monitoring and production wells, California Aqueduct turnouts, pipelines, recharge basins, and pump facilities. Phase 1 became operational in 2023, with full build-out expected by approximately 2030.
- **Kern-Delta Water District Storage Program:** This groundwater storage program has 250,000 AF of storage capacity, and water for storage can either be directly recharged into the groundwater basin or delivered to Kern-Delta Water District farmers in lieu of pumping groundwater. During dry years, the Kern-Delta Water District returns MET's previously stored water to MET by direct groundwater pump-in return or by exchange of surface water supplies.
- **Mojave Storage Program:** MET entered into a groundwater banking and exchange transfer agreement with Mojave Water Agency that allows for the cumulative storage of up to 390,000 AF. The agreement allows for MET to store water in an exchange account for later return.
- **Diamond Valley Lake to Rialto Pipeline** – Planned for completion in 2028, this project creates new conveyance that improves the ability to move non-SWP supplies (120 cubic feet per second (cfs), including CRA and banked water) into areas historically dependent on SWP deliveries, increasing drought and seismic resilience.
- **Sepulveda Feeder Pump Stations (Stage 1)** – This program includes pumping improvements that expand westward movement of CRA/SWP/banked supplies across service areas to address localized system constraints. Pumping capacity is expected to be 30 cfs upon completion of Stage 1 in 2027.
- **Richvale & Western Canal Water Transfers** – These multi-year transfer options will provide supplemental dry-year supplies when available, with volumes up to approximately 54,000 AF (2025-2027).
- **Yuba Accord Extension** – This project is a continuation of an established dry year transfer program from the Yuba watershed that can be accessed subject to hydrologic and regulatory conditions. As of 2025, the extension is under negotiation for approximately 250,000 AFY in supply.
- **San Bernardino Valley MWD Surplus SWP Program** – Programmatic access to surplus SWP supplies (approximately 13,000 AFY) will be available from SBVMWD under certain hydrologic and operational conditions.

6.2.5 Potential Future Water Projects

6.2.5.1 Climate Adaptation Master Plan for Water

In February 2023, the MET's Board directed its staff to integrate water resources planning, climate resilience planning, and financial planning into a *Climate Adaptation Master Plan for Water* (CAMP4W). Then a Joint Task Force of Board Members and Member Agency Managers was convened to facilitate the development of CAMP4W in a timely and transparent process. The main elements of CAMP4W include:

1. Identify climate and growth scenarios, building from analyses conducted for MET's *Integrated Resources Plan* (IRP);
2. Develop time-bound targets for new regional water supplies and system improvements;
3. Establish a framework for decision-making and annual reporting;
4. Form policies, initiatives, and partnerships; and
5. Evaluate business models and funding strategies

Because investments for regional supply reliability and system resilience are significant, it is important that decisions are made through an adaptive management process to avoid the risks associated with over-investment or under-performance. Tracking signposts and progress towards time-bound targets is therefore critical for CAMP4's annual reporting. Currently, regional projects being explored by MET include Pure Water Southern California, new reservoir storage in Southern California of up to 155,000 AFY, regional seawater desalination, and participation in California's Delta Conveyance Project. These projects will be scored against the following CAMP4W criteria: (1) reliability; (2) resilience; (3) financial; (4) adaptability/flexibility; (5) equity; and (6) environmental co-benefits.

Pure Water Southern California – The potential Pure Water Southern California program, a partnership with the Sanitation Districts, will purify wastewater that currently flows to the ocean to produce high quality recycled water. The purified water would be delivered to Metropolitan's member agencies to meet their groundwater replenishment and storage requirements. The 2025 MET UWMP does not include Pure Water yield in projected supplies (MET, 2025).

Sites Reservoir – This potential project includes a water storage reservoir of 1.5 MAF and would require the construction of two large dams up to 310 feet high and nine smaller saddle dams. The water stored in the reservoir, located north of Sacramento, would be diverted from the Sacramento River during high flow events and returned to the Sacramento River during dry and critical years, thereby providing additional dry-year water for environmental flows and project partners including SWP agencies south of the Delta. The current operations model estimates the annual water yield of the Sites Reservoir Project at approximately 270 TAF per year by 2032, when the Sites Reservoir Project is scheduled to be operational (MET, 2025). The 2025 MET UWMP does not include Sites Reservoir in projected supplies (MET, 2025).

Delta Conveyance Project – Following the withdrawal and termination of the California WaterFix project, the State advanced a new single-tunnel Delta Conveyance Project to address seismic risk, sea-level rise, extreme weather, and regulatory uncertainty while improving long-term SWP delivery reliability. The environmental review was completed in 2023 and DWR has approved the project. Potential yield used in planning analyses is on the order of approximately 400,000 AFY, but the 2025 MET UWMP does not include Delta Conveyance Project yield in projected supplies pending future milestones and contracting decisions (MET, 2025).

6.2.6 Supply Reliability within MET

MET's 2025 UWMP reports on its water reliability and identifies projected supplies to meet the long-term demand within its service area. The MET 2025 UWMP discusses the current water supply conditions and long-term plans for supply implementation and continued development of a diversified resource mix. It describes the programs being implemented, such as the CRA, SWP, Central Valley storage/transfer programs, water use efficiency programs, local resource projects, and in-region storage that will enable the region to meet its water supply needs. MET's 2025 UWMP also presents MET's supply capacities from 2025 through 2050 for average year, single dry year, five consecutive dry years, and more frequent and severe droughts, as specified in the UWMP Act.

Information concerning MET's UWMP, including the background, associated challenges, and long-term development of programs for each of MET's supply sources and capacities have been summarized and included in the following subsections. Additional information on MET can be found directly in MET's 2025 UWMP.

6.2.6.1 MET's Water Service Reliability Assessment Results

In MET's 2025 UWMP, MET evaluated supply reliability by projecting supply and demand under a normal year, single-dry year, and five-year consecutive dry years, based on conditions affecting the SWP (MET's largest and most variable supply). For this supply source, the average of historical years 1922-2021 most closely represents water supply conditions in a normal water year, the single driest year was 1977 and the five-year dry period was 1988-1992. The analyses also include Colorado River supplies under the same hydrological variations.

MET also incorporated the SWP and Colorado River's reliability factors, such as water quality objectives set by the SWRCB, BiOps, and amendments to the Coordinated Operations Agreement for the SWP and Quantification Settlement Agreements for the Colorado River into their assessment.

MET has concluded that the region can provide reliable water supplies under normal, single-dry, and five-year consecutive dry conditions (Table 6.4, Table 6.5, Table 6.6, respectively).

In each of the following tables, "Current Programs" supplies include:

- In-Region Supplies and Programs:
 - » Metropolitan Surface Storage (Diamond Valley Lake, Lake Mathews, Lake Skinner).
 - » Flexible Storage in Castaic Lake and Perris Lake.
 - » Groundwater Storage for Conjunctive Use.
- California Aqueduct (SWP), including Central Valley transfers and storage program supplies conveyed by the aqueduct.
- Colorado River Aqueduct, including deliveries, programs, and exchanges with SDCWA.

These supplies are impacted - typically reduced - by the single dry year and multiple dry year scenarios. Though demands increase in these drought conditions, MET projects reliable supply, even surplus, through 2050. MWDOC is a MET member agency, and MET's projections take into account the imported demands from Orange County. As so, MET's water reliability assessments are used to determine that demands within MWDOC can be met for all three hydrological conditions.

Table 6.4 MET's Projected Supply Capability and Demands Through 2050 for a Normal Year

**Normal Year
 Supply Capability¹ and Projected Demands
 Average of 1922-2021 Hydrologies
 (acre-feet per year)**

Forecast Year	2030	2035	2040	2045	2050
Current Programs					
In-Region Supplies and Programs	789,000	776,000	746,000	733,000	827,000
California Aqueduct ²	1,723,000	1,694,000	1,668,000	1,641,000	1,641,000
Colorado River Aqueduct					
Total Supply Available ³	1,334,700	1,358,200	1,336,000	1,323,500	1,345,500
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	3,762,000	3,720,000	3,664,000	3,624,000	3,718,000
Demands					
Total Demands on Metropolitan	1,225,000	1,238,000	1,266,000	1,285,000	1,303,000
Exchange with SDCWA	278,000	278,000	278,000	278,000	278,000
Total Metropolitan Deliveries⁵	1,503,000	1,516,000	1,544,000	1,563,000	1,581,000
Surplus	2,259,000	2,204,000	2,120,000	2,061,000	2,137,000
Programs Under Development					
In-Region Supplies and Programs	0	0	0	0	0
California Aqueduct	0	0	0	0	0
Colorado River Aqueduct					
Total Supply Available ³	0	0	0	0	0
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	0	0	0	0	0
Potential Surplus	2,259,000	2,204,000	2,120,000	2,061,000	2,137,000

Notes:

1. Represents Supply Capability for resource programs under listed year type.
2. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
3. Colorado River Aqueduct includes programs and Exchange with SDCWA conveyed by the aqueduct.
4. Maximum CRA deliveries limited to 1.25 MAF including Exchange with SDCWA.
5. Total demands are adjusted to include Exchange with SDCWA.

Table 6.5 MET's Projected Supply Capability and Demands Through 2050 for a Single Dry Year

**Single Dry Year
 Supply Capability¹ and Projected Demands
 Repeat of 1977 Hydrology
 (acre-feet per year)**

Forecast Year	2030	2035	2040	2045	2050
Current Programs					
In-Region Supplies and Programs	789,000	776,000	746,000	733,000	827,000
California Aqueduct ²	662,000	649,000	635,000	622,000	622,000
Colorado River Aqueduct					
Total Supply Available ³	1,334,700	1,358,200	1,336,000	1,411,000	1,433,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	2,701,000	2,675,000	2,631,000	2,605,000	2,699,000
Demands					
Total Demands on Metropolitan	1,356,000	1,375,000	1,401,000	1,419,000	1,436,000
Exchange with SDCWA	278,000	278,000	278,000	278,000	278,000
Total Metropolitan Deliveries⁵	1,634,000	1,653,000	1,679,000	1,697,000	1,714,000
Surplus	1,067,000	1,022,000	952,000	908,000	985,000
Programs Under Development					
In-Region Supplies and Programs	0	0	0	0	0
California Aqueduct	0	0	0	0	0
Colorado River Aqueduct					
Total Supply Available ³	0	0	0	0	0
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	0	0	0	0	0
Potential Surplus	1,067,000	1,022,000	952,000	908,000	985,000

Notes:

1. Represents Supply Capability for resource programs under listed year type.
2. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
3. Colorado River Aqueduct includes programs and Exchange with SDCWA conveyed by the aqueduct.
4. Maximum CRA deliveries limited to 1.25 MAF including Exchange with SDCWA.
5. Total demands are adjusted to include Exchange with SDCWA.

Table 6.6 MET's Projected Supply Capability and Demands Through 2050 for a Drought (5 Consecutive Water Years)

**Drought Lasting Five Consecutive Years
 Supply Capability¹ and Projected Demands
 Repeat of 1988-1992 Hydrology
 (acre-feet per year)**

Forecast Year	2030	2035	2040	2045	2050
Current Programs					
In-Region Supplies and Programs	160,000	156,000	149,000	146,000	165,000
California Aqueduct ²	733,200	720,400	690,400	660,400	579,400
Colorado River Aqueduct					
Total Supply Available ³	1,189,200	1,241,700	1,204,500	1,197,000	1,245,500
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,189,200	1,241,700	1,204,500	1,197,000	1,245,500
Capability of Current Programs	2,082,400	2,118,100	2,043,900	2,003,400	1,989,900
Demands					
Total Demands on Metropolitan	1,324,000	1,390,000	1,411,000	1,434,000	1,453,000
Exchange with SDCWA	278,000	278,000	278,000	278,000	278,000
Total Metropolitan Deliveries⁵	1,602,000	1,668,000	1,689,000	1,712,000	1,731,000
Surplus	480,400	450,100	354,900	291,400	258,900
Programs Under Development					
In-Region Supplies and Programs	0	0	0	0	0
California Aqueduct	0	0	0	0	0
Colorado River Aqueduct					
Total Supply Available ³	0	0	0	0	0
Aqueduct Capacity Limit ⁴	60,800	8,300	45,500	53,000	4,500
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	0	0	0	0	0
Potential Surplus	480,400	450,100	354,900	291,400	258,900

Notes:

1. Represents Supply Capability for resource programs under listed year type.
2. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.
3. Colorado River Aqueduct includes programs and Exchange with SDCWA conveyed by the aqueduct.
4. Maximum CRA deliveries limited to 1.25 MAF including Exchange with SDCWA.
5. Total demands are adjusted to include Exchange with SDCWA.

6.2.6.2 MET's Drought Risk Assessment Results

For its Drought Risk Assessment (DRA), MET assessed the reliability of each individual water supply source over the five-consecutive-year drought through a modeling method using the same historical hydrologic conditions as the water service reliability assessment: 1922 to 2021. MET used the five consecutive years of 1988 to 1992 to complete its DRA, because this represents the driest five-consecutive year historical sequence for MET's supply. Even without activating Water Shortage Contingency Plan (WSCP) actions, according to MET's 2025 UWMP Table 2-8, MET's water supply from the SWP and CRA can reliably meet the demands of a five-year drought from FY 2025-26 through FY 2029-30 (Table 6.7).

Table 6.7 MET's Water Use, Supply, and Drought Risk Assessment for 2026-2030

**Metropolitan's Drought Risk Assessment
 Water Use, Supply, and Risk Assessment for 2026 – 2030
 (also included as Appendix 11 DWR Submittal Table 7-5)**

Submittal Table 7-5 Wholesale: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)		
2026		Total
Total Water Use (AF)		1,511,000
Total Supplies (AF)		973,000
Surplus/Shortfall w/o WSCP Action		(538,000)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit (AF)		538,000
WSCP - use reduction savings benefit (AF)		0
Revised Surplus/(shortfall)		0
2027		Total
Total Water Use (AF)		1,633,000
Total Supplies (AF)		2,267,000
Surplus/Shortfall w/o WSCP Action		634,000
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit (AF)		0
WSCP - use reduction savings benefit (AF)		0
Revised Surplus/(shortfall)		634,000
2028		Total
Total Water Use (AF)		1,714,000
Total Supplies (AF)		1,169,000
Surplus/Shortfall w/o WSCP Action		(545,000)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit (AF)		545,000
WSCP - use reduction savings benefit (AF)		0
Revised Surplus/(shortfall)		0
2029		Total
Total Water Use (AF)		1,561,000
Total Supplies (AF)		1,197,000
Surplus/Shortfall w/o WSCP Action		(364,000)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit (AF)		364,000
WSCP - use reduction savings benefit (AF)		0
Revised Surplus/(shortfall)		0
2030		Total
Total Water Use (AF)		1,588,000
Total Supplies (AF)		1,301,000
Surplus/Shortfall w/o WSCP Action		(287,000)
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)		
WSCP - supply augmentation benefit (AF)		287,000
WSCP - use reduction savings benefit (AF)		0
Revised Surplus/(shortfall)		0
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the		
NOTES: Totals may not foot due to rounding. See 2025 UWMP discussion in Chapter 2.4 Drought Risk Assessment regarding the supply augmentation actions that may be exercised to meet demands through 2030.		

6.3 Local Groundwater

Among all local supplies available to Mesa Water’s service area, groundwater supplies make up the majority, with the primary supply from the OC Basin. The water supply resources within Mesa Water’s service area are enhanced by the existence of groundwater basins, which provide a reliable local source and, additionally, are used as reservoirs to store water during wet years and draw from storage during dry years. Table 6.8 shows a breakdown of historical groundwater production by Mesa Water.

Mesa Water pumps groundwater through [seven](#) active groundwater wells. Seven of these active wells pump “clear” groundwater directly into the distribution system, following disinfection with chloramines. Clear wells are subject to OCWD’s Basin Production Percentage (BPP). Additionally, two wells that pump amber colored groundwater from a deeper aquifer are first treated at the Mesa Water Reliability Facility (MWRF). Treated groundwater is then pumped into the distribution system. This groundwater production is exempt from the Basin Equity Assessment (BEA), extra fees for pumping beyond the BPP. As of early 2026, Mesa Water wells are not affected by per and polyfluoroalkyl substances (PFAS).

This section describes the groundwater basin(s) used by Mesa Water and provides a 25-year projection of the service area’s groundwater supply (Table 6.8).

Table 6.8 [Submittal Table 6-1 Retail: Groundwater Pumped in Past 5 Years Within Mesa Water’s Service Area \(AF\)](#)

Submittal Table 6-1 Retail: Groundwater Volume Pumped Water Code Section 10631(4) and 10631(4)(c)							
Groundwater Type	Water Type (Potable/ Non-Potable)	Location or Basin Name	2021	2022	2023	2024	2025
			(AF)	(AF)	(AF)	(AF)	(AF)
Alluvial Basin		Orange County Groundwater Basin	16,551	16,326	14,778	14,860	15,667
Total			16,551	16,326	14,778	14,860	15,667

NOTES: Source – MWDOC, 2025. These values include groundwater pumped from both clear wells and MWRF amber wells.

6.3.1 Orange County Groundwater Basin

This section describes the OC Basin and the management measures taken by OCWD, the basin manager and member agency of MWDOC, to optimize local supply and minimize overdraft.

The OCWD was formed in 1933 by a special legislative act of the California State Legislature to protect and manage the County’s vast, natural, groundwater supply using the best available technology and defend its water rights to the OC Basin. This legislation is found in the State of California Statutes, Water – Uncodified Acts, Act 5683, as amended. The OC Basin is managed by OCWD under the Act, which functions as a statutorily-imposed physical solution. The OCWD Management Area includes approximately 89 percent of the land area of the OC Basin, and 98 percent of all groundwater production occurs within the area. Approximately 2.5 million residents live within OCWD’s boundaries and rely upon the basin for their primary water supply. OCWD manages water resource monitoring programs, land use elements related to basin management, groundwater elevation, groundwater quality, and coastal area monitoring through a number of monitoring programs. OCWD monitors the basin by collecting groundwater elevation and quality data from approximately 400 District-owned wells and manages an

electronic database that stores water elevation, water quality, production, recharge, and other data on over 2,000 wells and facilities within and outside OCWD boundaries (OCWD, 2023). For detailed monitoring programs and management information, refer to the 2022 Basin 8-1 Alternative Plan (Appendix E).

Groundwater levels are managed within a safe basin operating range to protect the long-term sustainability of the OC Basin and to protect against land subsidence. OCWD, a member of agency of MWDOC, purchases untreated water from MET for basin recharge, as needed. In addition, OCWD regulates groundwater levels in the OC Basin by regulating the annual amount of pumping and setting the BPP for the water year. As defined in the District Act, the BPP is the ratio of water produced from groundwater supplies within the OCWD service area to all water produced within the area from both supplemental sources and groundwater within the OCWD (OCWD, 2020a). More information regarding the BPP is discussed in Section 6.3.1.3.

6.3.1.1 Basin Characteristics

The OC Basin underlies the northern half of Orange County beneath broad lowlands. The OC Basin, managed by OCWD, covers an area of approximately 350 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, and the Pacific Ocean to the southwest. The OC Basin boundary extends to the Orange County-Los Angeles Line to the northwest, where groundwater flows across the county line into the Central Groundwater Basin of Los Angeles County. A map of the OC Basin is shown on Figure 6.4. The total thickness of sedimentary rocks in the OC Basin is over 20,000 feet, with only the upper 2,000 to 4,000 feet containing fresh water. The OC Basin's estimated full storage volume is approximately 66 MAF.

There are three major aquifer systems that have been subdivided by OCWD, namely the:

- Shallow Aquifer System.
- Principal Aquifer System.
- Deep Aquifer System.

These three aquifer systems are hydraulically connected as groundwater can flow between each other through intervening aquitards or discontinuities in the aquitards. The Shallow Aquifer system occurs from the surface to approximately 250 feet below ground surface. Most of the groundwater from this aquifer system is pumped by small water systems for industrial and agricultural use. The Principal Aquifer system occurs at depths between 200 and 1,300 feet below ground surface. Over 90 percent of groundwater production is from wells that are screened within the Principal Aquifer system. Only a minor amount of groundwater is pumped from the Deep Aquifer system, which underlies the Principal Aquifer system and is up to 2,000 feet deep in the center of the OC Basin.

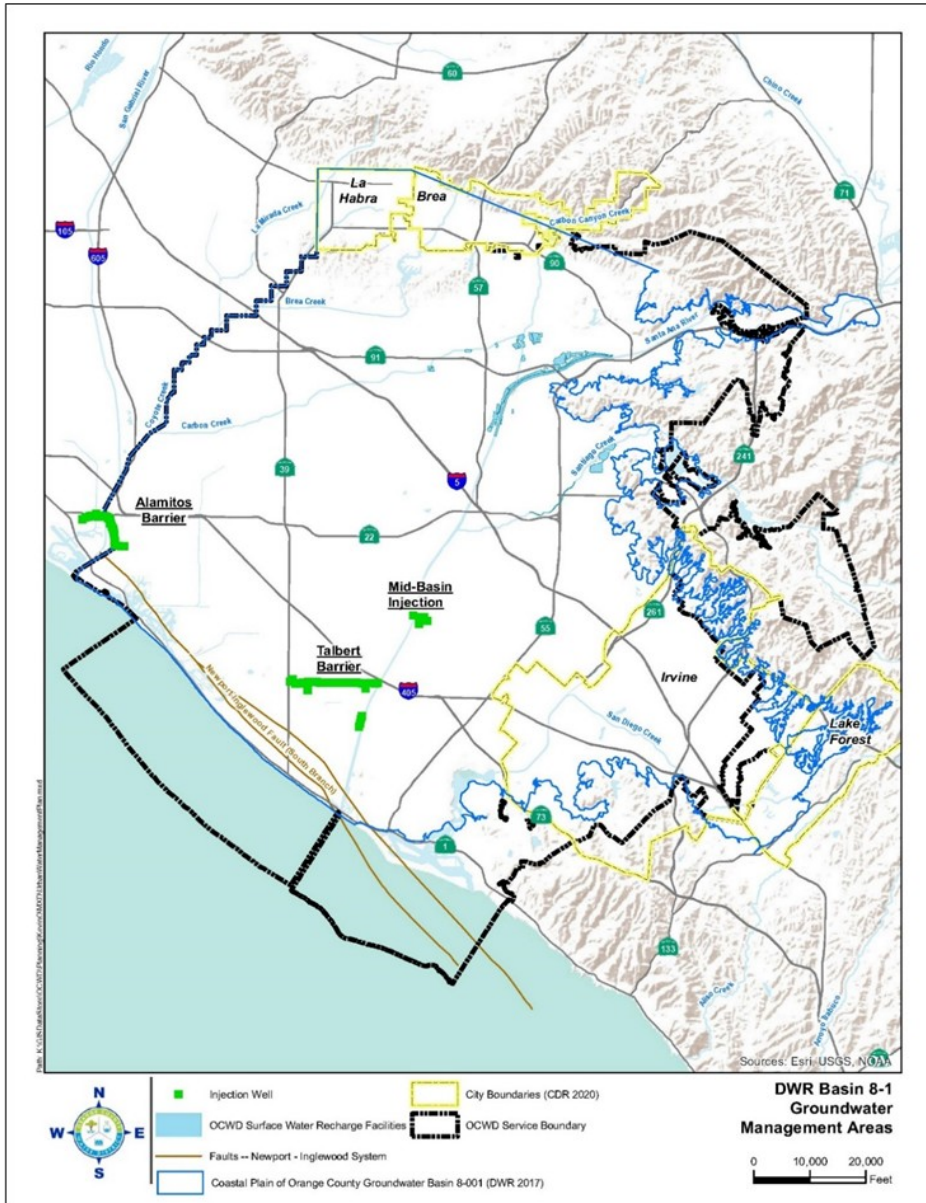


Figure 6.4 Map of the OC Basin (OCWD, 2022)

6.3.1.3 Basin Production Percentage

Background

The OC Basin is not adjudicated; therefore, groundwater production is managed through a framework that uses financial incentives to encourage sustainable pumping. The framework is based on the BPP, which represents the percentage of each Producer's total water supply that comes from groundwater pumped from the OC Basin. Groundwater production at or below the BPP is assessed by the Replenishment Assessment (RA). While there is no legal limit as to how much an agency pumps from the OC Basin, there is a financial impact to pump above the BPP. The BPP is set uniformly for all Producers by OCWD on an annual basis. Agencies that pump above the BPP are charged the RA plus the BEA. The BEA is calculated so that the cost of groundwater production above the BPP is equivalent to the cost of importing potable water supplies. This approach ensures there is no financial advantage for production above the BPP. The BEA can be increased to discourage production above the BPP if necessary.

The BPP is set annually by OCWD based on groundwater conditions, availability of imported water supplies, and OC Basin management objectives. The supplies available for recharge must be estimated for a given year. The estimated supplies of recharge water include: 1) stormflow from the Santa Ana River and Santiago Creek, 2) natural incidental recharge, 3) Santa Ana River baseflow, 4) GWRS supplies, and 5) other supplies such as imported water and recycled water purchased for the Alamitos Barrier. The BPP is a major factor in determining the cost of groundwater production from the OC Basin. For the 2026–27 water year, OCWD maintained a BPP of 85 percent. Under normal hydrologic conditions, groundwater production could reach approximately 315,000 AFY. However, actual production in FY 2026–27 is expected to be approximately 299,000 AFY due to PFAS-related impacts that continue to limit groundwater availability among several producers.

BPP Adjustments for Basin Management

OCWD has established management guidelines that are used to establish future BPPs, as seen in Table 6.9. Raising or lowering the BPP allows OCWD to manage the amount of pumping from the basin. OCWD has a policy to manage the groundwater basin within a sustainable range to avoid adverse impacts to the basin. OCWD seeks to maintain some available storage space in the basin to maximize surface water recharge when such supplies are available, especially in relatively wet years. By keeping the basin relatively full during wet years, and for as long as possible in years with near-normal recharge, the maximum amount of groundwater could be maintained in storage to support pumping in future drought conditions. During dry hydrologic years, when less water is available for recharge, the BPP could be lowered to maintain groundwater storage levels. A component of OCWD's BPP policy is to manage the groundwater basin so that the BPP will not fluctuate more than 5 percent from year to year.

The OCWD's GWRS came online in 2008 with a capacity of approximately 70 million gallons per day (mgd) and was expanded to 100 mgd in 2015. In 2023, it was expanded again to a final capacity of 130 mgd. The GWRS provides a resilient local water supply that recharges the OC Basin with advanced treated wastewater. The additional yield supported OCWD's move to raise the BPP from the long-standing approximately 77 percent level prior to 2023 to 85 percent beginning in February 2023. Monthly water-resources reports show agencies achieving 86 percent to 88 percent pumping shares after the final expansion in late-2024 to early-2025, which reflects increased reliance on local groundwater supplies enabled by GWRS production along with the reduced water demands of approximately 400,000 AFY.

Modeling and forecasts generate estimates based on historical averages. Consequently, forecasts use average hydrologic conditions, which smooth the dynamic and unpredictable local hydrology. Variations in local hydrology are the most significant impact to supplies of water available to recharge the groundwater basin. The current BPP of 85 percent is based on modeling of average annual rainfall weather patterns and estimated groundwater recharge volumes. If OCWD were to experience a relatively dry period, the BPP could be reduced to maintain water storage levels, along with other management actions shown in Table 6.9.

Table 6.9 Management Actions Based on Changes in Groundwater Storage

Available Storage Space ⁽¹⁾	Basin Management Action to Consider
Less than 100,000 AF	Raise BPP
100,000 to 300,000 AF	Maintain and / or raise BPP towards 85% goal
300,000 to 350,000 AF	Seek additional supplies to refill basin and / or lower the BPP
Greater than 350,000 AF	Seek additional supplies to refill basin and lower the BPP

Notes:

(1) Amount below full basin condition.

Basin Equity Assessment Exemptions

In some cases, OCWD encourages treating and pumping groundwater that does not meet drinking water standards to protect water quality. This is achieved by using a financial incentive called the BEA Exemption. A BEA Exemption is used to promote beneficial uses of poor-quality groundwater and reduce or prevent the spread of poor-quality groundwater into non-degraded aquifer zones. OCWD uses a partial or total exemption of the BEA to compensate a qualified participating agency or Producer for the costs of treating poor quality groundwater, which typically include capital, interest and operations and maintenance costs for treatment facilities (City of La Habra et al., 2017). Similarly, for proactive water quality management, OCWD occasionally exempts a portion of the BEA for their Coastal Pumping Transfer Program (CPTP). The CPTP encourages inland groundwater producers to increase pumping and coastal producers to decrease pumping to reduce the groundwater basin drawdown at the coast and protect against seawater intrusion. Inland pumpers can pump above the BPP without having to pay the full BEA for the amount pumped above the BPP (OCWD, 2015). Coastal pumpers receive BEA revenue from OCWD to assist in offsetting their additional water supply cost from taking less groundwater.

OCWD Resilience Plan

To address evolving conditions within OCWD’s service area, it is important to anticipate potential challenges and proactively plan for strategies that sustain and enhance water supply reliability, water quality, and overall system resilience. The OCWD Resilience Plan is an adaptive management plan that evaluates future water demands and available supplies, while also identifying potential projects and response strategies to address risks to key District assets, including the groundwater basin, Santa Ana River, groundwater replenishment facilities, and natural resources.

The plan builds on OCWD’s historical planning efforts and provides a flexible, project-based framework to maintain sustainable basin conditions and strengthen the long-term resilience of the District’s water resources over a 5- to 25-year planning horizon.

The Resilience Plan also supports evaluation of future water supply projects, recharge strategies, and operational improvements to guide management of the OC Basin under changing hydrologic, regulatory, and demand conditions.

The Basin 8-1 Alternative submitted to DWR in 2017 showed that Basin 8-1 had been sustainably managed for the prior 10 years, which was a SGMA requirement. Based on avoiding undesirable results as defined in SGMA, the OC Basin has been sustainably managed since the construction of the Talbert Seawater Intrusion Barrier in the mid-1970s. Required annual reports and periodic updates submitted to DWR show that Basin 8-1 continues to be sustainably managed.

Current water demand projections show a relatively slow increase over the 25-year planning horizon, which is generally of similar magnitude as the additional production from the GWRS since its final expansion in early 2023 to 130 mgd. This locally controlled, drought proof supply of water reduces the region's dependence on imported water.

Historically, the Santa Ana River has served as the primary source of water to recharge the OC Basin. To determine the availability of future Santa Ana River flows, OCWD utilized surface water flow modeling of the upper watershed. Modeling was developed to predict the impacts future stormwater capture and wastewater recycling projects in the upper watershed would have on future Santa Ana River flow rates at Prado Dam. Santa Ana River base flows are expected to decrease as more water recycling projects are built in the upper watershed. OCWD continues to work closely with the US Army Corps of Engineers (USACE) to temporarily impound and slowly release up to approximately 20,000 AF of stormwater in the Prado Dam Conservation Pool. The amount of water that can be temporarily impounded in the conservation pool has grown over time and in 2025, it was increased to over 25,000 AF. To some extent, the losses in baseflow are partially offset through the capture of additional stormwater held in the Prado Dam Conservation Pool. When available, OCWD will continue to augment groundwater recharge through the purchase of imported water through MET. OCWD will diligently monitor and evaluate future water supply projects to sustainably manage and protect the OC Basin for future generations.

OCWD Engineer's Report

The OCWD Engineer's Report documents groundwater conditions and evaluates water supply and Basin utilization within OCWD's service area. The most recent report is the 2024–25 Engineer's Report filed in March 2026. As reported, the BPP for the 2024–25 water year was maintained at 85 percent by the OCWD Board of Directors. The overall BPP achieved within OCWD for non-irrigation use was 83.8 percent, with the reduced achievement attributed primarily to PFAS-related well shutdowns. Groundwater stored in the Basin decreased by 50,000 AF for the 2024–25 water year, and the annual overdraft was 165,300 AF, which reflects the amount by which natural replenishment was exceeded. The decrease in storage was reflected by a relatively dry year and the total groundwater recharge of 252,214 AF, which included contributions from supplemental water recharged by the GWRS.

For the 2026–27 water year, OCWD is proposing to maintain a BPP of 85 percent. Under normal hydrologic conditions, groundwater production could reach approximately 315,000 AF; however, OCWD anticipates groundwater production during 2026–27 will be approximately 299,000 AF due to PFAS-related impacts that continue to limit groundwater availability among several producers.

It is estimated that approximately 13,500 AF of additional production above the BPP will be undertaken by the City of Tustin, City of Huntington Beach, Mesa Water District, and Irvine Ranch Water District to support groundwater quality improvement projects. As in prior years, groundwater produced above the BPP for these water-quality projects will be partially or fully exempt from the BEA due to the Basin-wide benefit of pumping and treating poor-quality groundwater.

During the 2024–25 water year and current 2025-26 water year, MET untreated full-service water supplies were available for groundwater replenishment; however, OCWD did not purchase replenishment water due to favorable Basin storage conditions. OCWD likewise does not plan to purchase untreated full-service water for replenishment in 2026-27.

6.3.1.4 Recharge Management

Recharging water into the OC Basin through natural and artificial means is essential to support pumping from the OC Basin. Active recharge of groundwater began in 1936, in response to increasing drawdown of the OC Basin and, consequently, the threat of seawater intrusion. The OC Basin's primary source of recharge is supplied from the Santa Ana River, which is diverted into recharge basins and its main Orange County tributary, Santiago Creek. Other sources of recharge water include natural infiltration, recycled water, and imported water. Natural recharge consists of subsurface inflow from local hills and mountains, infiltration of precipitation and irrigation water, recharge in small flood control channels, and groundwater underflow to and from Los Angeles County and the ocean.

Recycled water for OC Basin recharge is from two sources. The main source is the GWRS, which completed its final expansion in 2023 and now produces up to 130 mgd of advanced-purified water for recharge at the Talbert Seawater Barrier and in the Kraemer, Miller, Miraloma, and La Palma basins. The second source is recycled water purified at the Water Replenishment District of Southern California's (WRD) Leo J. Vander Lans Advanced Water Treatment Facility, which provides up to 8 mgd for injection at the Alamitos Seawater Barrier (owned and operated by the Los Angeles County Department of Public Works). In recent years, WRD's upgrades and operations have increased the use of recycled water at the Alamitos Barrier and reduced reliance on imported supplies. Injection of recycled water into these barriers is an ongoing effort by OCWD (in coordination with WRD and Los Angeles County) to control seawater intrusion into the OC Basin; operation of the injection wells forms a hydraulic barrier to seawater intrusion.

OCWD also purchases imported water for recharge through MWDOC. Untreated imported water can be used to recharge the OC Basin through the surface recharge system at multiple locations, such as Anaheim Lake, the Santa Ana River, Irvine Lake, and San Antonio Creek, while treated imported water may be used for in-lieu recharge when appropriate. For current planning context and detailed recharge management strategies, refer to OCWD's most recent planning documents, including the 2024 OCWD Resilience Plan, in addition to prior foundational documents (Appendix E).

6.3.1.5 MET Imported Water for Groundwater Replenishment

In the past, OCWD, MWDOC, and MET have coordinated water management to increase storage in the OC Basin when imported supplies are available for this purpose. MET's groundwater replenishment program was discontinued on January 1, 2013, and currently MET via MWDOC sells replenishment water to OCWD at the full-service untreated MET rate. Figure 6.6 shows MWDOC's imported water sales to OCWD since FY 1990-91, which averages approximately 27,888 AF per year. In three of the past five water years, OCWD did not need to purchase more imported water to replenish groundwater.

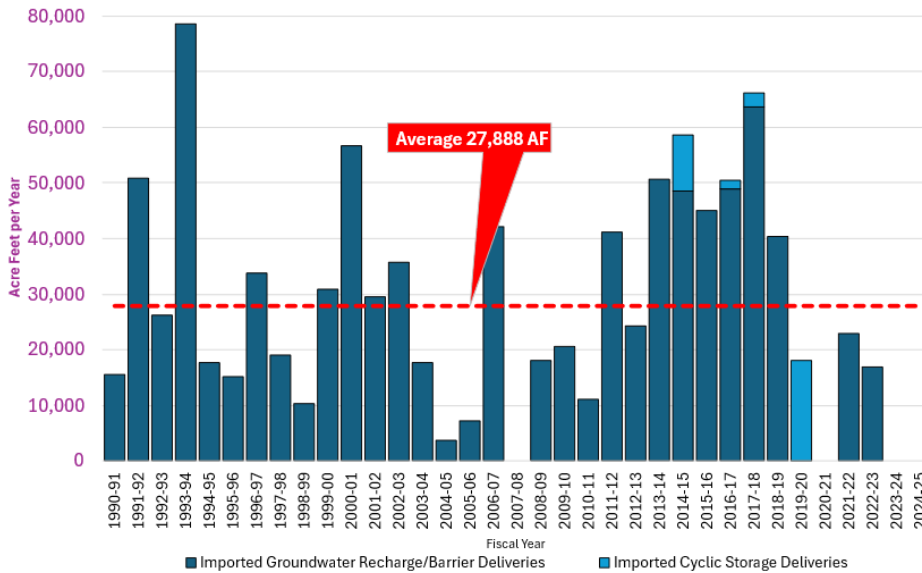


Figure 6.6 MWDOC Imported Water Sales for Groundwater Replenishment

6.3.2 Planned Future Groundwater Sources

Mesa Water has plans for a local supply improvement project involving brackish water desalination. This project would increase supply up to 1,000 AFY by 2035-2030-2040. This project is further described in Section 6.9.

On a regional scale, OCWD regularly evaluates potential projects and conducts studies to review the feasibility of new projects or sources. Groundwater basin-related projects that are planned or in progress are described below:

Forecast Informed Reservoir Operations (FIRO) at Prado Dam – Stormwater represents a significant source of water used by OCWD to recharge the OC Basin. Much of this recharge is made possible by the capture of Santa Ana River stormflows behind Prado Dam in the Conservation Pool. FIRO represents the next generation of operating water reservoirs using the best available technology. Advances in weather and stormwater runoff forecasting hold promise to allow USACE to safely impound more stormwater while maintaining equivalent flood risk management capability behind Prado Dam. Analyses indicate that FIRO would increase average annual recharge by approximately 4,000–6,000 AFY, and up to 23,000 AF in very wet years, consistent with earlier preliminary analyses. Federal and local partners have indicated FIRO at Prado Dam is moving from technical assessment toward implementation via Water Control Manual updates.

6.4 Surface Water

6.4.1 Existing Surface Water Sources

There are, currently, no direct stormwater uses in Mesa Water's service area.

6.4.2 Planned Future Surface Water Sources

As of 2025, there are no planned stormwater uses in Mesa Water's service area.

6.5 Stormwater

6.5.1 Existing Stormwater Sources

There are, currently, no direct stormwater uses in Mesa Water's service area.

6.5.2 Planned Future Stormwater Sources

As of 2025, there are no planned stormwater uses in Mesa Water's service area.

6.6 Wastewater and Recycled Water

Mesa Water is not directly involved in wastewater services and does not own or operate the wastewater collection system or wastewater treatment facilities in its service area. The Costa Mesa Sanitary District (CMSD) provides wastewater collection within Mesa Water's service area to 25,000 parcels via 325-miles of sewer line. However, CMSD does not own a wastewater treatment plant and therefore the wastewater that is collected is conveyed to OC San facilities for treatment and disposal.

Recycled water is wastewater that is treated through primary, secondary and tertiary processes and is acceptable for most non-potable water purposes such as irrigation, and commercial and industrial process water per Title 22 requirements. Recycled water opportunities have continued to grow in Southern California as public acceptance and the need to expand local water resources continues to be a priority. Recycled water also provides a degree of flexibility and added reliability during drought conditions when imported water supplies are restricted. Mesa Water is indirectly involved in recycled water production, through its supply of wastewater for indirect potable reuse (IPR). The following sections expand on the existing agency collaboration involved in these efforts, as well as Mesa Water's projected recycled water use over the next 25 years.

6.6.1 Agency Coordination

Mesa Water does not own or operate wastewater treatment facilities and sends all collected wastewater to OC San for treatment and disposal. OC San provides treated water to OCWD, the manager of the Orange County Groundwater Basin. OCWD is the manager of the Orange County Groundwater Basin and strives to maintain and increase the reliability of the Orange County Groundwater Basin through replenishment with imported water, stormwater, and advanced treated wastewater. A full description of the Orange County Groundwater Basin is available in Section 6.3.1. OCWD and OC San have jointly

constructed and expanded two water recycling projects to meet this goal that include: 1) OCWD Green Acres Project (GAP) and 2) OCWD GWRS.

6.6.1.1 Orange County Sanitation District

OC San collects wastewater from residential, commercial, and industrial customers in 20 cities, four special districts, and portions of unincorporated Orange County, totaling 479 square miles that serves more than 2.6 million residents in northwest and central Orange County (OC San, 2025). These flows include dry weather urban runoff collected from 15 diversion points and discharged into the sewer system for treatment and Santa Ana River Interceptor flows from the upper Santa Ana watershed (OC San, 2017).

OC San operates and maintains two treatment plants: Reclamation Plant No. 1, located in Fountain Valley with a capacity of 320 mgd, and Reclamation Plant No. 2 located in Huntington Beach with a capacity of 312 mgd. OC San also operates 572 miles of collection system pipelines along with 15 offsite pump stations. Approximately 150 mgd of secondary effluent undergoes advanced treatment at the GWRS facility operated by the OCWD and 7 mgd undergoes tertiary treatment at OCWD's GAP facility. Treated wastewater is discharged to the Pacific Ocean via an ocean outfall in compliance with state and federal requirements as set forth in OC San's National Pollutant Discharge Elimination System (NPDES) permit. OC San's ocean outfall is 120-inch diameter and extends five miles off the coast of Huntington Beach. A 78-inch diameter emergency outfall also exists that extends 1.3 miles off the coast (OC San, 2017).

OC San Reclamation Plant No. 1 - Reclamation Plant No. 1 treats raw wastewater and has a maximum treatment capacity of 320 mgd. The plant provides primary and secondary treatment and supplies secondary effluent to OCWD for further tertiary treatment at their GAP facility and advanced treatment at their GWRS. Reclamation Plant No. 1 is the only plant that provides water to OCWD for additional treatment and recycling. An interplant pipeline allows flows to be conveyed to Treatment Plant No. 2.

OC San Treatment Plant No. 2 - Treatment Plant No. 2 provides primary and secondary treatment to raw wastewater and has a maximum treatment capacity of 312 mgd. All secondary effluent from their plant is discharged to the ocean through the ocean outfall.

6.6.1.2 Orange County Water District

OCWD is the manager of the OC Basin and provides water to 19 municipal water agencies and special districts. A full description of the OC Basin is available in Section 6.3.1. OCWD and OC San have jointly constructed and expanded two water recycling projects that include: 1) OCWD GAP and 2) OCWD GWRS.

OCWD GAP

OCWD owns and operates the GAP, a water recycling system that treats up to 7.5 mgd and provides 8,400 AFY of recycled water for irrigation and industrial uses. GAP provides an alternate source of water that is mainly delivered to parks, golf courses, greenbelts, cemeteries, and nurseries in the cities of Costa Mesa, Fountain Valley, Newport Beach, and Santa Ana. Approximately 100 customer sites use GAP water, current recycled water users include Mile Square Park and Golf Courses in Fountain Valley, Costa Mesa Country Club, Chroma Systems carpet dyeing, Kaiser Permanente, and Caltrans.

OCWD GWRS

OCWD's GWRS allows southern California to decrease its dependency on imported water and creates a local and reliable source of water. OCWD's GWRS purifies secondary treated wastewater from OC San to levels that meet and exceed all state and federal drinking water standards. The GWRS Phase 1 plant has been operational since January 2008 and uses a three-step advanced treatment process consisting of MF, RO, and ultraviolet light with hydrogen peroxide. A portion of the treated water is injected into the seawater barrier to prevent seawater intrusion into the groundwater basin. The other portion of the water is pumped to ponds where the water percolates into deep aquifers and becomes part of Orange County's water supply. The treatment process is described on OCWD's website. (OCWD, GWRS, 2020).

The GWRS first began operating in 2008 producing 70 mgd and in 2015, it underwent a 30 mgd expansion. Approximately 39,200 AFY of the highly purified water is pumped into the injection wells and 72,900 AFY is pumped to the percolation ponds in the City of Anaheim where the water is naturally filtered through sand and gravel to deep aquifers of the groundwater basin. The OC Basin provides approximately 77 percent of the potable water supply for north and central Orange County. The design and construction of the first phase (78,500 AFY) of the GWRS project was jointly funded by OCWD and OC San; Phase 2 expansion (33,600 AFY) was funded solely by OCWD.

The Final Expansion of the GWRS is the third and final phase of the project and was completed in 2023. The plant now produces 130 mgd and requires additional treated wastewater from OC San. This additional water comes from OC San's Treatment Plant 2, which is in the City of Huntington Beach approximately 3.5 miles south of the GWRS. The Final Expansion project included expanding the existing GWRS treatment facilities, constructing new conveyance facilities at OC San Plant 2 and rehabilitating an existing pipeline between OC San Plant 2 and the GWRS. Following completion, the GWRS plant now recycles 100 percent of OC San's reclaimable sources and produces enough water to meet the needs of over one million people.

6.6.2 Wastewater

Mesa Water does not own a wastewater collection system. CMSD formed in 1944 under the Sanitary District Act of 1923, provides wastewater collection within Mesa Water's service area. CMSD boundaries encompass all of the City of Costa Mesa and portions of Newport Beach and unincorporated Orange County. CMSD provides wastewater collection services to 25,000 parcels via 325-miles of sewer line. The wastewater collected is conveyed to OC San facilities for treatment and disposal. Table 6.10 shows the volume of wastewater collection from Mesa Water's service area.

Table 6.10 Submittal Table 6-2 Retail: Wastewater Collected within Mesa Water's Service Area in 2025

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2025 Water Code Section 10633(a)				
Wastewater Collection			Recipient of Collected Wastewater	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? OPTIONAL	Volume of Wastewater Collected from UWMP Service Area 2025	Name of Wastewater Treatment Plant (WWTP) and Place ID Number	Is WWTP Located Within UWMP Area?
		(AF)		
Costa Mesa Sanitary District (CMSD)	Estimated	9,248	OCSD Plant 1, Place ID 758392	No
City of Orange	Estimated	X	OCSD Plant 2, Place ID 259158	No
Total Wastewater Received from UWMP Service Area in 2025:		9,248		

NOTES: Based on a return rate of 56% (based on 2013 return rate study).

Commented [K14]: GM and a Board member picked up this error: City of Orange does not collect wastewater in Mesa Water® service area. Is this supposed to be County of Orange? Or maybe OSCD? Or just delete if all the wastewater is collected by CMSD to Plant 1.

6.6.3 Current Recycled Water Uses

Mesa Water currently uses recycled water from OCWD's GAP for direct non-potable reuse such as landscape irrigation. Currently, Mesa Water has 43 recycled water service connections. Some of the recycled water customers include the City of Costa Mesa, the County of Orange, Cal Trans, Costa Mesa Country Club, Orange Coast Community College, and several shopping and business centers. In FY 2024-25, 847 AF of recycled water from OCWD's GAP was used in Mesa Water's service area for landscape irrigation. Recycled water use accounts for approximately 6 percent of annual demand.

For indirect use, Mesa Water also benefits from OCWD's GWRS system that provides IPR through replenishment of OC Basin with water that meets state and federal drinking water standards.

6.6.4 Projected Recycled Water Uses

As of April 2019, the State of California amended its recycled water policy to expand its numeric goal of recycled water use to 2.5 million AFY by 2030 and added annual required reporting requirements for wastewater and recycled water. Mesa Water will continue to receive recycled water from GAP and supply it to the various landscape irrigation sites. Mesa Water will continue to supply wastewater to support the region's IPR via GWRS. Current and projected recycled water use through 2050 are shown in Table 6.11, and the 2020 projected 2025 recycled water use compared to the 2020 actual use is shown in Table 6.12. Tertiary recycled water usage is limited to landscape irrigation.

Table 6.11 Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area Water Code Section 10633 (c)(e)								
Use Type	Water Type (after treatment if treated)	Additional Information	2025	2030	2035	2040	2045	2050 (opt)
			(AF)	(AF)	(AF)	(AF)	(AF)	(AF)
Landscape irrigation (exc golf courses)	Non-Potable	OCWD	847	1,084	1,084	1,084	1,084	1,084
Golf course irrigation	Non-Potable	OCWD						
Total			847	1,084	1,084	1,084	1,084	1,084

NOTES: Table does not include groundwater recharge (IPR) numbers as they are not separate from OCWD's supply.

Table 6.12 Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual

Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual Water Code Section 10633 (e)		
Use Type	2020 Projection for 2025	2025 Actual Use
	(AF)	(AF)
Landscape Irrigation (exc golf courses)	500	847
Golf Course Irrigation	600	
Total	1,100	847

NOTES: Source – Mesa Water District

6.6.5 Potential Recycled Water Uses

Mesa Water supports the continued development of recycled water through consumption of OCWD's GWRS produced water and recharge to the Basin. Currently, direct irrigation type recycled water use is expected to remain at 1,100 AFY through the 25-year period, with landscape irrigation as its sole use with no plans to expand this program as it is not overall beneficial to the Basin Pumpers like the GWRS IPR provides.

6.6.6 Optimization Plan

Studies of water recycling opportunities within Southern California provide a context for promoting the development of water recycling plans. It is recognized that broad public acceptance of recycled water requires continued education and public involvement. Currently, most of the recycled water available being directed toward replenishment of the groundwater basin and improvements in groundwater quality. As a user of groundwater, Mesa Water supports the efforts of OCWD and OC San to use recycled water as a primary resource for groundwater recharge in Orange County.

6.6.6.1 Public Education

Mesa Water participates in the MWDOC public education and school education programs, which include extensive sections on water recycling. MWDOC's water use efficiency public information programs are a partnership with agencies throughout the county. Through a variety of public information programs, MWDOC reaches the public, including those in Mesa Water, with information regarding present and future water supplies, the demands for a suitable quantity and quality of water, including recycled water, and the importance of implementing water efficiency techniques and behaviors. Through MWDOC, water education programs have reached thousands of students in Mesa Water with grade-specific programs that include information on recycled water.

6.6.6.2 Financial Incentives

The implementation of recycled water projects involves a substantial upfront capital investment for planning studies, EIRs, engineering design and construction before recycled water is available to the market. The establishment of new supplemental funding sources through federal, state and regional programs now provides significant financial incentives for water agencies to develop and make use of recycled water locally. Potential sources of funding include federal, state and local funding opportunities. These funding sources include the USBR, California Proposition 13 Water Bond, Proposition 84 and MET Local Resources Program (LRP). These funding opportunities may be sought by Mesa Water or possibly more appropriately by regional agencies. Mesa Water will continue to support seeking funding for regional water recycling projects and programs.

6.6.6.3 Optimization Plan

Mesa Water does not produce recycled water, therefore, there is no need for a recycled water optimization plan. In other areas of Orange County, recycled water is used for irrigating golf courses, parks, schools, businesses, and communal landscaping, as well as for groundwater recharge. Analyses have indicated that present worth costs to incorporate recycled water within Mesa Water are not cost effective as compared to purchasing imported water from MWDOC or using groundwater. Mesa Water will continue to conduct feasibility studies for recycled water and seek out creative solutions such as funding, regulatory requirements, institutional arrangements, and public acceptance for recycled water use with MWDOC, OCWD, MET, and other cooperative agencies.

6.7 Desalination Opportunities

6.7.1 Ocean Water Desalination

There are currently no ocean water desalination opportunities within Mesa Water's service area.

6.7.2 Groundwater Desalination

Per Mesa Water's 2025 CIP Update TM2, a local brackish groundwater desalination supply improvement project is currently being evaluated. It is a joint project with OCWD and the cities of Huntington Beach and Newport Beach. Mesa Water's initial share would be 1,000 AFY with earliest project completion around ~~2035~~2030-2040.

6.8 Water Exchanges and Transfers

6.8.1 Existing Exchanges and Transfers

Interconnections with other agencies result in the ability to share water supplies during short-term emergency situations or planned shutdowns of major water systems. Transfers of water can help with short-term outages but can also be involved with longer-term water exchanges to deal with droughts or long-term emergency situations. MWDOC helps its retail agencies develop both local and regional transfer and exchange opportunities that promote reliability within their systems.

Mesa Water maintains two metered interconnections with the City of Huntington Beach and the Irvine Ranch Water District (IRWD) and 15 emergency interconnections with the City of Santa Ana, City of Newport Beach, and IRWD.

6.8.2 Planned and Potential Exchanges and Transfers

Currently Mesa Water has no formal transfer or exchange plan. Opportunities are being explored that may develop into potential transfers or exchanges. This may include the selling of excess pumped [clear groundwater from the expansion of the and MWRf water to Newport Beach, Huntington Beach, and Laguna Beach](#).

MWDOC supports its retail agencies, such as Mesa Water, in developing both local and regional transfer and exchange opportunities that promote reliability within their systems. Examples of these future projects include:

Santa Ana River Conservation and Conjunctive Use Project – SARCCUP is a joint project established by five regional water agencies within the Santa Ana River Watershed (Eastern Municipal Water District, Inland Empire Utilities Agency, Western Municipal Water District, Orange County Water District, and San Bernardino Valley Municipal Water District). In September 2021, the participating agencies, in coordination with MET, executed a regional agreement framework establishing SARCCUP as a watershed-scale groundwater banking program to improve drought reliability across Orange, Riverside, and San Bernardino counties.

In 2016, SARCCUP received \$55 million in Proposition 84 funding from DWR; however, implementation has since advanced with the 2021 agreements and subsequent program updates. The overall SARCCUP program consists of three main elements: (1) Watershed-Scale Cooperative Water Banking Program; (2) Water Use Efficiency—landscape design/irrigation improvements and water budget assistance; and (3) Habitat creation and *Arundo donax* removal within the Santa Ana River.

The Watershed-Scale Cooperative Water Banking Program is the largest component of SARCCUP. Under MET's arrangement with San Bernardino Valley Municipal Water District (Valley), when Valley declares surplus SWP water and offers it to MET, MET offers at least 50 percent of an equivalent amount to SARCCUP member agencies for storage and later use in the Santa Ana River watershed, consistent with MET policy. This structure formalizes the purchase and storage pathway that had been under development and aligns with MET's extraordinary supply policy during allocations.

Program capacity planning identifies up to approximately 137,000 AF of storage across six basins, including up to 36,000 AF in the Orange County Groundwater Basin for use in dry years. Stored SARCCUP

supplies may be designated “extraordinary supplies” during a MET allocation if managed consistent with MET’s Water Supply Allocation Plan, thereby enhancing participating agencies’ drought reliability.

Within Orange County, extraordinary supply assignment agreements among MET, MWDOC/OCWD, and certain retail agencies (e.g., Anaheim, Fullerton, Santa Ana) document how SARCCUP extraordinary supply is assigned and delivered locally. Program implementation and participation details continue to be refined among OCWD, retail agencies, and MWDOC.

6.9 Future Water Projects

Mesa Water continually reviews practices that will provide its customers with adequate and reliable supplies. Trained staff continue to ensure the water quality is safe and the water supply will meet present and future needs in an environmentally and economically responsible manner. Although Mesa Water has various projects planned to maintain and improve the water system, only projects that have both a concrete timeline and a quantifiable increase in supply are listed in Table 6.13. The descriptions of each project are taken from Mesa Water’s 2025 CIP Update TM2.

Replacement of Clear Groundwater Well 5 – Although active, Well 5 currently produces sand when run at more than 2,200 gpm, while it used to operate at 3,800 gpm (2011 WMP) and 2,800 gpm (2013 step-down test). Moreover, despite efforts to swage the casing, the remaining service life of Well 5 was estimated at 3-5 years in 2018. Hence, replacement of this well is a logical investment that would likely result in additional clearwell production capacity. Based on historical pumping capacity and location in the Basin, it is assumed that a Well 5 replacement could produce approximately 2,800 gpm or 4.0 mgd. Hence, replacing Well 5 could result in an additional maximum day demand capacity of 600 gpm or 0.9 mgd (970 AFY if operated year-round). To estimate the annual yield of this project, a BPP of 85 percent was used, which was calculated to equate to an average operation of 60 percent when the replacement of Well 5 would increase the clearwell production capacity from 17,200 AFY to 17,800 AFY. Hence, the annual average additional production capacity of the replacement of Well 5 is estimated at approximately 580 AFY.

Brackish Groundwater Desalination (Local Supply Improvement Project) - In response to the need to increase local supply resilience, Mesa Water, in partnership with OCWD and the cities of Huntington Beach and Newport Beach, is leading efforts to evaluate the feasibility of a brackish groundwater Local Supply Improvement Project. The Local Supply Improvement Project feasibility study will investigate the benefits of brackish water desalination along the coast to increase local supplies for the agencies that pump water from the aquifer.

According to the funding proposal submitted for the Local Supply Improvement Project, the study will evaluate alternative groundwater well locations in areas of the Basin impacted by brackish groundwater and potentially protect existing production wells that may be susceptible to seawater intrusion. The study also will identify locations for the construction of a brackish groundwater desalination facility.

With the project facility having an expected initial capacity of 5 to 8 mgd, the total yield of this project could range from 5,600 to 9,000 AFY, respectively. For planning purposes, it was estimated that Mesa Water’s share in this project could [initially](#) yield 1,000 AFY or 0.9 mgd. It is anticipated that implementation will take at least another [10-15-10](#) years; hence, the earliest completion year would be around 2035-2040. Due to the brackish nature of the source water, the potable water produced by the

Local Supply Improvement Project is expected to be the most expensive water source in Mesa Water's portfolio.

Local Supply Improvement Project Expansion - Another option would be to increase the allocation Mesa Water would receive from the Local Supply Improvement Project described above. Assuming an equal share with the other two partners (cities of Huntington Beach and Newport Beach) in the ultimate planned capacity 9,000 AFY, would equate to an annual yield for Mesa Water of 3,000 AFY. Hence, the expanded share at the maximum planned capacity would result in an additional yield of 2,000 AFY.

Table 6.13 Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs Water Code Section 10631 (f)				
Name of Future Projects or Programs	Joint Project with other suppliers?		Planned Implementation Year	Expected Increase in Water Supply to Supplier
	(yes/no)	If Yes, Supplier Name		(AFY)
Replacement of Clear Groundwater Well 5	No	N/A		580
Brackish Groundwater Desalination (Local Supply Improvement Project)	Yes	Orange County Water District and the Cities of Huntington Beach and Newport Beach	2035-2040	1,000
Increase in Local Supply Improvement Project Capacity	Yes	City of Huntington Beach and City of Newport Beach		2,000

NOTES: The additional annual yield of clearwell 5 considers a BPP of 85 percent. All values are rounded to nearest 10 AFY.

6.10 Energy Intensity

Mesa Water owns and operates a water distribution system. This section reports the energy intensity for each system using data from FY 2025. Water and energy resources are inextricably connected. Known as the "water-energy nexus", the California Energy Commission estimates the transport and treatment of water, treatment and disposal of wastewater, and the energy used to heat and consume water account for nearly 20 percent of the total electricity and 30 percent of non-power plant related natural gas consumed in California. In 2015, California issued new rules requiring 50 percent of its power to come from renewables, along with a reduction in greenhouse gas (GHG) emissions to 40 percent below 1990 levels by 2030. Consistent with energy and water conservation, renewable energy production, and GHG mitigation initiatives, Mesa Water reports the energy intensity of its water and wastewater operations.

[Renewable energy is currently ??% of the energy supply available to Mesa Water®. SCE has a goal of 100% renewable energy by the year ??. At that time, Mesa Water® energy consumption will be from 100% renewable energy.](#)

The methodology for calculating water energy intensity outlined in Appendix O of the UWMP Guidebook was adapted from the California Institute for Energy Efficiency exploratory research study titled "Methodology for Analysis of the Energy Intensity of California's Water Systems" (Wilkinson 2000).

Commented [K15]: GM added this comment with the percent and years to be filled in.

The study defines water energy intensity as the total amount of energy, calculated on a whole-system basis, required for the use of a given amount of water in a specific location. UWMP reporting is limited to available energy intensity information associated with water processes occurring within an urban water supplier's direct operational control. Operational control is defined as authority over normal business operations at the operational level. Any energy embedded in water supplies imparted by an upstream water supplier (e.g., water wholesaler) or consequently by a downstream water purveyor (e.g., retail water provider) is not included in the UWMP energy intensity tables. Mesa Water's calculations conform to methodologies outlined in the UWMP Guidebook and Wilkinson study.

6.10.1 Water Supply Energy Intensity

In FY 2025, Mesa Water consumed 3421.1 kilowatt-hours (kWh) per million gallons (MG) for water extraction, treatment, and distribution services (Table 6.14). It is important to note that many of the retail agencies in Orange County do not have water treatment and therefore, Mesa Water's energy intensity cannot be directly compared with these agencies. The basis for calculations is provided in more detail in the following subsections.

Table 6.14 Optional Submittal Table O-1A: Energy Efficiency

Optional Submittal Table O-1A: Recommended Energy Reporting - SINGLE DELIVERY PRODUCT - WATER SUPPLY PROCESS APPROACH										
Water Delivery Product	Retail Potable Deliveries	Only for Water Delivery Products Under the Urban Water Supplier's Operational Control								
Start Date of Reporting Period	7/1/2024	Water Management Process						Non-Consequential Hydropower		
End Date of Reporting Period	6/30/2025	Units for Water Volume	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Is upstream embedded energy included in the values reported?	No									
Volume of Water Entering Process	AF	15,624				3,123	14,875	14,875		14,875
Energy Consumed (kWh)	N/A	13,435,338				640,247	2,506,937	16,582,522		16,582,522
Energy Intensity (kWh/vol. converted to MG)	N/A	2,639	0.0	0.0	0.0	629	517	3,421	0.0	3,421
Quantity of Self-Generated Renewable Energy										
		0 kWh								
Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)										
<i>Combination of Estimates and Metered Data</i>										
Data Quality Narrative:										
<p>Volume of Water Entering Process: Extraction data based on MWDOC Compiled Water Audits "Volume From Own Sources" and Distribution data based on MWDOC Compiled Water Audits "Authorized Consumption." Non-Revenue Water is not considered in this calculation – the energy efficiency is based on water delivered to customers.</p> <p>Energy Consumed: Based on metered data.</p>										
Narrative:										
Mesa Water relies on local groundwater, and recycled water to meet its customers' water needs. Operational control is limited to groundwater wells, a treatment facility, and potable water booster stations.										

6.10.1.1 Operational Control and Reporting Period

As described throughout the report, Mesa Water is a retail agency that relies on groundwater and has the ability to purchase and receive imported water. Water supply energy intensity was calculated for the 2025 financial year. Calendar Year data is used more frequently for energy intensity calculations to provide consistency in the time frame among various organizations, but financial year data was used given the completeness of what was available.

6.10.1.2 Volume of Water Entering Processes

According to Mesa Water District water production meters, Mesa Water extracted 15,624 AF of groundwater from the OC Basin. Approximately 3,123 AF of water was treated at the MWRF. According to MWDOC water audits, Mesa Water distributed 14,875 AF of water to customers which was primarily groundwater extracted by Mesa Water.

6.10.1.3 Energy Consumption and Generation

According to Southern California Edison Electricity Bills and SoCal Gas bills, groundwater wells consumed 13,435,338 kWh equivalent of electricity with one well running on gas, treatment facilities consumed 640,247 kWh of electricity, and pump stations along the distribution system consumed 2,506,937 kWh equivalent of electricity with two pump stations running on gas. [SCE currently achieved ??% renewables in the energy it provides to Mesa Water®.](#) Currently, Mesa Water does not generate [its own](#) renewable energy. Energy consumption is based on metered data.

Commented [K16]: GM comment. Please fill in the %.

6.10.2 Wastewater and Recycled Water Energy Intensity

Mesa Water does not have energy data for the wastewater system readily available and has therefore chosen not to calculate an energy intensity for the wastewater system.

6.10.3 Key Findings and Next Steps

Calculating and disclosing direct operationally controlled energy intensities is another step towards understanding the water-energy nexus. However, much work is still needed to better understand upstream and downstream (indirect) water-energy impacts. When assessing water supply energy intensities or comparing intensities between providers, it is important to consider reporting boundaries as they do not convey the upstream embedded energy or impacts energy intensity has on downstream users. Engaging one's upstream and downstream supply chain can guide more informed decisions that holistically benefit the environment and are mutually beneficial to engaged parties. Suggestions for further study include:

- Supply-chain engagement – Mesa Water relies on a variety of water sources for their customers. While some studies have used life cycle assessment tools to estimate energy intensities, there is a need to confirm this data. The 2025 UWMP requirement for all agencies to calculate energy intensity will help Mesa Water and neighboring agencies make more informed decisions that would benefit the region as a whole regarding the energy and water nexus. A similar analysis could be performed with upstream supply chain energy, for example, with SWP.

- Internal benchmarking and goal setting – With a focus on energy [conservation efficiency](#) and a projected increase in water demand despite energy [conservation efficiency](#) efforts, Mesa Water’s energy intensities will likely decrease with time. Conceivably, in a case where water demand decreases, energy intensities may rise as the energy required to pump or treat is not always proportional to water delivered. In the course of exploring the water-energy nexus and pursuing renewable energy goals, there is a need to assess whether energy intensity is a meaningful indicator or if it makes sense to use a different indicator to reflect Mesa Water’s commitment to energy and water [conservation-use efficiency](#). Current efforts could be expanded with the addition of a wastewater energy intensity evaluation.
- Regional sustainability – Water and energy efficiency are two components of a sustainable future. Efforts to conserve water and energy, however, may impact the social, environmental, and economic livelihood of the region. In addition to the relationship between water and energy, over time, it may also be important to consider and assess the connection these resources have on other aspects of a sustainable future.
- [Renewable energy-](#) _____

Commented [K17]: GM comment to add a paragraph on SCE’s goal of 100% renewable energy.

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CHAPTER 7 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

This chapter of the Urban Water Management Plan (UWMP) describes Mesa Water District's water service reliability assessment for three long-term hydrological conditions: a normal year, a single dry year, and a drought period lasting five consecutive years. The Drought Risk Assessment (DRA) assesses water supply reliability during a severe drought lasting the next five consecutive years, from 2026 to 2030. Factors affecting reliability, such as water quality, regulations and climate change, are also summarized in this assessment of reliability.

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

7.1 Water Service Reliability Overview

Every urban water supplier is required to assess the reliability of their water service to its customers under a normal year, a single dry year, and multiple dry years. Mesa Water District's water sources are primarily from local groundwater and recycled water. Mesa Water can import water purchased from the Municipal Water District of Orange County (MWDOC), however is able to meet all of its potable water demands from local sources. MWDOC is one of 26 member agencies of the Metropolitan Water District of Southern California (MET), which imports water from the Colorado River through its own Colorado River Aqueduct (CRA) and from Northern California through the California Aqueduct managed by the State Water Project (SWP).

Local groundwater in the Orange County Basin is managed by the Orange County Water District (OCWD). As summarized in Chapter 6, OCWD has developed programs and projects to improve groundwater recharge and augment groundwater through recycled water, conjunctive use and water transfers. OCWD assesses groundwater conditions and sets its Basin Production Percentage (BPP), which determines how much water will be pumped from the basin year, and the Basin Equity Assessment (BEA), which is a surcharge for exceeding the BPP. Currently, the BPP is set at 85 percent. Likewise MET has also invested in numerous programs and projects to augment its direct deliveries of imported water such as water transfers, groundwater banking, and use of its reservoir storage as summarized in Chapter 6. MET's draft 2025 UWMP demonstrates that MET will be able to meet its projected water demands for the next 25 years under normal, dry and multiple dry year conditions (MET, 2025).

Table 7.1 shows the basis of water year data used to predict drought supply availability. In 2025, MWDOC developed a water demand forecast model for its participating water agencies that statistically correlates municipal and industrial (M&I) water use with demographic, socioeconomic, conservation and weather variables—as reported in the 2025 Orange County Water Demand Projection Model TM (MWDOC, 2025). Because the model isolates weather, future water demand projects can be estimated under single and multiple-year droughts and under future climate change scenarios. The model shows the average (normal) hydrologic condition for the MWDOC service area is represented by Fiscal Years (FY) 1991-2024 and the single-dry year hydrologic condition by FY 2013-14. The five consecutive years of FYs 1991-2024 represent the driest five consecutive year historical sequence for MWDOC's service area. Locally, Orange County rainfall for the five-year period totaled 36 inches, the driest on record.

Table 7.1 Optional Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)

OPTIONAL Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location: [insert location from UWMP]
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	% of Average Supply
Average Year	1991-2024		100%
Single-Dry Year	2014		107%
Consecutive Dry Years 1st Year	1991-2024*		107%
Consecutive Dry Years 2nd Year	1991-2024*		112%
Consecutive Dry Years 3rd Year	1991-2024*		113%
Consecutive Dry Years 4th Year	1991-2024*		115%
Consecutive Dry Years 5th Year	1991-2024*		117%

NOTES: A regression model was developed to estimate water demand under multiple dry year conditions (i.e., prolonged dry conditions without conservation measures), using a 33-year dataset (1991-2024) that excluded drought years to reflect unconstrained demand. Correlation coefficients between demand, temperature, and precipitation were applied to the hottest and driest historical sequences to calculate high-demand scenarios, which were expressed as scaling factors relative to the 33-year average demand.

7.2 Factors Affecting Water Supply Reliability

To prepare realistic water supply reliability assessments, various factors affecting reliability were considered. These include climate change and environmental requirements, regulatory changes, water quality impacts, and locally applicable criteria.

7.2.1 Climate Change and the Environment

The State of California believes that ~~changing climate patterns are expected to shift precipitation patterns and affect water supply availability. Unpredictable weather patterns will may make water supply planning more challenging. Although climate change impacts are associated with exact timing, magnitude, and regional impacts of these temperature and precipitation changes, researchers have identified several areas of concern for California water planners (CAMP4W, 2025). These areas include:~~

- ~~•A reduction in Sierra Nevada Mountain snowpack.~~
- ~~•Extreme heat threatens both infrastructure and the health and safety of human lives.~~
- ~~•Prolonged drought periods.~~
- ~~•Water quality issues associated with increase in wildfires.~~

Commented [K12]: Edits and deletions to this section are from Mesa Water® GM.

- ~~Rising sea levels resulting in:~~
 - » ~~Impacts to coastal groundwater basins due to seawater intrusion.~~
 - » ~~Increased risk of damage from storms, high-tide events, and the erosion of levees.~~
 - » ~~Potential pumping cutbacks to the SWP and Central Valley Project (CVP).~~

~~Other important issues of concern due to global climate change include:~~

- ~~Effects on local supplies such as groundwater.~~
- ~~Changes in urban and agricultural demand levels and patterns.~~
- ~~Alterations to power generation and pumping regime.~~
- ~~Increases in ocean algal blooms affected seawater desalination supplies.~~

~~The major impact in California is that without additional surface storage, winter snowpack retaining water storage in the mountains will not last resulting in more water being lost to the oceans.~~

~~In addition, the~~The Colorado River Basin supplies have been inconsistent since about the year 2000, with precipitation near normal while runoff has been less than average in two out of every three years. ~~Climate models are predicting a continuation~~Continuation of this pattern whereby hotter and drier weather conditions will result in continuing lower runoff, pushing the system toward a drying trend that is often characterized as long-term drought.

~~Dramatic swings in annual hydrologic conditions have affected water supplies available from the SWP over the last decade. The declining ecosystem in the Delta has also led to a reduction in water supply deliveries, and operational constraints will likely continue until a long-term solution to these problems is identified and implemented (MET, 2025).~~

7.2.2 Regulatory and Legal

Ongoing regulatory restrictions, such as those imposed by the Biological Opinions (BiOps) on the effects of SWP and the federal CVP operations on certain marine life, also contribute to the challenge of determining water delivery reliability. Endangered species protection and conveyance needs in the Delta have resulted in operational constraints that are particularly important because pumping restrictions impact many water resources programs – SWP supplies and additional voluntary transfers, Central Valley storage and transfers, and in-region groundwater and surface water storage. BiOps protect special-status species listed as threatened or endangered under the Endangered Species Act (ESA) and imposed substantial constraints on Delta water supply operations through requirements for Delta inflow and outflow and export pumping restrictions.

In addition, the State Water Resources Control Board (SWRCB) has set water quality objectives that must be met by the SWP including minimum Delta outflows, limits on SWP and CVP Delta exports, and maximum allowable salinity level. SWRCB has implemented the new Lower San Joaquin River flow objectives from the Phase 1 Delta Plan amendments through adjudicatory (water rights) and regulatory (water quality) processes. The Lower San Joaquin River flow objectives are estimated to reduce water available for human consumptive use. New litigation, listings of additional species under the ESA, or regulatory requirements imposed by the SWRCB could further adversely affect SWP operations in the future by requiring additional export reductions, releases of additional water from storage, or other operational changes impacting water supply operations.

The difficulty and implications of environmental review, documentation, and permitting pose challenges for multi-year transfer agreements, recycled water projects, and seawater desalination plants. The timeline and roadmap for getting a permit for recycled water projects are challenging and inconsistently implemented in different regions of the state. Indirect potable reuse projects face regulatory restraints such as treatment, blend water, retention time, and Basin Plan Objectives, which may limit how much recycled water can feasibly be recharged into the groundwater basins. New regulations and permitting uncertainty are also barriers to seawater desalination supplies, including updated Ocean Plan Regulations, Marine Life Protected Areas, and Once-Through Cooling Regulations (MET, 2025).

7.2.3 Water Quality

The following sub-section describes the water quality of the region's water supplies and the measures being taken to continue to deliver high-quality drinking water that meets federal and state regulations.

7.2.3.1 Imported Water

MET is responsible for providing high quality potable water throughout its service area. Over 250,000 water quality tests are performed per year on MET's water to test for regulated contaminants and additional contaminants of concern to monitor the safety of its waters (MET, 2025). MET's supplies originate primarily from the CRA and from the SWP. A blend of these two sources, proportional to each year's availability of the source, is then delivered throughout MET's service area.

Although the CRA and SWP have different water quality characteristics, MET has implemented effective treatment and management strategies to maintain high-quality water. The CRA water source contains higher total dissolved solids (TDS) and the SWP contains higher levels of naturally-occurring organic matter, leading to the formation of disinfection byproducts. To remediate the CRA's high level of salinity and the SWP's high level of organic matter, MET blends CRA and SWP supplies and has upgraded all its treatment facilities to include ozone treatment processes. In addition, MET has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of the following emerging contaminants: N-nitrosodimethylamine, pharmaceuticals and personal care products, microplastics, per- and polyfluoroalkyl substances (PFAS), and 1,4-dioxane (MET, 2025).

PFAS is a group of widely used man-made "forever chemicals" that include both PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonate). MET has voluntarily monitored PFAS in its source and treated waters since 2017. Most samples have shown non-detect (ND) for all tested PFAS, including PFOA and PFOS. A limited number of other PFAS—such as PFHxA, PFBA, PFPeA, PFDoA, PFTA, and PFBS, have been detected only at trace levels below their method detection limits. PFOA and PFOS have not been detected in Metropolitan's imported or treated water supplies. Some member agencies, however, have detected these compounds in local groundwater wells, which may require treatment or source management to comply with emerging Division of Drinking Water (DDW) regulations. As DDW and The U.S. Environmental Protection Agency (EPA) establish enforceable maximum contaminant levels (MCL) for PFOA and PFOS, some agencies may supplement their local supplies with increased purchases of Metropolitan water (MET, 2025).

EPA finalized the first national drinking water standards for six PFAS compounds in April 2024. These standards include enforceable MCLs for PFOA and PFOS set at 4 parts per trillion (ppt). In May 2025 the

EPA announced that it would extend the compliance deadline for PFOA and PFOS from 2029 to 2031 to provide additional time for testing, planning, and installation of treatment technologies. While MET and its member agencies continue to monitor and test PFAS in imported and local sources, the delay in the federal compliance date allows additional time to evaluate treatment options, coordinate funding, and plan system upgrades necessary to meet forthcoming federal PFAS standards.

The presence of quagga mussels in water sources is a water quality concern. Quagga mussels are an invasive species that was first discovered in 2007 at Lake Mead, on the Colorado River. This species of mussels forms massive colonies in short periods of time, disrupting ecosystems and blocking water intakes. They can cause significant disruption and damage to water distribution systems. MET has had success in controlling the spread and impacts of the quagga mussels within the CRA; however, the future could require more extensive maintenance and reduced operational flexibility than current operations allow. It also resulted in MET eliminating deliveries of CRA water into Diamond Valley Lake (DVL) to keep the reservoir free from quagga mussels (MET, 2025).

In addition, Golden Mussels, another invasive species capable of disrupting pipelines and altering ecosystems, were detected in the Sacramento–San Joaquin Delta in October 2024 and are now spreading through the SWP. These mussels pose similar concerns due to their ability to obstruct raw water conveyance facilities and negatively affect aquatic environments. Although their presence does not typically result in violations of drinking water standards, unmanaged infestations can degrade habitats, clog infrastructure, and reduce the aesthetic and recreational value of lakes and reservoirs. State and regional agencies continue to monitor golden mussel movement and evaluate appropriate response strategies to limit their spread (MET, 2025).

7.2.3.2 Groundwater

Groundwater is a reliable component of the water supply for Orange County, and the OCWD manages the basin to ensure its long-term quality and sustainability. The basin supports a significant portion of the region's water demands and is monitored through an extensive network of production, monitoring, and recharge wells that provide data on water levels and water quality conditions across the aquifer system

Orange County Groundwater Basin

OCWD is responsible for managing the Orange County (OC) Groundwater Basin. To maintain groundwater quality, OCWD conducts an extensive monitoring program that serves to manage the OC Basin's groundwater production, control groundwater contamination, and comply with all required laws and regulations. A network of nearly 700 groundwater wells provides OCWD a source for samples, which are tested for a variety of purposes. OCWD collects samples each month to monitor Basin water quality. The total number of water samples analyzed varies year-to-year due to regulatory requirements, conditions in the basin, and applied research and/or special study demands. These samples are collected and tested according to approved federal and state procedures as well as industry-recognized quality assurance and control protocols (City of La Habra et al., 2017). OCWD routinely tests for hundreds of regulated constituents, but the parameters discussed, PFAS, TDS, and nitrate, are of focus because they represent the most relevant regional and regulatory considerations that influence groundwater management and long-term supply planning. These issues do not indicate that the groundwater basin is unsafe; rather, they are discussed because they are key focus areas for state agencies and water suppliers throughout Southern California. These issues do not indicate that the groundwater basin is unsafe; rather, they are

discussed because they are key focus areas for state agencies and water suppliers throughout Southern California.

PFAS are of particular concern for groundwater quality, and since the summer of 2019, DDW requires testing for PFAS compounds in some groundwater production wells in the OCWD area. According to the California State Water Resources Control Board, the federal MCL for PFAS is 4 nanograms per liter (ng/L) (ppt) (California State Water Resources Control Board, 2024).

By 2025 OCWD had restored 49 wells to service with operational treatment systems, with an additional 57 wells in planning, design, or construction stages (ACWA, 2025). These systems continue to rely primarily on granular activated carbon and ion-exchange media operated in lead-lag configuration to achieve non-detect PFAS levels consistent with evolving state and federal regulatory standards (Santa Ana Regional Water Quality Control Board & Orange County Water District, 2023).

Groundwater production in FY 2023–24 totaled 280,420 AF, with slight increases projected over the next two years as additional treatment systems come online, showing continued reductions associated with PFAS-impacted wells that remain offline across several agencies. Salinity is a significant water quality problem in many parts of southern California, including Orange County. Salinity is a measure of the dissolved minerals in water including both TDS and nitrates. OCWD continuously monitors the levels of TDS in wells throughout the Orange County (OC) Basin. TDS currently has a California Secondary MCL of 500 milligrams per liter (mg/L). The portions of the OC Basin with the highest levels are generally located in the cities of Irvine, Tustin, Yorba Linda, Anaheim, and Fullerton. There is also a broad area in the central portion of the OC Basin where TDS ranges from 500 to 700 mg/L. Sources of TDS include the water supplies used to recharge the OC Basin and from onsite wastewater treatment systems, also known as septic systems. The TDS concentration in the OC Basin increased on average from 415 mg/L in 2022–23 to 432 mg/L in 2023–24 (OCWD, 2025).

Nitrates are one of the most common and widespread contaminants in groundwater supplies, originating from fertilizer use, animal feedlots, wastewater disposal systems, and other sources. The MCL for nitrate in drinking water is set at 10 mg/L. OCWD regularly monitors nitrate levels in groundwater and works with producers to treat wells that have exceeded safe levels of nitrate concentrations. OCWD manages the nitrate concentration of water recharged by its facilities to reduce nitrate concentrations in groundwater. This includes the operation of the Prado Wetlands, which was designed to remove nitrogen and other pollutants from the Santa Ana River before the water is diverted to be percolated into OCWD's surface water recharge system. Although water from the deep aquifer system is of very high quality, it is amber-colored and contains a sulfuric odor due to buried natural organic material, requiring treatment before use as drinking water. The principal aquifer, which supplies most basin pumping, occurs at depths of roughly 300–1,200 feet below ground surface (OCWD, 2025). The total volume of amber-colored groundwater in the deep system is estimated at approximately 1 MAF.

7.2.4 Locally Applicable Criteria

Within Mesa Water, some infrastructure investments, such as the upgrades of Reservoirs 1 and 2 directly affect reliability. The Reservoir Upgrades Project will allow Mesa Water to help manage peak water demands by storing up to an additional 11 million gallons of water at two reservoirs (Mesa Water District, 2024). The project will replace pumps, generators and motors, add new infrastructure to pumping

systems and make upgrades to the reservoir management system. Both Reservoirs upgrades began in 2024 and are still in progress.

Over the years, the water agencies in Orange County have made tremendous efforts to integrate their systems to provide flexibility for interchanging with different sources of supply. There are emergency agreements in place to ensure all parts of the County have an adequate supply of water. In the northern part of the County, agencies can meet most of their demands from groundwater with very little limitation, except for the OCWD BPP. For the agencies in south Orange County, most of their demands are met with imported water, and their limitations are based on the capacity of their systems, which are very robust. However, if a major earthquake on the San Andreas Fault occurs, it can potentially be damaging to key water aqueducts and disrupt imported supplies to the entire Southern California for up to six months. The MET region would likely require a water-use reduction of 10-25 percent until the system is repaired. However, MET has taken proactive steps to handle such disruption, such as constructing DVL, which mitigates potential impacts. DVL, along with other local reservoirs, can store a six to twelve-month supply of emergency water (MET, 2025).

7.3 Water Service Reliability Assessment

This section assesses the reliability of Mesa Water District's water service to its customers. This is completed by comparing the projected long-term water demand (Chapter 4), to the projected water supply sources available to Mesa Water District (Chapter 6), in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years.

7.3.1 Normal Year Reliability

In 2025, MWDOC developed water demand forecast models for participating water agencies in Orange County, described in detail in Chapter 4. This 25-year demand forecast uses statistical models to account for demographic, socioeconomic, conservation, and weather variables (MWDOC, 2025). For normal year reliability, the demand forecast represents average weather conditions.

Mesa Water District is 100 percent reliable using locally pumped groundwater for normal year demands from 2025 through 2050. Mesa Water District can receive imported water from MWDOC, if needed to supplement locally pumped groundwater, via connection to MET's regional distribution system. Although pipeline and connection capacity rights do not guarantee the availability of water, they do guarantee the ability to convey water into the local system when it is available to the MET distribution system

A comparison between the supply and demand for projected years between 2025 and 2050 is shown in Table 7.2. The table demonstrates that projected supplies and demands are equal in every planning year, with no anticipated surpluses or shortfalls. As stated above, the available supply will meet projected demands due to a diversified supply and conservation measures limiting and reducing imported demands in the later years.

Table 7.2 Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals (autofill from Submittal Table 6-9 R)	17,911	18,471	17,681	17,787	17,767
Use totals (autofill from Submittal Table 4-2 R)	17,911	18,471	17,681	17,787	17,767
Surplus/(shortfall)	0	0	0	0	0
NOTES: This table compares the projected demand and supply volumes determined in Sections 4.3.2 and 6.1, respectively.					

Table 7.3 Optional Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison-Potable

OPTIONAL Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison - POTABLE					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals (autofill from Submittal Table 6-9 R)	16,827	17,387	16,597	16,703	16,683
Use totals (autofill from Submittal Table 4-2 R)	16,827	17,387	16,597	16,703	16,683
Surplus/(shortfall)	0	0	0	0	0
NOTES:					

Table 7.4 Optional Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison-Non-Potable

OPTIONAL Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison - NON-POTABLE					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals (autofill from Submittal Table 6-9 R)	1,084	1,084	1,084	1,084	1,084
Use totals (autofill from Submittal Table 4-2 R)	1,084	1,084	1,084	1,084	1,084
Surplus/(shortfall)	0	0	0	0	0
NOTES:					

7.3.2 Single Dry Year Reliability

A single dry year is defined as a single year of minimal to no rainfall within a period where average precipitation is expected to occur. MWDOC’s water demand projection model (described in Section 4.3.1), isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The impacts of hot/dry weather conditions are reflected as a percentage increase in water demands from the normal year condition (average of FY 2017-18 and FY 2018-19). For a single dry year condition (FY 2013-14), the model projects a seven percent increase in demand for Mesa Water District’s service area (MWDOC, 2025). Detailed information of the model is included in Appendix H.

Mesa Water has documented that it is 100 percent reliable for single dry year demands from 2025 through 2050. As shown in Table 7.5, projected single dry year supplies and demands are equal from 2030 to 2050, resulting in no anticipated shortages. This assessment incorporates a seven percent increase in demand above normal-year levels and shows the significant reserves and conservation measures available within MET.

Table 7.5 Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison					
Water Code Section 10635(a)					
	2030	2035	2040	2045	2050 (Opt)
	(AF)	(AF)	(AF)	(AF)	(AF)
Supply totals	19,202	19,802	18,955	19,068	19,048
Use totals	19,202	19,802	18,955	19,068	19,048
Surplus/(shortfall)	0	0	0	0	0
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
NOTES: It is conservatively assumed that a single dry year demand is 7% greater than each respective year's normally projected total water demand. Groundwater is sustainably managed through the BPP and robust management measures (Section 6.3.4 and Appendix E); surface water (Section 6.4) and contribution to indirect recycled water production (Section 6.6) provide additional local supply; and based on MET's and MWDOC's UWMPs, imported water is available to close any local water supply gap (Section 7.5.1).					

7.3.3 Multiple Dry Years Reliability

Multiple dry years are defined as five or more consecutive dry years with minimal rainfall within a period of average precipitation. MWDOC’s water demand projection model (described in Section 4.3.1) isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The impacts of hot/dry weather conditions are reflected as a percentage increase in water demands from the normal year condition (average of FY 2017-18 and FY 2018-19). During multiple dry years, the UWMP applies dry-year adjustment factors to reflect future climate conditions and retail level water demand. These increase seven percent in single-dry and first multiple-dry year, going up to twelve, thirteen, fifteen, and seventeen percent in subsequent drought years, relative to average-year demand

(see Table 7.1) (MWDOC, 2025). It is conservatively assumed that a five-year multi dry year scenario is a repeat of the single dry year over five consecutive years.

Mesa Water District has demonstrated that its water supplies remain fully reliable throughout a five-consecutive-year dry period from 2025 through 2050. Even assuming a conservative demand increase of seven percent each year for five consecutive years, Mesa Water District is capable of meeting all customers' demands from 2025 through 2050 (Table 7.6), with significant reserves held by MET and conservation. Mesa Water has and continues to develop its own emergency water supplies, including the ability to augment its annual supply by up to 7,000 AFY by utilizing its two wells in the deep (amber) water aquifer that is not subject to OCWD's Basin Pumping Percentage (BPP). Mesa Water also has excess annual pumping capacity of approximately 13,000 AFY in the clear water aquifer, that is subject to the OCWD BPP, which could also serve as an emergency water supply. This results in an additional 20,000 AF available each year, and an addition 500,000 AF available over the 25 year planning period. Finally, for an emergency water supply, Mesa Water could purchase water from MWDOC if additional supplies are needed.

The table includes treated and untreated water from MET for M&I and non-M&I demands. The multiple dry-year projections estimate a seven percent increase on imported M&I demand. Non-M&I demand (Irvine Lake and groundwater storage and replenishment) remain constant at 55,617 AFY because these demands are not affected by changes in hydrological conditions. The 2030 column assesses supply and demand for FY 2025-26 through FY 2029-30; the 2035 column assesses FY 2030-31 through FY 2034-35 and so forth, to end the water service reliability assessment in FY 2045-50.

Table 7.6 Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison Water Code Section 10635(a)						
		2030	2035	2040	2045	2050 (Opt)
		(AF)	(AF)	(AF)	(AF)	(AF)
First year	Supply totals	19,202	19,802	18,955	19,068	19,048
	Use totals	19,202	19,802	18,955	19,068	19,048
	Surplus/(shortfall)	0	0	0	0	0
Second year	Supply totals	20,052	20,678	19,793	19,912	19,890
	Use totals	20,052	20,678	19,793	19,912	19,890
	Surplus/(shortfall)	0	0	0	0	0
Third year	Supply totals	20,177	20,807	19,917	20,036	20,014
	Use totals	20,177	20,807	19,917	20,036	20,014
	Surplus/(shortfall)	0	0	0	0	0
Fourth year	Supply totals	20,558	21,201	20,294	20,415	20,393
	Use totals	20,558	21,201	20,294	20,415	20,393
	Surplus/(shortfall)	0	0	0	0	0
Fifth year	Supply totals	20,907	21,561	20,638	20,762	20,739
	Use totals	20,907	21,561	20,638	20,762	20,739
	Surplus/(shortfall)	0	0	0	0	0

NOTES: It is conservatively assumed that a five consecutive dry year scenario is a repeat of the single dry year over five consecutive years. The 2030 column assesses supply and demand for FY 2025-26 through FY 2029-30; the 2035 column assesses FY 2030-31 through FY 2034-35 and so forth, in order to end the water service reliability assessment in FY 2049-50. Groundwater is sustainably managed through the BPP and robust management measures (Section 6.3.4 and Appendix I), direct and indirect recycled water uses provide additional local supply (Section 6.6), and based on MET's and MWDOC's UWMP, imported water is available to close any local water supply gap (Section 7.5.1)

7.4 Management Tools and Options

Existing and planned water management tools and options that seek to maximize local resources are described below:

- **Reduced Delta Reliance:** [Mesa Water® does not use or anticipate using any imported water and therefore has no reliance on the Delta.](#) Both MWDOC and MET have demonstrated consistency with Reduced Reliance on the Delta Through Improved Regional Water Self-Reliance (Delta Plan policy WR P1) by reporting the expected outcomes for measurable reductions in supplies from the Delta. MET has improved its self-reliance through methods including water use efficiency, water recycling, stormwater capture and reuse, advanced water technologies, conjunctive use projects, local and regional water supply and storage programs, and other programs and projects. Similarly, MWDOC and its member agencies have further invested in water use efficiency, local water supply projects, and advanced water technologies to increase regional self-reliance. In the near term (2030), regional self-reliance during a normal water year is projected to increase by approximately 601 TAF compared to the 2010 baseline, an improvement equal to nearly 20 percent of projected 2030 retail demands. Looking ahead to 2050, normal year regional self reliance is expected to grow by more than 1.0 MAF above the 2010 baseline, representing an increase of roughly 20 percent of projected 2050 retail demands (MET, 2025).-reliance during a normal water year is projected to increase by approximately 601 TAF compared to the 2010 baseline-year regional self-reliance is expected to grow by more than 1.0 MAF above the 2010 baseline, representing an increase of roughly 20 percent of projected 2050 retail demands (MET, 2025).
- **The continued and planned use of groundwater:** The water supply resources within Mesa Water District's service area provided by the groundwater basins that account for 100% of local supplies available and are used as reservoirs to store water during wet years and draw from storage during dry years,. Groundwater basins are managed within a safe basin operating range so that groundwater wells are only pumped as needed to meet water use. Although Mesa Water District does not manage any of the service area's groundwater basins, Mesa Water District supports and partners in efforts to maintain the health of the local basins through local groundwater recharge efforts such OCWD's Groundwater Replenishment System (GWRS) program.
- [Brackish Groundwater. A group of local agencies lead by Mesa Water District performed a feasibility study for pumping and treating brackish water from the Talbert Aquifer. The study found that brackish water is feasible as new source of potable water. Mesa Water intends to design and construct brackish water supply wells and a reverse osmosis treatment plant that distributes the treated water to Mesa Water® and the partner agencies.](#)
- **Groundwater storage and transfer programs:** Mesa Water District and OCWD's involvement in Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) includes participation in a conjunctive use program that improves water supply resiliency and increases available dry-year yield from local groundwater basins. The groundwater bank has 137,000 AF of storage (Inland Empire

Commented [K13]: GM asked for a paragraph on Brackish Groundwater.

Utilities Agency, 2021). MET has numerous groundwater storage and transfer programs in which MET endeavors to increase the reliability of water supplies, including the Antelope Valley-East Kern Water Agency (AVEK) Waster Agency Exchange and Storage Program and the High Desert Water Bank Program. The IRWD Strand Ranch Water Banking Program has approximately 23,000 AF stored for IRWD's benefit, and by agreement, the water is defined to be an "Extraordinary Supply" by MET and counts essentially 1:1 during a drought/water shortage condition under MET's and MWDOC's Water Savings Action Plan (WSAP). In addition, MET has encouraged storage through its cyclic and conjunctive use programs that allow MET to deliver water into a groundwater basin in advance of agency demands, such as the Cyclic Storage Agreements under the Main San Gabriel Basin Judgement.

- **Increased use of recycled water:** Mesa Water District partners with local agencies in recycled water efforts, including OCWD to identify opportunities for the use of recycled water for irrigation purposes, groundwater recharge and some non-irrigation applications. OCWD's GWRS and Green Acres Project (GAP) allow southern California to decrease its dependency on imported water and create a local and reliable source of water that meet or exceed all federal and state drinking level standards. Expansion of the GWRS is currently underway to increase the plant's production to 130 MGD and further reduce reliance on imported water.
- **Implementation of demand management measures during dry periods:** During dry periods, water reduction methods to be applied to the public through the retail agencies, will in turn reduce Mesa Water District's overall demands. MWDOC assisted its retail agencies by leading the coordination of the 20 percent by 2020 Orange County Regional Alliance for all of the retail agencies in Orange County. MWDOC assisted each retail water supplier in Orange County in analyzing the requirements of and establishing their baseline and target water use, as guided by DWR.

7.5 Drought Risk Assessment (DRA)

California Water Code (CWC) Section 10635(b) requires every urban water supplier to include, as part of its UWMP, a DRA for its water service as part of information considered in developing its demand management measures and water supply projects and programs. The DRA is a specific planning action that assumes Mesa Water District is experiencing a drought over the next five years and addresses water supply reliability in the context of presumed drought conditions. Together, the water service reliability assessment, DRA, and Water Shortage Contingency Plan (WSCP) allow Mesa Water District to have a comprehensive picture of its short-term and long-term water service reliability and to identify the tools to address any perceived or actual shortage conditions.

CWC Section 10612 requires the DRA to be based on the driest five-year historical sequence for Mesa Water District's water supply. However, CWC Section 10635 also requires that the analysis consider plausible changes on projected supplies and demands due to climate change, anticipated regulatory changes, and other locally applicable criteria.

The following sections describe the methodology and results from Mesa Water District's DRA.

7.5.1 Methodology

As described in more detail in Section 4.3.1, the water demand forecasting model prepared for MWDOC and OCWD isolated the impacts that weather and future climate can have on water demand through the

use of an econometric model. In addition to weather related factors, the model incorporates explanatory variables that influence both historical and projected water use, including water price, gross domestic product, median household income, housing density, persons per household, households per account, sectoral employment mix, seasonal patterns, historical conservation trends, drought restrictions, and Coronavirus Disease 2019 (COVID-19) behavioral effects. These variables allow the model to separately quantify how economic conditions, demographic shifts, land use characteristics, and institutional constraints affect demand across residential, commercial, industrial, institutional, and irrigation sectors (MWDOC, 2025).

The impacts of hot/dry weather condition are reflected as a percentage increase in water demands from the average condition (average of FY 2017-18 and FY 2018-19). For a single dry year condition (FY 2013-14), the model projects a seven percent increase in demand for Mesa Water District's service area (MWDOC, 2025).

For Mesa Water District, the five consecutive years of FY 2011-12 to FY 2015-16 represent the driest five consecutive year historical sequence for Mesa Water District's service area water supply. This period that spanned water years 2012 through 2016 included the driest four-year statewide precipitation on record (2012-2015) and the smallest Sierra-Cascades snowpack on record (2015, with five percent of average). It was marked by extraordinary heat: 2014, 2015, and 2016 were California's first, second and third warmest year in terms of statewide average temperatures. Locally, Orange County rainfall for the five-year period totaled 36 inches, the driest on record.

7.5.1.1 Water Demand Characterization

Mesa Water supplies all of its demands using locally pumped groundwater. Mesa Water has access to MET imported water as an emergency backup supply. As described in Section 6.2.1, MET's supplies are from the Colorado River, SWP, and in-region storage. In MET's 2025 UWMP, the DRA concluded that even without activating WSCP actions, MET can reliably provide water to all of their member agencies, including MWDOC, through 2050, assuming a five-year drought from FY 2025-26 through FY 2029-30. Beyond this, MET's DRA indicated a surplus of supplies that would be available to all of its member agencies, including MWDOC, should the need arise. Therefore, any increase in demand that is experienced in MWDOC's service area will be met by MET's water supplies.

Based on MWDOC's water demand projection model, in a single dry year, demand is expected to increase by seven percent above a normal year. MWDOC's DRA conservatively assumes that a drought from FY 2025-26 through FY 2029-30 is a repeat of the single dry year over five consecutive years (MWDOC, 2025).

MWDOC developed its water demand forecast model in a number of steps. First, MWDOC estimated total retail demands for its service area. This was based on estimated future demands using historical water use trends, future expected water use efficiency measures, additional projected land-use development, and changes in population. Next, MWDOC estimated the projections of local supplies derived from current and expected local supply programs from MWDOC member agencies. Finally, MWDOC used its demand model to calculate the difference between total forecasted demands and local supply projections. The resulting difference between total demands net of savings from conservation and local supplies is the expected regional demands on MWDOC. The sum of the 1) M&I demand estimated from the model and the 2) non-M&I water for surface water storage and groundwater replenishment, equate MWDOC's demand, which is supplied by MET.

7.5.1.2 Water Supply Characterization

Mesa Water District’s assumptions for its supply capabilities are discussed and presented in 5-year increments under its water reliability assessment in Section 7.3. For MWDOC’s DRA, these supply capabilities are further refined and presented annually for the years 2026 to 2030, which MWDOC (2025) applied a historical dry-year sequence from within 199-2024 dataset as an analog for five consecutive dry years. For its DRA, MWDOC assessed the reliability of supplies available to MWDOC through MET using historical supply availability under dry-year conditions. MET’s supply sources under the CR, SWP, and in-region supply categories are individually listed and discussed in detail in MET’s UWMP. Future supply capabilities for each of these supply sources are also individually tabulated in Appendix 3 of MET’s UWMP, with consideration for plausible changes on projected supplies under climate change conditions, anticipated regulatory changes, and other factors. MWDOC’s supplies are used to meet consumptive use, surface water and groundwater recharge needs that are in excess of locally available supplies. In addition, MWDOC has access to supply augmentation actions through MET. MET may exercise these actions based on regional need, and in accordance with their WSCP, and may include the use of supplies and storage programs within the Colorado River, SWP, and in-region storage.

Commented [K14]: Please correct starting year.

7.5.2 Total Water Supply and Use Comparison

Mesa Water District’s anticipated total water use and supply under a five-year drought from FY 2025-26 through FY 2029-30, are compared in Table 7.7. Mesa Water District’s assessment reveals that its supply capabilities are expected to balance with its projected water use for the next five years, from 2026 to 2030, under a repeat of a five-consecutive-year drought.

Table 7.7 Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)			
2026			Total
Total Water Use	(AF)		17,705
Total Supplies	(AF)		17,705
Surplus/Shortfall w/o WSCP Action			0
2027			Total
Total Water Use	(AF)		18,488
Total Supplies	(AF)		18,488
Surplus/Shortfall w/o WSCP Action			0
2028			Total
Total Water Use	(AF)		18,603
Total Supplies	(AF)		18,603
Surplus/Shortfall w/o WSCP Action			0

2029		Total
Total Water Use	(AF)	18,955
Total Supplies	(AF)	18,955
Surplus/Shortfall w/o WSCP Action		0
2030		Total
Total Water Use	(AF)	19,277
Total Supplies	(AF)	19,277
Surplus/Shortfall w/o WSCP Action		0

NOTES: Groundwater is sustainably managed through the BPP and robust management measures (Section 6.3.4 and Appendix I); recycled water provides additional local supply (Section 6.6); and based on MET's and MWDOC's UWMPs, imported water is available to close any water supply gap, should the need arise (Section 7.5.1).

7.5.3 Water Source Reliability

Mesa Water District's potable water supply portfolio is from the Orange County Groundwater Basin, which provides 100 percent of Mesa Water's supply and is expected to remain a reliable source through FY 2029–30. [Mesa Water® is actively exploring increasing supply reliability through its brackish groundwater Local Groundwater Supply Improvement Program.](#) OCWD's active basin management, such as adjusting the BPP and securing supplemental recharge supplies, helps maintain long-term groundwater reliability. Local supply is further strengthened by OCWD's use of indirect potable reuse water from OCWD's Groundwater Replenishment System, which enhances drought resilience. While emergency interconnections with neighboring agencies are not part of the normal supply mix, they offer additional backup capacity if ever needed. Mesa Water District's DRA concludes that available supplies meet projected demands during a modeled five-year drought, with the ability to implement MET purchases if necessary.

Commented [K15]: GM addition

As detailed in Section 8, Mesa Water District has in place a robust WSCP and comprehensive shortage response planning efforts that include demand reduction measures and supply augmentation actions. However, since Mesa Water District's DRA shows a balance, no water service reliability concern is anticipated, and no shortfall mitigation measures are expected to be exercised over the next five years. Mesa Water District and its wholesale, MWDOC, will periodically revisit its representation of the supply sources and of the gross water use estimated for each year, and will revise the DRA if needed.

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CHAPTER 8 WATER SHORTAGE CONTINGENCY PLANNING

8.1 Background

Water shortage contingency planning is a strategic planning process that Mesa Water District (Mesa Water) engages to prepare for and respond to water shortages. A water shortage is defined when water supply available is insufficient to meet the customer demand at a given point in time. This may occur due to water supply availability changes, water quality changes, and/or catastrophic events (e.g., earthquake). The Water Shortage Contingency Plan (WSCP), included in Appendix F and summarized in this chapter, provides a water supply availability assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation is intended to help maintain reliable supplies and reduce the impacts of supply interruptions.

The Water Code Section 10632 requires that every urban water supplier that serves more than 3,000 acre-feet per year (AFY) or has more than 3,000 connections prepare and adopt a standalone WSCP as part of its Urban Water Management Plan (UWMP). The WSCP is required to plan for a greater than 50 percent supply shortage. The WSCP may require updating based on new Department of Water Resources (DWR) requirements every five years and will be adopted as a current update for submission to DWR by July 1, 2026.

8.2 Overview of the Water Shortage Contingency Plan

The WSCP serves as the operating manual that Mesa Water will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP defines the processes and procedures that would be deployed when shortage conditions arise so that Mesa Water's governing body, its staff, and the public can easily identify and efficiently implement pre-determined steps to mitigate a water shortage to the level appropriate for the degree of water shortfall anticipated. The relationship between the three procedural documents related to planning for and responding to water shortages is graphically depicted in Figure 8.1.



Figure 8.1 Purpose and Relationships of the UWMP, WSCP, and Water Shortage Response Ordinance

Commented [AC1]: Remove the word "conservation" if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

A complete version of Mesa Water’s WSCP is provided in Appendix F and includes the steps to assess if a water shortage is occurring, and what level of demand reduction actions to trigger the most appropriate response to the water shortage conditions. The WSCP has prescriptive elements, including an analysis of water supply reliability; the drought shortage actions that align with water shortage levels that correspond to water shortage percentages ranging from 10 percent to greater than 50 percent; an estimate of potential to close supply gap for each measure; protocols and procedures to communicate identified actions for any current or predicted water shortage conditions; procedures for an annual water supply and demand assessment; monitoring and reporting requirements to determine customer compliance; and reevaluation and improvement procedures for evaluating the WSCP.

8.3 Summary of Water Shortage Response Strategy and Required DWR Tables

The WSCP is organized into the following three main sections with Section 3 aligned with the California Water Code Section 16032 requirements:

- **Section 1 Introduction and WSCP Overview** gives an overview of the WSCP fundamentals.
- **Section 2 Background Information** provides a background on Mesa Water’s water service area.
- **Section 3 Water Shortage Contingency Preparedness and Response Planning.**
 - » **Section 3.1 Water Supply Reliability Analysis** provides a summary of the water supply analysis and water reliability findings from the 2025 UWMP.
 - » **Section 3.2 Annual Water Supply and Demand Assessment Procedures** provides a description of procedures to conduct and approve the Annual Assessment.
 - » **Section 3.3 Six Standard Water Shortage Stages** explains the WSCP’s six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, 50, and more than 50 percent shortages.
 - » **Section 3.4 Shortage Response Actions** describes the WSCP’s shortage response actions that align with the defined shortage levels.
 - » **Section 3.5 Communication Protocols** addresses communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding any current or predicted shortages and any resulting shortage response actions.
 - » **Section 3.6 Compliance and Enforcement** describes customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions.
 - » **Section 3.7 Legal Authorities** describes the legal authorities that enable Mesa Water to implement and enforce its shortage response actions.
 - » **Section 3.8 Financial Consequences of the WSCP** provides a description of the financial consequences of and responses for drought conditions.
 - » **Section 3.9 Monitoring and Reporting** describes monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.
 - » **Section 3.10 WSCP Refinement Procedures** addresses reevaluation and improvement procedures for monitoring and evaluating the functionality of the WSCP.

- » **Section 3.11 Special Water Feature Distinction** provides a required definition for inclusion in a WSCP per the Water Code.
- » **Section 3.12 Plan Adoption, Submittal, and Availability** describes the process Mesa Water followed to adopt its WSCP.

The WSCP is based on adequate details of demand reduction and supply augmentation measures that are structured to match varying degrees of shortage will aim to make the relevant stakeholders understand what to expect during a water shortage situation. Mesa Water adopted water shortage levels consistent with the requirements identified in Water Code Section 10632 (a)(3)(A) (Table 8.1).

The six shortage levels that Mesa Water uses in their water shortage planning and documented in their WSCP are the same as DWR's six standard shortage levels in terms of percentage shortage range for each of the six levels, as indicated in Table 8.1. The water supply augmentation measures that align with each agency shortage level are described in Table 8.2. This table also estimates the extent to which that action will augment supplies to reduce the gap between supplies and demands. The demand reduction action measures that align with each shortage level and how each measure will reduce the shortage gap between expected supplies and the shortage level is summarized in Table 8.3. The purpose of Table 8.2 and Table 8.3 are to demonstrate the results that Mesa Water can expect once shortage level actions are implemented to deliver the expected outcomes necessary to meet the requirements of a given shortage level.

Table 8.1 [Cross-Reference for Standard vs Supplier Shortage Levels](#)

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels Water Code Section 10632(a)(3)(B)			
<input type="checkbox"/>	Check the box if the Supplier uses the Standard six levels of water shortage. Proceed to the next table.		
Standard Shortage Levels	Percent Shortage Range	Suppliers Shortage Levels	Percent Shortage Range
1	Up to 10%		
2	Up to 20%		
3	Up to 30%		
4	Up to 40%		
5	Up to 50%		
6	>50%		
NOTES:			

Table 8.2 Supply Augmentation and Other Actions

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions Water Code Section 10632(a)(4)(A),(C) and (E)				
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)	
Add additional rows as needed				
1 through 6	Other Purchases	Percentage	0 - 100%	Additional groundwater pumping in the Orange County Groundwater Basin (Primary Aquifer and Deep Aquifer)
1 through 6	Other Purchases	Percentage	0 - 100%	Additional imported water purchases through MWDOC
1 through 6	Other Purchases	Percentage	0 - 100%	Interties with City of Santa Ana, City of Newport Beach, and IRWD
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.				
NOTES:				

Table 8.3 Demand Reduction Actions

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B) and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? For Retail Suppliers Only Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
Add additional rows as needed					
0	Landscape - Prohibit certain types of landscape irrigation		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Watering or irrigation of nonfunctional turf (NFT) on State and local government properties, commercial, industrial and institutional owned landscapes, homeowners' associations common area landscapes, and local government facilities in disadvantaged communities (DAC) is prohibited. See Note 1 below.	No
0	Landscape - Other landscape restriction or prohibition		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Irrigation During Rain Events: The application of potable water to outdoor landscapes during and up to forty-eight (48) hours after measurable rainfall is prohibited.	Yes
0	Landscape - Prohibit certain types of landscape irrigation		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Irrigated Medians: The use of potable water to irrigate ornamental turf on public street medians is prohibited.	Yes
0	Landscape - Restrict or prohibit runoff from landscape irrigation		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	No Excessive Water Flow or Runoff: No person shall cause or allow watering or irrigating of any lawn, landscape or other vegetated area in a manner that causes or allows excessive runoff from the property. Additionally, to the extent prohibited by any Statewide statute, or regulation adopted by any State agency with jurisdiction to adopt such regulations, including, but no limited to, the State Water Resources Control Board, no person shall cause or allow water to flow or runoff their property onto adjacent property, non-irrigated areas, private and public walkways, driveways, roadways, gutters or ditches, parking lots, or structures.	Yes
0	Other - Prohibit use of potable water for washing hard surfaces		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	No Washing Down Hard or Paved Surfaces: Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a fully functioning, positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume high-pressure water broom.	Yes
0	Water Features - Restrict water use for decorative water features, such as fountains		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Re-circulating Water Required for Water Fountains and Decorative Water Features: Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.	Yes
0	Other - Require automatic shut of hoses		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Limits on Washing Vehicles: Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a fully functioning, positive self-closing water shut-off nozzle or device that causes it to cease dispensing water immediately when not in use. This subsection does not apply to any commercial car washing facility.	Yes
0	Other		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	No Installation of Single Pass Cooling Systems: Installation of single pass cooling systems is prohibited in buildings requesting new water service from Mesa Water District.	Yes
0	CII - Other CII restriction or prohibition		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	No Installation of Non-re-circulating in Commercial Car Wash and Laundry Systems: Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.	Yes
0	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		On-going Long Term-Conservation Savings Measure. Not applicable to Water Shortage Contingency Plan quantifiable savings.	Commercial Car Wash Systems: All commercial conveyor car wash systems must utilize re-circulating water systems or must secure a waiver of this requirement from Mesa Water District.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B) and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? For Retail Suppliers Only Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
1	Landscape - Limit landscape irrigation to specific times	Percentage	5%	Limits on Watering Hours: Watering or irrigating of lawn, landscape, or other vegetated area with potable water is prohibited between the hours of 8:00 a.m. and 5:00 p.m. Pacific Standard Time on any day. Hand-held watering cans, buckets, or similar containers reasonably used to convey water for irrigation purposes are not subject to these time restrictions. Similarly, a hand-held hose equipped with a fully functioning, positive self-closing water shut-off nozzle or device may be used during the otherwise restricted period. If necessary, and for very short periods of time for the express purpose of adjusting or repairing it, one may operate an irrigation system during the otherwise restricted period.	Yes
1	Landscape - Limit landscape irrigation to specific days	Percentage	10%	Designated Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area is limited up to a maximum of five (5) days per week on a schedule established and posted by Mesa Water District by a Resolution of the Board of Directors. This provision does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system, and then only while under the supervision of a competent person.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	3%	Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within ninety-six (96) hours of notification by Mesa Water District, or turned off, unless other arrangements are made with Mesa Water District.	Yes
2	Landscape - Limit landscape irrigation to specific days	Percentage	10%	Designated Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area is limited up to a maximum of four (4) days per week on a schedule established and posted by Mesa Water District by a Resolution of the Board of Directors. This provision does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system, and then only while under the supervision of a competent person.	Yes
2	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	3%	Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within seventy-two (72) hours of notification by Mesa Water District, or turned off, unless other arrangements are made with Mesa Water District.	Yes
3	Landscape - Limit landscape irrigation to specific days	Percentage	10%	Designated Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area is limited up to a maximum of three (3) days per week on a schedule established and posted by Mesa Water District by a Resolution of the Board of Directors. This provision does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system, and then only while under the supervision of a competent person.	Yes
3	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	3%	Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by Mesa Water District, or turned off, unless other arrangements are made with Mesa Water District.	Yes
3	Water Features - Restrict water use for decorative water features, such as fountains	Percentage	2%	Limits on Filling Ornamental Fountains, Lakes, and Ponds: Filling or re-filling ornamental fountains, lakes, and ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals have been actively managed within the water feature prior to declaration of a supply shortage level under this Conservation Program.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B) and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.	How much is this going to reduce the shortage gap?		Additional Explanation or Reference (OPTIONAL)	Penalty, Charge, or Other Enforcement? For Retail Suppliers Only Drop Down List
		Volume or Percentage Drop down	Shortage Gap Reduction Value (May be a range) (AF)		
4	Landscape - Limit landscape irrigation to specific days	Percentage	10%	Designated Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area is limited up to a maximum of two (2) days per week on a schedule established and posted by Mesa Water District by a Resolution of the Board of Directors. This provision does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system, and then only while under the supervision of a competent person.	Yes
4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	3%	Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within twenty-four (24) hours of notification by Mesa Water District, or turned off, unless other arrangements are made with Mesa Water District.	Yes
5	Landscape - Limit landscape irrigation to specific days	Percentage	10%	Designated Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area is limited up to a maximum of one (1) day per week on a schedule established and posted by Mesa Water District by a Resolution of the Board of Directors. This provision does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system, and then only while under the supervision of a competent person.	Yes
5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Percentage	3%	Car Washing at Commercial Facilities Only: Washing of motor vehicles, trailers, boats, aircraft and other types of mobile equipment shall be done only at a commercial car wash with water recycling facilities. No restrictions apply where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as with refuse trucks and vehicles used to transport food and perishables.	Yes
5	Other water feature or swimming pool restriction	Percentage	2%	No Initial Filling or Re-Filling of Swimming Pools & Spas: Filling and Re-Filling of residential swimming pools or outdoor spas with water is prohibited.	Yes
6	Landscape - Prohibit all landscape irrigation	Percentage	10%	No Watering or Irrigating: Watering or irrigating of lawn, landscape, or other vegetated area is prohibited. This restriction does not apply to the following categories of use: Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self-closing water shut-off nozzle or device; Maintenance of existing landscape necessary for fire protection; Maintenance of existing landscape for soil erosion control; Maintenance of plant materials identified to be rare or essential to the well-being of protected species. Maintenance of landscape within active public parks and playing fields, day care centers, golf course greens, and school grounds, provided that such irrigation does not exceed a maximum of two (2) days per week according to the schedule established in Section 8(b)(1) and time restrictions in Section 6(a); Actively irrigated environmental mitigation projects.	Yes

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES: Note 1: NFT irrigation requirements begin January 1, 2027 for State and local government properties, January 1, 2028 for commercial, industrial and institutional owned landscapes, January 1, 2029 for homeowners' associations common area landscapes, and January 1, 2031 for local government properties in disadvantaged communities (DAC).

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CHAPTER 9 DEMAND MANAGEMENT MEASURES

Over the past several decades, water use efficiency ~~and conservation have~~ has evolved from voluntary best practices into core regulatory requirements shaping urban water management throughout California and Orange County. In response to recurring droughts, growing urban demand, and increasing competition for limited water supplies, the California Urban Water Conservation Council (CUWCC) was formed in 1991 to promote statewide cooperation on urban water conservation. Through the development and implementation of the CUWCC Best Management Practices, water agencies established a consistent, voluntary framework for improving efficiency through locally tailored programs. This early foundation was later strengthened by legislative actions, most notably Senate Bill (SB) X7-7, the Water Conservation Act of 2009, which set enforceable urban water use reduction targets to cut per capita use by 20 percent by 2020 and required retail water suppliers to actively manage demand as part of long-term water planning. All Orange County water agencies came together to create the Orange County 20x2020 Regional Alliance and met compliance as a region. Mesa Water District (Mesa Water) also met compliance individually. These efforts reflected a growing recognition that efficient water use is essential to ensuring reliability amid population growth, limited ~~and supplies~~, ~~and increasing climate variability~~.

Commented [AC1]: Remove the word “conservation” if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

Recurring drought conditions have further accelerated the pace and scale of ~~conservation-water use~~ efficiency efforts in the last decade. The 2013–2014 drought prompted a statewide emergency response, culminating in an executive order mandating a 25 percent reduction in urban water use across California. All Orange County Water Agencies, including Mesa Water, met this reduction target as reported in Chapter 5 of this 2025 Urban Water Management Plan (UWMP). More recently, the 2021-2022 drought reinforced the need for sustained efficiency gains and durable demand management strategies beyond temporary emergency actions. These regulatory and hydrologic drivers ultimately led to the passing and adoption of SB 606 and Assembly Bill (AB) 1668, the “Making Conservation a California Way of Life” legislation (passed in 2018 and adopted in 2024). The legislation establishes long-term water use objectives for individual water suppliers and reinforces conservation as a permanent element of water management. Together, these milestones underscore the necessity for the Municipal Water District of Orange County (MWDOC) and Mesa Water to implement comprehensive demand management measures and meet established urban water use reduction targets to ensure regional water supply resilience.

Commented [K12]: Edit from Mesa Water® GM

The goal of the Demand Management Measures (DMM) chapter is to provide a comprehensive description of the water use efficiency programs that Mesa Water has implemented in the most recent five years, is currently implementing, and plans to implement to meet its urban water use reduction targets. Per the “Making California a Conservation Way of Life” Framework (Conservation Framework), each Urban Water Supplier is required to calculate and report their Urban Water Use Objective (UWUO) and to stay within their calculated annual water budget. The UWUO is an aggregate efficient water use of:

- Indoor Residential Use (population x gallons per capita per day (GPCD) standard);
- Outdoor Residential Use (measurements of irrigated/irrigable area, local weather data, and a landscape efficiency factor);
- Outdoor Use with Dedicated Irrigation Meters (measurements of irrigated area, local weather data, and a landscape efficiency factor);
- Distribution System Water Losses;

- Approved Variances; and
- Potable Reuse Bonus.

Additionally, the Conservation Framework includes commercial, industrial, and institutional (CII) non-volumetric Performance Measures, including CII customer account classifications, thresholds for converting mixed-use CII meters (MUM) irrigating over half an acre of landscape to dedicated irrigation meters (DIM) or in lieu technologies, CII best management practices (BMP), and identification of and information sharing with disclosable buildings.

One of Mesa Water’s top priorities since the adoption of the “Making Conservation a California Way of Life” Framework has been to make progress toward compliance with the Conservation Framework. This chapter will describe Mesa Water’s Demand Management Measure (DMM) activities, including those administered by its wholesaler and supplemental programs administered locally at the retail level.

9.1 Mesa Water District Demand Management Measures

This section describes the specific DMMs performed by Mesa Water, including DMMs offered in partnership with MWDOC, its wholesale supplier, to encourage water conservation within their service area. Table 9.1 summarizes DMM implementation by Mesa Water as well as responsibilities of MWDOC.

Table 9.1 DMM Implementation Responsibility and Regional Programs in Orange County

Efficiency Measure	Responsibility of:		MWDOC Regional Program and Activities
	Retailer	MWDOC as a Wholesaler	
Operations Practices			
Wholesale Agency Assistance Programs	-	✓	✓
Conservation Pricing	✓	✓	✓
Conservation Coordinator	✓	✓	✓
Water Waste Prevention	✓	-	✓
Water Loss Control (System Water Audits, Leak Detection and Repair)	✓	(1)	✓
Metering with Commodity Rates	✓	(1)	(1)
Education and Outreach			
Public Outreach Programs	✓	✓	✓
K-20 Water Education Initiatives and K-12 School Programs	✓	✓	✓
OC Scouts Boy Scouts of America (BSA) and OC Girl Scouts Programs	✓	✓	✓
Water Awareness Poster Contest	✓	✓	✓
Water Energy Education Alliance	✓	✓	✓
Qualified Water Efficient Landscaper (QWEL) Training Program	✓	✓	✓
Residential Indoor Implementation			
Residential Indoor Rebates	✓	-	✓
Flow Monitor Device Rebates	✓	-	✓
Pool cover rebates	✓		

Efficiency Measure	Responsibility of:		MWDOC Regional Program and Activities
	Retailer	MWDOC as a Wholesaler	
Commercial, Industrial, and Institutional Implementation			
Water Savings Incentive Program	✓	-	✓
On-site Retrofit Program	✓	-	✓
CII Indoor Rebates (High Efficiency Toilets and Urinals, Plumbing Flow Control Valves, Connectionless Food Steamers, Air-cooled Ice Machines, Food Defrosters, Cooling Tower Conductivity Controllers and pH Controllers, Dry Vacuum Pumps, Laminar Flow Restrictors)	✓	-	✓
Landscape Programs			
Turf Replacement Program (including Tree Rebate)	✓	-	✓
Spray-to-Drip Irrigation Rebate Program	✓	-	✓
Landscape Rebates (Smart Timers, High Efficiency Sprinkler Nozzles, Large Rotary Nozzles, In-stem Flow Regulators)	✓	-	✓
Residential Landscape Design Assistance Program	✓	-	✓

Notes:

(1) MWDOC does not own or operate a distribution system; water wholesaled by MWDOC is delivered through the Metropolitan Water District of Southern California (MET) distribution system and meters.

9.1.1 Operations Practices

9.1.1.1 Wholesale Agency Assistance Programs

MWDOC’s Assistance Programs are described in Section 9.3.

9.1.1.2 Conservation Pricing

Mesa Water’s water rate schedule is based on a uniform rate structure for commodity charges. Mesa Water’s water rates effective as of January 1, 2025 are shown below (Table 9.2).

Table 9.2 [Mesa Water District Water Rates](#)

Type of Water	Water Rate (per 100 cubic feet)
Potable Water	\$6.83
Recycled Water	\$4.38
Construction Water	\$6.83
Fireline Water	\$6.83

9.1.1.3 Water Conservation Staffing Support

Mesa Water has established a position titled Water Use Efficiency Specialist within [their](#) Public Affairs Department who is responsible for the development, implementation, and management of Mesa Water’s comprehensive Water Use Efficiency Program including promotion and evaluation of water use efficiency

measures. The following list highlights areas of responsibility of the Water Use Efficiency Specialist position:

- Develops and implements cost-effective water use efficiency programs; tracks customer contact and program progress; reports on progress.
- Plans and presents landscape workshops; promotes water use efficiency and runoff reduction through public relations, educational speeches, and private contact; monitors and maintains Mesa Water's demonstration gardens and various site landscapes.
- Schedules and conducts audits/inspections for Mesa Water's rebate program, which includes verifying water use efficiency devices, conducting pre-turf & post-turf inspections, and other related tasks.
- Administers, updates, and enforces Mesa Water's Water Conservation Ordinance as necessary; answers questions related to compliance; issues notices of violation and letters to customers not in compliance with current requirements.
- Creates, updates and implements Mesa Water's Water Use Efficiency Plan; participates in the development of Mesa Water's Urban Water Management Plan.
- Gathers, analyzes, and interprets data and information related to water use; captures relevant data in system database; creates tables, queries, forms, and reports utilizing the database; prepares a variety of written reports, correspondence, records, and proposed regulations and procedures; use data to evaluate program effectiveness and develop recommendations for program modifications.
- Identifies and evaluates water use efficiency measures and practices for commercial, industrial, institutional, and residential customers; recommends incentives to alter water use practices including fixture and appliance retrofit programs; calculates cost/benefit analysis; evaluates and purchases devices for implementation.
- Conducts water surveys, investigations, and evaluations of residential, commercial, industrial, and institutional customers; assesses the efficiency of water use, particularly for landscape irrigation; provides recommendations on water usage and efficiency techniques, fixture and appliance retrofit, equipment improvements, and other methods of achieving more efficient water use.
- Calculates water budgets for commercial irrigation customers in accordance with District guidelines and legal requirements.
- Identifies, targets, and measures commercial irrigation accounts; interprets irrigation site plans; measures sites; calculates and updates site budget.
- Utilizes database to determine account usage patterns; installs data loggers on water meters; downloads and evaluates data logger data; recommends changes based on data logger data.
- Interacts with the public, property manager, landscape manager, staff, and outside agencies.
- Assists with the implementation, monitoring, and reporting of water use efficiency research projects and grants; assists in identifying and securing local, state and federal grant funding for water use efficiency programs.
- Participates in representing Mesa Water on water use efficiency issues to committees, meetings, community groups, and the public.
- Provides current program information for Mesa Water's website, newsletters, social media content and collateral materials.

9.1.1.4 Water Waste Prevention Ordinances

Mesa Water's Board of Directors adopted the Water Conservation and Water Supply Emergency Program, Ordinance No. 26, on May 14, 2015. The Conservation Program established an updated and consolidated water supply and water conservation emergency program to conform to additional State Water Resources Control Board Regulations, and the Ordinance established provision for prohibitions against waste as follows:

- Limits on watering hours.
- No excessive water flow or runoff.
- No washing down hard or paved surfaces.
- Obligations to fix leaks, breaks, and malfunctions.
- Re-circulating water required for water fountains and decorative water features.
- Limits on washing vehicles.
- Drinking water served upon requests only.
- Commercial lodging establishments must provide guests option to decline daily linen service.
- No installation of single pass cooling systems.
- No installation of non-re-circulating in commercial car wash and laundry systems.
- Restaurants required to use water conserving dish wash spray valves.
- Commercial car wash systems must use recirculating system.
- Recycled water use is required if available.
- Use recycled water at new service where available, cost-effective, and safe.
- Prohibition to irrigate turf with potable water on medians – replaced with California friendly plants.

The Conservation Program has a permanent water conservation clause and is not dependent upon a water shortage for implementation. In the event of a water supply shortage, the Conservation Program established provisions for three levels of water supply shortage response actions associated with increasingly restrictive prohibitions to be implemented during a declared shortage. Level 1 corresponds to a water supply shortage alert; Level 2 corresponds to a water supply shortage warning; and Level 3 corresponds to a water supply shortage emergency. The provisions and water conservation measures to be implemented in response to each shortage level are described in Mesa Water's Water Shortage Contingency Plan (WSCP).

In June 2021, Ordinance No. 26 was rescinded in favor of Ordinance number 32 – the Water Shortage Response Ordinance – which aligned Mesa Water's code with recent updates to the California Water Code (Water Code) and the recently adopted 2020 UWMP and WSCP. Then, in February 2022, Ordinance No. 32 was rescinded in favor of Ordinance 33- a revised Water Shortage Response Ordinance created to reflect updates to Mesa Water's water shortage policies.

9.1.1.5 Water Loss Control

SB 555 signed into law in 2015 requires urban water suppliers to submit annual, validated water loss audit reports to the California Department of Water Resources (DWR). Water auditing is the basis for effective water loss control. DWR's UWMP Guidebook includes a water audit manual intended to help water

utilities complete the American Water Works Association (AWWA) Water Audit on an annual basis. Audits must be validated by a certified water auditor to ensure accuracy.

Mesa Water consistently monitors water production with supervisory control and data acquisition (SCADA) and performs a formal water loss audit each year. Additionally, when a leak is discovered, Mesa Water staff typically respond as soon as it is practical to make repairs. Mesa Water's prescreening audit has determined that typically 94-95 percent of total supply into the system is typically captured in sales.

Mesa Water performs the AWWA Water Audit each year and routine maintenance is tracked in a Computerized Maintenance Management System (CMMS). The CMMS plans, schedules, and values all mainline, hydrant, meter, valve, and other infrastructure replacement and maintenance. Mesa Water also allocates a budget and systematic workplan for the replacement and maintenance of the infrastructure, and by following this workplan has spent over \$1 million each year replacing routine capital infrastructure including hydrants, valves, and service lines. Mesa Water is currently running a pipeline integrity program to determine the strength, quality, and remaining useful service life of pipelines in the distribution system. This will also direct Mesa Water where leak detection should be increased.

All water service connections supplied by Mesa Water are fully metered, and customers are billed by volume of water used. Mesa Water requires individual metering for all new connections. Mesa Water has a program to replace meters every 15 years as well as replacement of any meters that fail due to malfunctions and under-registration. Calibration testing is performed along with the water loss audit every year. All three inch and larger meters are tested every year to AWWA calibration standards. Mesa Water evaluates the property's water usage versus the meter's efficiency to determine whether meters should be rebuilt and/or replaced. Mesa Water does not have statutory authority to mandate submeters but requires dedicated irrigation meters that are read and billed by Mesa Water for all CII and Multi-Family developments with irrigated landscape over 1,000 square feet. Mesa Water has implemented an Automatic Meter Reading (AMR) pilot project for the meters on its "large customer" route (Route 600) and is currently reviewing its progress and effectiveness and may implement a permanent program in a cost-effective manner.

9.1.2 Public Education and Outreach

Mesa Water implements several public education and outreach measures, including the programs administered by MWDOC, its wholesale supplier. Mesa Water develops, coordinates, and delivers a substantial amount of public information, education, and outreach programs aimed at elevating water agency and consumer awareness and understanding of current water issues as well as efficient water use and water-saving practices, sound policy, and water reliability investments that are in the best interest of the region. These efforts encourage good water stewardship that benefits all of Mesa Water's residents, businesses, and industries across all demographics. An outline of Mesa Water's public education initiatives is below.

[The Mesa Water Education and Career Center \(MWECC\) is a premier destination for fifth grade school fieldtrips, civic, business and community organizations and residents to learn more about water. The 2,400 square-foot MWECC in Costa Mesa offers an interactive experience featuring more than 20 exhibits. The Redwood Theater provides a never-before seen look at Mesa Water's unique ancient amber water story – and the fully immersive Explorer, takes passengers on an adventure to the underground aquifer. Visitors can explore concepts including Mesa Water's 100% local water supply, infrastructure that delivers water to homes and businesses, the Orange County Groundwater Basin, the California water system. The](#)

[education curriculum meets Next Generation Science Standards and science, technology, engineering and mathematics \(STEM\) guidelines.](#)

9.1.2.1 K-20 Water Education Initiatives and K-12 School Programs

Over the past several years, MWDOC's investment in K-20 water education has significantly grown, evolving to include programs and activities that support environmental literacy for all Orange County students. The effort has expanded beyond K-12 water education programs to include career and workforce development initiatives in higher education through the Water Energy Education Alliance (WEEA) described in more detail in Section 9.1.2.4.

MWDOC's K-12 Water Education School Programs bring standards-aligned, engaging water lessons directly into classrooms and connect water to every part of students' lives. All elementary, middle, and high school programs meet California State Standards and Next Generation Science Standards, providing students with high-quality, relevant learning experiences that build both academic and real-world understanding. This includes a Grab-and-Go Water Activities program, developed in partnership with the Orange County Department of Education, that provides free, self-guided water activities for K-12 teachers, parents and students.

9.1.2.2 OC Scouts Boy Scouts of America (BSA) and OC Girl Scouts Programs

Mesa Water, in partnership with MWDOC, hosts multiple water education workshops each year to help Scouts BSA earn the *Soil & Water Conservation Merit Badge* and Girl Scouts earn the *MWDOC Water Resources & Conservation Patch*. These hands-on science, technology, engineering, and mathematics (STEM) clinics teach children of all ages where their water comes from, how to use water more efficiently, and how all life depends on the health and security of our natural resources, fostering water awareness and responsibility through fun, activity-based learning.

9.1.2.3 Water Awareness Poster Contest

Mesa Water participates in MWDOC's annual Water Awareness Poster Contest, offered for students in grades K-12. The Poster Contest presents children with an opportunity to use their artistic talents to express the importance and value of water through artwork. Each year, hundreds of entries are collected from students and classrooms across the county, and from these entries, 40 winners are selected.

9.1.2.4 Water Energy Education Alliance (WEEA)

The WEEA unites over 260 water, energy, and education leaders across the state to build and strengthen career pathways for all California students. Administered and led by the MWDOC, WEEA is comprised of a powerful statewide coalition of education leaders, workforce advocates, and industry experts to raise student awareness, forge strong partnerships, and cultivate a diverse, highly skilled talent pipeline. By connecting students with high-impact opportunities, WEEA is shaping a workforce that fuels industry success, enhances worker well-being, and ensures a resilient, thriving California.

9.1.2.5 Qualified Water Efficient Landscaper (QWEL) Training Program

Since 2018, MWDOC along with Mesa Water, has offered free QWEL certification classes designed for landscape professionals. Classes are open to any city staff, professional landscaper, water district employee, or maintenance personnel that would like to become a Qualified Water Efficient Landscaper. The QWEL certification program provides 20 hours of instruction on water efficient areas of expertise such as local water supply, sustainable landscaping, soil types, irrigation systems and maintenance, as well as irrigation controller scheduling and programming. QWEL has received recognition from EPA WaterSense for continued promotion of water use efficiency. To earn the QWEL certification, class participants must demonstrate their ability to perform an irrigation audit as well as pass the QWEL exam. Successful graduates will be listed as a Certified Professional on the WaterSense website as well as on MWDOC's landscape resources page, to encourage Turf Removal participants or those making any landscape improvements to hire a QWEL certified professional.

Started in December 2020, a hybrid version of QWEL is available in conjunction with the California Landscape Contractors Association's Water Management Certification Program. This joint effort allows landscape industry an opportunity to obtain two nationally recognized EPA WaterSense Professional Certifications with one course and one written test. This option is offered through MET.

9.1.3 Residential Indoor Rebate Programs

Mesa Water partners with MWDOC to implement residential measures that target indoor water use efficiency for single family and multifamily residential customers.

9.1.3.1 High Efficiency Clothes Washer and Toilet Rebate Programs

The High Efficiency Clothes Washer (HECW) Rebate Program provides residential customers with rebates starting at \$85 for purchasing and installing HECWs that use 35-50 percent less water than standard washer models. Devices must meet or exceed the Consortium for Energy Efficiency (CEE) Tier 1 Standard, and a listing of qualified products can be found at ocwatersmart.com. There is a maximum of one rebate per home.

The Premium High Efficiency Toilet (HET) Rebate Program offers residential customers rebates starting at \$40 for replacing their toilets using 1.6 gallons per flush (gpf) with Premium HETs. Premium HETs use just 1.1 gallons of water or less per flush, which is 20 percent less water than WaterSense standard toilets

9.1.3.2 Flow Monitor Device Pilot

This pilot program provides rebates starting at \$100, or more in select areas, per flow monitor device installed. These devices monitor a home's water use and can help detect leaks, making them a proactive tool for preventing expensive water bills and water damage due to unforeseen leaks. A list of residential rebate-eligible flow monitoring devices is provided.

9.1.4 CII Programs

Mesa Water provides a variety of financial incentives, in partnership with MWDOC, to help businesses, restaurants, institutions, hotels, hospitals, industrial facilities, and public sector sites achieve their efficiency goals. Water users in these sectors have options to choose from a standardized list of water efficient

equipment/devices or may complete customized projects through a pay-for-performance where the incentive is proportional to the amount of water saved. Such projects include high efficiency commercial equipment installation and manufacturing process improvements.

9.1.4.1 Water Savings Incentive Program

The Water Savings Incentive Program (WSIP) is designed for non-residential customers to improve their water efficiency through upgraded equipment or services that do not qualify for standard rebates. WSIP is unique because it provides an incentive based on the actual amount of water saved by the customers. This “pay-for-performance” design lets customers implement custom projects for their sites. Mesa Water partners with MWDOC and MET to offer this program.

Projects must save at least 10 million gallons (MG) of water to qualify for the Program, and incentives are paid by MET based on the amount of water saved. Payment amount is up to \$0.60 per 1,000 gallons saved per year over the project life, up to a maximum of 10 years. Payments are limited to 50 percent of the eligible project costs while funding is available. Additional funding may be available through MWDOC, but it is limited. Examples of successful projects include but are not limited to: changing industrial process system water to capture and reuse process wastewater, capturing condensation and using it to supplement cooling tower water supply, and replacing water-using equipment with more efficient products.

9.1.4.2 Recycled Water On-site Retrofit Program

Through the Recycled Water On-site Retrofit Program, MWDOC and MET offers incentives for CII properties to convert potable water irrigation or industrial systems to recycled water. Financial incentives of up to \$1,950 per acre-foot of potable water saved are available for the customer-side on the meter retrofits. Projects may also be eligible for up to an additional \$325 per acre-foot of annual water savings from MWDOC. Recycled water conversion projects can help to ensure a more reliable water future for Orange County.

9.1.4.3 CII Rebates

Mesa Water offers additional financial incentives under the SoCal Water\$mart Rebate Program which offers rebates for various water efficient devices to CII customers. Core funding is provided by MET and supplemental funding is sourced from MWDOC via grant funds and/or retail water agencies. Devices include: High Efficiency Toilets and Urinals, Plumbing Flow Control Valves, Connectionless Food Steamers, Air-cooled Ice Machines, Food Defrosters, Cooling Tower Conductivity Controllers and pH Controllers, Dry Vacuum Pumps, and Laminar Flow Restrictors.

9.1.5 Landscape Programs

Some of the most active and effective water use efficiency programs Mesa Water provides are those that target the reduction of outdoor water use. With a large proportion of water consumed outdoors via landscape demands, this sector has been and will continue to be a focus for MWDOC and Mesa Water.

9.1.5.1 Turf Replacement Program

The Orange County Turf Replacement Program offers incentives to replace existing turf grass with California-native, drought-tolerant plants and landscaping. Residential, commercial, and public properties in Mesa Water’s service area are all eligible for this program. The goals of this program are to increase water use efficiency through sustainable landscaping practices that result in multi-benefit projects across Orange County. Participants are encouraged to utilize smart irrigation timers and furthermore, projects are required to include a stormwater capture feature, such as a rain garden or dry stream bed, and have a minimum of three plants per 100 square feet to increase plant density and promote healthy soils. These projects save water and reduce dry and wet weather runoff, increase urban biomass, and sequester more carbon than turf landscapes.

Additionally, MWDOC is piloting a tree program that allows eligible trees to qualify as a sustainability feature in Turf Replacement projects. Beginning March 4, 2024, Turf Replacement Program participants became eligible for an additional incentive for planting trees as part of their Turf Replacement project. Participants can receive up to \$100 per tree, for up to 5 trees (\$500), in addition to the Turf Replacement rebate. The pilot goals include increasing the presence of trees in Turf Replacement projects and breaking down barriers to participation. It is anticipated that the pilot will be evaluated in 2026.

9.1.5.2 Spray-to-Drip Rebate Program

The Spray to Drip Rebate Program offers residential, commercial, and public agency customers rebates for converting areas irrigated by traditional high-precipitation rate spray heads to low-precipitation rate drip irrigation. Drip irrigation systems are extremely water efficient. Rather than spraying wide areas subject to wind drift, overspray and runoff, drip systems use point emitters to deliver water to specific locations at or near plant root zones. Water drips slowly from the emitters either onto the soil surface or below ground. As a result, less water is lost to wind, evaporation, and overspray, saving water, and reducing irrigation runoff and non-point source pollution. Mesa Water partners with MWDOC to provide \$1 per square foot of conversion area when replaced with eligible drip irrigation products.

9.1.5.3 SoCal Water\$mart Rebate Program for Landscape

Mesa Water also offers financial incentives under the SoCal Water\$mart Rebate Program for a variety of water efficient landscape devices, such as Smart Irrigation Timers and Central Computer Irrigation Controllers, large rotary nozzles and rotating sprinkler nozzles, soil moisture sensors, irrigation master valves, and in-stem flow regulators.

9.1.5.4 Landscape Design Assistance Rebate

This program is offered for residential customers who are participating in the turf replacement program and are seeking professional design services. Participants must hire a landscape design professional to provide a design that meets the rebate eligible design requirements. Participants will receive up to \$1,000 upon completion of their turf replacement project if they have used a professional designer.

9.2 Mesa Water District DMM Implementation (2020-2025)

During the past five years, Fiscal Year (FY) 2020-21 to 2024-25, Mesa Water, with the assistance of MWDOC, has continued water use efficiency programs for its residential, CII, and landscape customers

with the participation shown below (Table 9.3). Mesa Water will continue to implement all applicable programs in the next five years.

Table 9.3 Mesa Water District Water Use Efficiency Program Participation

Program	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25
High Efficiency Clothes Washer (HECW)	99	31	30	32	40
High Efficiency Toilets (HETs)	4	0	0	0	2
Flow Monitoring Devices (FMD)	--	0	1	1	5
Commercial Plumbing Fixtures (CII)	2	0	251	18	161
Water Savings Incentives Projects (WSIP)	0	0	0	0	0
Turf Replacement (Res.)	18,700	29,375	34,191	21,321	11,922
Turf Replacement (Comm.)	1,620	0	55,661	97,512	86,176
Landscape Design Rebate Program (LDAP)	15	14	18	4	0
Landscape Design Rebate Program (LMAP)	5	6	11	6	0
Spray-to-Drip (Res.)	11,062	13,073	22,386	15,877	5,050
Spray-to-Drip (Comm.)	0	7,972	49,775	32,313	17,021
Rotating Nozzles (Small Res.)	0	0	21	0	0
Rotating Nozzles (Small Comm.)	0	0	0	0	0
Rotating Nozzles (Large Comm.)	0	0	0	0	0
Smart Timers (Res.)	30	18	25	28	11
Smart Timers (Comm.)	2	4	14	8	0
Rain Barrels	2	4	6	3	3
Recycled Water Onsite Retrofits	0	0	0	0	0

9.3 MWDOC Demand Management Implementation Assistance Programs

To help facilitate implementation of DMMs throughout Orange County, MWDOC’s wholesale efforts focus on the following three areas: 1) State Water Conservation Compliance Assistance (e.g., Conservation Framework and Non-Functional Turf), 2) Regional Rebate Programs and Local Program Assistance, and 3) Research and Evaluation. This both complies with and goes beyond the Foundational BMPs of Utility Operations Programs requirements.

9.3.1 State Water Conservation Compliance Assistance

To support Orange County retailers with compliance of SB 606 and AB 1668, MWDOC is providing multi-level support to assist agencies in meeting the primary goals of the legislation, including to use water more wisely and to eliminate water waste. Beginning in 2023, urban water suppliers were required to calculate and report their annual UWUO, submit validated water audits annually, and implement and report BMP CII performance measures.

MWDOC offers Orange County water suppliers a “Conservation Framework Technical Assistance Program (TAP)” and “Meter Area Measurements Program” to assist them with compliance with the Conservation Framework.

9.3.1.1 Conservation Framework Technical Assistance Program (TAP)

This program provides Orange County water suppliers with support on tasks that are required as part of the Conservation Framework. An agency may opt in to receive support with any of the following:

- Readiness Assessment - perform a retailer-specific readiness assessment, including task recommendations and pricing to help retail agencies understand what areas need to be addressed.
- Conservation Framework Compliance Plan - create a customized Framework Compliance Plan that outlines (1) what the retailer needs to do to prepare for compliance and (2) what needs to be implemented to achieve the water savings necessary to comply with the Urban Water Use Objective
- Annual Report Compilation and Data Management - support the retailer with Annual Report preparation and assistance; and organize and manage data needed to comply with the reporting requirements of the Regulation.
- CII Account Classification - classify CII customer accounts according to the Regulation requirements and create a guidance plan to keep classifications at 95 percent (or higher)
- CII Best Management Practices (BMPs) and In-Lieu Technologies Implementation Plan - create a customized implementation plan mapping compliance with the Conservation Framework regulation, including the CII BMP requirements of § 974, the in-lieu technologies and accompanying BMP requirements in § 973, and disclosable buildings requirements in § 974a.
- Miscellaneous Framework Technical Assistance – various activities such as:
 - » Development of metrics and annual targets to demonstrate progress.
 - » Additional training or technical support.
 - » Workshop or webinar facilitation to spur cross-team collaborations.
 - » Develop outreach and engagement plans and implement meetings to support engagement of internal and external collaborators.

9.3.1.2 Meter Area Measurements Program

The Program assists Orange County water supplier in providing (1) landscape area measurements (LAM) associated with dedicated irrigation meters (DIMs), which may include the creation of water efficiency budgets for dedicated landscape meter customers; (2) identification of MUMs irrigating landscapes greater than half acre and subject to the regulation; and (3) reconciliation of DIM and residential LAMs where areas may overlap.

9.3.2 Regional Rebate Programs and Local Program Assistance

MWDOC develops, obtains funding for, and implements regional water savings rebate programs on behalf of all retail water agencies in Orange County, such as the Turf Replacement Program. This approach minimizes confusion for consumers by providing the same programs with the same participation guidelines, maintains a consistent message to the public to use water efficiently, and provides support to retail water agencies by acting as program administrators for the region. As a leader of water efficiency in

Orange County, MWDOC provides a holistic suite of programs that are accessible to all consumer groups in the region. When requested, MWDOC also assists retail agencies in developing and implementing local programs within their service areas. This assistance includes collaboration with each retail agency to design a program that fits that agency's local needs, including providing staffing, targeting customer classes, acquiring grant funding from a variety of sources, and implementing, marketing, reporting, and evaluating the program.

On behalf of its member agencies, MWDOC also organizes and provides the following:

- Monthly coordinator meetings.
- Marketing materials.
- Public speaking.
- Community events.

9.3.3 Research and Evaluation

An essential part of MWDOC's regional water use efficiency program is the ongoing research and evaluation of both existing and potential initiatives. Research allows an agency to measure the water savings benefits of a specific program and compare those benefits to the costs of implementing the program. This allows the agency to evaluate the economic feasibility of the program when compared to other efficiency projects or existing or potential sources of supply, before investing in new initiatives or continuing to implement existing programs. MWDOC routinely conducts statistical water savings (impact) evaluations and process evaluations to guide strategic investment and ensure the effective management of its regional water use efficiency programs.

From 2021 to 2025, MWDOC conducted several research initiatives to support informed decision-making. In partnership with Flume Data Labs, MWDOC completed its Residential End Use Study in 2021, with subsequent updates in 2022 and 2024. This study provided detailed insights into disaggregated residential indoor and outdoor water use, significantly enhancing the understanding of water use patterns across Orange County. In 2023, MWDOC released its Potential and Opportunities study, which quantified the remaining water savings potential in the Orange County residential market, identified the most promising and cost-effective methods for reducing residential demand, and made recommendations on how best to direct financial and technical assistance to Retail Agencies and consumers for implementing residential water efficiency upgrades.

To assess the economic impact of the Conservation Framework, MWDOC worked with M.Cubed and in 2023 published the Draft Water Use Efficiency Standards Economic Analysis: Impact Assessment of State-Mandated Urban Water Use Objectives. MWDOC continues to evaluate the impact of the regulation and Orange County retailer compliance.

Additionally, MWDOC is piloting a tree program that allows eligible trees to qualify as a sustainability feature in Turf Replacement projects. Pilot goals include increasing the presence of trees in Turf Replacement projects and breaking down barriers to participation. It is anticipated that the pilot will be evaluated in 2026. A pilot research program investigating water savings associated with the replacement of broken pressure regulating valves at residential homes wrapped up in 2025. The results of this study are expected in 2027.

9.4 Urban Water Use Objective and CII Performance Measure Compliance

A large focus for Mesa Water is to implement DMMs that will help them to meet the requirements of the Conservation Framework. DMMs described in this chapter may help to support member agencies with meeting their required UWUO and achieving CII Performance Measure Compliance. In addition, MWDOC provides support to agencies to assist with the calculation of UWUOs and compliance with CII Performance measures via the Meter Area Measurement and TAP Programs, as described in Section 9.3.

9.4.1 UWUO Components

Table 9.4 describes MWDOC’s programs that will assist agencies in meeting their UWUO, through both direct measures (programs/activities that result in directly quantifiable water savings) and indirect measures (programs that provide resources promoting water efficiencies to the public that are impactful but not directly measurable). Additionally, MWDOC provides technical assistance to support water suppliers with compliance.

Table 9.4 MWDOC Programs to Help OC Retail Agencies Meet Their Urban Water Use Objectives

UWUO Component	Calculation	Program	Impact
Indoor Residential	Population and GPCD standard	<u>Direct Impact:</u> <ul style="list-style-type: none"> High efficiency indoor fixtures and appliance rebates 	<u>Direct Impact:</u> <ul style="list-style-type: none"> Increased indoor residential efficiencies and reductions of GPCD use
Outdoor Residential	Irrigated/irrigable area measurement and a landscape efficiency factor of local ETo and effective precipitation	<u>Direct Impact:</u> <ul style="list-style-type: none"> Turf Replacement High efficiency irrigation rebates <u>Indirect Impact:</u> <ul style="list-style-type: none"> Online resources such as OC Friendly Gardens Webpage Educational classes 	<u>Direct Impact:</u> <ul style="list-style-type: none"> Increase outdoor residential efficiencies and reductions of gallons per ft² of irrigated/ irrigable area used <u>Indirect Impact:</u> <ul style="list-style-type: none"> Provide information, resources, and education to promote efficiencies in the landscape
Outdoor Dedicated Irrigation Meters	Irrigated area measurement and a landscape efficiency factor of local ETo and effective precipitation	<u>Technical Assistance:</u> <ul style="list-style-type: none"> DIM landscape classification and measurement <u>Direct Impact:</u> <ul style="list-style-type: none"> Turf Replacement High efficiency irrigation rebates <u>Indirect Impact:</u> <ul style="list-style-type: none"> OC Friendly Gardens Webpage Educational training and resources 	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Classification and measurement of landscapes associated with DIMs are required to complete the calculation. <u>Direct Impact:</u> <ul style="list-style-type: none"> Increase outdoor residential efficiencies and reductions of gallons per ft² of irrigated/ irrigable area used. <u>Indirect Impact:</u> <ul style="list-style-type: none"> Provide information, resources, and education to promote landscape efficiencies.

Water Loss	Agency-specific loss factor and number of connections	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Water Balance Validation Customer Meter Accuracy Testing Distribution System Pressure Surveys <u>Direct Impact:</u> <ul style="list-style-type: none"> Distribution System Leak Detection 	<u>Technical Assistance:</u> <ul style="list-style-type: none"> The accuracy of the water loss audit is validated for submission to the State. <u>Direct Impact:</u> <ul style="list-style-type: none"> Identify areas of the distribution system that need repair, replacement, or other actions to limit water loss.
Bonus Incentives	Volume of indirect potable reuse water applied to residential and DIM irrigation uses; not to exceed 15% of UWUO	<u>Direct Impact:</u> <ul style="list-style-type: none"> Groundwater replenishment system (GWRS) 	<u>Direct Impact:</u> <ul style="list-style-type: none"> The GWRS (run by Orange County Water District [OCWD]) recharges the groundwater basin with purified, highly treated wastewater, allowing OCWD-member agencies to access indirect potable reuse.

9.4.2 CII Performance Measures

Urban water supplies are required to report BMPs for CII customers. Mesa Water, in partnership with MWDOC, offers a broad variety of programs and incentives to help CII customers implement BMPs and increase their water efficiencies (Table 9.5).

Table 9.5 Mesa Water District CII BMP and Water Efficiency Programs and Incentives

Component	Requirement	Program Offered	Impact
CII Customer Account Classifications	Classify each CII water user, based on the end-use of water for the water user, in accordance with Energy Star Portfolio Manager’s 18 broad categories, in addition to 4 other categories.	<u>Technical Assistance:</u> <ul style="list-style-type: none"> CII Customer Account Classification 	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Classify customer accounts according to the specified categories to comply with the regulation.
Large Landscape Identification	Identify all CII water users associated with large landscapes – landscapes irrigated with a mixed-use meter greater than half an acre	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Large Landscape identification 	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Identify and map landscapes associated with MUM landscapes that are greater than half an acre to comply with the regulation.
Best Management Practices (BMPs)	Offer CII BMPs for customers that exceed the recommended size, volume of water use, or another threshold	<u>Technical Assistance:</u> <ul style="list-style-type: none"> BMP Implementation Plan 	<u>Technical Assistance:</u> <ul style="list-style-type: none"> Provide a BMP Implementation Plan to guide water suppliers with a roadmap to compliance with the regulation.

Disclosable Buildings	Identify disclosable buildings in service area according to the list provided by the California Energy Commission	<u>Technical Assistance:</u> <ul style="list-style-type: none">Disclosable buildings list	<u>Technical Assistance:</u> <ul style="list-style-type: none">Provide the California Energy Commission list of disclosable buildings by water supplier to comply with the regulation.
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CHAPTER 10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The Water Code requires the Urban Water Management Plan (UWMP) to be adopted by Mesa Water District’s (District) governing body. Before the adoption, Mesa Water must hold a public hearing allowing members of the public to provide input on the UWMP. Prior to the public hearing, Mesa Water must notify the public and surrounding cities, counties and water agencies within its service area of the scheduled public hearing. Upon completion of the public hearing, Mesa Water’s governing body shall vote to adopt the UWMP. Post adoption, Mesa Water submits the UWMP to the Department of Water Resources (DWR) while also making it available for public access. This section provides a record of the process Mesa Water followed to adopt and implement its UWMP.

Commented [AC1]: Remove the word “conservation” if mentioned in context of reducing water use. Revise to state Water Use Efficiency. For example, Conservation efforts becomes Water Use Efficiency measures.

10.1 Overview

Recognizing that close coordination among other relevant public agencies is key to the success of its UWMP, Mesa Water worked closely with other entities to develop and update this planning document. Mesa Water also encouraged public involvement through its public review and hearing process, which provided residents with an opportunity to learn and ask questions about their water supply management and reliability. Through the public hearing, the public has an opportunity to comment and put forward any suggestions for revisions of the Plan.

Table 10.1 summarizes external coordination and outreach activities carried out by Mesa Water and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

Table 10.1 External Coordination and Outreach

External Coordination and Outreach	Date	Reference
Notified city or county within supplier’s service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	4/24/2026	Appendix I
Public Hearing Notice	06/08/2026 06/15/2026	
Held Public Hearing	6/24/2026	Appendix I
Adopted UWMP and WSCP	6/24/2026	Appendix J
Submitted UWMP to DWR (no later than 30 days after adoption)	07/01/2026	-
Submitted UWMP to the California State Library (no later than 30 days after adoption)	07/01/2026	-
Submitted UWMP to the cities and county within the supplier’s service area (no later than 30 days after adoption)	07/01/2026	-

Notes:
WSCP – Water Shortage Contingency Plan

This UWMP was adopted by the Board of Directors on June 24, 2026. A copy of the adopted resolution is provided in Appendix J.

10.2 Agency Coordination

The Water Code requires the Suppliers preparing UWMPs to notify any city or county within their service area at least 60 days prior to the public hearing. As shown in Table 10.2, Mesa Water sent a Letter of Notification to the County of Orange and the cities within its service area on April 24, 2026, to state that it was in the process of preparing an updated UWMP. This notice of preparation is included in Appendix I.

Table 10.2 Submittal Table 10-1 Retail: Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Costa Mesa	Yes	Yes
Newport Beach	Yes	Yes
County Name Drop Down List	60 Day Notice Drop Down (yes/no)	Notice of Public Hearing Drop Down (yes/no)
Orange County	Yes	Yes
NOTES:		

Mesa Water’s water supply planning relates to the policies, rules, and regulations of its regional and local water providers. Mesa Water relies on its local groundwater supply from Orange County Water District (OCWD), the agency that manages the Orange County Basin and recycled water from OCWD’s Green Acres Project (GAP) and has the ability to import water from MWDOC as an emergency supply source, if needed. As such, Mesa Water involved the relevant agencies in this 2025 UWMP at various levels of contribution as described below.

Mesa Water’s 2025 UWMP leveraged data and regionally consistent analyses supplied by MWDOC, such as population projections from the Center for Demographic Research at California State University, Fullerton (CDR) and the information quantifying water availability to meet Mesa Water’s projected demands for the next 25 years, in five-year increments. This 2025 UWMP was developed in collaboration with MWDOC’s 2025 UWMP to ensure consistency between the two documents.

As a groundwater producer who relies on supplies from the OCWD-managed Orange County Basin, Mesa Water coordinated the preparation of this 2025 UWMP with OCWD. Several OCWD documents, such as the Groundwater Reliability Plan, Engineer’s Report, and Basin 8-1 Alternative were used to retrieve the required relevant information, including the projections of the amount of groundwater Mesa Water is allowed to extract in the 25-year planning horizon.

The various planning documents of the key agencies that were used to develop this UWMP are listed in Chapter 2.

10.3 Public Participation

Mesa Water encouraged community and public interest involvement in the Plan update through a public hearing and inspection of the draft document on June 24, 2026. As part of the public hearing, Mesa Water discussed adoption of the UWMP, key components of the UWMP and the conclusions that served as the

basis of the UWMP. Copies of the draft 2025 UWMP were placed for public review at the Mesa Water office.

Public hearing notifications were sent to retail agencies and other interested parties. A copy of the Notice of Public Hearing is included in Appendix I.

The hearing was conducted during a regularly scheduled meeting of the Board of Directors.

10.4 UWMP Submittal

The Board of Directors reviewed and approved the 2025 UWMP at its June 24, 2026 meeting, after the public hearing. See Appendix J for the resolution approving the Plan.

By July 1, 2026 Mesa Water's adopted 2025 UWMP was filed with DWR and sent directly to California State Library, County of Orange, and cities within Mesa Water's service area. The submission to DWR was done electronically through the online submittal tool – WUE Data Portal. Mesa Water will make the Plan available for public review on its website no later than 30 days after filing with DWR.

10.5 Amending the Adopted UWMP or WSCP

Based on DWR's review of the UWMP, Mesa Water will make any amendments in its adopted UWMP, as required and directed by DWR and will follow each of the steps for notification, public hearing, adoption, and submittal for the amending the adopted UWMP.

If Mesa Water revises its Water Shortage Contingency Plan (WSCP) after UWMP is approved by DWR, then an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.