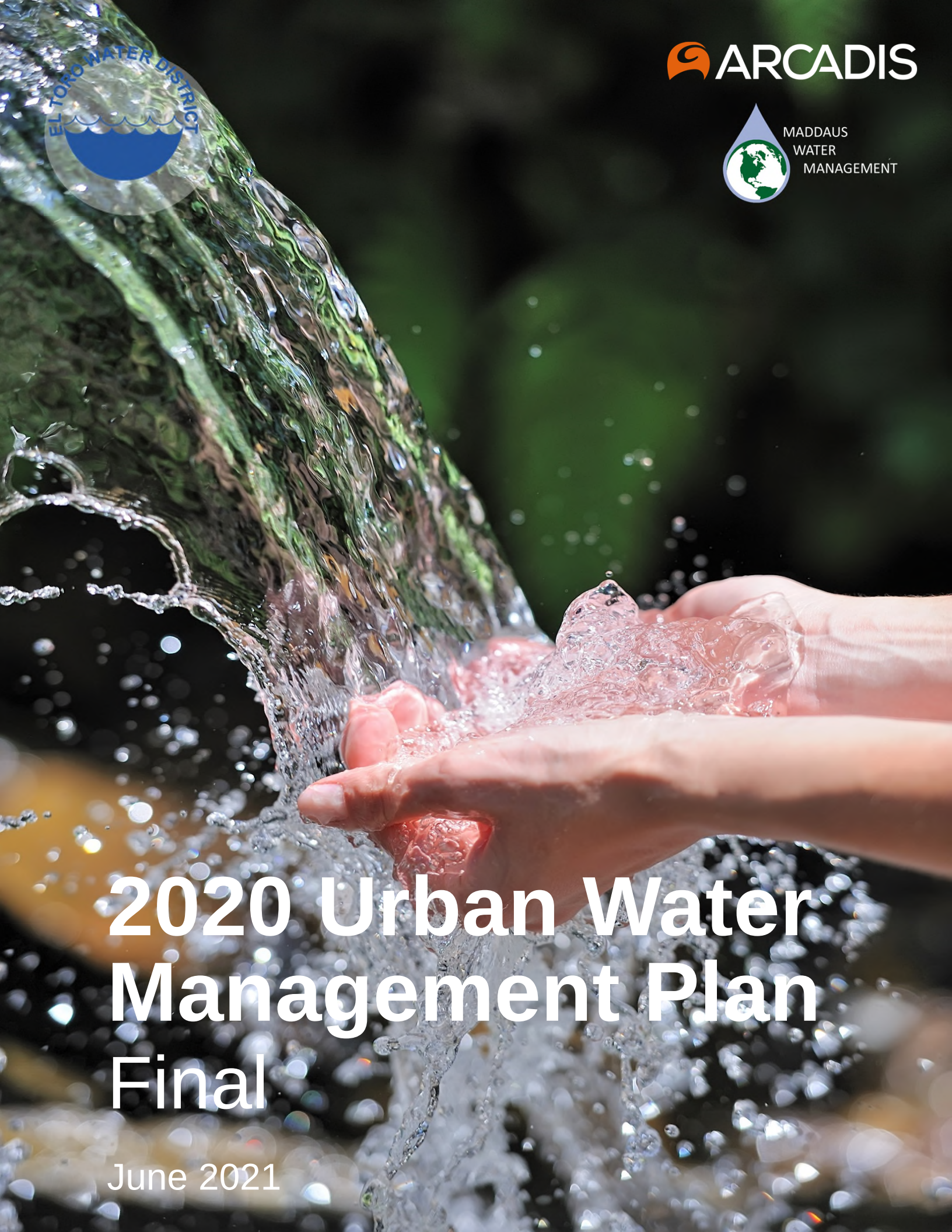

2020 Urban Water Management Plan

Final

June 2021

2020 URBAN WATER MANAGEMENT PLAN

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ACRONYMS AND ABBREVIATIONS

%	Percent
20x2020	20% water use reduction in GPCD by year 2020
ADU	Accessory Dwelling Unit
Act	Urban Water Management Planning Act of 1983
AF	Acre-Feet
AFY	Acre-Feet per Year
AWWA	American Water Works Association
Biops	Biological Opinions
BMP	Best Management Practice
CDR	Center for Demographic Research at California State University Fullerton
CEE	Consortium for Energy Efficiency
CII	Commercial/Industrial/Institutional
CRA	Colorado River Aqueduct
CVP	Central Valley Project
CY	Calendar Year
DAC	Disadvantaged Communities
DCP	Delta Conveyance Project
Delta	Sacramento-San Joaquin River Delta
District	El Toro Water District
DMM	Demand Management Measure
DOF	Department of Finance
DRA	Drought Risk Assessment
DVL	Diamond Valley Lake
DWR	Department of Water Resources
ETWD	El Toro Water District
ESA	Endangered Species Act
FY	Fiscal Year
GAP	Green Acres Project
GHG	Greenhouse Gas
GPCD	Gallons per Capita per Day
gpf	Gallons per Flush
GWRS	Groundwater Replenishment System
HECW	High Efficiency Clothes Washer
HEN	High Efficiency Nozzle
HET	High Efficiency Toilet
IPR	Indirect Potable Reuse
IRP	Integrated Water Resources Plan
JADU	Junior Accessory Dwelling Unit

kWh	Kilowatt-Hour
LRP	Local Resources Program
MAF	Million Acre-Feet
MAFY	Million Acre-Feet per Year
MET	Metropolitan Water District of Southern California
MG	Million Gallon
MGD	Million Gallons per Day
MHI	Median Household Income
MWDOC	Municipal Water District of Orange County
MWELO	Model Water Use Efficiency Landscape Ordinance
NDMA	N-nitrosodimethylamine
NRW	Non-Revenue Water
OC	Orange County
OC Basin	Orange County Groundwater Basin
OCWD	Orange County Water District
ORP	On-Site Retrofit Program
PFAS	Per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfanate
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
PSA	Public Service Announcement
QWEL	Qualified Water Efficient Landscaper
RA	Replenishment Assessment
RHNA	Regional Housing Needs Assessment
RO	Reverse Osmosis
RUWMP	Regional Urban Water Management Plan
SARCCUP	Santa Ana River Conservation and Conjunctive Use Program
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCWD	South Coast Water District
SDP	Seawater Desalination Program
sf	Square Feet
SMWD	Santa Margarita Water District
SOC	South Orange County
SOCWA	South Orange County Waste Authority
STEAM	Science Technology Engineering Arts and Mathematics
SWP	State Water Project
SWRCB	California State Water Resources Control Board

TAF	Thousand Acre-Feet
TDS	Total Dissolved Solids
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act of 1983
Water Code	California Water Code
WBIC	Weather-Based Irrigation Controller
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WSIP	Water Savings Incentive Program
WUO	Water Use Objective

EXECUTIVE SUMMARY

INTRODUCTION AND UWMP OVERVIEW

El Toro Water District (District or ETWD) prepared this 2020 Urban Water Management Plan (UWMP or Plan) to submit to the California Department of Water Resources (DWR) to satisfy the UWMP Act of 1983 (Act or UWMP Act) and subsequent California Water Code (Water Code) requirements. The District is a retail water supplier that provides water to its residents and other customers using the raw and potable imported water supply obtained from its regional wholesaler, Municipal Water District of Orange County (MWDOC), local surface water from the Irvine Lake, and recycled water from the District's Water Recycling Plant (WRP). The District, as one of MWDOC's 28 member agencies, prepared this 2020 UWMP in collaboration with MWDOC, Metropolitan Water District of Southern California (MET), South Orange County Wastewater Authority (SOCWA), 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. This 2020 UWMP provides an assessment of the present and future water supply sources and demands within the District's service area. It presents an update to the 2015 UWMP on the District's water resource needs, water use efficiency programs, water reliability assessment and strategies to mitigate water shortage conditions. It also presents a new 2020 Water Shortage Contingency Plan (WSCP) designed to prepare for and respond to water shortages. This 2020 UWMP contains all elements to meet compliance of the new requirements of the Act as amended since 2015.

UWMP PREPARATION

The District coordinated the preparation of this 2020 UWMP with other key entities, including Municipal Water District of Orange County's (MWDOC) (regional wholesaler of imported water for Orange County), MET (regional wholesaler for Southern California and the direct supplier of imported water to MWDOC), and SOCWA (a Joint Powers Authority with ten member agencies, working to facilitate and manage the collection, transmission, treatment and disposal of wastewater and production of recycled water). The District developed this UWMP in conjunction with other MWDOC-led efforts such as population projection from the Center for Demographic Research at California State University Fullerton (CDR).

SYSTEM DESCRIPTION

Currently governed by a five-member Board of Directors, the District was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000 for the purpose of providing water supply for the service area.

The District encompasses approximately 5,430 acres and is almost entirely developed and encompasses all of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills, and Mission Viejo. The District operates 12 different pressure zones, 6 reservoirs, 8 pump stations, 19 pressure reducing stations and manages 180 miles of water mains with approximately 9,500 service connections.

Lying in the South Coast Air Basin (SCAB), its climate is characterized by Southern California's "Mediterranean" climate with mild winters, warm summers, and moderate rainfall. In terms of land use, the District is almost entirely developed with predominantly single and multi-family residential units with areas of commercial, industrial, and institutional uses along with open space and parks. Major developments

include a development project that will add 1,500 multi-family dwelling units and will redevelop an existing mall. Moving forward, the cities lying in the service area of the District will continue planning for their Regional Housing Needs Assessment (RHNA) allocation and the District may potentially observe a rise in the construction of accessory dwelling units (ADUs) as a means of affordable housing. The current population of 47,911 is projected to increase by 5.7% over the next 25 years.

WATER USE CHARACTERIZATION

Water use within the District's service area has been relatively stable in the past decade with an annual average of 8,972 AF. The potable and non-potable water use accounts for an average of 91% and 9% of total District water use, respectively. In FY 2019-20, the District's water use was 7,167 AF of potable water and 1,270 AF of direct recycled water for landscape irrigation. In FY 2019-20, the District's potable water use profile was comprised of 65.3% residential use, 11.6% commercial, industrial, and institutional (CII), and 17.6% large landscape/irrigation, with non-revenue water (NRW) and other uses comprising about 5.4%.

WATER USE PROJECTIONS: 5-YEAR AND 25-YEAR

The District's service area is almost completely built-out and is projected to add minimum land use and small population increase. Potable water demand is likely to increase 1.1% over the next 5 years. In the longer term (over the next 25 years), potable water demand is projected to increase 7.0% from 2020 actuals. The projected water use for 2045 is 7,671 AF for potable water and 1,485 AF for recycled water.

This demand projection considers such factors as current and future demographics, future water use efficiency measures, and long-term weather variability.

CONSERVATION TARGET COMPLIANCE

Retail water suppliers are required to comply with the requirements of Water Conservation Act of 2009, also known as SBx7-7 (Senate Bill 7 as part of the Seventh Extraordinary Session), which was signed into law in 2010 and requires the State of California to reduce urban water use by 20% by 2020 from a 2013 baseline.

The retail water suppliers can comply individually or as a region in collaboration with other retail water suppliers, in order to be eligible for water related state grants and loans. The District is part of the Orange County 20x2020 Regional Alliance created in collaboration with MWDOC, its retail member agencies as well as the Cities of Anaheim, Fullerton and Santa Ana. The Alliance was created to assist OC retail agencies in complying with SBx7-7.

The District met its 2020 water use target and is in compliance with SBx7-7; the actual 2020 consumption was 134 gallons per capita per day (GPCD), which is below its 2020 target of 163 GPCD.

WATER SUPPLY CHARACTERIZATION

The District meets its demands with a combination of imported water, recycled water, and surface water. The District works together with two primary agencies, MET and MWDOC, to ensure a safe and reliable water supply that will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include water from the Colorado River and the State Water Project provided by MET and delivered through MWDOC.

In FY 2019-20, the District relied on 48.5% treated imported water, 32.5% untreated imported water, 15% recycled water, and 4% surface water.

It is projected that by 2045, the water supply portfolio will shift to 45% treated imported water, 39% untreated imported water, and 16% recycled water. Note that these representations of supply match the projected demand. However, the District can purchase more MET water through MWDOC, should the need arise.

The District owns and operates the collection system and the wastewater treatment facilities in its service area. Almost all the wastewater generated within the District's service area is conveyed to its Water Recycling Plant (WRP) where it is treated and recycled or treated and disposed of in collaboration with SOCWA. A small portion of flow on the southeast side of the District is conveyed directly to the Moulton Niguel Water District collection system. The WRP produces recycled water for irrigation and commercial uses. The District benefits from these direct uses of recycled water.

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 a drought period lasting five consecutive years. The water service reliability assessment compares projected supply to projected demand for the three hydrological conditions between 2025 and 2045. Factors affecting reliability, such as climate change and regulatory impacts, are accounted for as part of the assessment.

The District depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. MET's and MWDOC's 2020 UWMP conclude that they can meet full-service demands of their member agencies through 2045 during normal years, single-dry years, and multiple-dry years. Consequently, the District is projected to meet full-service demands through 2045 for the same scenarios, due to diversified supply and conservation measures.

The Drought Risk Assessment (DRA) evaluates the District's near-term ability to supply water assuming the District is experiencing a drought over the next five years. Even under the assumption of a drought over the next five years, MET's 2020 UWMP concludes a surplus of water supplies would be available to all of its Member Agencies, including MWDOC and in effect, the District, should the need for additional supplies arise to close any local supply gap. Additionally, the District partakes in various efforts to reduce its reliance on imported water supplies such as increasing the use of local groundwater and indirect recycled water.

WATER SHORTAGE CONTINGENCY PLANNING

Water shortage contingency planning (WSCP) is a strategic planning process that the District engages in to prepare for and respond to water shortages. 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). The District's WSCP provides real-time 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 serves as the operating manual that the District will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP contains the processes and procedures that will be deployed when shortage conditions arise so that the District's governing body, its staff, and its retail agencies 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.

DEMAND MANAGEMENT MEASURES

The District, along with other Retail water agencies throughout Orange County, recognizes the need to use existing water supplies efficiently. This ethic of efficient use of water has evolved as a result of the development and implementation of water use efficiency programs that make good economic sense and reflect responsible stewardship of the region's water resources. The District works closely with MWDOC to promote regional efficiency by participating in the regional water savings programs, leveraging MWDOC local program assistance, and applying the findings of MWDOCs research and evaluation efforts.

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The Water Code requires the UWMP to be adopted by the Supplier's governing body. Before the adoption of the UWMP, the District notified the public and the cities and counties within its service area per the Water Code and held a public hearing to receive input from the public on the UWMP. Post adoption, the District submitted the UWMP to DWR and other key agencies and made the document available for public review no later than 30 days after filing with DWR.

1 INTRODUCTION AND UWMP OVERVIEW

El Toro Water District (District or ETWD) prepared this 2020 Urban Water Management Plan (UWMP or Plan) to submit to the California Department of Water Resources (DWR) to satisfy the UWMP Act of 1983 (Act or UWMP Act) and subsequent California Water Code (Water Code) requirements. The District is a retail water supplier that provides water to its residents and other customers using the raw and potable imported water supply obtained from its regional wholesaler, Municipal Water District of Orange County (MWDOC), local surface water from the Irvine Lake, and recycled water from the District's Water Recycling Plant (WRP). The District, as one of MWDOC's 28 member agencies, prepared this 2020 UWMP in collaboration with MWDOC, Metropolitan Water District of Southern California (MET), South Orange County Wastewater Authority (SOCWA), 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 and regulatory updates since the 2015 UWMP, the District has been proactively managing its water supply and demand. The water loss audit program, water conservation measures and efforts for increased self-reliance in order to reduce dependency on imported water from the Sacramento-San Joaquin Delta (the Delta) are some of the water management efforts that the District is a part of to maintain the reliability of water supply for its service area.

This 2020 UWMP provides an assessment of the present and future water supply sources and demands within the District's service area. It presents an update to the 2015 UWMP on District's water resource needs, water use efficiency programs, water reliability assessment and strategies to mitigate water shortage conditions. It presents a new 2020 Water Shortage Contingency Plan (WSCP) designed to prepare for and respond to water shortages. This 2020 UWMP contains all elements to meet compliance of the new requirements of the Act as amended since 2015.

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 California Department of Water Resources (DWR) every five years in the years ending in zero and five.

For this 2020 UWMP cycle, DWR placed emphasis on achieving improvements for long term reliability and resilience to drought and climate change in California. Legislation related to water supply planning in California has evolved to address these issues, namely Making Conservation a Way of Life [Assembly Bill (AB) 1668 and Senate Bill (SB) 606] and Water Loss Performance Standard SB555. New UWMP requirements in 2020 are a direct result of these new water regulations. Two complementary components were added to the 2020 UWMP. First is the WSCP to assess the Supplier's near term 5-year drought risk assessment (DRA) and provide a structured guide for the Supplier to deal with water shortages. Second is the Annual Water Supply Demand Assessment (WSDA) to assess the current year plus one dry year i.e., short-term demand/supply outlook. Analyses over near- and long-term horizons together will provide a more complete picture of Supplier's reliability and will serve to inform appropriate actions it needs to take to build up capacity over the long term.

The various key new additions in the 2020 UWMP included as a result of the most recent water regulations are:

- **Water Shortage Contingency Plan (WSCP) –** WSCP helps a Supplier to better prepare for drought conditions and provides the steps and water use efficiency measures to be taken in times of water shortage conditions. WSCP now has more prescriptive elements, including an analysis of water supply reliability; the water use efficiency measures for each of the six standard water shortage levels, that correspond to water shortage percentages ranging from 0-10% to greater than 50%; an estimate of potential to close supply gap for each measure; protocols and procedures to communicate identified actions for any current or predicted water shortage conditions; procedures for an annual water supply and demand assessment; monitoring and reporting requirements to determine customer compliance; reevaluation and improvement procedures for evaluating the WSCP.
- **Drought Risk Assessment –** The Suppliers are now required to compare their total water use and supply projections and conduct a reliability assessment of all their sources for a consecutive five-year drought period beginning 2021.
- **Five Consecutive Dry-Year Water Reliability Assessment** - The three-year multiple dry year reliability assessment in previous UWMPs has now been extended from three to five consecutive dry years to include a more comprehensive assessment of the reliability of the water sources to improve preparedness of Suppliers for extended drought conditions.
- **Seismic Risk –** The UWMP now includes a seismic risk assessment of the water supply infrastructure and a plan to mitigate any seismic risks on the water supply assets.
- **Groundwater Supplies Coordination –** The UWMP should be in accordance with the Sustainable Groundwater Management Act of 2014 and consistent with the Groundwater Sustainability Plans, wherever applicable.
- **Lay Description** – To provide a better understanding of the UWMP to the general public, a lay description of the UWMP is included, especially summarizing the Supplier's detailed water service reliability assessment and the planned management steps and actions to mitigate any possible shortage scenarios.

1.2 UWMP Organization

This UWMP is organized into 10 main sections aligned with the DWR Guidebook recommendations. The subsections are customized to tell the District's story of water supply reliability and ways to overcome any water shortages over a planning horizon of the next 25 years.

Section 1 Introduction and UWMP Overview gives an overview of the UWMP fundamentals and briefly describes the new additional requirements passed by the Legislature for 2020 UWMP.

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

Section 3 System Description gives a background on the District's water system and its climate characteristics, population projection, demographics, socioeconomics, and predominant current and projected land uses of its service area.

Section 4 Water Use Characterization provides historical, current, and projected water use by customer category for the next 25 years within the District's service area and the projection methodology used by MWDOC to develop the 25-year projections**.**

Section 5 Conservation Target Compliance reports the SB X7-7 water use conservation target compliance of the District (individually and as a member of the OC 20x2020 Regional Alliance).

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

Section 7 Water Service Reliability and Drought Risk Assessment assesses the reliability of the District'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 DRA of all the supply sources for a consecutive five-year drought period beginning 2021.

Section 8 Water Shortage Contingency Planning is a brief summary of the standalone WSCP document (Appendix H) which provides a structured guide for the District 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.

Section 9 Demand Management Measures provides a comprehensive description of the water conservation programs that the District has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets.

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

2 UWMP PREPARATION

The District's 2020 UWMP is an individual UWMP for the District to meet the Water Code compliance as a retail water supplier. While the District opted to prepare its own UWMP and meet Water Code compliance individually, the development of this UWMP involved close coordination with its whole supplier, MWDOC along with other key entities within the region.

2.1 Individual Planning and Compliance

The District opted to prepare its own UWMP (Table 2-1) and comply with the Water Code individually, while closely coordinating with MWDOC and various key entities as discussed in Section 2.2 to ensure regional integration. The UWMP Checklist was completed to confirm the compliance of this UWMP with the Water Code (Appendix A).

One consistency with MWDOC and the majority of its other retail member agencies is that the District selected to report demands and supplies using fiscal year (FY) basis (Table 2-2).

Table 2-1: Plan Identification

DWR Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance**
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☑	Water Supplier is also a member of a Regional Alliance	Orange County 20x2020 Regional Alliance
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

Table 2-2: Supplier Identification

DWR Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables are in calendar years
☑	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
NOTES:	

2.2 Coordination and Outreach

2.2.1 Integration with Other Planning Efforts

The District, as a retail water supplier, coordinated this UWMP preparation effort with other key entities, including MWDOC (regional wholesale supplier for OC), MET (regional wholesaler for Southern California and the direct supplier of imported water to MWDOC), and SOCWA (agency that assists in the disposal of the District's wastewater). The District also developed this Plan in conjunction with other MWDOC-led efforts such as population projection from the Center for Demographic Research at California State University Fullerton (CDR).

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

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

- **2021 OC Water Demand Forecast for MWDOC and OCWD Technical Memorandum (Demand Forecast TM)** provides the basis for water demand projections for MWDOC's member agencies as well as Anaheim, Fullerton, and Santa Ana.
- **MET's 2020 Draft Integrated Water Resources Plan (IRP)** is a long-term planning document to ensure water supply availability in Southern California and provides a basis for water supply reliability in Orange County.
- **MET's 2020 UWMP** was developed as a part of the 2020 IRP planning process and was used by MWDOC as another basis for the projections of supply capability of the imported water received from MET.
- **MET's 2020 WSCP** provides a water supply assessment and guide for MET's intended actions during water shortage conditions.
- **Local Hazard Mitigation Plan** provides the basis for the seismic risk analysis of the water system facilities.
- **Orange County Local Agency Formation Commission's 2020 Municipal Service Review for MWDOC Report** provides comprehensive review of the municipal services provided by MWDOC.
- **Water and Sewer Master Plan** of the District provides information on water infrastructure planning projects and plans to address any required water system improvements.

Statewide Water Planning

In addition to regional coordination with various agencies described above, the District as a MWDOC member agency is currently a part of MET's statewide planning effort to reduce reliance on the water imported from the 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, and water use efficiency. This policy is codified through the Delta Stewardship Council's Delta Plan Policy WR P1 and 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.

Through significant local and regional investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts, the District has demonstrated a reduction in Delta reliance and a subsequent improvement in regional self-reliance. For a detailed description and documentation of the District's consistency with Delta Plan Policy WR P1 see Section 7.4 and Appendix C.

2.2.2 Wholesale and Retail Coordination

The District developed its UWMP in conjunction with MWDOC's 2020 UWMP. The District provided its historical water use and initial water use projections data to MWDOC (Table 2-3). MWDOC facilitated in refining the projections of the District's water demand and the imported supply from MWDOC over the next 25 years.

The District also has been taking part in many regional programs administered by MWDOC to assist retail agencies meet various State compliance, such as the OC Regional Alliance for SB x7-7 compliance, regional water loss program for SB555 compliance, and regional water use efficiency programs. Sections 5 and 9 provide detailed information on these programs.

Table 2-3: Retail: Water Supplier Information Exchange

DWR Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Municipal Water District of Orange County
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, the District held a public hearing and notified key entities and the public per the Water Code requirements. Sections 10.2 and 10.3 describe these efforts in detail.

3 SYSTEM DESCRIPTION

Currently governed by a five-member Board of Directors, the District was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000 for the purpose of providing water supply for the service area.

The District encompasses approximately 5,430 acres and is almost entirely developed and encompasses all of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills, and Mission Viejo. The District operates 12 different pressure zones, 6 reservoirs, 8 pump stations, 19 pressure reducing stations and manages 180 miles of water mains with approximately 9,500 service connections.

Lying in the South Coast Air Basin (SCAB), its climate is characterized by Southern California's "Mediterranean" climate with mild winters, warm summers, and moderate rainfall. In terms of land use, the District is almost entirely developed with predominantly single and multi-family residential units with areas of commercial, industrial, and institutional uses along with open space and parks. Major developments include a development project that will add 1,500 multi-family dwelling units and will redevelop an existing mall. Moving forward, the cities lying in the service area of the District will continue planning for their Regional Housing Needs Assessment (RHNA) allocation and the District may potentially observe a rise in the construction of accessory dwelling units (ADUs) as a means of affordable housing. The current population of 47,911 is projected to increase by only 5.7% over the next 25 years.

3.1 Agency Overview

This section provides information on the formation of the District, its organizational structure, roles, and relationship to MWDOC.

3.1.1 Formation and Purpose

The District, located within the southern portion of the County of Orange, was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000 for the purpose of providing water supply for the service area.

3.1.2 Board of Directors

The District is governed by a publicly elected five-member Board of Directors. The current board members are:

- Mike Gaskins, President
- Kathryn Freshley, Vice President
- Mark Monin, Director
- Jose Vergara, Director
- Kay Havens, Director

3.1.3 Relationship to MWDOC

The District is one of MWDOC's 28 member agencies purchasing imported water from MWDOC, Orange County's wholesale water supplier and a member agency of MET. The District's location within MWDOC's service is shown on Figure 3-1.

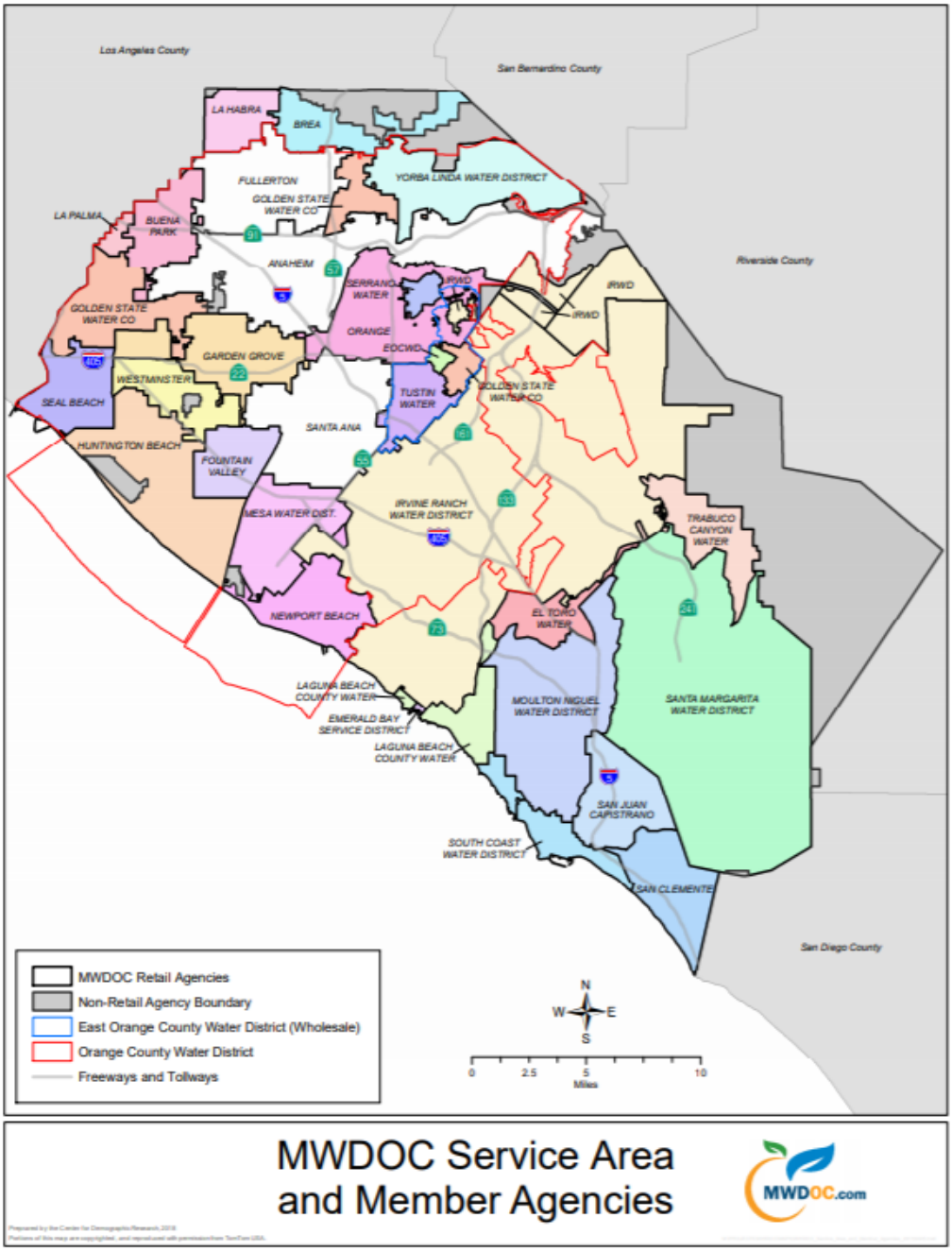

Figure 3-1: Regional Location of El Toro Water District and Other MWDOC Member Agencies

3.2 Water Service Area and Facilities

3.2.1 Water Service Area

The District encompasses approximately 5,430 acres and is almost entirely developed and encompasses all of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills, and Mission Viejo.

The District service area ranges in elevation between 230 feet above sea level at its lowest point to 904 feet at its highest. In general, elevations increase from west to east. Interstate 5 bisects the District from north to south, with the higher elevations located on the east side. The District is bordered by the Irvine Ranch Water District (IRWD) to the north, the Laguna Beach County Water District (LBCWD) to the west, the Moulton Niguel Water District (MNWD) to the west and south, and the Santa Margarita Water District (SMWD) to the south and east. The District also shares a small border with the Trabuco Canyon Water District (TCWD) in the north.

A map of the District 's water service area is shown as Figure 3-2.

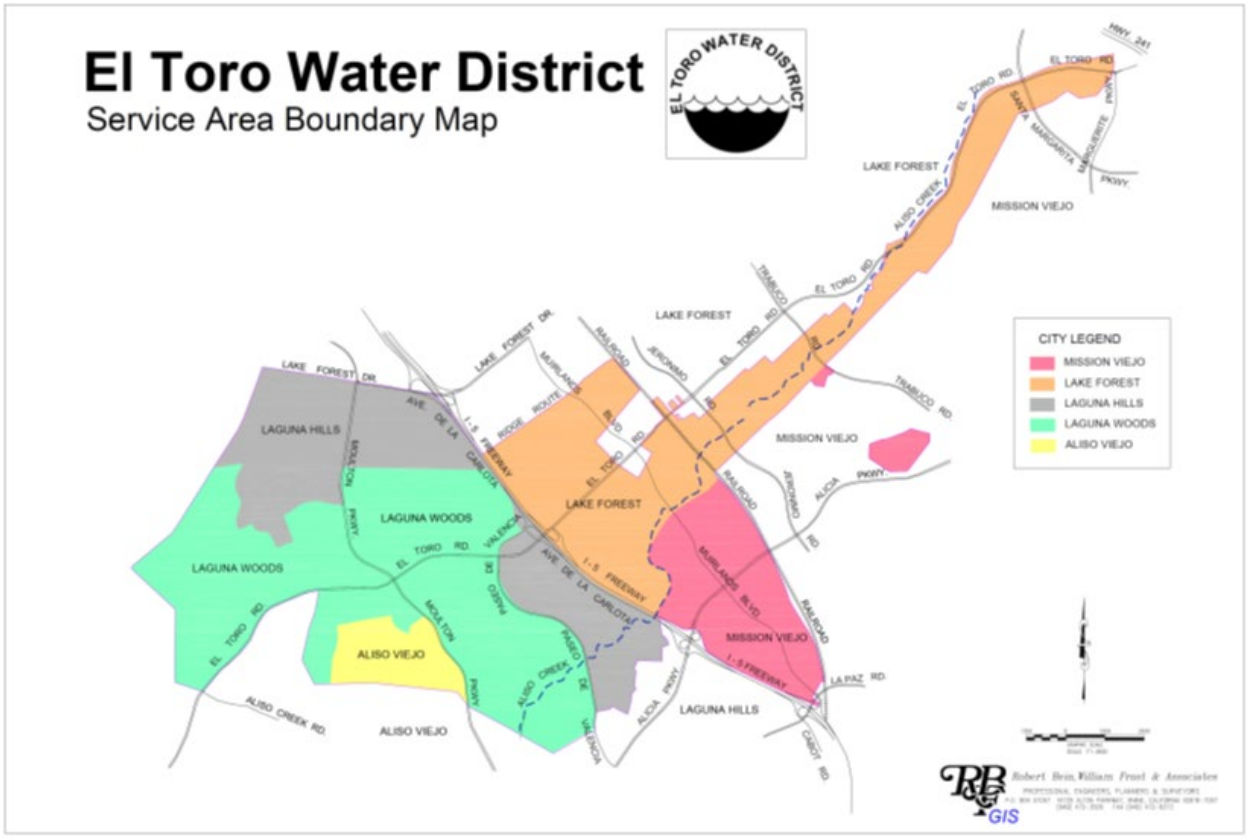

Figure 3-2: El Toro Water District Water Service Area

3.2.2 Water Facilities

The District operates and maintains a system that has approximately 9,500 service connections, 12 different pressure zones, 6 reservoirs, 8 pump stations, 19 pressure reducing stations and approximately 180 miles of transmission and distribution pipelines of varying diameters between four inches and 24 inches.

The imported water from MET fills the District's 275 million gallon (MG) R-6 reservoir or directly feeds the distribution system. Water from MET and/or the R-6 reservoir is fed by gravity, through pressure reducing valves or via pumping stations to provide adequate system pressures at the District's service connections.

The system connections and water volume supplied are summarized in Table 3-1.

Table 3-1: Retail Only: Public Water Systems

DWR Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020
CA3010079	El Toro Water District	9,536	8,437
	TOTAL	9,536	8,437
NOTES: The number of municipal connections corresponds to the active connections. The volume of water supplied includes both potable and non-potable.			

3.3 Climate

The District is located within the SCAB that encompasses all of OC, and the urban areas of Los Angeles, San Bernardino, and Riverside counties. The SCAB climate 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 the District, except for landscape irrigation demand. 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.

MET's water supplies come from the State Water Project (SWP) and the Colorado River Aqueduct (CRA), influenced by climate conditions in northern California and the Colorado River Basin, respectively. The years 2000-2018 have been the driest 19-year period in the history and both regions have been receiving record low precipitation which directly impact water supplies to Southern California. Due to the prolonged drought conditions since 2000, storage within the Colorado River system has declined to half of its reservoir capacity and has been fluctuating at that level (DWR, January 2020).

3.4 Population, Demographics, and Socioeconomics

3.4.1 Service Area Population

According to CDR, the District's service area has a 2020 population of 47,911, a decrease from the 2015 population of 48,579. The District is almost completely built-out and overall, its population is projected to increase with a growth of 5.7% over the 25-year period from 2020 to 2045. Table 3-2 shows the population projections in five-year increments out to 2045 within the District's service area.

Table 3-2: Retail: Population - Current and Projected

DWR Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	47,911	48,808	51,093	51,100	51,074	50,649
NOTES: Source - Center for Demographic Research at California State University, Fullerton, 2020						

3.4.2 Demographics and Socioeconomics

As shown in Table 3-3 below, the total number of dwelling units in the District is expected to increase by 4.9% in the next 25 years from 23,864 in 2020 to 25,052 in 2045. Table 3-3 also shows a breakdown of the total dwelling units by type for the 25-year period from 2020 to 2045.

Table 3-3: El Toro Water District Service Area Dwelling Units by Type

El Toro Water District Service Area Dwelling Units by Type						
Dwelling Units	2020	2025	2030	2035	2040	2045
Total	**23,864**	**24,064**	**25,052**	**25,052**	**25,052**	**25,052**
Single Family	5,456	5,456	5,456	5,456	5,456	5,456
All Other*	18,408	18,608	19,596	19,596	19,596	19,596
Source: Center for Demographic Research at California State University, Fullerton, 2020 *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 ETWD's water

management and planning. Based on the U.S. Census Bureau's QuickFacts, OC has about 15.3% of population of 65 years and over, 21.7% under the age of 18 years and 5.8% under the age of 5 years. 85.5% of the OC's population with an age of more than 25 years has a minimum of high school graduate and 40.6% of this age group has at least a bachelor's degree.

3.4.3 CDR Projection Methodology

The District obtains its services area population and dwelling unit data from MWDOC via CDR. MWDOC contracts with CDR to update the historic population estimates for 2010 to the current year and provide an annual estimate of population served by each of its retail water suppliers within its service area. CDR uses GIS and data from the 2000 and 2010 U.S. Decennial Censuses, State Department of Finance (DOF) population estimates, and the CDR annual population estimates. 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 were 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.

In the summer of 2020, projections by water supplier for population and dwelling units by type were estimated using the 2018 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) with a 2019 aerial photo. The growth was added to the 2020 estimates by water supplier.

3.5 Land Uses

3.5.1 Current Land Uses

The District's service area can best be described as a predominantly single and multi-family residential community located along the coast in southern Orange County. There are areas of commercial, industrial, and institutional uses along with open space and parks.

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

- Single family residential – 20.6%
- Multi-family residential – 36.5%
- Commercial – 12.0%
- Industrial – 1.6%
- Institutional/Governmental – 8.6%
- Agriculture – 0.1%
- Open space and parks – 16.9%
- Other – 1.4% (e.g., Undevelopable or Protected Land, Water, and Vacant)
- No land use designations – 2.1%

In terms of current developments in the District's service area, the City of Laguna Hills has approved the 'Village at Laguna Hills" project which proposes to add 1,500 multi-family residential units and to

redevelop Laguna Hills Mall. It will result in a net increase in water demand from ETWD's residential, commercial, and landscape irrigation customer sectors. These residential units will generate approximately 195,340 gpd of potable water demand. Commercial potable water demand is estimated to increase by 68,120 gpd, mainly as a result of the addition of general office space, hotels and restaurants and the project will result in a net increase of approximately 335,700 sf in landscaped areas to the mall and residential areas, with an associated irrigation demand of approximately 23,080 gpd.

3.5.2 Projected Land Uses

Moving forward, the cities lying in the service area of the District - Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, and Mission Viejo will continue planning for their RHNA allocation requirements; Section 4.3.2.3 describes the RHNA allocation associated with the District's service area and the corresponding water demand in detail.

As the need for affordable housing rises, the District may potentially observe a rise in the construction of ADUs, 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 to provide affordable housing supply. The Legislature updated the ADU law effective January 1, 2020 to clarify and improve various provisions to promote the development of ADUs. (AB-881, "Accessory dwelling units," and AB-68, "Land use: accessory dwelling units") These include:

- allowing ADUs and Junior Accessory Dwelling Units (JADUs) to be built concurrently with a single-family dwelling. JADUs max size is 500 sf.
- opening areas where ADUs can be created to include all zoning districts that allow single-family and multi-family uses
- maximum size cannot be less than 850 sf for a one-bedroom ADU or 1,000 sf for more than one bedroom (California Department of Housing and Community Development, 2020).

About 92% of the ADUs in California are being built in the single family zoned parcels (University of California Berkeley, 2020). The increase in ADUs implies an increase in number of people per dwelling unit which potentially translates to higher water demand.

4 WATER USE CHARACTERIZATION

4.1 Water Use Overview

Water use within the District's service area has been relatively stable in the past decade with an annual average of 8,972 AF. The potable and non-potable water use accounts for an average of 91% and 9% of total District water use, respectively. In FY2019-20, the District's water use was 7,167 AF of potable water and 1,270 AF of direct recycled water for landscape irrigation. In FY 2019-20, the District's potable water use profile was comprised of 65.3% residential use, 11.6% commercial, industrial, and institutional (CII), and 17.6% large landscape/irrigation, with non-revenue water (NRW) and other uses comprising about 5.4%. As described in Section 3, the District's service area is almost completely built-out and is projected to add minimum land use and small population increase. Potable water demand is likely to increase 1.1% over the next 5 years. In the longer term (over the next 25 years), potable water demand is projected to increase 7.0% from 2020 actuals. The projected water use for 2045 is 7,671 AF for potable water and 1,485 AF for recycled water. The passive savings are anticipated to continue for the next 25 years and are considered in the water use projections. Permanent water conservation requirements and water conservation strategies are discussed in Section 8 and 9 of this document.

4.2 Past and Current Water Use

Water use within the District's service area has been relatively stable in the past decade with an annual average of 8,972 AF. A stable trend is expected because the district is essentially built-out and the rate of population growth is small (about 0.23% per year). Water conservation efforts also kept per capita water use down.

As a result of Governor Jerry Brown's mandatory water conservation order in 2014, the District's water use in the last five years decreased below the 10-year average. Between FY2015/16 and FY2019/20, water use within the District's service area ranged from 7,830 to 9,239 acre-feet per year (AFY) (potable and non-potable combined). In the past decade, between FY2010/11 and FY 2019/20, potable and non-potable water use accounts for an average of 91% and 9% of total District water use, respectively. Potable water uses include demands from residential, commercial, industrial, and institutional (CII), and large landscape irrigation. Non-potable use includes the use of recycled water for large landscape and golf course irrigation.

As of FY2019/20 there are 9,969 active service connections in the District's water distribution system. Of these, 229 are recycled water accounts. Table 4-1 summarizes the District's total potable water demand for FY2019-20. The District has a mix of commercial uses (markets, restaurants, etc.), public entities (schools, fire stations and government offices), and office complexes. Single and multi- family residential water demand combined accounts for 65.3% of the total potable water demand. Commercial use accounts for 10.9% of total potable demand, while institutional/governmental use accounts for 0.7% of total potable demand. Large landscape (irrigation) accounts for 17.6%, while NRW comprises about 5.3% of total potable demand.

Table 4-1: Retail: Demands for Potable and Non-Potable Water – Actual

DWR Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type	2020 Actual		
	Additional Description	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	1,943
Multi-Family		Drinking Water	2,738
Commercial		Drinking Water	782
Institutional/Governmental		Drinking Water	53
Landscape	Represents large landscape (with irrigation meters) served by potable water and not recycled water	Drinking Water	1,263
Losses	Non-Revenue Water	Drinking Water	385
Other	Flooding Meters and Private Fire Systems	Drinking Water	3
		TOTAL	7,167
NOTES: Volumes reported in AF. This table only represents potable water; recycled water projections are shown in Table 4-4 (DWR Submittal Tables 4-3) and Table 6-8 (DWR Submittal Tables 6-4).			

4.3 Water Use Projections

A key component of this 2020 UWMP is to provide an insight into the District's future water demand outlook. This section discusses the considerations and methodology used to estimate the 25-year water use projection. Overall, total water demand is projected to increase 8.5% between 2020 (8,437 AF) and 2045 (9,156 AF). While single family residential use is projected to decrease, multifamily residential use and CII usage are projected to increase. Demands for large landscape applications and recycled water are projected to increase as compared to 2020 actuals. While NRW volume is projected to slightly increase over time, it remains steady as a percentage of total potable demand.

4.3.1 Water Use Projection Methodology

In 2021, MWDOC and OCWD, in collaboration with their member agencies, led the effort to update water demand projections originally done as part of the 2021 OC Water Demand Forecast for MWDOC and OCWD. The updated demand projections, prepared by CDM Smith, were for the Orange County region as a whole, and provided retail agency specific demands. The projections span the years of 2025-2050 and are based upon information surveyed from each Orange County water agency.

The forecast methodology began with a retail water agency survey that asked for FY 2017-18, FY 2018-19 and FY 2019-20 water use by major sector, including number of accounts. If a member agency provided recycled water to customers that information was also requested. Given that FY 2017-18 was a slightly above-normal demand year (warmer/drier than average) and FY 2018-19 was a slightly below-normal demand year (cooler/wetter than average), water use from these two years were averaged to represent an average-year base water demand.

For the residential sectors (single-family and multifamily) the base year water demand was divided by households in order to get a total per unit water use (gallons per home per day). In order to split household water use into indoor and outdoor uses, three sources of information were used, along with CDM Smith's expertise. The sources of information included: (1) *the Residential End Uses of Water* (Water Research Foundation, 2016); (2) California's plumbing codes and landscape ordinances; and (3) CA DWR's Model Water Efficient Landscape Ordinance (MWELO) calculator.

Three different periods of residential end uses of water were analyzed as follows:

- **Pre-2010 efficiency levels** – Has an average indoor water use that is considered to be moderately efficient, also does not include the most recent requirements for MWELO.
- **High-efficiency levels** – Includes the most recent plumbing codes that are considered to be highly efficient, and also includes the most recent requirements for MWELO.
- **Current average efficiency levels** – Represents the weighted average between pre-2010 efficiency and high efficiency levels, based on average age of homes for each retail water agency.

For outdoor residential water use, the indoor per capita total was multiplied by each member agency-specific persons per household in order to get an indoor residential household water use (gallons per day per home), and then was subtracted from the base year total household water use for single-family and multifamily for each agency based on actual water use as reported by the agency surveys.

For existing residential homes, the current average indoor and outdoor water use for each member agency were used for the year 2020. It was assumed that indoor water uses would reach the high efficiency level by 2040. Based on current age of homes, replacement/remodeling rates, and water utility rebate programs it is believed this assumption is very achievable. It was also assumed that current outdoor water use would be reduced by 5% by 2050.

For new homes, the indoor high efficiency level was assumed for the years 2025 through 2050. Outdoor uses for new homes were assumed to be 25% and 30% lower than current household water use for single-family and multifamily homes, respectively. This methodology is illustrated in Figure 4-1 below.

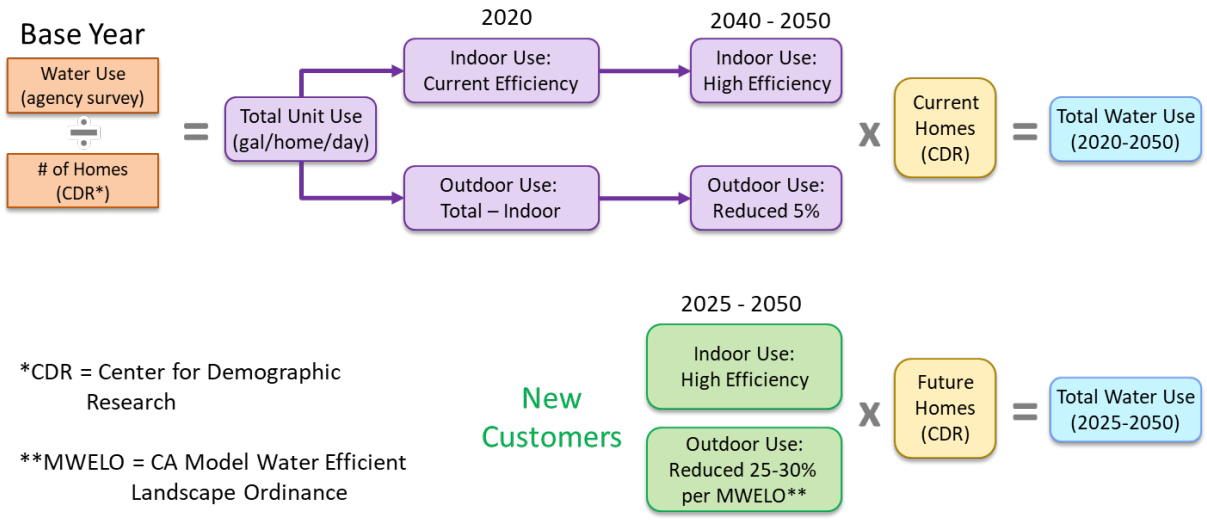

Figure 4-1: Water Use Projection Methodology Diagram

Existing and projected population, single-family and multifamily households for each retail water agency were provided by CDR under contract by MWDOC and OCWD. CDR provides historical and future demographics by census tracts for all of Orange County (Section 3.4). Census tract data is then clipped to retail water agency service boundaries in order to produce historical and projected demographic data by agency.

For the CII water demands, which have been fairly stable from a unit use perspective (gallons/account/day), it was assumed that the unit demand in FY 2019-20 would remain the same from 2020-2025 to represent COVID-19 impacts. Reviewing agency water use data from FY 2017-18 through FY2019-20 revealed that residential water use increased slightly in FY 2019-20 while CII demands decreased slightly as a result of COVID-19. From 2030 to 2050, the average CII unit use from FY 2017-18 and 2018-19 was used. These unit use factors were then multiplied by an assumed growth of CII accounts under three broad scenarios:

- Low Scenario – assuming no growth in CII accounts
- Mid Scenario – assuming 0.5% annual growth in CII accounts
- High Scenario – assuming 1.5% annual growth in CII accounts

For most retail agencies, the Mid Scenario of CII account growth was used, but for those retail agencies that have had faster historical growth the High Scenario was used. For those retail agencies that have had relatively stable CII water demand, the Low Scenario was used. For ETWD, the high-scenario was applied.

For those agencies that supply recycled water for non-potable demands, MWDOC used agency-specified growth assumptions. Most agencies have already maximized their recycled water and thus are not expecting for this category of demand to grow. However, a few agencies in South Orange County do expect moderate growth in recycled water customers.

For large landscape customers served currently by potable water use, MWDOC assumed these demands to be constant through 2050, except for agencies that have growing recycled water demands. For the agencies that have growing recycled water demands, large landscape demands served by potable water reduced accordingly. For non-revenue water, which represents the difference in total water production less all water billed to customers, this percentage was held constant through 2050. Note that 2050 data was not presented in the UWMP.

A member agency's water use demand projection is the summation of their residential water demand, CII demands, large landscape and recycled water demands, and water losses all projected over the 25-year time horizon. These demands were provided to each of the Orange County water agencies for their review, feedback, and revision before being finalized.

The MWDOC regional water demand projection was collaboratively developed between MWDOC and its member agencies. MWDOC's projections were built upon the same model developed by CDM Smith, and took into consideration specific assumptions and projections provided to MWDOC by its member agencies.

4.3.1.1 Weather Variability and Long-Term Climate Change Impacts

In any given year water demands can vary substantially due to weather. In addition, long-term climate change can have an impact on water demands into the future. For the 2014 OC Water Reliability Study, CDM Smith developed a statistical model of total water monthly production from 1990 to 2014 from a sample of retail water agencies. This model removed impacts from population growth, the economy and drought restrictions in order to estimate the impact on water use from temperature and precipitation.

The results of this statistical analysis are:

- Hot/dry weather demands will be 5.5% greater than current average weather demands
- Cooler/wet weather demands will be 6% lower than current average weather demands
- Climate change impacts will increase current average weather demands by:
    - 2% in 2030
    - 4% in 2040
    - 6% in 2050

4.3.2 **25-Year Water Use Projection**

The projected demand values were provided by MWDOC and reviewed by the District as part of the UWMP effort. As the regional wholesale supplier for much of Orange County, MWDOC works in collaboration with each of its retail agencies as well as MET, its wholesaler, to develop demand projections for imported water. The District has been proactively decreasing its reliance on imported water by pursuing a variety of water conservation strategies and increasing recycled water availability and use within the service area. Future water savings and low-income water use are included in these projected values.

4.3.2.1 Water Use Projections for 2021-2025

The water use projection without drought conditions for 2021-2025 is presented in Table 4-2. This table will be adjusted to estimate the five-years' cumulative drought effects as described in the five-year DRA in Section 7. A linear increase in total water demand is expected over the next 5 years.

Table 4-2: Water Use Projections for 2021 to 2025

Retail: Total Water Demand					
Fiscal Year Ending	2021	2022	2023	2024	2025
Total Water Demand (AF)	8,497	8,557	8,617	8,677	8,737
NOTES:					

4.3.2.2 Water Use Projections for 2025-2045

Table 4-3 is a projection of the District's water demand for 2025-2045. Single family residential use is projected to decrease, while multifamily residential use is projected to increase. Usage by CII is projected to increase. CII projections for 2025 through 2045 were broken down into commercial, industrial, and institutional/governmental using proportions reported for each billing sector in FY 2019-20. Demands for large landscape applications are projected to stay consistent, as are projections for non-potable recycled water usage. NRW remains stead as a percentage of total demand.

The demand data presented in this section accounts for passive savings in the future. Passive savings are water savings as a result of codes, standards, ordinances and public outreach on water conservation and higher efficiency fixtures. Passive savings are anticipated to continue through 2045 and will result in continued water saving and reduced consumption levels. Permanent water conservation requirements and water conservation strategies are discussed in Section 8 and 9 of this document.

Table 4-3: Retail: Use for Potable and Non-Potable Water - Projected

DWR Submittal Table 4-2 Retail: Use for Potable and Non-Potable Water - Projected						
Use Type	Additional Description *(as needed)*	Projected Water Use *Report to the Extent that Records are Available*				
		2025	2030	2035	2040	2045 (opt)
Single Family		1,905	1,913	1,885	1,858	1,847
Multi-Family		2,746	2,894	2,856	2,817	2,813
Institutional/Governmental		55	68	73	78	78
Commercial		822	1,004	1,080	1,160	1,160
Landscape		1,314	1,339	1,339	1,339	1,339
Losses	Non-revenue water	410	432	433	434	433
TOTAL		7,252	7,651	7,666	7,687	7,671

DWR Submittal Table 4-2 Retail: Use for Potable and Non-Potable Water - Projected
NOTES: Volumes reported in AF. This table only represents potable water; recycled water projections are shown in Table 4-4 (DWR Submittal Tables 4-3) and Table 6-8 (DWR Submittal Tables 6-4).

Based on the information provided above, the total demand for potable water is listed below in Table. The District currently provides recycled water in its service area and is projected to grow its use.

Table 4-4: Retail: Total Water Use (Potable and Non-Potable)

DWR Submittal Table 4-3 Retail: Total Gross Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045
Potable Water, Raw, Other Non-potable	7,167	7,252	7,651	7,666	7,687	7,671
Recycled Water Demand	1,270	1,485	1,485	1,485	1,485	1,485
TOTAL WATER USE	8,437	8,737	9,136	9,151	9,172	9,156
NOTES: Volumes in AF. This includes volume that goes into the RW distribution system (250 connections), the golf course, and ETWD's own use for irrigation at the treatment plant. Source: Production Report, FY2019-20.						

Table 4-5: Retail Only: Inclusion in Water Use Projections

DWR Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	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.	Section 8 and 9
Are Lower Income Residential Demands Included in Projections?	Yes
NOTES:	

4.3.2.3 Water Use Projections for Lower Income Households

Since 2010, the UWMP Act has required retail water suppliers to include water use projections for single-family and multi-family residential housing for lower income and affordable households. This will assist the District in complying with the requirement under Government Code Section 65589.7 granting priority for

providing water service to lower income households. A lower income household is defined as a household earning below 80% of the Median Household Income (MHI).

DWR recommends retail suppliers rely on the housing elements of city or county general plans to quantify planned lower income housing with the District 's service area (DWR, 2020). RHNA assists jurisdictions in updating general plan's housing elements section. The RHNA identifies additional housing needs and assesses households by income level for the District through 2010 decennial Census and 2005-2009 American Community Survey data. The sixth cycle of the RHNA covers the planning period of October 2021 to October 2029. The SCAG adopted the RHNA Allocation Plan for this cycle on March 4, 2021. The California Department of Housing and Community Development reviewed the housing elements data submitted by jurisdictions in the SCAG region and concluded the data meets statutory requirements for the assessment of current housing needs.

Under the assumption that the RHNA household allocations adequately represent ratios of the District's overall future income categories (not the exact ratio of all household by income but a conservative one for low-income household estimates), the RHNA low-income percentage can be used to estimate future low income demands. One objective of RHNA is to increase affordable housing, therefore RHNA has been allocating additional low-income households to various regions. Because relying on the RHNA distribution of households by income category is likely to produce an overestimate of low-income water demands, this approach represents a conservative projection of future low-income water use.

Table 4-6 presents the District's RHNA housing allocation. RHNA classifies low income housing into two categories: very low income (<30% - 50% MHI), and low income (51% - 80% MHI). Given that the District's service area covers portions of the Cities of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, and Mission Viejo, a weighted average of the RHNA projection for each city served by the District was calculated based on the proportion of each city within the water District. For example, as summarized in Table 4-6, approximately 35.0% of the District's service area lies within Laguna Woods. Based on RHNA, 26.4% of the allocated households are designated for low-income. Therefore, the weighted projected allocation for low-income households for Laguna Woods is 9.2% (35.0% times 26.4%). The same procedure is repeated for all cities within the District's service area. Altogether, 39.7% of the District's allocated housing need for the planning period of October 2021 to October 2029 are considered low-income housing (SCAG, 2021).

Table 4-6: Weighted Average of SCAG 6th Cycle Household Allocation Based on Median Household Income

City	% Area Served	% Low-income of Total Allocated Households from RHNA	Weighted % Low-income Households
Aliso Viejo	2%	50.54%	1.01%
Laguna Hills	18%	46.40%	8.35%
Laguna Woods	35%	26.38%	9.23%
Lake Forest	32%	46.32%	14.82%

City	% Area Served	% Low-income of Total Allocated Households from RHNA	Weighted % Low-income Households
Mission Viejo	13%	48.49%	6.30%
Total	100%	**Weighted Average**	**39.72%**

By applying the percentage of low-income housing from the SCAG report to the total projected SF/MF residential demand calculated in Table 4-3 above, low-income demand can be conservatively estimated for both SF and MF through 2045. For example, the total low-income single family residential demand is projected to be 757 AF in 2025 and 734 AF in 2045 (Table 4-7).

Table 4-7: Projected Water Use for Low Income Households (AF)

Water Use Sector	FY Ending				
	2025	2030	2035	2040	2045
Total Residential Demand (AF)	4,651	4,807	4,741	4,675	4,660
Single-Family Residential Demand - Low Income Households (AF)	757	760	749	738	734
Multi-Family Residential Demand - Low Income Households (AF)	1091	1150	1134	1119	1117
Total Low Income Households Demand (AF)	1,847	1,910	1,883	1,857	1,851

4.4 Water Loss

The District has conducted annual water loss audit 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. NRW for CY2015– CY2019 (Figure 4-2) 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, and blow-off water from well start-ups). The District's real losses ranged from 243 AFY to 302 AFY and apparent losses ranged from 68 AFY to 74 AFY in the last five years. The unbilled water ranged from 12 AFY to 93 AFY in the last five years.

In the latest water loss audit (CY2019), the District's total water loss was 350 AFY (Table 4-8), compared to the total water use of 8,033 AF in the same timeframe (roughly 4.4% water loss). The total water loss consists of real loss of 282 AFY and apparent loss of 68 AFY in CY2019. The NRW was 385 AFY. The active and inactive service connections were consistent in the last five years with 10,049 connections in CY2019. The real loss performance indicator was 25 gals/connection/day in CY2019. Figure **4**-3 presents the performance indicators of gallons of real and apparent loss per connection per day. Understanding and controlling water loss from a distribution system is an effective way for the District to achieve regulatory standards and manage their existing resources. The California State Water Resources Control

Board (SWRCB) is still developing water loss performance standards; these standards have not yet been adopted.

Table 4-8: Retail: 5 Year Water Loss Audit Reporting

DWR Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2] (AF)
01/2015	376
01/2016	311
01/2017	359
01/2018	363
01/2019	350
[1] Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet. ***[2] Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: Water loss in AFY.	

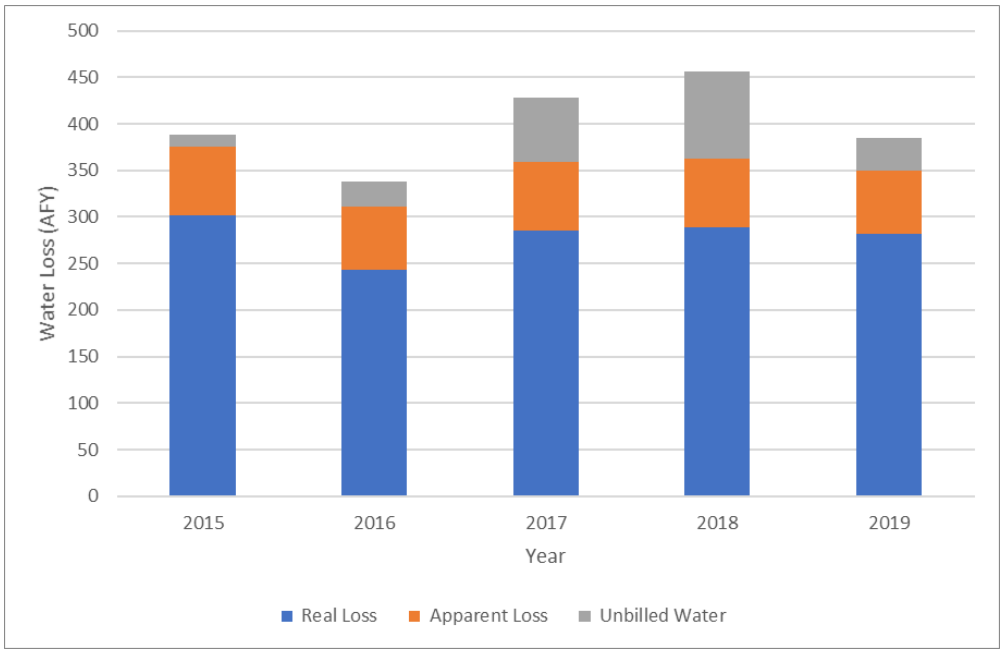

Figure 4-2: Water Loss Audit for CY 2015 to CY 2019

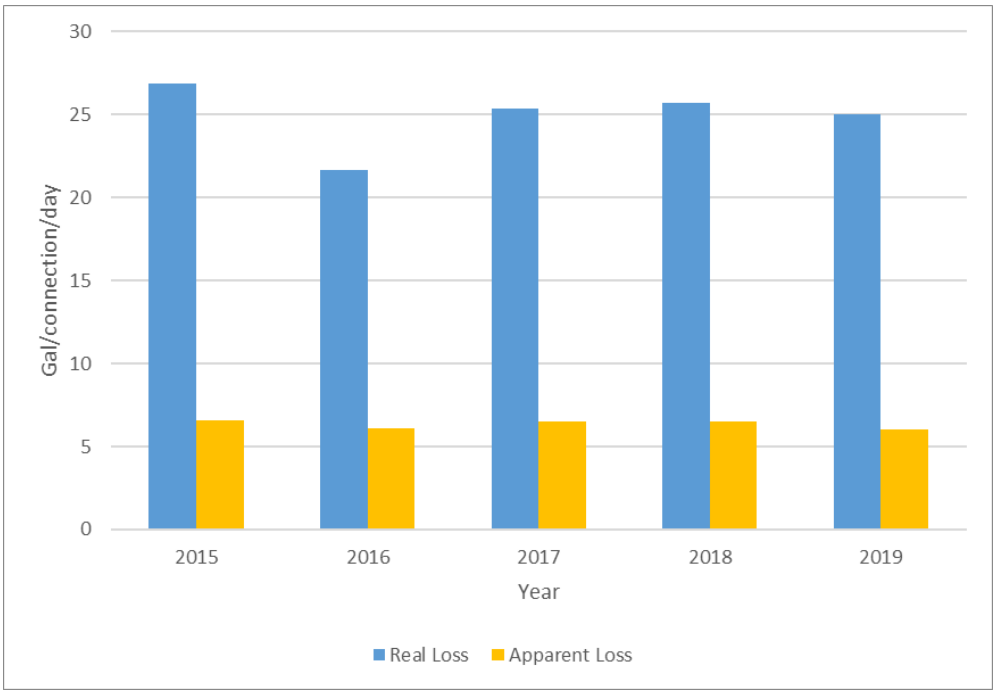

Figure 4-3: Water Loss Performance Indicators for CY 2015 to CY 2019

5 CONSERVATION TARGET COMPLIANCE

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, requires the State of California to reduce urban water use by 20% by the year 2020 (20x2020). To achieve this each retail urban water supplier must determine baseline water use during their baseline period and target water use for the years 2015 and 2020 to meet the state's water reduction goal. Retail water suppliers are required to comply with SBx7-7 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 on or after July 16, 2016.

The District's actual 2020 water use is lower than its 2020 water use target, therefore, demonstrating compliance with SBx7-7. In its 2015 UWMP, the District revised its baseline per capita water use calculations using 2010 U.S. Census data. Changes in the baseline calculations resulted in updated per capita water use targets.

The following sections describe the efforts by the District to comply with the requirements of SBx7-7 and efforts by MWDOC to assist retail agencies, including the formation of a Regional Alliance to provide additional flexibility to all water suppliers in Orange County. A discussion of programs implemented to support retail agencies in achieving their per capita water reduction goals is covered in Section 9 – Demand Management Measures of this UWMP.

Complimentary to information presented in this section are SBx7-7 Verification and Compliance Forms, a set of standardized tables required by DWR to demonstrate compliance with the Water Conservation Act in this 2020 UWMP (Appendix D) including calculations of recycled water used for groundwater recharge (indirect reuse) to offset a portion of the agency's potable demand when meeting the regional as well as individual water use targets.

5.1 Baseline Water Use

The baseline water use is the District's gross water use divided by its service area population, reported in GPCD. Gross water use is a measure of water that enters the distribution system of the supplier over a 12-month period with certain allowable exclusions. These exclusions are:

- Recycled water delivered within the service area
- Indirect recycled water
- Water placed in long term storage
- Water conveyed to another urban supplier
- Water delivered for agricultural use
- Process water

Water suppliers must report baseline water use for two baseline periods, the 10- to 15-year baseline (baseline GPCD) and the five-year baseline (target confirmation) as described below.

5.1.1 Ten to 15-Year Baseline Period (Baseline GPCD)

The first step to calculating the District's water use targets is to determine its base daily per capita water use (baseline water use). The baseline water use is calculated as a continuous (rolling) 10-year average during a period, which ends no earlier than December 31, 2004 and no later than December 31, 2010. Water suppliers whose recycled water made up 10% or more of their 2008 retail water delivery can use up to a 15-year average for the calculation. Recycled water use was 3.4% of the District's retail delivery in 2008; therefore, a 10-year baseline period is used.

The District's baseline water use is 204 GPCD, obtained from the 10-year period July 1, 1996 to June 30, 2005.

5.1.2 Five-Year Baseline Period (Target Confirmation)

Water suppliers are required to calculate water use, in GPCD, for a five-year baseline period. This number is used to confirm that the selected 2020 target meets the minimum water use reduction requirements. Regardless of the compliance option adopted by the District, it will need to meet a minimum water use target of 5% reduction from the five-year baseline water use. This five-year baseline water use is calculated as a continuous five-year average during a period, which ends no earlier than December 31, 2007 and no later than December 31, 2010. The District's five-year baseline water use is 202 GPCD, obtained from the five-year period July 1, 2003 to June 30, 2008.

5.1.3 Service Area Population

The District's service area boundaries correspond with the boundaries for a city or census designated place. This allows the District to use service area population estimates prepared by the DOF. CDR is the entity which compiles population data for Orange County based on DOF data. The calculation of the District's baseline water use and water use targets in the 2010 UWMP was based on the 2000 U.S. Census population numbers obtained from CDR. The baseline water use and water use targets in the 2015 UWMP were revised based on the 2010 U.S. Census population obtained from CDR in 2012. That baseline remained in use in the 2020 calculations.

5.2 SBx7-7 Water Use Targets

In the 2020 UWMP, the District may update its 2020 water use target by selecting a different target method than what was used previously. The target methods and determination of the 2015 and 2020 targets are described below. The District selected Option 1 consistent with 2015 and maintained the same 2020 target water uses as reported in its 2015 UWMP.

5.2.1 SBx7-7 Target Methods

DWR has established four target calculation methods for urban retail water suppliers to choose from. The District is required to adopt one of the four options to comply with SBx7-7 requirements.

The four options include:

- *Option 1* requires a simple 20% reduction from the baseline by 2020 and 10% by 2015.

- *Option 2* employs a budget-based approach by requiring an agency to achieve a performance standard based on three metrics
  - Residential indoor water use of 55 GPCD
  - Landscape water use commensurate with the Model Landscape Ordinance
  - 10% reduction in baseline commercial/industrial/institutional (CII) water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State's 202020 Water Conservation Plan.
- *Option 4* requires the subtraction of Total Savings from the baseline GPCD:
  - Total savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

With MWDOC's assistance in the calculation of the District's base daily per capita use and water use targets, the District selected to comply with Option 1 consistent with the option selected in 2010 and 2015.

5.2.2 2020 Targets and Compliance

Under Compliance Option 1, the simple 20% reduction, the District's 2020 target is 163 GPCD as summarized in Table 5-1. In addition, the confirmed 2020 target needs to meet a minimum of 5% reduction from the five-year baseline water use.

Table 5-1: Baselines and Targets Summary

DWR Submittal Table 5-1 Baselines and Targets Summary From SB X7-7 Verification Form *Retail Supplier or Regional Alliance Only*				
Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*1996*	*2005*	*204*	*163*
5 Year	*2004*	*2008*	*202*	
**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

The District did not make any adjustments in its actual 2020 consumption using weather normalization, economic adjustment, or extraordinary events. The District's actual 2020 consumption is 134 GPCD

which is below its 2020 target of 163 GPCD (Table 5-2). The District met its 2020 water use target and is in compliance with SBx7-7.

Table 5-2: 2020 Compliance

DWR Submittal Table 5-2: 2020 Compliance From SB X7-7 2020 Compliance Form *Retail Supplier or Regional Alliance Only*				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*		
134	0	134	163	Y
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

5.3 Orange County 20x2020 Regional Alliance

A retail supplier may choose to meet the SBx7-7 targets on its own or it may form a regional alliance with other retail suppliers to meet the water use target as a region. Within a Regional Alliance, each retail water supplier will have an additional opportunity to achieve compliance under both an individual target and a regional target.

- If the Regional Alliance meets its water use target on a regional basis, all agencies in the alliance are deemed compliant.
- If the Regional Alliance fails to meet its water use target, each individual supplier will have an opportunity to meet their water use targets individually.

The District is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC, its wholesaler. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2020 UWMP. MWDOC provides assistance in the calculation of each retail agency's baseline water use and water use targets.

In 2015, the regional baseline and targets were revised to account for any revisions made by the retail agencies to their individual 2015 and 2020 targets. The regional water use target is the weighted average of the individual retail agencies' targets (by population). The Orange County 20x2020 Regional Alliance weighted 2020 target is 159 GPCD. The actual 2020 water use in the region is 109 GPCD, i.e., the region met its 2020 GPCD goal.

6 WATER SUPPLY CHARACTERIZATION

As a counterpart to Section 4's Water Use Characterization, this section characterizes the District's water supply. This section includes identification and quantification of water supply sources through 2045, descriptions of each water supply source and their management, opportunities for exchanges and transfers, and discussion regarding any planned future water supply projects. This section also includes the energy intensity of the water service, a new UWMP requirement.

6.1 Water Supply Overview

The District meets its demands with a combination of imported water, recycled water, and surface water. The District works together with two primary agencies, MET and MWDOC, to ensure a safe and reliable water supply that will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include water from the Colorado River and the SWP provided by MET and delivered through MWDOC.

In FY 2019-20, the District relied on 48.5% treated imported water, 32.5% untreated imported water, 15% recycled water, and 4% surface water (Table 6-1).

It is projected that by 2045, the water supply portfolio will change to approximately 45% treated imported water, 39% untreated imported water, and 16% recycled water (Table 6-2 and Figure 6-1). Note that these representations of supply match the projected demand. However, the District can purchase more MET water through MWDOC, should the need arise.

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

Table 6-1: Retail: Water Supplies – Actual

DWR Submittal Table 6-8 Retail: Water Supplies — Actual			
Water Supply	Additional Detail on Water Supply	2020	
		Actual Volume (AF)	Water Quality
Purchased or Imported Water	MWDOC (Treated)	4,079	Drinking Water
Purchased or Imported Water	MWDOC (Untreated)	2,736	Drinking Water
Recycled Water	Treated at District's WRP	1,270	Recycled Water
Surface water (not desalinated)	Irvine Lake	352	Drinking Water
	Total	8,437	

NOTES:
Sources - MWDOC FY 2019-20 Water Use Report, 2020; ETWD Production Report (recycled water); and discussions with ETWD Staff

Recycled water volumes do not include internal reuse.

Table 6-2: Retail: Water Supplies – Projected

DWR Submittal Table 6-9 Retail: Water Supplies — Projected						
Water Supply	Additional Detail on Water Supply	Projected Water Supply (AF)				
		2025	2030	2035	2040	2045
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Purchased or Imported Water	MWDOC (Treated)	3,652	4,051	4,066	4,087	4,071
Purchased or Imported Water	MWDOC (Untreated)*	3,600	3,600	3,600	3,600	3,600
Recycled Water	Treated at District's WRP	1,485	1,485	1,485	1,485	1,485
Total		8,737	9,136	9,151	9,172	9,156

NOTES:
Source – Based on discussions with ETWD staff

Recycled water volumes do not include internal reuse. Untreated water supplies from MWDOC are treated at the Baker Water Treatment Plant. The water produced at Baker Water Treatment Plant offsets and reduces purchased treated MET water from MWDOC.
*May include Irvine Lake water

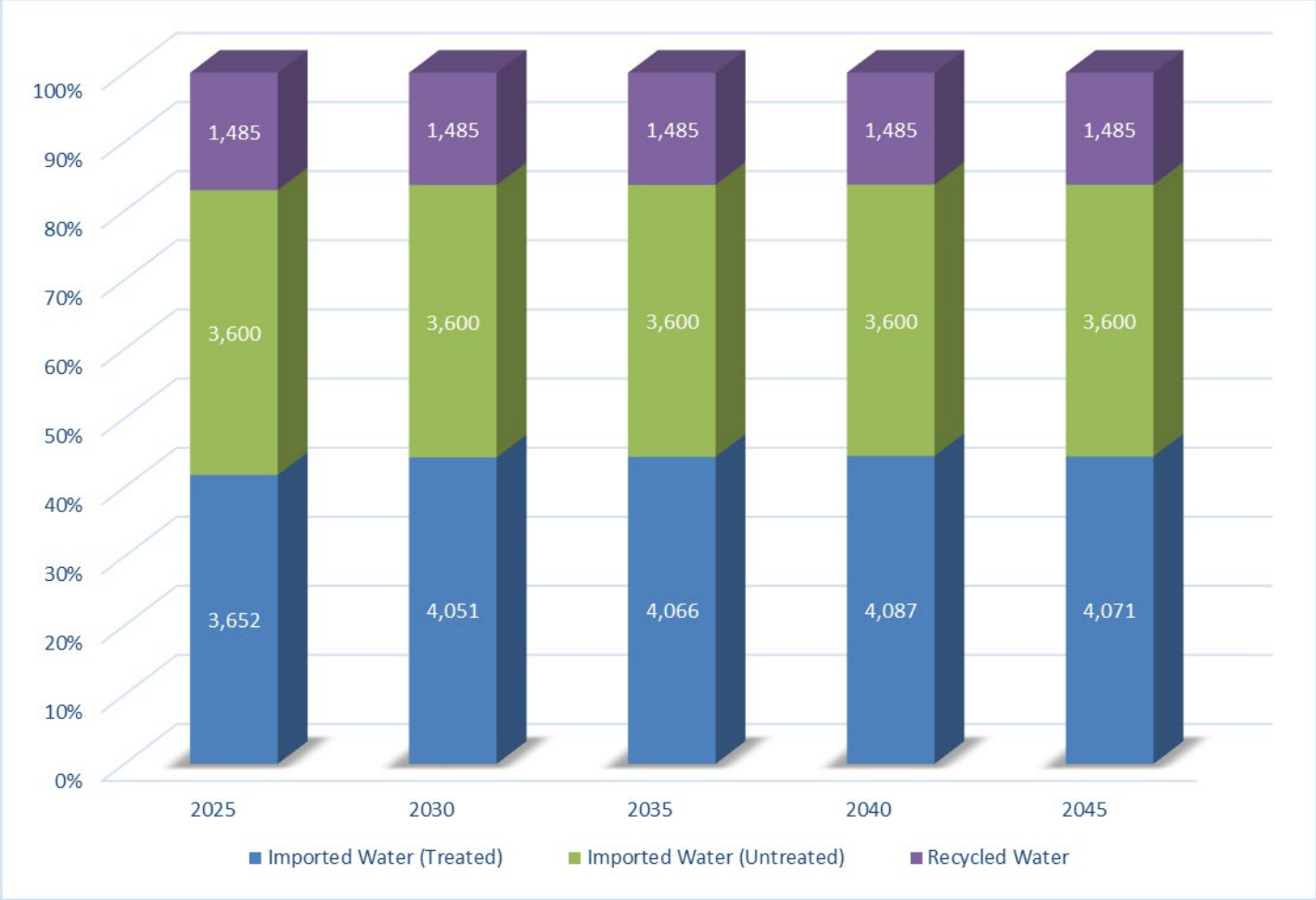

Figure 6-1: District's Projected Water Supply Sources (AF)

6.2 Imported Water

The District supplements it local water supply with imported water purchased from MET through MWDOC. In FY 2019-20, the District relied on approximately 4,079 AFY of treated imported water and 2,736 AFY of untreated imported water, making up 48.5% and 32.5%, respectively, of the District's water supply portfolio for FY 2019-20.

MET's principal sources of water are the Colorado River via the CRA and the Lake Oroville watershed in Northern California through the SWP. 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.

Untreated water that is purchased is treated at the Baker Water Treatment Plant. Baker Water Treatment Plan supply offsets and reduces purchased treated water from Diemer Filtration Plant.

The main supply pipeline to the District is the Allen-McColloch Pipeline (AMP), where the District owns the rights to 26.3 cubic feet per second (cfs) of capacity. The District has three major turnouts off the AMP: OC-76, OC-77, and OC-80 with each turnout being capable of providing a flowrate of 20 cfs. The OC-80 turnout supplies water directly into the R-6 reservoir, and the two other turnouts provide water to the R-6 pressure zone, the upstream side of the Main Pressure Reducing Station, the suction side of the Cherry booster station, and the R-6 reservoir, which provides the majority of the District's water storage.

The District also owns 2 cfs capacity in the Joint Regional Water Supply System (JRWSS). The JRWSS is a take-off from MET's East Orange County Feeder No. 2. It is managed, operated, and maintained by the South Coast Water District (SCWD).

The Aufdenkamp Connection Transmission Main (ACTM) provides an additional emergency supply source for the District. The ACTM is owned and operated by Santa Margarita Water District (SMWD). While the District does not own any capacity within the ACTM, it has taken water from the pipeline in previous emergency situations. However, the District cannot rely on this connection for instantaneous supply as it must rent a pump to use water from the ACTM (RBF Consulting, 2004).

6.2.1 Colorado River Supplies

Background

The Colorado River was MET's original source of water after MET's establishment in 1928. 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 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 and its related agreements to transfer water from agricultural agencies to urban uses. The 2003 Quantification Settlement Agreement enabled California to implement major Colorado River water conservation and transfer programs, in order 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 a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY when the following conditions exists (MET, 2021):

- 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.

MET has not received surplus water for a number of years. The Colorado River supply faces current and future imbalances between water supply and demand in the Colorado River Basin due to long-term drought conditions. Analysis of historical records suggests a potential change in the relationship between precipitation and runoff in the Colorado River Basin. The past 21 years (1999-2020) have seen an overall drying trend, even though the period included several wet or average years. The river basin has substantial storage capacity, but the significant reduction in system reservoir storage in the last two decades is great enough to consider the period a drought (DWR, 2020a). At the close of 2020, system storage was at or near its lowest since 2000, so there is very little buffer to avoid a shortage from any future period of reduced precipitation and runoff (MET, 2021). Looking ahead, the long-term imbalance in the Colorado River Basin's future supply and demand is projected to be approximately 3.2 MAF by the year 2060 (USBR, 2012).

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 have contributed to achievements like achieving 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, this program allows MET to pay participating farmers in Bard to reduce their water use between the late spring and summer months of selected years, which provides up to 6,000 AF of water to be available to MET 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. If long-term water savings are realized, MET may explore ways to formally account them for Colorado River supplies.
- **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 AF was received by MET in 2019 and is estimated for 2020.
- **Exchange Programs** – MET is involved in separate exchange programs with the United States Bureau of Reclamation, 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, this program allows MET to leave excessively conserved water in Lake Mead, for exclusive use by MET in later years.
- **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, 2021).

Future Programs / Plans

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 (DWR, 2020b)

Acknowledging the various uncertainties regarding reliability, MET plans to continue ongoing programs, such as those listed earlier in this section. Additionally, MET supports increasing water recycling in the Colorado River Basin and is in the process of developing additional transfer programs for the future (MET, 2021).

6.2.2 State Water Project Supplies

Background

The SWP consists of a series of pump stations, reservoirs, aqueducts, tunnels, and power plants operated by 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 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% of SWP's contracted water supply going to urban users and 30% 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, 2021).

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 below sea level, and the related threat of a catastrophic levee failure as the water pressure increases, or as a result of a major seismic event.

Current Conditions and Supply

"Table A" water is the maximum entitlement of SWP water for each water contracting agency. Currently, the combined maximum Table A amount is 4.17 million AFY. Of this amount, 4.13 million AFY is the maximum Table A water available for delivery from the Delta. On average, deliveries are approximately 60% of the maximum Table A amount (DWR, 2020b).

SWP contractors may 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.

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.

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

SWP Delta exports are the water supplies that are transferred directly to SWP contractors or to San Luis Reservoir storage south of the Delta via the Harvey O. Banks pumping plant. Estimated average annual Delta exports and SWP Table A water deliveries have generally decreased since 2005, when Delta export regulations affecting SWP pumping operations became more restrictive due to federal biological opinions (Biops). The Biops protect species listed as threatened or endangered under the federal and state Endangered Species Acts (ESAs) and affect the SWP's water delivery capability because they restrict SWP exports in the Delta and include Delta outflow requirements during certain times of the year, thus reducing the available supply for export or storage.

Before being updated by the 2019 Long-Term Operations Plan, the prior 2008 and 2009 Biops resulted in an estimated reduction in SWP deliveries of 0.3 MAF during critically dry years to 1.3 MAF in above normal water years as compared to the previous baseline. However, the 2019 Long-Term Operations Plan and Biops are expected to increase SWP deliveries by an annual average of 20,00AF as compared to the previous Biops (MET, 2021). Average Table A deliveries decreased in the 2019 SWP Final Delivery

Capability Report compared to 2017, mainly due to the 2018 Coordinated Operation Agreement (COA) Addendum and the increase in the end of September storage target for Lake Oroville. Other factors that also affected deliveries included changes in regulations associated with the Incidental Take Permit (ITP) and the Reinitiation of Consultation for Long-Term Operations (RoC on LTO), a shift in Table A to Article 21 deliveries which occurred due to higher storage in SWP San Luis, and other operational updates to the SWP and federal Central Valley Project (CVP) (DWR, 2020b). Since 2005, there are similar decreasing trends for both the average annual Delta exports and the average annual Table A deliveries (Table 6-3).

Table 6-3: MET SWP Program Capabilities

Year	Average Annual Delta Exports (MAF)	Average Annual Table A Deliveries (MAF)
2005	2.96	2.82
2013	2.61	2.55
2019	2.52	2.41
Percent Change*	-14.8%	-14.3%

*Percent change is between the years 2019 and 2005.

Ongoing regulatory restrictions, such as those imposed by the Biops on the effects of SWP and the CVP operations on certain marine life, also contribute to the challenge of determining the SWP's water delivery reliability. In dry, below-normal conditions, MET has increased the supplies delivered through the California Aqueduct by developing flexible CVP/SWP storage and transfer programs. The goal of the storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Harvey O. Banks pumping plant capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions. In addition, the 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.

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%. 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.

- **Regulatory restrictions on SWP Delta exports:** The 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, 2020b).
- **Ongoing environmental and policy planning efforts:** Governor Gavin Newsom ended California WaterFix in May 2019 and announced a new approach to modernize Delta Conveyance through a single tunnel alternative. The EcoRestore Program aims to restore at least 30,000 acres of Delta habitat, with the near-term goal of making significant strides toward that objective by 2020 (DWR, 2020b).
- **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.

Operational constraints likely will continue until a long-term solution to the problems in the Bay-Delta is identified and implemented. New Biops for listed species under the Federal ESA or by the California Department of Fish and Game's issuance of incidental take authorizations under the Federal ESA and California ESA might further adversely affect SWP and CVP operations. Additionally, new litigation, listings of additional species or new regulatory requirements 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.

Future Programs / Plans

MET's Board approved a Delta Action Plan in June 2007 that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the environment. The Delta Action Plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Delta while a long-term solution is implemented. Currently, MET is working towards addressing four elements: Delta ecosystem restoration, water supply conveyance, flood control protection, and storage development.

In May 2019, Governor Newsom ended California WaterFix, announced a new approach to modernize Delta Conveyance through a single tunnel alternative, and released Executive Order 10-19 that directed state agencies to inventory and assess new planning for the project. DWR then withdrew all project approvals and permit applications for California WaterFix, effectively ending the project. The purpose of

the Delta Conveyance Project (DCP) gives rise to several project objectives (MET, 2021). In proposing to make physical improvements to the SWP Delta conveyance system, the project objectives are:

- To address anticipated rising sea levels and other reasonably foreseeable consequences of climate change and extreme weather events.
- To minimize the potential for public health and safety impacts from reduced quantity and quality of SWP water deliveries, and potentially CVP water deliveries, south of the Delta resulting from a major earthquake that causes breaching of Delta levees and the inundation of brackish water into the areas in which existing pumping plants operate.
- To protect the ability of the SWP, and potentially the CVP, to deliver water when hydrologic conditions result in the availability of sufficient amounts, consistent with the requirements of state and federal law.
- To provide operational flexibility to improve aquatic conditions in the Delta and better manage risks of further regulatory constraints on project operations.

6.2.3 Untreated Imported Water – Baker Treatment Plant

The Baker Treatment Plant is a 28.1 million gallons per day (MGD) drinking water treatment plant at the site of the former Baker Filtration Plant in Lake Forest. The facility is operated by Irvine Ranch Water District (IRWD) and is a joint regional project by five South Orange County water districts: the District, IRWD, Moulton Niguel Water District (MNWD), SMWD, and Trabuco Canyon Water District (TCWD), who have capacity rights of 3.2 MGD, 6.8 MGD, 8.4 MGD, 8.4 MGD, and 1.3 MGD, respectively.

The plant has multiple water supply sources that increase water supply reliability, including imported untreated water from MET through the Santiago Lateral and local surface water from Irvine Lake. It provides a reliable local drinking water supply during emergencies or extended facility shutdowns on the MET delivery system and increases operational flexibility by creating redundancy within the water conveyance system. The facility has supplied South Orange County with high quality water since it was placed into operation in January 2017. A location map of the Baker Treatment Plant and surrounding agencies is provided on Figure 6-2.

Figure 6-2: Baker Treatment Plant Location Map

6.2.4 Storage

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), is dependent on its storage resources. Due to the pattern of generally drier hydrology, the groundwater basins and local reservoirs have dropped to low operating levels and remain below healthy storage levels. For example, the Colorado River Basin's system storage at the close of 2020, was at or near its lowest since 2000, so there is very little buffer to avoid a shortage from any future period of reduced precipitation and runoff (MET, 2021).

MET stores water in both DWR and MET surface water reservoirs. MET's surface water reservoirs are Lake Mathews, Lake Skinner, and Diamond Valley Lake (DVL), which have a combined storage capacity of over 1 MAF. Approximately 650,000 AF are stored for seasonal, regulatory, and drought use, while approximately 370,000 AF are stored for emergency use.

MET also has contractual rights to DWR surface Reservoirs, such as 65 thousand acre-feet (TAF) of flexible storage at Lake Perris (East Branch terminal reservoir) and 154 TAF of flexible storage at Castaic Lake (West Branch terminal reservoir) that provides MET with additional options for managing SWP deliveries to maximize the yield from the project. This storage can provide MET with up to 44 TAF of additional supply over multiple dry years, or up to 219 TAF to Southern California in a single dry year (MET, 2021).

MET endeavors to increase the reliability of water supplies through the development of flexible storage and transfer programs including groundwater storage (MET, 2021). These include:

- **Lake Mead Storage Program:** Executed in 2006, this program allows MET to leave excessively conserved water in Lake Mead, for exclusive use by MET in later years. MET created "Intentionally Created Surplus" (ICS) water in 2006-2007, 2009-2012, and 2016-2019, and withdrew ICS water in 2008 and 2013-2015. As of January 1, 2021, MET had a total of 1.3 MAF of Extraordinary Conservation ICS water.
- **Semitropic Storage Program:** The maximum storage capacity of the program is 350 TAF, and the minimum and maximum annual yields available to MET are 34.7 TAF and 236.2 TAF, 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 TAF, 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 two AF MET receives, MET returns 1 AF back to AVEK, and MET will also be able to store up to 30 TAF in the AVEK's groundwater basin, with a dry-year return capability of 10 TAF.
- **High Desert Water Bank Program:** Under this program, MET will have the ability to store up to 280 TAF of its SWP Table A or other supplies in the Antelope Valley groundwater basin, and in exchange will provide funding for the construction of monitoring and production wells, turnouts from the California Aqueduct, pipelines, recharge basins, water storage, and booster pump facilities. The project is anticipated to be in operation by 2025.
- **Kern-Delta Water District Storage Program:** This groundwater storage program has 250 TAF 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 TAF. The agreement allows for MET to store water in an exchange account for later return..

6.2.5 Planned Future Sources

Beyond the programs highlighted in Sections 6.2.1 through 6.2.3, MET continues to invest in efforts to meet its goal of long-term regional water supply reliability, focusing on the following:

- Continuing water conservation
- Developing water supply management programs outside of the region
- Developing storage programs related to the Colorado River and the SWP
- Developing storage and groundwater management programs within the Southern California region
- Increasing water recycling, groundwater recovery, stormwater, and seawater desalination
- Pursuing long-term solutions for the ecosystem, regulatory and water supply issues in the California Bay-Delta (MET, 2021).

6.3 Groundwater

The District's water supply portfolio does not include groundwater.

6.4 Surface Water

In FY 2019-20, 352 AFY – approximately 4% of the District's water supply portfolio for FY 2019-20 – was attributed to local surface water from Irvine Lake and treated at the Baker Treatment Plant.

6.4.1 Existing Sources

Santiago Reservoir, or Irvine Lake, is the largest surface water reservoir in Orange County. Irvine Lake was built in 1931 and captures runoff from the upper Santiago Creek Watershed, as well as stores imported water (Orange County Local Agency Formation Commission, 2020). The 700-acre Irvine Lake is co-owned by IRWD and Serrano Water. The lake holds more than 9 billion gallons of water and is contained by the 810-foot-tall Santiago Dam. IRWD uses water from Irvine Lake as a source of water for non-drinking purposes such as irrigation and as a source of water for the Baker Treatment Plant, which is a water source for the District (Section 6.2.3). Serrano Water District also uses Irvine Lake to provide treated drinking water to its customers in the City of Villa Park and parts of the City of Orange. Both agencies balance the benefits of storing water in Irvine Lake with minimizing evaporation and preserving the ability to capture rainwater from the surrounding hills. During years with less rainfall, IRWD and Serrano Water District also add imported water from MET to the lake (IRWD, 2021).

6.4.2 Planned Future Sources

As of 2021, there are no additional surface water sources planned in the District's service area.

6.5 Stormwater

6.5.1 Existing Sources

There are, currently, no direct stormwater uses in the District's Service area.

6.5.2 Planned Future Sources

As of 2021, there are no planned stormwater uses in the District's service area.

6.6 Wastewater and Recycled Water

The District is directly involved in wastewater services through its ownership and operation of the wastewater treatment facilities and collection system in its service area. The sewer system service area encompasses 5,430 acres and includes approximately 158 miles of sewer main. The wastewater system serves about 48,821 residents.

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. The following sections expand on the existing agency collaboration involved in these efforts as well as the District's projected recycled water use over the next 25 years.

6.6.1 Agency Coordination

There are several water agencies in south Orange County that provide potable water service as well as wastewater collection and treatment to recycled water standards. These agencies have been in the forefront of recycled water development to diversify water supplies because 1) they depend on imported water for most of their potable water supplies and 2) groundwater supplies are limited due to the local geography. Each of these agencies provides recycled water where feasible.

The District operates wastewater treatment facilities and is part of the regional SOCWA as shown on Figure 6-3 and described in further detail below.

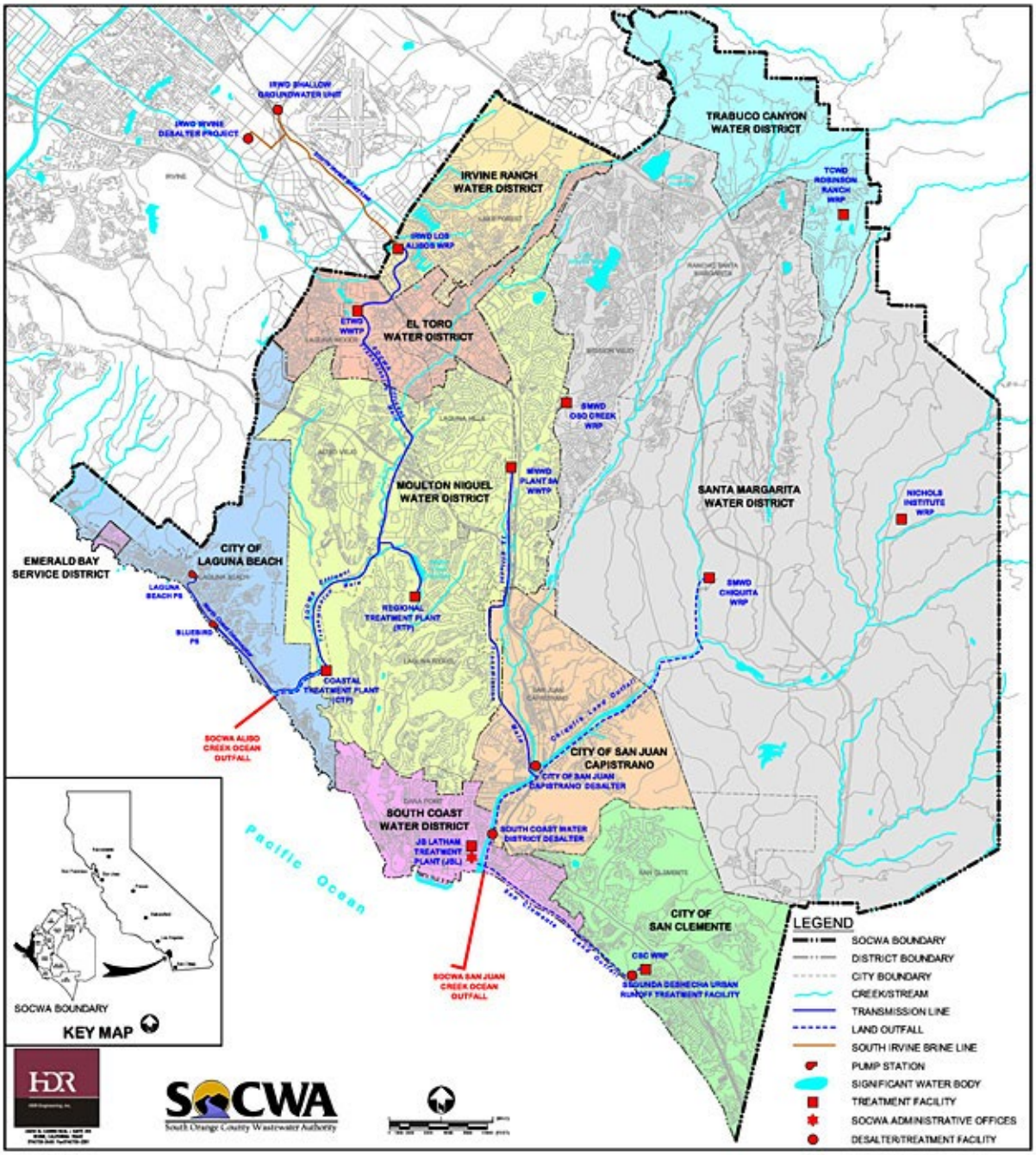

Figure 6-3: Neighboring Water Systems

6.6.2 Wastewater Description and Disposal

The District delivers approximately 6 MGD of potable water to customers' homes and businesses that generate approximately 3.8 MGD of wastewater. The District's wastewater collection system includes approximately 158 miles of sewer pipelines ranging from 4 inches to 24 inches in diameter and 11 sewer lift stations. Wastewater in the service area generally flows north to south and east to west.

Almost all the wastewater generated within the District's service area is conveyed to its Water Recycling Plant (WRP) where it is treated and either used for irrigation or disposed of through SOCWA's effluent transmission main and ocean outfall. The District's WRP is in Laguna Woods adjacent to the Laguna Woods Village Golf Course and serves portions of the Cities of Laguna Hills, Mission Viejo, Aliso Viejo, Lake Forest, and all of Laguna Woods. A small portion of flow on the southeast side of the District is conveyed directly to the MNWD collection system.

The WRP was originally constructed in 1963 to treat approximately 1.5 MGD. The plant has undergone several upgrades and was largely reconstructed in 1998. The capacity of the facility under an average flow condition is approximately 5.4 MGD, but has the capacity treat a maximum flow of 6 MGD to secondary effluent standards. Effluent from the WRP is treated to secondary or tertiary levels depending on the disposal method, ocean outfall or beneficial reuse. Recycled water is treated to Title 22 standards with the expansion completed in 2014. Treated effluent that is not recycled is disposed of through the Aliso Creek Ocean Outfall.

Table 6-4 summarizes the wastewater collected by the District in 2020. Table 6-5 shows the amount of wastewater treated and disposed by the District.

Table 6-4: Wastewater Collected Within Service Area in 2020 (AF)

DWR Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party?
Add additional rows as needed						
ETWD	Estimated	4,168	ETWD	WRP	Yes	No
Total Wastewater Collected from Service Area in 2020:		4,168				
NOTES: From influent flow data FY2019-20						

Table 6-5: Wastewater Treatment and Discharge within Service Area in 2020 (AF)

DWR Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
☐	No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
ETWD	Aliso Creek Ocean Outfall	Laguna Beach		Ocean outfall	No	Secondary, Disinfected - 2.2	4,168	2,997	1,171	0	0
						Total	4,168	2,997	1,171	0	0
NOTES:											

6.6.3 Current Recycled Water Uses

The District has over 130,000 linear feet of recycled water distribution pipelines and a 3.7 MGD tertiary treatment facility at the District's WRP that meets Title 22 requirements for landscape irrigation. The plant was designed with the ability to expand capacity up to the expected maximum amount of raw wastewater entering the plant. The District serves recycled water to over 250 sites. In the tertiary treatment process, secondary treated effluent flows through cloth media disc filters. The cloth media traps solids and debris, while the filtered water flows into a basin where chlorine is injected for disinfection. Chlorine disinfection further polishes and removes viruses and pathogens. The chlorine infused water travels through a series of baffled channels to ensure compliance with chlorine contact time requirements. The tertiary treated water is then ready to be pumped into the recycled water irrigation distribution system. The District's recycled water distribution system consists of nearly 25 miles of pipeline that range in between 4 inches and 20 inches in diameter.

The District puts approximately 30% of their wastewater to beneficial use that is treated at the WRP. The recycled water is primarily used for landscape irrigation, included at HOAs, the Laguna Woods Village Golf Course, irrigation on the WRP grounds, and as process water at the WRP. The District continues to investigate options for expanding the distribution of recycled water to its customers as well as other agencies in the region.

In FY 2019-20, an average of 2.5 MGD of secondary treated effluent was disposed via the SOCWA Effluent Transmission Main to the Aliso Creek Ocean Outfall and 1.2 MGD of secondary effluent was treated to tertiary standards to produce the total recycled water, including recycled water sent to the recycled water distribution system, provided to the golf course, and used at ETWD's WRP..

6.6.4 Projected Recycled Water Uses

Current and projected recycled water use through 2045 are shown in

Table 6-6 and are expected to remain constant. The usage is limited to landscape irrigation and in-plant uses at WRP, designated in the Table as industrial. The projected 2020 recycled water use from the District's 2015 UWMP are compared to the 2020 actual use in Table 6-7, where the actual use is slightly less than the projected.

Table 6-6: Current and Projected Recycled Water Direct Beneficial Use within Service Area (AF)

DWR Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area										
☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.									
Name of Supplier Producing (Treating) the Recycled Water:	ETWD									
Name of Supplier Operating the Recycled Water Distribution System:	ETWD									
Supplemental Water Added in 2020 (volume) *Include units*	10.6 AF									
Source of 2020 Supplemental Water	PW System									
Beneficial Use Type	Potential Beneficial Uses of Recycled Water (Describe)	Amount of Potential Uses of Recycled Water (Quantity)	General Description of 2020 Uses	Level of Treatment	2020	2025	2030	2035	2040	2045
Landscape irrigation (excludes golf courses)	Landscape	See projections	Landscape	Tertiary	966	1,181	1,181	1,181	1,181	1,181
Golf course irrigation	Golf course	See projections	Golf course	Tertiary	304	304	304	304	304	304
				Total:	1,270	1,485	1,485	1,485	1,485	1,485
Internal Reuse (*not counted towards Statewide Recycled Water volume*).					90					111
**IPR - Indirect Potable Reuse*										
NOTES: Source - ETWD Production Report for FY 19/20 and projection values based on discussion with ETWD Staff. Projected recycled water volumes do not include internal reuse. With the inclusion of internal reuse, projected recycled water volumes are estimated to be 1,575 AFY through 2045.										

Table 6-7: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual (AF)

DWR Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☐	Recycled water was not used in 2015 nor projected for use in 2020. The Supplier will not complete the table below.	
Use Type	**2015 Projection for 2020**	**2020 Actual Use**
Agricultural irrigation		
Landscape irrigation (excludes golf courses)	1,170	966
Golf course irrigation	251	304
Total	1,421	1,270
NOTES: Recycled water volumes do not include internal reuse		

6.6.5 Potential Recycled Water Uses

The District continues to support, encourage, and contribute to the continued development of recycled water and potential uses throughout the region. The District is considering Recycled Water Expansion Phase III, as described in further detail in Section 6.9. These expected increase in recycled water use is shown in Table 6-8.

Table 6-8: Retail: Methods to Expand Future Recycled Water Use

DWR Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.9	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
Distribution System Expansion	Phase III	2050	100-500
		Total	100-500
NOTES:			

6.6.6 Optimization Plan

In Orange County, most recycled water is used for irrigating golf courses, parks, schools, businesses, and communal landscaping. Future recycled water use can be increased by requiring dual piping in new developments, retrofitting existing landscaped areas, and constructing recycled water pump stations and transmission pipelines to reach areas that are further from treatment plants. Gains in implementing some of these projects have been made throughout the county. However, additional costs, large energy requirements, and capital costs for facilities all contribute to the high costs of such projects.

To determine if additional projects are feasible, studies must be performed to determine if the project should be pursued. Feasibility studies should include evaluation of alternatives with a present worth analysis consisting of capital costs (design, environmental reviews, construction, etc.) and operations and maintenance costs (electrical costs for pumps and equipment and maintenance required for the system).

The District will continue to conduct feasibility studies for recycled water and seek out creative solutions such as funding, regulatory requirements, institutional arrangement, and public acceptance for recycled water use with MWDOC, MET and other cooperative agencies.

6.7 Desalination Opportunities

In 2001, MET developed a Seawater Desalination Program (SDP) to provide incentives for developing new seawater desalination projects in MET's service area. In 2014, MET modified the provisions of their Local Resources Program (LRP) to include incentives for locally produced seawater desalination projects that reduce the need for imported supplies. To qualify for the incentive, proposed projects must replace an existing demand or prevent new demand on MET's imported water supplies. In return, MET offers three incentive formulas under the program:

- Sliding scale incentive up to $340 per AF for a 25-year agreement term, depending on the unit cost of seawater produced compared to the cost of MET supplies.
- Sliding scale incentive up to $475 per AF for a 15-year agreement term, depending on the unit cost of seawater produced compared to the cost of MET supplies.
- Fixed incentive up to $305 per AF for a 25-year agreement term.

Developing local supplies within MET's service area is part of their IRP goal of improving water supply reliability in the region. Creating new local supplies reduce pressure on imported supplies from the SWP and Colorado River.

On May 6th, 2015, the SWRCB approved an amendment to the state's Water Quality Control Plan for the Ocean Waters of California (California Ocean Plan) to address effects associated with the construction and operation of seawater desalination facilities (Desalination Amendment). The amendment supports the use of ocean water as a reliable supplement to traditional water supplies while protecting marine life and water quality. The California Ocean Plan now formally acknowledges seawater desalination as a beneficial use of the Pacific Ocean and the Desalination Amendment provides a uniform, consistent process for permitting seawater desalination facilities statewide.

If the following projects are developed, MET's imported water deliveries to Orange County could be reduced. These projects include the Huntington Beach Seawater Desalination Project and the Doheny

Desalination Project. The District is considering the opportunity to receive 1 MGD from the Huntington Beach Seawater Desalination Project.

Brackish groundwater is groundwater with a salinity higher than freshwater, but lower than seawater. Brackish groundwater typically requires treatment using desalters.

6.7.1 Ocean Water Desalination

Huntington Beach Seawater Desalination Project – Poseidon Resources LLC (Poseidon), a private company, is developing the Huntington Beach Seawater Desalination Project to be co-located at the AES Power Plant in the City of Huntington Beach along Pacific Coast Highway and Newland Street. The proposed project would produce up to 50 MGD (56,000 AFY) of drinking water to provide approximately 10% of Orange County's water supply needs.

Over the past several years, Poseidon has been working with OCWD on the general terms and conditions for selling the water to OCWD. OCWD and MWDOC have proposed a few distribution options to agencies in Orange County. The northern option proposes the water be distributed to the northern agencies closer to the plant within OCWD's service area with the possibility of recharging/injecting a portion of the product water into the Orange County Groundwater Basin (OC Basin). The southern option builds on the northern option by delivering a portion of the product water through the existing OC-44 pipeline for conveyance to the south Orange County water agencies. A third option is also being explored that includes all of the product water to be recharged into the OC Basin. Currently, a combination of these options could be pursued.

The Huntington Beach Seawater Desalination project plant capacity of 56,000 AFY would be the single largest source of new, local drinking water available to the region. In addition to offsetting imported demand, water from this project could provide OCWD with management flexibility in the OC Basin by augmenting supplies into the Talbert Seawater Barrier to prevent seawater intrusion.

In May 2015, OCWD and Poseidon entered into a non-binding Term Sheet that provided the overall partner structure in order to advance the project. Based on the initial Term Sheet, which was updated in 2018, Poseidon would be responsible for permitting, financing, design, construction, and operations of the treatment plant while OCWD would purchase the production volume, assuming the product water quality and quantity meet specific contract parameters and criteria. Furthermore, OCWD would then distribute the water in Orange County using one of the proposed distribution options described above.

Currently, the project is in the regulatory permit approval process with the Regional Water Quality Control Board and the California Coastal Commission. Once all of the required permits are approved, Poseidon will then work with OCWD and interested member agencies in developing a plan to distribute the water. Subsequent to the regulatory permit approval process, and agreement with interested parties, Poseidon estimates that the project could be online as early as 2027.

Under guidance provided by DWR, the Huntington Beach Seawater Desalination Plant's projected water supplies are not included in the supply projections due to its current status within the criteria established by State guidelines (DWR, 2020c).

Doheny Desalination Project – SCWD is proposing to develop an ocean water desalination facility in Dana Point. SCWD intends to construct a facility with an initial capacity of up to 5 million gallons per day (MGD). The initial up to 5 MGD capacity would be available for SCWD and potential partnering water agencies to provide a high quality, locally-controlled, drought-proof water supply. The desalination facility would also provide emergency backup water supplies, should an earthquake, system shutdown, or other event disrupt the delivery of imported water to the area. The Project would consist of a subsurface slant well intake system (constructed within Doheny Beach State Park), raw (sea) water conveyance to the desalination facility site (located on SCWD owned property), a seawater reverse osmosis (SWRO) desalination facility, brine disposal through an existing wastewater ocean outfall, solids handling facilities, storage, and potable water conveyance interties to adjacent local and regional distribution infrastructure.

The Doheny Ocean Desalination Project has been determined as the best water supply option to meet reliability needs of SCWD and south Orange County. SCWD is pursuing the Project to ensure it meets the water use needs of its customers and the region by providing a drought-proof potable water supply, which diversifies SCWD's supply portfolio and protects against long-term imported water emergency outages and supply shortfalls that could have significant impact to our coastal communities, public health, and local economy. Phase I of the Project (aka, the "Local" Project) will provide SCWD and the region with up to 5 MGD of critical potable water supply that, together with recycled water, groundwater, and conservation, will provide the majority of SCWD's water supply through local reliable sources. An up to 15 MGD capacity project has been identified as a potential future "regional" project that could be phased incrementally, depending on regional needs.

On June 27, 2019, SCWD certified the final EIR and approved the Project. The Final EIR included considerable additional information provided at the request of the Coastal Commission and the Regional Board, including an updated coastal hazard analysis, updated brine discharge modeling, and updated groundwater modeling, updated hydrology analysis. The approval of the Project also included a commitment to 100 percent carbon neutrality through a 100 percent offset of emissions through the expansion of Project mitigation and use of renewable energy sources. SCWD is currently in the permitting process and finalizing additional due diligence studies. If implemented, SCWD anticipates an online date of 2025.

Under guidance provided by DWR, the Doheny Seawater Desalination Project's projected water supplies are not included in the supply projections due to its current status within the criteria established by State guidelines (DWR, 2020c).

6.7.2 Groundwater Desalination

There are currently no brackish groundwater opportunities within the District's service area.

6.8 Water 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 imported water systems. However, beyond short-term outages, transfers can also be involved with longer term water exchanges to deal with droughts or water allocation situations. The following subsections describe the District's existing and planned 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 imported water systems. The District maintains interconnections with other agencies as follows:

- TCWD at Cranbridge Dr. and Bridgemont Rd.
- IRWD at El Toro Rd. and Aliso Park Dr.
- IRWD at Ridge Route Dr. and Muirlands Blvd.
- IRWD at El Toro Rd. And Cornelius Dr.
- MNWD at Los Alisos Blvd, NE of Jeronimo Rd.
- SMWD at Trabuco Rd. and SMWD boundary
- IRWD at Second St. and Cherry Ave.
- SMWD/Aufdenkamp Connection Transmission Main at Ridge Route Dr. and Peralta Dr.
- MNWD at Beckenham St. and Wilkes Pl.
- MNWD at Los Alisos Blvd and Via Pimiento
- MNWD at Muirlands Blvd. and La Paz Rd.
- LBCWD at Avenida Sosiega West and Luz Del Sol
- JRWSS/Tri-Cities Transmission Main at Moulton Pkwy, NW of El Toro Rd.

6.8.2 Planned and Potential Exchanges and Transfers

The District does not currently have plans to introduce new exchanges and transfers. However, MWDOC continues to help its retail agencies develop transfer and exchange opportunities that promote reliability within their systems. Therefore, MWDOC will look to help its retail agencies navigate the operational and administrative issues of transfers within the MET distribution system.

On a regional scale, the 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, OCWD, and San Bernardino Valley Municipal Water District).

In 2016, SARCCUP was successful in receiving $55 million in grant funds from Proposition 84 through DWR. The overall SARCCUP program awarded by Proposition 84, consists of three main program elements:

- Watershed-Scale Cooperative Water Banking Program
- Water Use Efficiency: Landscape Design and Irrigation Improvements and Water Budget Assistance for Agencies
- Habitat Creation and *Arundo Donax* Removal from the Santa Ana River

The Watershed-Scale Cooperative Water Banking Program is the largest component of SARCCUP and since 2016, Valley, MET, and the four SARCCUP-MWD Member Agencies, with MWDOC representing OCWD, have been discussing terms and conditions for the ability to purchase surplus water from Valley to be stored in the Santa Ana River watershed. With the Valley and MET surplus water purchase agreement due for renewal, it was the desire of Valley to establish a new agreement with MET that allows a portion of its surplus water to be stored within the Santa Ana River watershed.

An agreement between MET and four SARCCUP-MWD Member Agencies was approved earlier this year that gives the SARCCUP agencies the ability to purchase a portion (up to 50%) of the surplus water that San Bernardino Valley Municipal Water District (Valley), a SWP Contractor, sells to MET. Such water will be stored in local groundwater basins throughout the Santa Ana River watershed and extract during dry years to reduce the impacts from multiyear droughts. In Orange County, 36,000 AF can be stored in the OC Basin for use during dry years. More importantly, this stored SARCCUP water can be categorized as "extraordinary supplies", if used during a MET allocation, and can enhance a participating agencies' reliability during a drought. Moreover, if excess water is available MWDOC can purchase additional water for its service area.

Further details remain to be developed between OCWD, retail agencies, and MWDOC in how the water will be distributed in Orange County and who participates.

6.9 Summary of Future Water Projects

The District 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 the District has various projects planned to maintain and improve the water system, there are currently no District-specific planned projects that have both a concrete timeline and a quantifiable increase in supply.

6.9.1 District Initiatives

The District anticipates water demand in the District to remain relatively constant over the next 25 years. Any new water supply sources would be developed primarily to better manage local sources and to upgrade existing facilities, rather than to support population growth and new development. The projects that have been identified by the District to improve the District's water supply reliability and enhance the operations of the district include the expansion of their recycled water.

Recycled Water Expansion Phase III – The District is in the process of completing a conceptual level study that would potentially convert anywhere from 100 to 500 AFY of dedicated irrigation demand from potable water to recycled water on the East Side of the Interstate 5 freeway, which would increase the District's recycled water supply and local water supply reliability.

6.9.2 Regional Initiatives

Beyond District-specific projects, the District consistently coordinates its long-term water shortage planning with MWDOC. MWDOC has identified the following future regional projects, some of which

can indirectly benefit the District to further increase local supplies and offset imported supplies (CDM Smith, 2019).

Poseidon Huntington Beach Ocean Desalination Project – Poseidon proposes to construct and operate the Huntington Beach Ocean Desalination Plant on a 12-acre parcel adjacent to the AES Huntington Beach Generating Station. The facility would have a capacity of 50 MGD and 56,000 AFY, with its main components consisting of a water intake system, a desalination facility, a concentrate disposal system, and a product water storage tank. This project would provide both system and supply reliability benefits to South Orange County (SOC), the OC Basin, and Huntington Beach. The capital cost in the initial year for the plant is $1.22 billion.

Doheny Ocean Desalination Project – SCWD is proposing to construct an ocean water desalination facility in Dana Point at Doheny State Beach. The facility would have an initial up to 5 MGD capacity, with the potential for future expansions up to 15 MGD. The project's main components are a subsurface water intake system, a raw ocean water conveyance pipeline, a desalination facility, a seawater reverse osmosis (SWRO) desalination facility, a brine disposal system, and a product water storage tank.

San Juan Watershed Project – SMWD and other project partners have proposed a multi-phased project within the San Juan Creek Watershed to capture local stormwater and develop, convey, and recharge recycled water into the San Juan Groundwater Basin and treat the water upon pumping it out of the basin. The first phase includes the installation of three rubber dams within San Juan Creek to promote in-stream recharge of the basin, with an anticipated production of 700 AFY on average. The second phase would develop additional surface water and groundwater management practices by using stormwater and introducing recycled water for infiltration into the basin and has an anticipated production of 2,660 to 4,920 AFY. The third phase will introduce recycled water directly into San Juan Creek through live stream recharge, with an anticipated production of up to 2,660 AFY (SMWD, 2021).

Cadiz Water Bank – SMWD and Cadiz, Inc. are developing this project to create a new water supply by conserving groundwater that is currently being lost to evaporation and recovering the conserved water by pumping it out of the Fenner Valley Groundwater Basin to convey to MET's CRA. The project consists of a groundwater pumping component that includes an average of 50 TAFY of groundwater that can be pumped from the basin over a 50-year period, and a water storage component that allows participants to send surplus water supplies to be recharged in spreading basins and held in storage.

South Orange County Emergency Interconnection Expansion – MWDOC has been working with the SOC agencies on improvements for system reliability primarily due to the risk of earthquakes causing outages of the MET imported water system as well as extended grid outages. Existing regional interconnection agreements between IRWD and SOC agencies provides for the delivery of water through the IRWWD system to participating SOC agencies in times of emergency. MWDOC and IRWD are currently studying an expansion of the program, including the potential East Orange County Feeder No. 2 pipeline and an expanded and scalable emergency groundwater program, with a capital cost of $867,451.

SARCCUP – SARCCUP is a joint project established between MET, MWDOC, Eastern MWD, Western MWD, Inland Empire Utilities Agency, and OCWD that can provide significant benefits in the form of additional supplies during dry years for Orange County. Surplus SWP water from San Bernardino Valley Water District (SBVMWD) can be purchased and stored for use during dry years. This water can even be considered an extraordinary supply under MET allocation Plan, if qualified under MET's extraordinary

supply guidelines. OCWD has the ability to store 36,000 AF of SARCCUP water and if excess water is available MWDOC has the ability to purchase additional water. Further details remain to be developed between OCWD, retail agencies, and MWDOC in how the water will be distributed in Orange County and who participates.

Moulton Niquel Water District (MNWD) / OCWD Pilot Storage Program - OCWD entered into an agreement with MNWD to develop a pilot program to explore the opportunity to store water in the OC Basin. The purpose of such a storage account would provide MNWD water during emergencies and/or provide additional water during dry periods. As part of the agreement, OCWD hired consultants to evaluate where and how to extract groundwater from the OC Basin with several options to pump the water to MNWD via the East Orange County Feeder No. 2; as well as a review of existing banking/exchange programs in California to determine what compensation methodologies could OCWD assess for a storage/banking program.

6.10 Energy Intensity

A new requirement for this 2020 UWMP is an energy intensity analysis of the Supplier's water, wastewater, and recycled water systems, where applicable for a 12-month period. The District owns and operates a water distribution system, a wastewater collection/treatment system, and a recycled water system. This section reports the energy intensity for each system using data from FY 2019-20.

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% of the total electricity and 30% of non-power plant related natural gas consumed in California. In 2015, California issued new rules requiring 50% of its power to come from renewables, along with a reduction in greenhouse gas (GHG) emissions to 40% below 1990 levels by 2030. Consistent with energy and water conservation, renewable energy production, and GHG mitigation initiatives, the District reports the energy intensity of its water and wastewater operations.

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). 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. The District's calculations conform to methodologies outlined in the UWMP Guidebook and Wilkinson study.

6.10.1 Water Supply Energy Intensity

In FY2019, the District consumed 176.7 kilowatt-hour (KWh) per AF for water distribution services (Table 6-9). The basis for calculations is provided in more detail in the following subsections and in Appendix G.

Table 6-9: Recommended Energy Intensity – Multiple Water Delivery Products

Urban Water Supplier: *El Toro Water District*

Water Delivery Product (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

Table O-1A: Recommended Energy Reporting - Water Supply Process Approach

Enter Start Date for Reporting Period: 7/1/2019

End Date: 6/29/2020

☐ Is upstream embedded in the values reported?

		Urban Water Supplier Operational Control							
		Water Management Process						Non-Consequential Hydropower (if applicable)	
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	AF	*0*	*0*	*0*	*0*	*6,880*	*6880*	*0*	*6880*
Energy Consumed (kWh)	*N/A*	*0*	*0*	*0*	*0*	*1,215,656*	*1215656*	*0*	*1215656*
Energy Intensity (kWh/vol.)	*N/A*	*0.0*	*0.0*	*0.0*	*0.0*	*176.7*	*176.7*	*0.0*	*176.7*

Quantity of Self-Generated Renewable Energy

0 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Combination of Estimates and Metered Data

Data Quality Narrative:

Volume of Water Entering Process: Based on ETWD's Annual Water Audit. Non-Revenue Water is not considered in this calculation – the energy efficiency is based on water delivered to customers.
Energy Consumed: Based on metered data.

Narrative:

El Toro relies on imported water and recycled water to meet their customers' water needs. Operational control in the potable water system is limited to potable water booster stations. This table does not include upstream embedded energy consumed prior to El Toro taking control. In FY 2019, 7265 AF of water was imported by ETWD but the district experienced 385 AF of water losses resulting in a total of 6,880 AF of potable water delivered to customers.

6.10.1.1 Operational Control and Reporting Period

As described throughout the report, the District is a retail agency that relies on imported water. Although calendar year reporting is standard for energy and GHG reporting to establish consistent reporting between various agencies, financial year data was used for this report as it provided the most current and complete data set.

6.10.1.2 Volume of Water Entering Processes

According to ETWD's Annual Water Audit, 6,880 AF of water was distributed in FY 2019. A total of 7265 AF of water was imported by ETWD but the district experienced 385 AF of water losses resulting in a total of 6,880 AF of potable water delivered to customers. Water volume is based on water audit data.

6.10.1.3 Energy Consumption and Generation

According to Southern California Edison Electricity Bills potable water pump stations along the distribution system consumed 1,215,656 kWh of electricity. Currently, the District does not generate renewable energy. Energy consumption is based on metered data.

6.10.2 Wastewater and Recycled Water Energy Intensity

In FY2019, the District consumed 1,441.9 kWh per AF for wastewater collection and treatment services and 647 kWh per AF for recycled water distribution services (Table 6-10). The basis for calculations is provided in more detail in the following subsections.

Table 6-10: Recommended Energy Intensity – Wastewater & Recycled Water

Urban Water Supplier: *El Toro Water District*

Table O-2: Recommended Energy Reporting - Wastewater & Recycled Water					
Enter Start Date for Reporting Period	7/1/2019	Urban Water Supplier Operational Control			
End Date	6/29/2020	Water Management Process			
☐ Is upstream embedded in the values reported?		Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Water Units Used	AF				
Volume of Wastewater Entering Process (volume units selected above)		*4,219*	*4,219*	*3,048*	*4219*
Wastewater Energy Consumed (kWh)		*886,212*	*5,197,043*	*0*	*6083255*
Wastewater Energy Intensity (kWh/volume)		*210.1*	*1231.8*	*0.0*	*1441.9*
Volume of Recycled Water Entering Process (volume units selected above)		*0*	*0*	*1,171*	*1171*
Recycled Water Energy Consumed (kWh)		*0*	*0*	*757,683*	*757683*
Recycled Water Energy Intensity (kWh/volume)		*0.0*	*0.0*	*647.0*	*647.0*

Quantity of Self-Generated Renewable Energy related to recycled water and wastewater operations

0 kWh

Data Quality *(Estimate, Metered Data, Combination of Estimates and Metered Data)*

Combination of Estimates and Metered Data

Data Quality Narrative:

Wastewater Volume of Water Entering Process: Estimated based potable water consumption in the service area. For these calculations, we assume that all wastewater collected is treated. A portion of treated wastewater then moves to the recycled water system while the rest is discharged to the ocean.
Wastewater Energy Consumed: Based on metered data.
Recycled Water Volume of Water Entering Process: based on metered data for recycled water delivered to the customer.

Narrative:

El Toro Water District operates the local wastewater collection system as well as a Water Recycling Plant. Water treated at the recycling plant is used for irrigation purposes.

6.10.2.1 Operational Control and Reporting Period

The District's existing sewer system is made up of a network of gravity sewers, eleven sewer lift stations, and a water recycling plant. Water treated at the water recycling plant either enters the recycled water system or proceeds to an ocean outfall. Similar to the water supply energy intensity, wastewater energy intensity was calculated for the 2019 financial year.

6.10.2.2 Volume of Wastewater Entering Processes

In CY2019, the District collected and conveyed an estimated 4219 AF of wastewater. This water was treated at the Water Recycling Plant and 1171 AF of recycled water was produced and distributed to customers. The volume of wastewater collected is an estimate based on potable water deliveries in the service area. This was used to provide consistency with reporting done by other Orange County water agencies as well as other sections of this report. The volume of recycled water delivered is based on data from customer meters.

6.10.2.3 Energy Consumption and Generation

According to Southern California Edison Electricity Bills, the District's eleven wastewater lift stations consumed 866,212 kWh of electricity. The Water Recycling Plant consumed 5,197,043 kWh of electricity and the Recycled Water Pump Station consumed 757,683 of electricity. Currently, the District does not generate renewable energy. Energy consumption data was based on metered data.

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 – The District relies on imported water 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 2020 UWMP requirement for all agencies to calculate energy intensity will help the District 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 State Project Water.
- Internal benchmarking and goal setting – With a focus on energy conservation and a projected increase in water demand despite energy conservation efforts, the District'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 the District's commitment to energy and water conservation.

- 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.

7 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Building upon the water supply identified and projected in Section 6, this key section of the UWMP examines the District's projected water supplies, water demand, and the resulting water supply reliability. Water service reliability reflects the District's ability to meet the water needs of its customers under varying conditions. For the UWMP, water supply reliability is evaluated in two assessments: 1) the Water Service Reliability Assessment and 2) the DRA. The Water Service reliability assessment compares projected supply to projected demand in 2025 through 2045 for three hydrological conditions: a normal year, a single dry year, and a drought period lasting five consecutive years. The DRA, a new UWMP requirement, assesses near-term water supply reliability. It compares projected water supply and demand assuming the District experiences a drought period for the next five consecutive years. Factors affecting reliability, such as climate change and regulatory impacts, are accounted for in the assessment.

7.1 Water Service Reliability Overview

Every urban water supplier is required to assess the reliability of their water service to their customers under normal, single-dry, and multiple dry water years. The District depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. Development of local supplies augments the reliability of the water system. There are various factors that may impact reliability of supplies such as legal, environmental, water quality and climatic which are discussed below. MET's and MWDOC's 2020 UWMPs conclude that they are able to meet full-service demands of their member agencies starting 2025 through 2045 during normal years, single-dry year, and multiple-dry years. Consequently, the District is projected to meet full-service demands through 2045 for the same scenarios.

MET's 2020 IRP update describes the core water resources that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2025 through 2045. The foundation of MET's resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance, and infrastructure improvements.

Table 7-1 shows the basis of water year data used to predict drought supply availability. The average (normal) hydrologic condition for the MWDOC service area, which the District is a part of, is represented by FY 2017-18 and FY 2018-19 and the single-dry year hydrologic condition by FY 2013-14. The five consecutive years of FY 2011-12 to FY 2015-16 represent the driest five-consecutive year historic 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: Retail: Basis of Water Year Data (Reliability Assessment)

DWR Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year**	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	**% of Average Supply**
Average Year	2018-2019	-	100%
Single-Dry Year	2014	-	109%
Consecutive Dry Years 1st Year	2012	-	109%
Consecutive Dry Years 2nd Year	2013	-	109%
Consecutive Dry Years 3rd Year	2014	-	109%
Consecutive Dry Years 4th Year	2015	-	109%
Consecutive Dry Years 5th Year	2016	-	109%
NOTES: Assumes an increase of 9% above average year demands in dry and multiple dry years based on the Demand Forecast TM (CDM Smith, 2021). 109% represents the percent of average supply needed to meet demands of a single-dry and multiple-dry years. Since the District is able to meet all of its demand with imported water from MWDOC/MET (on top of local water sources), the percent of average supply value reported is equivalent to the percent of average demand under the corresponding hydrologic condition.			

The following sections provide a detailed discussion of the District's water source reliability. Additionally, the following sections compare the District's projected supply and demand under various hydrological conditions, to determine the District's supply reliability for the 25-year planning horizon.

7.2 Factors Affecting Reliability

In order 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

Changing climate patterns are expected to shift precipitation patterns and affect water supply availability. Unpredictable weather patterns will 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 (MET, 2021). These areas include:

- A reduction in Sierra Nevada Mountain snowpack.
- Increased intensity and frequency of extreme weather events.
- Prolonged drought periods.
- Water quality issues associated with increase in wildfires.
- Changes in runoff pattern and amount.
- 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 CVP.

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

- Effects on local supplies such as surface water
- Changes in urban and agricultural demand levels and patterns.
- Increased evapotranspiration from higher temperatures.
- Impacts to human health from water-borne pathogens and water quality degradation.
- Declines in ecosystem health and function.
- 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, the earlier and heavier runoff (rather than snowpack retaining water in storage in the mountains), will result in more water being lost to the oceans. A heavy emphasis on storage is needed in California.

In addition, 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 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 impacted 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, which will likely continue until a long-term solution to these problems is identified and implemented (MET, 2021).

Legal, environmental, and water quality issues may have impacts on MET supplies. It is felt, however, that climatic factors would have more of an impact than legal, water quality, and environmental factors. Climatic conditions have been projected based on historical patterns, but severe pattern changes are still a possibility in the future (MET, 2021).

7.2.2 Regulatory and Legal

Ongoing regulatory restrictions, such as those imposed by the Biops on the effects of SWP and the federal CVP operations on certain marine life, also contributes 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 ESAs and imposed substantial constraints on Delta water supply operations through requirements for Delta inflow and outflow and export pumping restrictions.

In addition, the 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 plans to fully implement the new Lower San Joaquin River (LSJR) flow objectives from the Phase 1 Delta Plan amendments through adjudicatory (water rights) and regulatory (water quality) processes by 2022. These LSJR flow objectives are estimated to reduce water available for human consumptive use. New litigation, listings of additional species under the ESAs, 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. IPR 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, 2021).

7.2.3 Water Quality

The following sub-sections include narratives on water quality issues experienced in various water supplies, if any, and the measures being taken to improve the water quality of these sources.

7.2.3.1 Imported Water

MET is responsible for providing high quality potable water throughout its service area. Over 300,000 water quality tests are performed per year on MET's water to test for regulated contaminants and additional contaminants of concern to ensure the safety of its waters. 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.

MET's primary water sources face individual water quality issues of concern. The CRA water source contains higher total dissolved solids (TDS) and the SWP contains higher levels of organic matter, lending 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 of 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 (NDMA), pharmaceuticals and personal care products (PPCP), microplastics, per- and polyfluoroalkyl substances (PFAS), and 1,4-dioxane (MET, 2021). While unforeseeable water quality issues could alter reliability, MET's current strategies ensure the delivery of high-quality water.

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 DVL to keep the reservoir free from quagga mussels (MET, 2021).

7.2.4 Locally Applicable Criteria

Within Orange County, there are no significant local applicable criteria that directly affect reliability. Through the years, the water agencies in Orange County have made tremendous efforts to integrate their systems to provide flexibility to interchange with different sources of supplies. There are emergency agreements in place to ensure all parts of the County have an adequate supply of water. For agencies in southern Orange County, most demands are met with imported water where limitation is based on the capacity of the system, which is very robust.

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

7.3 Water Service Reliability Assessment

This Section assesses the District's reliability to provide water services to its customers under various hydrological conditions. This is completed by comparing the projected long-term water demand (Section 4), to the projected water supply sources available to the District (Section 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

The water demand forecasting model developed for the Demand Forecast TM (described in Section 4.3), to project the 25-year demand for Orange County water agencies, also isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The explanatory variables of population, temperature, precipitation, unemployment rate, drought restrictions, and

conservation measures were used to create the statistical model. The impacts of hot/dry weather condition are reflected as a percentage increase in water demands from the average condition. The average (normal) demand is represented by the average water demand of FY 2017-18 and FY 2018-19 (CDM Smith, 2021).

The District is 100% reliable for normal year demands from 2025 through 2045 (Table 7-2) due to diversified supply and conservation measures. For simplicity, the table shows supply to balance demand in the table. However, the District can purchase more MET water through MWDOC, should the need arise. The District has entitlements to receive imported water from MET through MWDOC via connections to MET's regional distribution system. All imported water supplies are assumed available to the District from existing water transmission facilities, as per MET and MWDOC's 2020 UWMPs. The supplies listed in Table 7-2 also include local recycled water supplies.

Table 7-2: Retail: Normal Year Supply and Demand Comparison

DWR Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Supply totals (AF)	8,737	9,136	9,151	9,172	9,156
Demand totals (AF)	8,737	9,136	9,151	9,172	9,156
Difference (AF)	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.					

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. The water demand forecasting model developed for the Demand Forecast TM (described in Section 4.3) 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 condition 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 nine percent increase in demand for the South County region where the District's service area is located (CDM Smith, 2021). Detailed information of the model is included in Appendix E.

The District has documented that it is 100% reliable for single dry year demands from 2025 through 2045 with a demand increase of nine percent from normal demand with significant reserves held by MET and conservation. A comparison between the supply and the demand in a single dry year is shown in (Table 7-3). For simplicity, the table shows supply to balance demand in the table. However, the District can purchase more MET water through MWDOC, should the need arise.

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

DWR Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Supply totals (AF)	9,523	9,958	9,975	9,998	9,980
Demand totals (AF)	9,523	9,958	9,975	9,998	9,980
Difference (AF)	0	0	0	0	0
NOTES: It is conservatively assumed that a single dry year demand is 9% greater than each respective year's normally projected total water demand from Table 7-2. Surface water and recycled water provide local supply (Sections 6.4 and 6.6, respectively) and based on MET's and MWDOC's UWMP, imported water is available to close any local water supply gap (Section 7.5.1).					

7.3.3 Multiple Dry Year Reliability

Assessing the reliability to meet demand for five consecutive dry years is a new requirement for the 2020 UWMP, as compared to the previous requirement of assessing three or more consecutive dry years. Multiple dry years are defined as five or more consecutive dry years with minimal rainfall within a period of average precipitation. The water demand forecasting model developed for the Demand Forecast TM (described in Section 4.3) 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 condition 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 nine percent increase in demand for the South County region where the District's service area is located (CDM Smith, 2021). It is conservatively assumed that a five consecutive dry year scenario is a repeat of the single dry year over five consecutive years.

Even with a conservative demand increase of nine percent each year for five consecutive years, the District is capable of meeting all customers' demands from 2025 through 2045 (Table 7-4), with significant reserves held by MET and conservation. For simplicity, the table shows supply to balance demand in the table. However, the District can purchase more MET water through MWDOC, should the need arise.

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

DWR Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison (AF)						
		2025	2030	2035	2040	2045
First year	Supply totals	9,262	9,610	9,962	9,979	9,994
	Demand totals	9,262	9,610	9,962	9,979	9,994
	Difference	0	0	0	0	0
Second year	Supply totals	9,327	9,697	9,965	9,984	9,991
	Demand totals	9,327	9,697	9,965	9,984	9,991
	Difference	0	0	0	0	0
Third year	Supply totals	9,393	9,784	9,968	9,989	9,987
	Demand totals	9,393	9,784	9,968	9,989	9,987
	Difference	0	0	0	0	0
Fourth year	Supply totals	9,458	9,871	9,971	9,993	9,984
	Demand totals	9,458	9,871	9,971	9,993	9,984
	Difference	0	0	0	0	0
Fifth year	Supply totals	9,523	9,958	9,975	9,998	9,980
	Demand totals	9,523	9,958	9,975	9,998	9,980
	Difference	0	0	0	0	0

NOTES:
The multiple dry-year projections estimate a 9% increase on total normal water demand. The 2025 column assesses supply and demand for FY 2020-21 through FY 2024-25; the 2030 column assesses FY 2025-26 through FY 2029-30 and so forth, in order to end the water service reliability assessment in FY 2044-45.

Surface water and recycled water provide local supply (Sections 6.4 and 6.6, respectively) 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 for the District and MWDOC's service area that seek to maximize local resources and result in minimizing the need to import water are described below. Although the District does not produce groundwater from the OC Basin, collaborative initiatives between MWDOC and OCWD benefit the District.

- **Reduced Delta Reliance:** MET has 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. In 2020, MET had a 602,000 AF change in supplies contributing to regional-self-reliance, corresponding to a 15.3% change, and this amount is projected to increase through 2045 (MET, 2021). For detailed information on the Delta Plan Policy WR P1, refer to Appendix C.

- **The continued and planned use of groundwater:** The water supply resources within MWDOC's service area are enhanced by the existence of groundwater basins that account for the majority of local supplies available and are used as reservoirs to store water during wet years and draw from storage during dry years, subsequently minimizing MWDOC's reliance on imported water. Groundwater basins are managed within a safe basin operating range so that groundwater wells are only pumped as needed to meet water use. Although MWDOC does not produce or manage recycled water, MWDOC supports and partners in recycled water efforts, including groundwater recharge.

- **Groundwater storage and transfer programs:** MWDOC and OCWD's involvement in SARCCUP includes participation in a CUP that improves water supply resiliency and increases available dry-year yield from local groundwater basins. The groundwater bank has 137,000 AF of storage (OCWD, 2020b). Additionally, MET has numerous groundwater storage and transfer programs in which MET endeavors to increase the reliability of water supplies, including the 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 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.

- **Water Loss Program:** The water loss audit program reduces MWDOC's dependency on imported water from the Delta by implementing water loss control technologies after assessing audit data and leak detection.

- **Increased use of recycled water:** MWDOC 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 Groundwater Replenishment System (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 (DMMs) during dry periods:** During dry periods, water reduction methods to be applied to the public through the retail agencies, will in turn reduce MWDOC's overall demands on MET and reliance on imported water. MWDOC is assisting its retail agencies by leading the coordination of Orange County Regional Alliance for all of the retail agencies in Orange County. MWDOC assists each retail water supplier in Orange County in analyzing the requirements of and establishing their baseline and target water use, as guided by DWR. The District's specific DMMs are further discussed in Section 9.

7.5 Drought Risk Assessment

Water Code Section 10635(b) requires every urban water supplier include, as part of its UWMP, a DRA for its water service as part of information considered in developing its DMMs and water supply projects and programs. The DRA is a specific planning action that assumes the District is experiencing a drought over the next five years and addresses the District's water supply reliability in the context of presumed drought conditions. Together, the water service reliability assessment (Sections 7.1 through 7.3), DRA, and WSCP (Section 8 and Appendix H) allow the 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.

Water Code Section 10612 requires the DRA to be based on the driest five-year historic sequence of the District's water supply. However, Water Code 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 District's methodology and results of its DRA.

7.5.1 DRA Methodology

The water demand forecasting model developed for the Demand Forecast TM (described in Section 4.3) 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 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 nine percent increase in demand for the South County region encompassing the District's service area (CDM Smith, 2021).

Locally, the five-consecutive years of FY 2011-12 through FY 2015-16 represent the driest five-consecutive year historic sequence for the District's 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 5% 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.

As explained in Section 6, the District currently relies on, and will continue to rely on, three main water sources: local surface water as available, local recycled water, and imported water supply from MWDOC / MET. The District maximizes local water supply use before the purchase of imported water. The difference between total forecasted potable demands and local potable water supply projections is the demand on MWDOC's imported water supplies, which are supplied by MET. Therefore, the District's DRA focuses on the assessment of imported water from MWDOC / MET, which will be used to close any local water supply gap. This assessment aligns with the DRA presented in MWDOC's 2020 UWMP.

Water Demand Characterization

All of MWDOC's water supplies are purchased from MET, regardless of hydrologic conditions. As described in Section 6.2, MET's supplies are from the Colorado River, SWP, and in-region storage. In its 2020 UWMP, MET's DRA concluded that even without activating WSCP actions, MET can reliably provide water to all of their member agencies, including MWDOC, and in effect the District, assuming a five-year drought from FY 2020-21 through FY 2024-25. 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, which includes the District, will be met by MET's water supplies.

Based on the Demand Forecast TM, in a single dry year, demand is expected to increase by nine percent above a normal year. Both MWDOC and the District's DRA conservatively assumes a drought from FY2020-21 through FY 2024-25 is a repeat of the single dry year over five consecutive years.

The District's demand projections were developed as part of the Demand Forecast TM, led by MWDOC. As part of the study, 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. The District's projected water use, linearly interpolated per the demand forecast, is presented annually for the next five years in Table 4-2. Next, MWDOC estimated the projections of local supplies derived from current and expected local supply programs from their member agencies. Finally, the demand model calculated 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 from their member agencies, such as the District.

Water Supply Characterization

MWDOC's assumptions for its supply capabilities are discussed and presented in five year increments under its 2020 UWMP water reliability assessment. For MWDOC's DRA, these supply capabilities are further refined and presented annually for the years 2021 to 2025 by assuming a repeat of historic conditions from FY 2011-12 to FY 2015-16. 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 Colorado River, 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 and 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.

7.5.2 Total Water Supply and Use Comparison

The District's DRA reveals that its supply capabilities are expected to balance anticipated total water use and supply, assuming a five-year consecutive drought from FY 2020-21 through FY 2024-25 (Table 7-5). For simplicity, the table shows supply to balance the modeled demand in the table. However, the District can purchase more MET water from MWDOC, should the need arise.

Table 7-5: Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	9,262
Total Supplies	9,262
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	9,327
Total Supplies	9,327
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)

2023	Total
Total Water Use	9,393
Total Supplies	9,393
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	9,458
Total Supplies	9,458
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	9,523
Total Supplies	9,523
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

Note: Surface water and recycled water provide local supply (Sections 6.4 and 6.6, respectively) and based on MET's and MWDOC's UWMP, imported water is available to close any local water supply gap (Section 7.5.1).

7.5.3 Water Source Reliability

Locally, the District's ability to continue producing water locally, via direct recycled water use, greatly improves the District's water supply reliability. Additionally, although they would not normally be considered part of the District's water portfolio, the emergency interconnections the District has with TCWD, IRWD, MNWD, SMWD, LBCWD, and the JRWSS/Tri-Cities could help mitigate any water supply shortages, though shortages are not expected.

The District's DRA concludes that its water supplies meet total water demand, assuming a five-year consecutive drought from FY 2020-21 through FY 2024-25 (Table 7-5). For simplicity, the table shows supply to balance the modeled demand in the table. However, the District can purchase more MET water from MWDOC, should the need arise.

As detailed in Section 9, the District has in place a robust WSCP and comprehensive shortage response planning efforts that include demand reduction measures and supply augmentation actions. However, since the District's DRA shows a balance between water supply and demand, no water service reliability concern is anticipated, and no shortfall mitigation measures are expected to be exercised over the next five years. The District and its wholesale supplier, MWDOC, will periodically revisit its representation of the supply sources and of the gross water use estimated for each year, and will revise its DRA if needed.

8 WATER SHORTAGE CONTINGENCY PLANNING

8.1 Layperson Description

Water shortage contingency planning is a strategic planning process that the District engages to prepare for and respond to water shortages. 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). The District's WSCP provides real-time 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 Water Code Section 10632 requires that every urban water supplier that serves more than 3,000 AFY or has more than 3,000 connections prepare and adopt a standalone WSCP as part of its UWMP. The WSCP is required to plan for a greater than 50% supply shortage. This WSCP is due to be updated based on new requirements every five years and will be adopted as a current update for submission to DWR by July 1, 2021.

8.2 Overview of the WSCP

The WSCP serves as the operating manual that the District will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages. The WSCP contains processes and procedures documented in the WSCP, which are given legal authority through the WSCP Response Ordinance. This way, when shortage conditions arise, the District'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 to the degree of water shortfall anticipated. Figure 8-1 illustrates the interdependent relationship between the three procedural documents related to planning for and responding to water shortages.

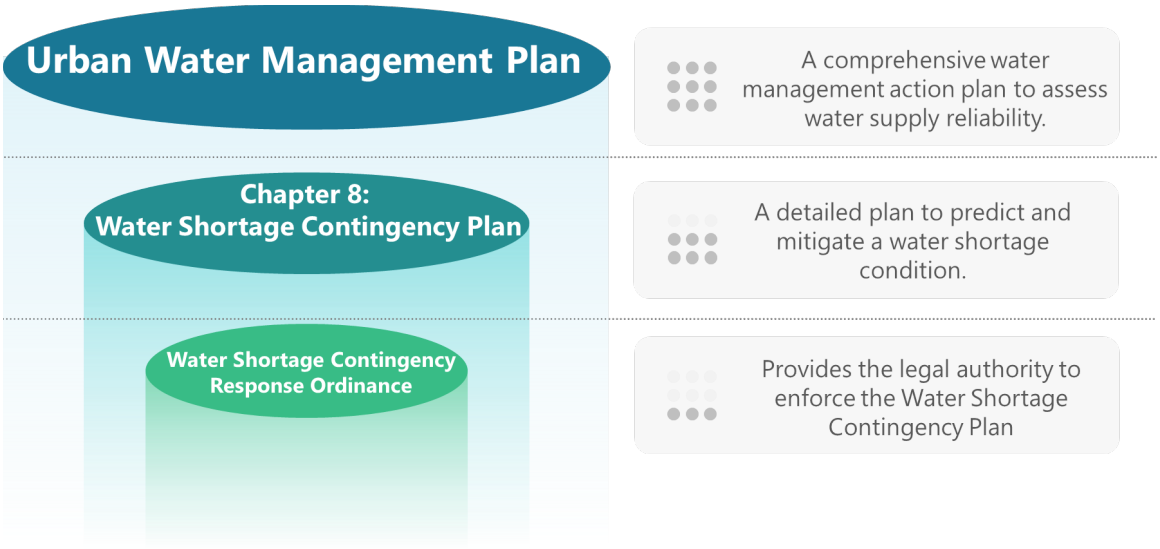

Figure 8-1: UWMP Overview

A copy of the District's WSCP is provided in Appendix H and includes the steps to assess if a water shortage is occurring, and what level of shortage drought actions to trigger the best response as appropriate to the water shortage conditions. WSCP has prescriptive elements, including an analysis of water supply reliability; the drought shortage actions for each of the six standard water shortage levels, that correspond to water shortage percentages ranging from 10% to greater than 50%; an estimate of the potential to close the 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

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

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

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

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

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

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

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

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

Section 3.6 Compliance and Enforcement describes customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions.

Section 3.7 Legal Authorities is a description of the legal authorities that enable the District 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 is a required definition for inclusion in a WSCP per the Water Code.

Section 3.12 Plan Adoption, Submittal, and Implementation provides a record of the process the District followed to adopt and implement 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 ensure the relevant stakeholders understand what to expect during a water shortage situation. Water Code Section 10632 (a)(3)(A) provides an option for urban water suppliers to align with six standard water shortage levels; however, the District has selected to retain its existing water shortage levels as defined in the District Code (Table 8-1). Table 8-2 shows the District's water shortage levels in relationship to the six standard water shortage levels prescribed by statute. This crosswalk is intended to clearly translate the District's water shortage levels to those mandated by statute.

The supply augmentation actions that align with each shortage level are described in DWR Table 8-3 (Appendix B). These augmentations represent short-term management objectives triggered by the WSCP and do not overlap with the long-term new water supply development or supply reliability enhancement projects.

The demand reduction measures that align with each shortage level are described in DWR Table 8-2 (Appendix B). This table also estimates the extent to which that action will reduce the gap between supplies and demands to demonstrate to the that choose suite of shortage response actions can be expected to deliver the expected outcomes necessary to meet the requirements of a given shortage level.

Table 8-1: Water Shortage Contingency Plan Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions**
1	Up to 20%	A Level 1 Water Supply Shortage Emergency shall be initiated only after the District Board of Directors holds a Public Hearing during which, at its sole discretion, determines and declares that a further additional reduction in consumer demand is necessary due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to existing water conditions.
2	Up to 40%	A Level 2 Water Supply Shortage Emergency shall be initiated only after the District Board of Directors holds a Public Hearing during which, at its sole discretion, determines and declares that a further additional reduction in consumer demand is necessary due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to existing water conditions.
3	Greater than 40%	A Level 3 Water Supply Shortage Emergency shall be initiated only after the District Board of Directors holds a Public Hearing during which, at its sole discretion, determines and declares that a further additional reduction in consumer demand is necessary due to drought or water supply cutbacks in order to make more efficient use of water and appropriately respond to existing water conditions.
NOTES:		

Table 8-2: Relationship Between the District's Water Shortage Levels and Mandated Shortage Levels

Relationship Between ETWD's Water Shortage Levels and Mandated Shortage Levels (DWR Table 8-1)			
El Toro Water District Water Shortage Levels		**Mandated Shortage Levels**	
Shortage Level	**Percent Shortage Range**	**Shortage Level**	**Percent Shortage Range**
Permanent Water Conservation Requirements	0%	**N/A**	0%
1	Up to 20%	**1** **2**	Up to 10% 10-20%
2	20-40%	**3** **4**	20 – 30% 30 - 45%
3	>40%	**5** **6**	40 - 50% >50%

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Detailed planning and preparation can help maintain reliable supplies and reduce the impacts of supply interruptions. This chapter provides a structured plan for dealing with water shortages, incorporating prescriptive information and standardized action levels, along with implementation actions in the event of a catastrophic supply interruption.

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

9 DEMAND MANAGEMENT MEASURES

The District, along with other Retail water agencies throughout Orange County, recognizes the need to use existing water supplies efficiently. This ethic of efficient use of water has evolved as a result of the development and implementation of water use efficiency programs that make good economic sense and reflect responsible stewardship of the region's water resources. The District works closely with MWDOC to promote regional efficiency by participating in the regional water savings programs, leveraging MWDOC local program assistance, and applying the findings of MWDOCs research and evaluation efforts. This chapter communicates the District's efforts to promote conservation and to reduce demand on water supplies.

9.1 Demand Management Measures for Retail Suppliers

The goal of the DMM section is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets. The reporting requirements for DMM has been significantly modified and streamlined in 2014 by Assembly Bill 2067. Additionally, this section of the UWMP will report on the role of MWDOC's programs in meeting new state regulations for complying with the SWRCB's new Conservation Framework. These categories of demand management measures are as follows:

- Water waste prevention ordinances;
- Metering;
- Conservation pricing;
- Public education and outreach;
- Programs to assess and manage distribution system real loss;
- Water conservation program coordination and staffing support;
- Other DMMs that have a significant impact on water use as measured in GPCD, including innovative measures, if implemented;
- Programs to assist retailers with Conservation Framework Compliance.

9.1.1 Water Waste Prevention Ordinances

The District's Board of Directors adopted a Water Conservation and Water Supply Shortage Ordinance (Ordinance No. 2015-3) on June 9, 2015. The Ordinance establishes a Water Conservation and Water Supply Shortage Program designed to enable effective potable water supply planning, assure reasonable and beneficial use of potable water, and prevent waste of potable water and maximize efficient use in the District. This Ordinance, in conjunction with the District's water budget based tiered conservation rate structure establishes permanent mandatory water conservation measures that area designed to alter behaviors related to potable water use efficiency during non-shortage conditions, including the following:

- Limits on outside watering hours
- Limits on outside watering duration
- No excessive water flow or runoff

- No outside watering when it is raining
- Obligations to fix leaks, breaks, and malfunctions in lines, fixtures, or facilities
- No hosing or washing down hard or paved surfaces
- No hosing or washing down vehicles
- Re-circulating decorative water fountains and features
- Limits on washing vehicles
- Drinking water served upon requests only
- Commercial food-serving and lodging requirements
- Water served upon request
- Option not to have towels/linen laundered
- Commercial kitchen requirements
- Water efficient pre-rinse kitchen spray valves
- Commercial water recirculation requirements
- Car wash and laundry requirements
- No single pass cooling systems
- Indiscriminate water use
- Public health and safety

The Ordinance also establishes three levels of potential response to escalating water supply shortages that the District may implement during times of declared water shortage or water emergency. The three levels of response consist of expanded water use restrictions and the possible imposition of water supply shortage allocations through the use of a “drought factor” in conjunction with the budget based tiered rate structure. The provisions and water conservation measures to be implemented in response to each shortage level are described in the WSCP located in Appendix H of this 2020 UWMP. The District’s water conservation ordinance is included in Appendix B of the WSCP.

9.1.2 Metering

All water service connections supplied by the District are fully metered and customers are billed by volume of water used. The District requires individual metering for all new connections.

The District targets replacing meters every 15 years. The district does not have a billing meter calibration program but does have a production meter calibration program.

The District does not currently have plans to implement an innovative metering program but is looking into potential funding sources and the costs versus benefits of advanced metering infrastructure (AMI) and automatic meter reading (AMR).

9.1.3 Conservation Pricing

The District uses a budget-based tiered rate structure that comprises a fixed charge and a variable commodity charge. The fixed charges are based upon meter size and include Water Operations and Maintenance Charge, Capital Replacement and Refurbishment Charge, and Sewer Operations and Maintenance Charge. The water usage charge increases with usage as structured into four tiers. Each customer metered is allocated a water use budget per tier. Table 9-1 shows the District’s water use rates effective as of October 1, 2020.

Table 9-1: Water Usage Rates

Water Use Charges	Price/CCF
Tier I – Indoor	$2.65
Tier II – Outdoor	$3.04
Tier III – Inefficient	$6.21
Tier IV - Excessive	$7.95
Commercial, Industrial, Institutional (CII)	$3.02

9.1.4 Public Education and Outreach

The District recognizes the importance of water conservation and protection of water resources of the State and seeks to maximize the beneficial use of available water resources. It is District policy to discourage and prevent water waste through its year-round mandatory conservation measures and to encourage water use efficiency through its public education and outreach programs.

ETWD's Public Education and Outreach Programs

The District's public education and education programs are designed to complement the public education and outreach programs implemented by MET and the MWDOC. The District utilizes the following programs to increase awareness and educate customers on local and regional water supply, costs of water, ETWD projects, water use efficiency and landscape management. The District outreach programs are also promoted on its website, bill messaging and through its social media platforms.

Print and Electronic Materials - The District publishes a newsletter called Water Views and bill inserts throughout the year. These are distributed to each customer as part of the billing cycle and delivered to homeowner associations. The district also produces a water quality brochure that describes the source of water in the District's service area and provides specific information regarding water quality issues such as disinfectants, Cryptosporidium, lead, and monitoring programs.

Community Advisory Group Meetings (CAG) – The District holds quarterly CAG meetings for the District customers. These meetings engage interactive discussions on new and ongoing water supply challenges, costs of water, ETWD projects and water conservation.

Speaker Program – The District's speaker's program offers to convey the water conservation message to local organizations including homeowner associations, service clubs and business organizations.

Laguna Woods Television – ETWD's board members present monthly on Laguna Woods Village Television "This Day" segments. Directors discuss current water issues ranging from water supply, water quality, environmental issues, local and regional projects to water conservation.

Water Recycling Plant Field Trips – In addition to hosting and providing tours for the MWDOC Boy Scout Soil and Water Conservation Merit Badge and Girl Scout Water Resources and Conservation Patch programs, the District offers on-site field trips to small groups within the District's service area. The educational field trip consists of touring the Water Recycling Plant, explanation of the District and the Water Recycling Plant, laboratory experience and why it is important to conserve water.

Community Events – Each year, ETWD participates in an array of community events throughout its service area. Staff provides opportunities to interact with customers and the public in a relaxed environment engaging them in important discussions about the value of water and indoor and outdoor water-use efficiency.

Landscape Workshops– The District offers various workshops for customers through the MET BeWaterWise® program. Water landscape professionals educate customers on California Friendly® and Native Landscape Training, Turf Removal and Garden Transformation, and Garden Design. Workshops details are promoted through its outreach programs and offered through the District's website.

9.1.5 MWDOC's Public Education and Outreach Programs

In addition to ETWD's outreach programs, the District participates in the public education and outreach program implemented by MWDOC, its wholesale supplier. MWDOC develops, coordinates, and delivers a substantial number of public education and outreach programs to assist retail agencies in Orange County promote water use efficiency awareness, current water issues, sound policy and regional water reliability investments within their service area. These efforts encourage good water stewardship that benefit all District residents, businesses, and industries across all demographics. Several examples are included below.

Print and Electronic Materials

MWDOC offers a variety of print and electronic materials that are designed to assist District water users in discovering where their water comes from, what the MWDOC and other water industry professionals are doing to address water challenges, how to use water most efficiently, and more. Through the MWDOC's robust social media presence, website, eCurrents newsletter, media tool kits, public service announcements (PSAs), flyers, and other outreach materials, MWDOC ensures that stakeholders are equipped with sufficient information and subject knowledge to assist them in making good behavioral and civic choices that ultimately affect the quality and quantity of the region's water supply.

Public Events

Each year, MWDOC hosts various public events intended to engage a diverse range of water users in targeted discussions and actions that homes in on their specific interests or needs. Some of these public events include:

- **MWDOC Water Policy Forums and Orange County Water Summit** are interactive symposiums that bring together hundreds of business professionals, elected officials, water industry stakeholders, and community leaders from throughout the state for a discussion on new and

ongoing water supply challenges, water policy issues, and other important topics that impact our water supply, economy, and public health.

- **Inspection Trips** of the state's water supply systems are sponsored each year by MWDOC and MET. Orange County elected officials, residents, business owners, and community leaders are invited to tour key water facilities throughout the state and learn more about the critical planning, procurement, and management of Southern California's water supply, as well as the issues surrounding delivery and management of our most precious natural resource – water.
- **Community Events and Events Featuring MWDOC Mascot Ricky the Rambunctious Raindrop** provide opportunities to interact with Orange County water users in a fun and friendly way, offer useful water-related information or education, and engage them in important discussions about the value of water and how their decisions at home or work may impact Orange County's quality and quantity of water for generations to come.

Education Programs

Over the past several years, MWDOC has amplified its efforts in water education programs and activities for Orange County's youngest water users. This is accomplished by continuing to grow professional networks and partnerships that consist of leading education groups, advisors, and teachers, and by leading the way for the MWDOC and its 28-member agencies to be key contributors of both Southern California and Orange County water-centric learning. Several key water education programs include:

- **MWDOC Choice School Programs** have provided Orange County K-12 students water-focused learning experiences for nearly five (5) decades. Interactive, grade-specific lessons invite students to connect with, and learn from, their local ecosystems, guiding them to identify and solve local water-related environmental challenges affecting their communities. Participating member agencies fund this program through the Choice School Program. Choice School Programs are aligned with state standards, and participation includes a dynamic in-class or virtual presentation, and pre- and post-activities that encourage and support Science Technology Engineering Arts and Mathematics (STEAM)-based learning and good water stewardship.
- **Water Energy Education Alliance (WEEA)** is a coalition of education and water and energy industry professionals led by MWDOC that works together to build and bolster Career Technical Education programs (CTE) for Southern California high school students. These CTEs focus on workforce pathways in the Energy, Environment, and Utility Sectors, and connections established through this powerful Southern California alliance assist stakeholders as they thoughtfully step up their investment in the education and career success of California's future workforce.
- **MWDOC Water Awareness Poster Contest** is an annual activity developed to encourage Orange County's K-12 students to investigate and explore their relationship to water, connect the importance of good water stewardship to their daily lives, and express their conclusions creatively through art. Each year, MWDOC receives hundreds of entries, and 40 winners from across Orange County are invited to attend a special awards ceremony with their parents and teachers, and Ricky the Rambunctious Raindrop.
- **Boy Scouts Soil and Water Conservation Merit Badge and Girl Scouts Water Resources and Conservation Patch Programs** guide Orange County Scouts on a learning adventure of

where their water comes from, the importance of Orange County water resources, and how to be water efficient. These STEAM-based clinics are hosted by MWDOC and include interactive learning stations, hands-on activities, and a guided tour of an Orange County water source, water treatment facility, or ecological reserve.

9.1.6 Programs to Assess and Manage Distribution System Real Loss

Senate Bill 1420 signed into law in September 2014 requires urban water suppliers that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the AWWA. SB 1420 requires the water loss audit be submitted to DWR every five years as part of the urban water supplier's UWMP. Water auditing is the basis for effective water loss control. DWR's UWMP Guidebook include a water audit manual intended to help water utilities complete the AWWA Water Audit on an annual basis. A Water Loss Audit was completed for the District that quantified total loss. Multiple criteria are a part of each validity score and a system wide approach will need to be implemented for the District's improvement. Expressing water loss audit results in terms of Real Losses per Service Connection per Day allows for standardized comparison across MWDOC retailer agencies and is a metric consistent with the Water Board's forthcoming economic model. The Real Losses per Service Connection per Day for CY2019 was 25.02 gal/connection/day.

The District started performing distribution system prescreening audit in 1999. The prescreening audit results were used to determine the need for a full-scale system audit. The prescreening system audit involves determining 1) metered sales, 2) total supply into the system, and 3) other system verifiable uses. If the quantity of metered sales plus other verifiable uses divided by total supply into the system is less than 0.9 then a full-scale system audit is required. Thus far, a full-scale system audit has not been required.

The District does not have a routine and planned system maintenance; rather, it has a reactive system. The District does not have a program to detect leaks but does have one to repair them.

9.1.7 Water Conservation Program Coordination and Staffing Support

The District employs a Customer Service Manager who serves as a conservation coordinator a quarter of the time. The position was created in 1995. The responsibilities of the Customer Service Manager include coordinating and working closely with District's customers, MWDOC, MET, the CUWCC, and others. Other staff share in these responsibilities. The District's water conservation program is funded from the rate revenue.

9.1.8 Other Demand Management Measures

9.1.8.1 Residential Program

MWDOC assists the District with the implementation of residential DMMs by making available the following programs aimed at increasing landscape and indoor water use efficiency for residential customers.

High Efficiency Clothes Washer Rebate Program

The High Efficiency Clothes Washer (HECW) Rebate Program provides residential customers with rebates for purchasing and installing HECWs that. Approximately 15% of home water use goes towards laundry, and HECWs use 35-50% less water than standard washer models, with savings of approximately 10,500 gallons per year, per device. 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.

Premium High Efficiency Toilet Rebate Program

The largest amount of water used inside a home, 30%, goes toward flushing the toilet. The Premium High Efficiency Toilet (HET) Rebate Program offers incentives to residential customers for replacing their toilets using 1.6 gallons per flush (gpf) or more. Premium HETs use just 1.1 gpf or less, which is 20% less water than WaterSense standard toilets. In addition, Premium HETS save an average of 9 gallons of water per day while maintaining high performance standards.

9.1.8.2 CII Programs

MWDOC provides a variety of financial incentives to help District 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.

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 amount of water customers actually save. This “pay-for-performance” design lets customers implement custom projects for their sites.

Projects must save at least 10 MG of water to qualify for the Program and are offered from $195 to $390 per acre foot of water saved. Examples of successfully projects include but are not limited to changing industrial process system water, capturing condensation, and using it to supplement cooling tower supply, and replacing water-using equipment with more efficient products.

On-site Retrofit Program

The On-site Retrofit Program (ORP) provides another pay-for-performance financial incentive to commercial, industrial and institutional property owners, including Homeowner Associations (HOAs), who convert potable water irrigation or industrial water systems to recycled water use.

Projects commonly include the conversion of mixed or dedicated irrigation meters using potable water to irrigate with reclaimed water, or convert industrial processes use to recycled water, such as a cooling towers. Financial incentives of up to $1,300 per AF of potable water saved are available for customer-side on the meter retrofits. Funding is provided by MET, USBR, and DWR.

Multi-Family Premium High Efficiency Toilet Incentive Program

MWDOC makes an effort to reach all water-users in Orange County. For the Multi-Family Premium HET Rebate Program, MWDOC targets multi-family buildings in both disadvantaged communities (DAC) and non-DAC communities, in addition to targeting all commercial buildings, and SF residential homes through Premium HET device rebates.

MWDOC offers the DAC Multi-Family HET Program, a special version of the HET Program, to ensure regardless of economic status all water-users in Orange County can benefit from the rebate. This Program targets 3.5 gpf or greater toilets to replace them with WaterSense Labeled 1.1 gpf or less. For this purpose, DAC are referenced as communities facing economic hardship. This is defined using criteria established by DWR and the County of Orange, which includes communities where the MHI is less than 85% of the Orange County MHI.

The DAC Multi-Family Program is contractor-driven, where a contractor works with building owners to replace all of the toilets in the building(s). To avoid any cost to tenants, the rebate is $200 per toilet paid to the contractor, essentially covering the contractor's cost; therefore, there is little to no charge to the building owners that may be passed through to tenants. This process was formed after consulting contractors and multi-family building owners in Orange County. To serve those in multi-family buildings outside of designated DAC locations, MWDOC offers $75 per toilet through the same contractor-driven format. An additional option is available through SoCalWater$mart, which offers up to $250 per toilet to multi-family buildings that were built before 1994, therefore targeting buildings built before legislation required low-flow plumbing fixtures in new construction.

Device Retrofits

MWDOC 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.

9.1.8.3 Landscape Programs

One of the most active and exciting water use efficiency sectors MWDOC provides services for are those programs that target the reduction of outdoor water use. With close to 60% of water consumed outdoors, this sector has been and will continue to be a focus for MWDOC and the District.

Turf Removal Program

The Orange County Turf Removal Program offers incentives to remove turf grass from residential, commercial, and public properties throughout the County. This program is a partnership between MWDOC, MET, and local retail water agencies. 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 replace their turf grass with drought-tolerant, CA Friendly, or CA Native landscaping, and retrofit their irrigation systems to high efficiency equipment, such as drip, or remove it entirely, and are encouraged to utilize smart irrigation timers. 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

also reduce dry and wet weather runoff, increase urban biomass, and sequester more carbon than turf landscapes.

Landscape Design and Maintenance Plan Assistance Programs

To maximize the water efficiency and quality of Orange County's Turf Removal Program Projects, MWDOC offers free landscape designs and free landscape maintenance plans to participating residential customers. The Landscape Design Assistance Program is offered at the beginning stages of their turf removal project so that customers may receive a customized, professionally designed landscape to replace their turf. Landscape designs include plant selection, layout, irrigation plans, and a stormwater capture feature. These designs help ensure climate appropriate plants are chosen and planted by hydrozone, that appropriate high efficiency irrigation is properly utilized, that water savings are maximized as a result of the transformation. Landscape maintenance plans are offered after a project is complete to ensure that the new landscape is cared for properly and water savings are maximized.

Smart Timer Rebate Program

Smart Timers are irrigation clocks that are either weather-based irrigation controllers (WBICs) or soil moisture sensor systems. WBICs adjust automatically to reflect changes in local weather and site-specific landscape needs, such as soil type, slopes, and plant material. When WBICs are programmed properly, turf and plants receive the proper amount of water throughout the year. During the fall months, when property owners and landscape professionals often overwater, Smart Timers can save significant amounts of water.

Rotating Nozzles Rebate Program

The Rotating Nozzle Rebate Program provides incentives to residential and commercial properties for the replacement of high-precipitation rate spray nozzles with low-precipitation rate multi-stream, multi-trajectory rotating nozzles. The rebate offered through this Program aims to offset the cost of the device and installation.

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.

Socal Water$mart Rebate Program for Landscape

The District through MWDOC also offers financial incentives under the SoCal Water$mart Rebate Program for a variety of water efficient landscape devices, such as Central Computer Irrigation Controllers, large rotary nozzles, and in-stem flow regulators.

Landscape Training Classes

The California Friendly and Native Landscape Training and the Turf Removal and Garden Transformation Workshops provide education to residential homeowners, property managers, and professional

landscape contractors on a variety of landscape water efficiency practices that they can employ and use to help design a beautiful garden using California Friendly and native plant landscaping principles. The California Friendly and Native Landscape Class demonstrates how to: implement storm water capture features in the landscape; create a living soil sponge that holds water; treat rainwater by a resource; select and arrange plants to maximize biodiversity and minimize water use; and control irrigation to minimize water waste, runoff, and non-point source pollution.

The Turf Removal and Garden Transformation Workshop teaches participants how to transform thirsty turfgrass into a beautiful, climate-appropriate water efficient garden. This class teaches how to: evaluate the landscape's potential; plan for garden transformation; identify the type of turfgrass in the yard; remove grass without chemicals; build healthy, living soils; select climate-appropriate plants that minimize water use and maximize beauty and biodiversity; and implement a maintenance schedule to maintain the garden.

Qualified Water Efficient Landscape Certification (Commercial)

Since 2018, MWDOC along with the District, has offered free Qualified Water Efficient Landscaper (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 programing. 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.

OC Water Smart Gardens Resource Page

MWDOC's OC Water Smart Gardens webpage provides a surplus of helpful guides and fact sheets, as well as an interactive photo gallery of water-saving landscape ideas. The purpose of this resource is to help Orange County residents find a broad variety of solutions for their water efficient landscaping needs. This includes a detailed plant database with advanced to search features; photo and/or video-based garden tours; garden gallery with images organized into helpful landscape categories such as back yards, hillsides, full sun, and/or shade with detailed plant information; and the ability to select and store plants in a list that the user can print for use when shopping.

Additional technical resources are available such as a watering calculator calibrated for local evapotranspiration rates, and a garden resources section with fact sheets on sustainable landscape fundamentals, water and soil management, composting, solving run-off, and other appropriate topics. Web page is accessible through mwdoc.com and directly at www.ocwatersmartgardens.com.

9.2 Implementation over the Past Five Years

During the past five years, FY 2015-16 to 2020-21, the District, with the assistance of MWDOC, has continued water use efficiency programs for its residential, CII, and landscape customers as described below. Implementation data is provided in Appendix I. The District will continue to implement all applicable programs in the next five years.

Table 9-2: El Toro Water District Water Conservation Efficiency Program Participation

Measure	Unit	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Central Computer Irrigation Controllers	computer controllers	-	-	-	-	-
Flow Restrictor	restrictors	-	-	-	595	-
HECWs	washers	68	47	50	40	28
HETs	toilets	281	-	1	10	5
Rain Barrels	barrels	88	13	3	6	3
Cisterns	cisterns	-	-	-	-	-
Premium HETs	toilets	19	52	16	-	-
Rotating Nozzles	nozzles	5,223	297	36	-	-
CII WBICs	clocks	17	6	9	-	3
Residential WBICs	clocks	9	33	30	35	23
Zero Water Urinals	urinals	-	-	-	-	-
Plumbing Flow Control	valves	-	-	729	122	-
Soil Moisture Sensor	controllers	1	-	-	-	-
Ice-Making Machine	machines	-	-	-	-	-
Turf Removal	sf	48,756	60,779	49,783	22,751	26,493
Spray-to-Drip	sf			11,473	17,854	-

Measure	Unit	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Landscape Design Assistance						6
Water Savings Incentive Program	projects	-	-	-	1[1]	-
Recycled Water	projects	14[2]	3[3]	-	-	5[4]

[1]SaddleBack Memorial Hospital; 8.8 AFY
[2]14 sites, 11,606,410 sf, 657.8 AFY
[3] 3 projects, 362,664 sf, 24.6 AFY
[4] 5 projects, 1,088,660, 106.7 AFY

9.3 Water Use Objectives (Future Requirements)

To support Orange County retailers with SB 606 and AB 1668 compliance (Conservation Framework), MWDOC is providing multi-level support to members agencies to ensure they meet the primary goals of the legislation including to Use Water More Wisely and to Eliminate Water Waste. Beginning in 2023, Urban water suppliers are required to calculate and report their annual urban water use objective (WUO), submit validated water audits annually, and to implement and report Best Management Practice (BMP) CII performance measures.

Urban Water Use Objective

An Urban Water Supplier's urban WUO is based on efficient water use of the following:

- Aggregate estimated efficient **indoor residential** water use;
- Aggregate estimated efficient **outdoor residential** water use;
- Aggregate estimated efficient **outdoor** irrigation landscape areas with dedicated irrigation meters or equivalent technology in connection with **CII** water use;
- Aggregate estimated efficient **water losses;**
- Aggregate estimated water use for variances approved the State Water Board;
- Allowable **potable reuse water** bonus incentive adjustments.

MWDOC offers a large suite of programs, described in detail throughout Section 1.3.6, that will assist Orange County retailers in meeting and calculating their WUO.

Table 9-3 describes MWDOC's programs that will assist agencies in meeting their WUO through both direct measures: programs/activities that result in directly quantifiable water savings; and indirectly: programs that provide resources promoting water efficiencies to the public that are impactful but not directly measurable.

Table 9-3: MWDOC Programs to Assist in Meeting WUO

WUO Component	Calculation	Program	Impact
Indoor Residential	Population and GPCD standard	**Direct Impact** • HECW • HET • Multi-Family HET (DAC/ non-DAC)	Direct Impact: Increase of indoor residential efficiencies and reductions of GPCD use
Outdoor Residential	Irrigated/irrigable area measurement and a percent factor of local ETo	**Direct Impact** • Turf Removal • Spray-to-Dip • Smart Timer • High Efficiency Nozzle (HEN) • Rain Barrels/Cisterns **Indirect Impact** • Landscape Design and Maintenance Assistance • Orange County Friendly Gardens Webpage • CA Friendly/Turf Removal Classes • QWEL	Direct Impact: Increase outdoor residential efficiencies and reductions of gallons per ft^2 of irrigated/ irrigable area used Indirect Impact: Provide information, resources, and education to promote efficiencies in the landscape
Outdoor Dedicated Irrigation Meters	Irrigated/irrigable area measurement and a percent factor of local ETo	**Direct Impact** • Turf Removal • Spray-to-Dip • Smart Timer • HEN • Central Computer Irrigation Controllers • Large Rotary Nozzles	Direct Impact: Increase outdoor residential efficiencies and reductions of gallons per ft^2 of irrigated/ irrigable area used Indirect Impact:

WUO Component	Calculation	Program	Impact
		• In-Stem Flow Regulators **Indirect Impact** • Orange County Friendly Gardens Webpage • CA Friendly/Turf Removal Classes • QWEL	Provide information, resources, and education to promote efficiencies in the landscape
Water Loss	Following the AWWA M36 Water Audits and Water Loss Control Program, Fourth Edition and AWWA Water Audit Software V5	**Direct Impact** • Water Balance Validation • Customer Meter Accuracy Testing • Distribution System Pressure Surveys • Distribution System Leak Detection • No-Discharge Distribution System Flushing • Water Audit Compilation • Component Analysis	Direct Impact: Identify areas of the distribution system that need repair, replacement, or other action
Bonus Incentives	One of the following: • Volume of potable reuse water from existing facilities, not to exceed 15% of WUO	**Direct Impact** • GWRS	Direct Impact: The GWRS (run by OCWD) significantly increases the availability of potable reuse water

WUO Component	Calculation	Program	Impact
	• Volume of potable reuse water from new facilities, not to exceed 10% of WUO		

In addition, MWDOC is providing support to agencies to assist with the calculation of WUOs. DWR will provide residential outdoor landscape measurements; however, Urban Water Suppliers are responsible for measuring landscape that is irrigated/irrigable by dedicated irrigation meters. MWDOC is contracting for consultant services to assist agencies in obtaining these measurements. Services may include but are not limited to:

- Accounting/database clean up (e.g., data mining billing software to determine dedicated irrigation customers);
- Geolocation of dedicated irrigation meters;
- In-field measurements;
- GIS/Aerial imagery measurements;
- Transformation of static/paper maps to digital/GIS maps.

These services will help agencies organize and/or update their databases to determine which accounts are dedicated irrigation meters and provide landscape area measurements for those accounts. These data points are integral when calculating the WUO. MWDOC is also exploring funding options to help reduce retail agencies' costs of obtaining landscape area measurements for dedicated irrigation meters.

CII Performance Measures

Urban water supplies are expected to report BMPs and more for CII customers. MWDOC offers a broad variety of programs and incentives to help CII customers implement BMPs and increase their water efficiencies.

Table 9-4: CII Performance Measures and Programs

Component	Program Offered	Impact
CII Performance Measures	• WSIP • ORP • HETs • HE Urinals • Plumbing Flow Control Valves • Connectionless Food Steamers • Air-cooled Ice Machines • Cooling Tower Conductivity controllers • Cooling Tower pH Controllers • Dry Vacuum Pumps • Laminar Flow Restrictors	WSIP incentivizes customized CII water efficiency projects that utilize BMPs. ORP incentivizes the conversion of potable to recycled water and is applicable to CII dedicated irrigation meters or CII mixed-use meters that may be split to utilize recycled water for irrigation. Additional CII rebates based on BMPs increase the economic feasibility of increasing water efficiencies.

These efforts to assist Orange County retail agencies are only just beginning. Our plan is to ensure that all agencies are fully ready to begin complying with the new water use efficiency standards framework called for in SB 606 and SB 1668 by the start date of 2023.

10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The Water Code requires the UWMP to be adopted by the Supplier's governing body. Before the adoption of the UWMP, the Supplier has to notify the public and the cities and counties within its service area per the Water Code and hold a public hearing to receive input from the public on the UWMP. Post adoption, the Supplier submits the UWMP to DWR and the other key agencies and makes it available for public review.

This section provides a record of the process the District followed to adopt and implement its UWMP.

10.1 Overview

Recognizing that close coordination among other relevant public agencies is key to the success of its UWMP, the District worked closely with many other entities, including representation from diverse social, cultural, and economic elements of the population within the District's service area, to develop and update this planning document. The District also encouraged public involvement through its public 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 the District 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 the cities and counties within the Supplier's service area that Supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	3/22/2021	Appendix K
Public Hearing Notice	5/13/2021 & 5/20/2021	Appendix K
Held Public Hearing	5/27/2021	Appendix K
Adopted UWMP	5/27/2021	Appendix L
Submitted UWMP to DWR (no later than 30 days after adoption)	6/26/2021	-
Submitted UWMP to the California State Library (no later than 30 days after adoption)	6/26/2021	-
Submitted UWMP to the cities and counties within the Supplier's service area (no later than 30 days after adoption)	6/26/2021	-

External Coordination and Outreach	Date	Reference
Made UWMP available for public review (no later than 30 days after filing with DWR)	7/26/2021	-

This UWMP was adopted by the Board of Directors on May 27, 2021. A copy of the adopted resolution is provided in Appendix L.

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, the District sent a Letter of Notification to the cities within its service area and the County of Orange on March 22, 2021 to state that it was in the process of preparing an updated UWMP (Appendix K).

Table 10-2: Retail: Notification to Cities and Counties

DWR Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Aliso Viejo	☑	☑
Laguna Hills	☑	☑
Laguna Woods	☑	☑
Lake Forest	☑	☑
Mission Viejo	☑	☑
County Name	60 Day Notice	Notice of Public Hearing
Orange County	☑	☑

The District 's water supply planning relates to the policies, rules, and regulations of its regional and local water providers. The District involved the relevant agencies in this 2020 UWMP at various levels of contribution as summarized below.

MWDOC provided assistance to the District's 2020 UWMP development by providing much of the data and analysis such as population projections from the California State University at Fullerton CDR and the information quantifying water availability to meet the District's projected demands for the next 25 years, in five-year increments. Additionally, MWDOC led the effort to develop a Model Water Shortage Ordinance

that its retail suppliers can adopt as is or customize and adopt as part of developing their WSCPs. This 2020 UWMP was developed in collaboration with MWDOC's 2020 UWMP to ensure consistency between the two documents.

The various planning documents of the key agencies that were used to develop this UWMP are listed in Section 2.2.1.

10.3 Public Participation

The District encouraged community and public interest involvement in the plan update through a public hearing and inspection of the draft document on May 27, 2021. As part of the public hearing, the District discussed adoption of the UWMP, SBx7-7 baseline values, compliance with the water use targets (Section 5), implementation, and economic impacts of the water use targets (Section 9).

Copies of the draft plan were made available for public inspection at the District's offices and local Public Libraries.

Public hearing notifications were published in local newspapers. A copy of the published Notice of Public Hearing is included in Appendix K.

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 2020 UWMP at its May 27, 2021 meeting after the public hearing. See Appendix L for the resolution approving the Plan.

By June 26, 2021, the District's adopted 2020 UWMP was filed with DWR, California State Library, the cities within its service area and the County of Orange. The submission to DWR was done electronically through the online submittal tool – WUE Data Portal. The District 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, the District 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 the District revises its WSCP after UWMP is approved by DWR, then an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.

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APPENDICES

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