2020 URBAN WATER MANAGEMENT PLAN

moulton niguel water district

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Table of Abbreviations and Acronyms

Abbreviation	Definition
AF	Acre-Foot
AFY	Acre-feet per Year
AMI	Advanced Meter Infrastructure
AMP	Allen-McColloch Pipeline
AMSL	Above Mean Sea Level
AWT	Advanced Wastewater Treatment
AWIA	American Water Infrastructure Act
AWWA	American Water Works Association
BMP	Best Management Practices
BU	Billing Unit = 748 gallons or 100 Cubic Feet of Water
CDR	Center for Demographic Research
CFS	Cubic Feet per Second
CII	Commercial, Industrial, and Institutional
CRA	Colorado River Aqueduct
CTP	Coastal Treatment Plant
CY	Calendar Year
DCP	Colorado River Drought Contingency Plan
DPR	Direct Potable Reuse
DRA	Drought Risk Assessment
DSC	Delta Stewardship Council
DWR	Department of Water Resources
EOCF#2	East Orange County Feeder No.2
ERP	Emergency Response Plan
ET	Evapotranspiration
ETAF	Evapotranspiration adjustment factor
ETM	Eastern Transmission Main
ETWD	El Toro Water District
FY	Fiscal Year
GPCD	Gallons Per Capita per Day
gpf	Gallons per Flush
HET	High Efficiency Toilet
HMP	Hazard Mitigation Plan
HECW	High Efficiency Clothes Washer
hcf	Hundred Cubic Feet
IRP	Integrated Water Resource Plan
IPR	Indirect Potable Reuse

Abbreviation	Definition
IRWD	Irvine Ranch Water District
JPA	Joint Powers Authority
JTM	Joint Transmission Main
JBLTP	JB Latham Treatment Plant
kWh	Kilowatt-hour
LRWRP	Long-Range Water Reliability Plan
MGD	Million Gallons per Day
MNWD or District	Moulton Niguel Water District
MWDOC	Municipal Water District of Orange County
MWD or Metropolitan	Metropolitan Water District of Southern California
OCWD	Orange County Water District
RHNA	Regional Housing Needs Assessment
RTP	Regional Treatment Plant
RWMP	Recycled Water Master Plan
RWOS	Recycled Water Optimization Study
SBX7-7	Senate Bill 7, Water Use Reduction Target
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCP	South County Pipeline
SCWD	South Coast Water District
SJBA	San Juan Basin Authority
SMWD	Santa Margarita Water District
SOCWA	South Orange County Wastewater Authority
SWD	Serrano Water District
SWP	State Water Project
SWRCB	State Water Resources Control Board
USBR	U.S. Department of the Interior, Bureau of Reclamation
UWMP	Urban Water Management Plan
WBBRS	Water Budget Based Rate Structure
WBIC	Weather Based Irrigation Controller
WSAP	Water Shortage Allocation Plan
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management Plan
WTP	Water Treatment Plant
WUE	Water Use Efficiency

Executive Summary: Lay Description of 2020 UWMP

ES.1 Background and Purpose

Moulton Niguel Water District's (MNWD or District) 2020 Urban Water Management Plan (UWMP) has been prepared in accordance with the California Water Code Sections 10610 through 10657 of the Urban Water Management Planning Act (UWMP Act), which were added by Statute 1983, Chapter 1009 and became effective on January 1, 1984, and Section 10608.36 of SBX7-7, which was enacted in 2009. This Executive Summary satisfies the requirement of Water Code Section 10630.5 to include a summary of information necessary to provide a general understanding of the UWMP. The UWMP Act requires water suppliers that provide over 3,000 acre-feet per year (AFY) or have over 3,000 connections to prepare and submit to the California Department of Water Resources (DWR) an UWMP every five years. There are specific requirements for the UWMP and Water Shortage Contingency Plan (WSCP), contained in the UWMP Act, and DWR's Urban Water Management Plan Guidebook 2020 (Guidebook) provides additional guidance; this UWMP has been structured for compliance with the UWMP Act and Guidebook. Since its passage in 1983, several amendments have been added to the UWMP Act. Significant legislative changes to the UWMP Act since the 2015 UWMP include the addition of or modification of the following requirements:

- Five consecutive dry year water reliability assessment instead of three years;
- Drought Risk Assessment (DRA) for years 2021 through 2025;
- Seismic risk to water system facilities and mitigation plan;
- Readily obtainable information on energy use for the water system;
- Five years of water loss audit reports;
- WSCP with prescribed requirements including a new Annual Assessment and the District's ability to respond to six supply shortage levels;
- Consistency between the UWMP and the Sustainable Groundwater Management Act (not applicable to MNWD); and
- Provision of a lay description of the UWMP and WSCP, which this Executive Summary provides.

The integrated planning efforts required to develop an UWMP and meet the identified demand reduction goals have long been a part of the District's operations and planning. Organizationally, the cross departmental collaboration feeds into every planning document from the following:

- **2020 Long Range Water Reliability Plan Update (2020 LRWRP Update)** to provide an adaptive management plan for ensuring reliable water supplies for the District's customers;
- **Long Range Financial Plan** to ensure the proposed projects and strategies represent the most cost-effective approach;

- **Recycled Water Optimization Study** to identify opportunities to further utilize wastewater for beneficial reuse; and
- **UWMP**, for which the 2020 update is the second UWMP the District has completed internally, which takes that collaborative cross-agency and regional approach that the District always strives towards.

This 2020 UWMP presents a description of the District's service area and water and wastewater infrastructure; historical and projected water use; conservation targets; water supply sources; a comparison of water supplies and water demands during normal, single dry, and multiple dry years; water use efficiency activities to optimize the beneficial use of water; water resources contingency planning for water shortages; and UWMP coordination and adoption details. Based on the innovation of the past and constant evolution in successful action, the District is well prepared to meet the existing and projected demands for the 25-year planning horizon as set forth in this 2020 UWMP.

ES.2 Service Area

The District delivers high-quality drinking water, recycled water, and wastewater services to more than 170,000 customers in Laguna Niguel, Aliso Viejo, Mission Viejo, Laguna Hills, Dana Point, and San Juan Capistrano. While its operations have evolved along with the growth of its service area, the District's primary focus has remained largely unchanged: ensuring ratepayers have a reliable, sustainable, and economical water supply for the future. Residential land uses are the greatest single land use, occupying 51 percent of the service area. Open space and park lands comprise the second largest land use, occupying 31 percent of the service area. Commercial/industrial/ institutional (CII) land uses occupy 17 percent of the service area, and miscellaneous land uses occupy approximately 1 percent of the service area.

Located just inland of the Pacific Ocean, the District enjoys a Mediterranean climate with mild winters, dry, warm summers, and moderate rainfall. The service area averages 13.81 inches of rainfall per year, almost entirely within a six-month period of November through April. The usually mild climatological pattern is interrupted by periods of hot weather, winter storms, and/or Santa Ana winds. Rainfall in the service area impacts water demands, but it does not influence the District's water supplies.

The District's water needs are met by a combination of imported potable water and locally treated recycled water. The District currently relies on imported water provided by Metropolitan Water District of Southern California (MWD) through its member agency, the Municipal Water District of Orange County (MWDOC). Imported water represents approximately 79 percent of MNWD's total water supply. MWD's water supply originates from two principal sources - the Colorado River via the Colorado River Aqueduct (CRA) and the Feather River watershed/Lake Oroville in Northern California through the State

Water Project (SWP). Recycled water provides 21 percent of the District water supplies and is produced at one of two local treatment plants.

ES.3 Water Use

ES.3.1 Past Water Use

Total water (imported potable and recycled) demands since 2000 have declined even as population has increased across the service area. This is shown on **Figure ES-1**. Since 2000, District customers have reduced total water use by over 12,000 acre-feet (AF). Weather, drought, increased cost of imported water, and economic conditions play a role in the year-to-year demand fluctuations, however, the overall decline in imported potable water can largely be attributed to active demand management, water efficiency programs, increased use of recycled water for irrigation, and customer response to long-term water supply conditions. The District's use of recycled water for irrigation has offset average imported potable demands by approximately 6,650 AFY over the past 20-years.

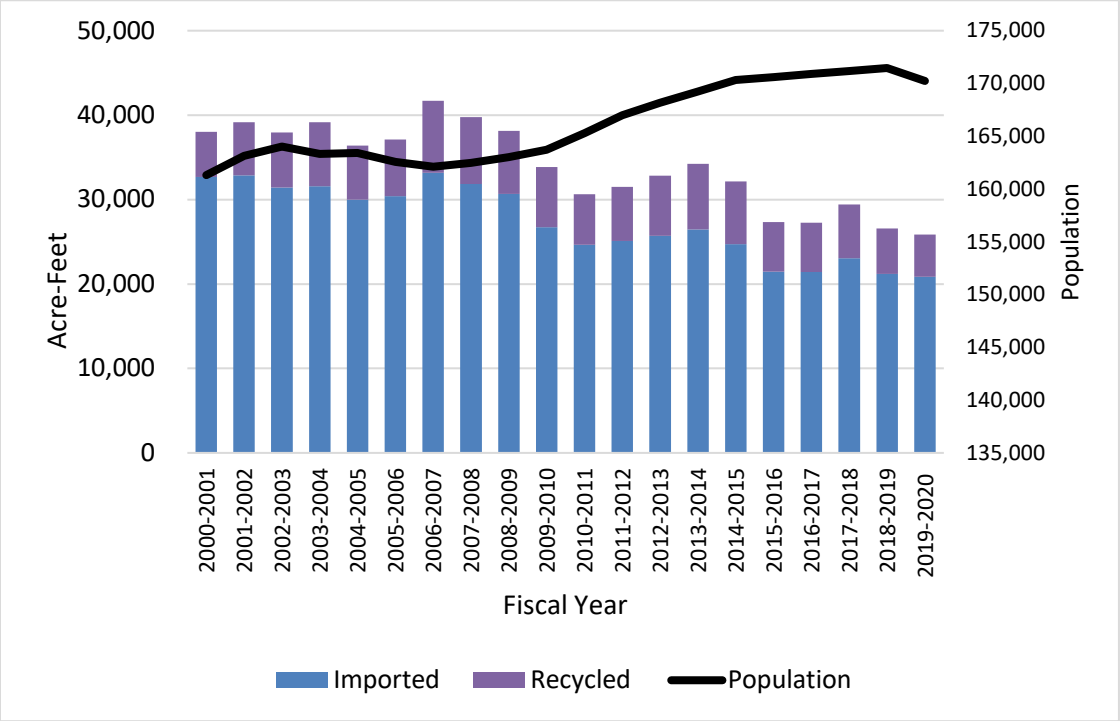


Figure ES-1: MNWD Historical Water Use

ES.3.2 Current Water Use

In Fiscal Year (FY) 19-20, the District supplied 23,083 AF of treated drinking water to meet water demands in the service area and 5,013 AF of recycled water to meet landscaping demands. Single-family and multi-family residential customers accounted for nearly 57 percent of all water use in FY 2019-2020. Of this, single-family residential is the largest sector using 50 percent of the total water use followed by irrigation use of recycled water at 18 percent. Water use by sector is presented on **Figure ES-2**.

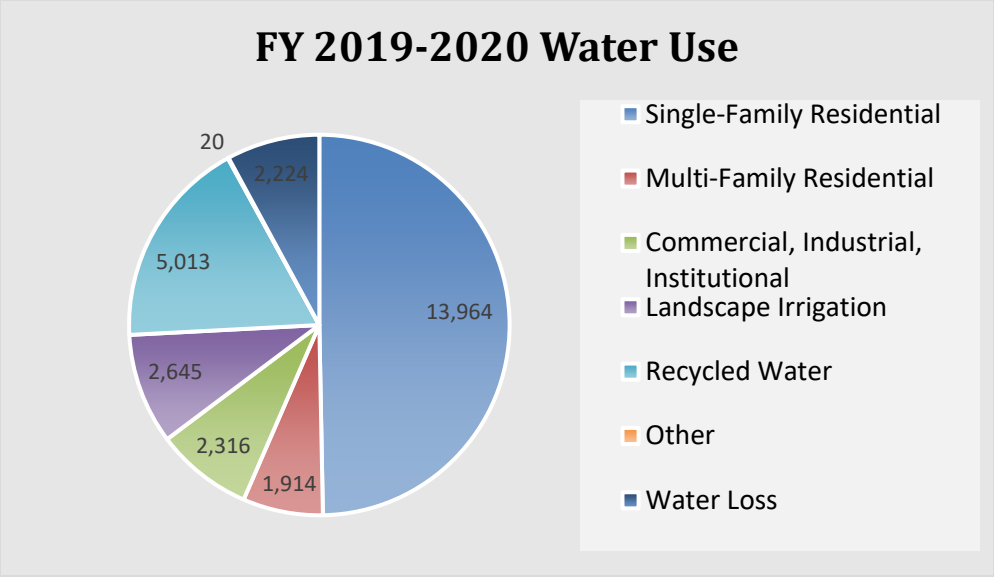


Figure ES-2: FY 2019-2020 Water Use by Sector

ES.3.3 Projected Water Use

Understanding the District's water demands is essential to developing a reliable water supply. Water demands are a function of numerous factors including historical water demands, demographics, socioeconomics, water use efficiency and weather. A demand forecast through 2045 provides a basis on which to evaluate the ability of the District's water supply and infrastructure capacity to meet existing and future water demands. The District utilized its demand forecast model, that was developed for the 2020 LRWRP Update, to identify projected water demand through 2045. Projected water use was based on planned development in the service area, potential changes to future populations, water conservation savings from plumbing codes and water use efficiency programs, recycled water retrofits over time, and improvements to reduce system losses. As the District is nearly built-out, new development is primarily related to infill and denser utilization of lands. These new infill and increased density projects will replace vacant, low density commercial and residential areas. In close collaboration with the cities within the District, the private development team at the District develop a 10-year projection of new development based on planned projects; these include some single-family residential units with the majority of new infill development being multi-family residential units.

The model provides an upper bound and lower bound of demand projections to show how demands can fluctuate over time in response to customer behaviors. The lower bound of the demand forecast incorporates the District's policy approaches for demand management (e.g., budget-based rates and rebate programs), improvements in technology (and adoption and implementation of new water saving technologies), and long-term adjustments in demand as customers respond to pricing signals. The upper bound of the demand forecast is reflective of increased demand primarily due to increased irrigation usage from dry hydrologic conditions. **Figure ES-3** shows the upper and lower bound projected water demand for all water use sectors through 2045. Figure ES-3 also provides the historical water production and how that compares to previous demand projections from the 2010 and 2015 UWMPs. As shown,

actual water use has been lower than previously projected water use, which reflects an overall decreasing demand trend. Projections reported in this 2020 UWMP, represented by the dashed blue line in Figure ES-3, were calculated as the median of the upper-bound and lower-bound of future demand projections.

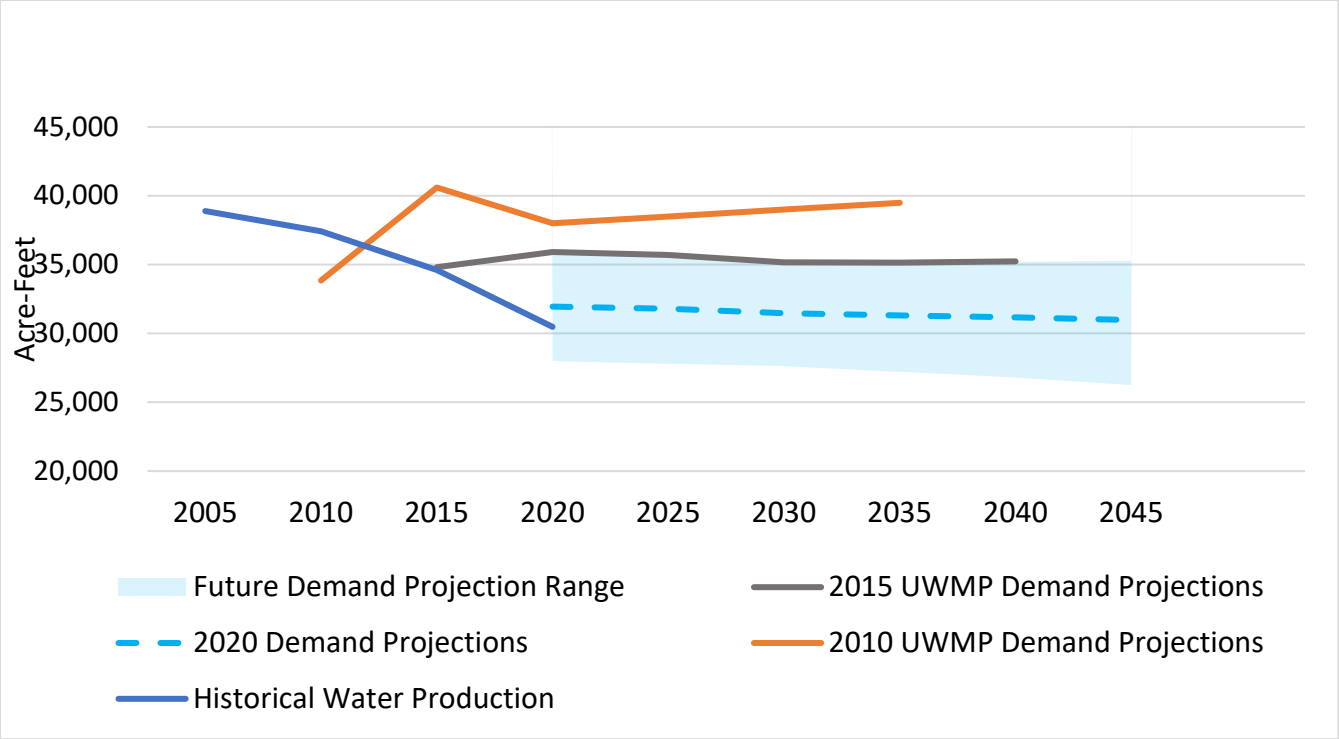


Figure ES-3. Prior and Future Water Demand Projections

ES.4 California Water Conservation Act Targets (20x2020)

In 2009, the Water Conservation Act (SBX7-7) set a statewide goal of a 20 percent reduction in per capita water use by 2020. To help the State achieve the 20 percent reduction in water use, each urban water retailer adopted an interim per capita water use target for its service area for 2015 and a final target for 2020. The District customers responded proactively to the call for conservation by meeting the SBX7-7 2020 target of 173 gallons per capita per day (GPCD) by 2010. Despite having met its 2020 target early, the District continued its conservation efforts. To ensure continued reliability improvements without overburdening customers, the District focused on increasing water use efficiency: the efficient use of water within the service area increases the reliability of existing supplies. This resulted in the District further exceeding its 2015 target and additionally reducing water use by 2020. The baseline per capita and the 2015 and 2020 GPCD water use targets are as follows:

- 15-year baseline daily per capita water use was 216 GPCD;
- 2015 target was 194 GPCD and actual water use was 140 GPCD;
- 2020 target was 173 GPCD and actual water use was 121 GPCD.

The District continues to be a leader in water use efficiency since the 2015 UWMP in targeting conservation efforts to meet its per capita target. Because of these efforts, the District was well below the 2020 target. The District remains committed to its water-use efficiency program to maintain water demands and further reduce water waste.

ES.5 Water Supplies

The District's water demands are met by a combination of imported water and recycled water. The District's potable demands are supplied from imported sources via MWD through MWDOC. MWD's two primary sources of imported water are the Colorado River and the Sacramento River–San Joaquin River Delta (Delta). Imported water delivered to MNWD is treated at MWD's Diemer Water Treatment Plant (WTP) located in Yorba Linda or at the Baker WTP located in Lake Forest. The Baker WTP was built to provide a redundant treatment facility in the event of a Diemer WTP outage. Currently and on average, approximately 70 percent of these water supplies are treated at the Diemer WTP and the remaining 30 percent of water supplies are treated at the Baker Treatment Plant. All potable water is delivered through three major transmission facilities: South County Pipeline, East Orange Feeder No. 2, and the Allen-McColloch Pipeline.

Recycled water supply is locally sourced and accounts for 21 percent of the overall water supply in the District over the past 5 years. The District began providing treated wastewater for irrigation purposes in 1968; and in 1974, the District became one of the first water providers in Orange County to deliver recycled water for irrigation use. The District owns two Advanced Wastewater Treatment (AWT) facilities providing a recycled water supply source for landscaping. The District can also purchase recycled water from the South Coast Water District (SCWD), if necessary. Seasonal storage capacity of 1,000 AF is available to MNWD in the Upper Oso Reservoir. The availability of recycled water could be increased by 306 AFY based on current wastewater supplies and system capacity and by 1,066 AFY by diverting wastewater from the JB Latham Treatment Plant (JBLTP) located in Dana Point.

The District is investigating additional water supply options including direct potable reuse, an emergency storage program to store water in the Orange County Groundwater Basin and withdraw it during emergencies or potentially drought periods, emergency interconnections tying the Orange County Groundwater Basin to South Orange County water suppliers through new interconnection facilities, groundwater banking in the San Joaquin Valley, emergency supply from Santiago Reservoir, and purchasing additional supply from MWD.

ES.6 Water Supply Reliability and Drought Risk Assessment

Water resilience and reliability planning is paramount to ensure our customers have water supplies available to them when desired while ensuring appropriate and cost-effective investments in water supply reliability projects. In 2008, the District adopted a policy to evaluate and develop reliability projects and demand management measures that provide 31-days of average demand water supply to District customers in the event of an outage of imported water supplies. With implementation of projects like the Baker WTP and Upper Chiquita Reservoir, and other water reliability projects and demand management programs, the District has been able to meet that policy objective. In 2021, the District adopted the 2020 LRWRP Update to provide an adaptive management tool for reviewing and identifying projects and programs to support the District's objectives in building water resilience and reliability. The District also updated its Water Reliability Policy that sets objectives to evaluate and develop reliability projects and demand management measures that provide 31-days up to 60-days of average demand water supply to District customers in the event of an outage of imported water supplies and drought conditions. To help meet this updated water reliability goal, the District will continue to stress efforts to reduce dependence on imported water supplies through recycled water and water efficiency programs. Also, as mentioned above, the District continues to evaluate various alternative local water storage and supply opportunities to supplement the efforts of MWD to bring imported water to the District's service area.

Currently, the District's potable water demand is met entirely through deliveries of imported water from the Colorado River and the Delta. Significant uncertainties surround the continued reliability of both supply sources and various factors have the potential to affect the availability and reliability of the imported supplies such as Delta challenges and hydrological water supply conditions. About 30 percent of Southern California's water supply moves from Northern California through the Delta to pumps in the south Delta. Endangered species protection and conveyance needs in the Delta have resulted in operational constraints to pumping. The Delta's declining ecosystem and the difficulties operating the SWP system have led to factors that can result in export reductions from the Delta, releases of additional water from storage, other operational changes associated with endangered species, or water quality requirements. In addition, new litigation, listings of additional species under the Endangered Species Act, or new regulatory requirements imposed by the State Water Resources Control Board (SWRCB) could 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. **Figure ES-4** depicts some of the potential reliability disruptions to the District service area.

Regarding water supply conditions, variability in annual hydrologic conditions have been evident recently with its impacts being felt most severely on the SWP supply. The Colorado River supply

variability is buffered by its extensive storage capabilities; however, the river basin appears to be experiencing declining amounts of precipitation in its watershed over the last 21 years (MWD, 2021). Climate variability is expected to shift precipitation patterns and affect reliability of water supplies, which will make water supply planning even more challenging. The general trend with climate variability is less water-storing snowpack and greater precipitation in the Sierras, more precipitation earlier in the year when it cannot be readily utilized, and more extreme and more frequent drought and flooding events. Rising sea levels resulting in impacts to coastal groundwater basins and levee failure in the Delta causing seawater intrusion, and increased risk of damage from storms, high-tide events, and the erosion of levees; and potential pumping cutbacks on the SWP due to salinity levels at the pumps.

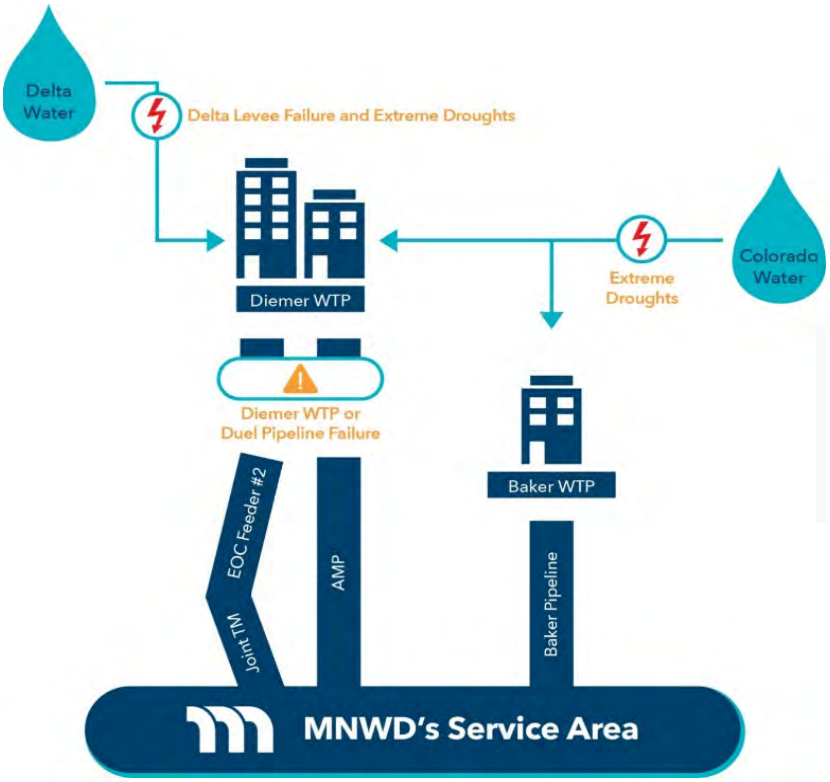


Figure ES-4. Water Delivery Supply and System Risks Representation

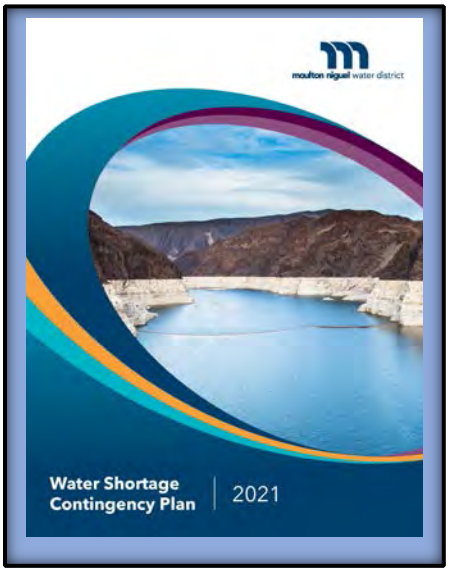
To analyze the variability of the imported supply reliability due to climate, hydrologic conditions that define three-year types: average, single dry year, and multiple dry years, were determined based on the range of years used by MWD for its supply reliability analysis. MWD's water year types were used because imported supplies provide 79 percent of the District water supply. The District's recycled water supply is 100 percent reliable during all hydrologic year types, subject only to temporary interruptions due to possible infrastructure or operational issues. MWD has determined and stated in its 2020 UWMP that it is able to meet the current and projected full service demands of its member agencies under all three hydrologic conditions through 2045 by developing and implementing water resources programs

and activities through its preferred resource mix (MWD, 2021). MWDOC has also determined that it is able to meet water demands during all hydrologic year types (MWDOC, 2021).

A DRA was performed based on the assumption that the five driest consecutive years on record for the water supplier will occur over the next five years. This hydrologic sequence reflects the availability of MWD supplies during the 1988 to 1992 drought. Water demands were compared to supply availability, and prior to determining if implementation of any shortage actions is needed to reduce these demands. The imported supply was 100 percent reliable during the previous two multiple year droughts. MWD has stated that its supplies will be fully reliable during the next multiple year drought under most if not all conditions. This includes MWD's emergency supplies that have been accessed in the past and are a part of the supply portfolio. The District's recycled water supply is a highly reliable supply to continue meeting landscaping and other non-potable water demands within the service area in the future. This supply can be impacted by drought conditions due to a reduction of indoor water usage during long term droughts, thus reducing wastewater supplies. However, recent reductions during multiple year droughts were not significant enough to result in any limitations on the availability of the recycled water supply.

Based on both the supply reliability and DRA analyses, the District has concluded that its water supplies are both available and highly reliable during normal years, a single dry year, and multiple dry years during all hydrologic conditions through 2045. This was evident during the recent drought of 2012 through 2017 with year 2013 being one of the driest years on record and 2014 being one of the warmest years on record.

ES.7 Water Shortage Contingency Plan (WSCP)



The District has adopted a WSCP as a separate stand-alone document. The District's 2020 WSCP mirrors the District's integrated 2015 drought response strategy, which received accolades from the SWRCB as a best practice in the industry in rate design and as is included as a case study by the DWR in the appendices of the 2020 Guidebook. The District updated its WSCP Ordinance in May 2021 to expand water conservation best management practices, and to adopt its updated WSCP which can be enacted in times of drought, water shortages, and water shortage emergencies. Ordinance 21-03 prescribes water conservation rules and regulations, as well as water conservation best management practices that are always in effect.

While the District always strives to meet 100 percent of customer water demand; during periods of extreme drought or emergencies, water shortages may occur from time to time, and the District plans to respond with programs that temporarily reduce water use. The purpose of the WSCP is to provide direction on specific actions that may be taken by the District staff and customers in response to increasingly severe

water supply shortage conditions. The WSCP describes the conditions that constitute a water shortage and provides actions for managing water supply and demands during a declared water shortage. Whatever the magnitude of shortfall the District may experience, the WSCP has the following goals:

- Conserve the District's water supply for the greatest public benefit;
- Mitigate the effects of a water supply shortage on public health and safety, economic activity and customer lifestyle; and
- Budget water use so that supply will be available for the most essential purposes for the duration of the water shortage.

Six mandatory water shortage levels correspond to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than a 50 percent shortage from the normal levels of supply availability. The WSCP uses a six-stage, phased approach to ease customers into increased levels of water use efficiency based on the availability of water supplies. Each of the shortage levels represents an ever-increasing gap between normally available supplies and normally expected customer water use. Each stage requires heightened levels of water conservation. The District will implement the appropriate stage based on assessed water supply and demand conditions. The District's elected Board of Directors is responsible for evaluating the severity of supply shortages and, in the event of worsened or improved conditions, may vote to increase water use reductions to preserve water supplies for the health and safety of our community. Each stage includes a set of demand reduction measures that become progressively more stringent as the shortage condition escalates. This WSCP strives to balance available supplies as much as possible through:

- **Public Education Campaigns**: The District would implement a multi-channel outreach and education campaigns to encourage customers to take action to reduce water use.
- **Expanded Outreach for Water Efficiency Programs**: Water efficiency programs provide customers with the means and guidance to lower their water usage. Customer-friendly programs, rebates and incentives, direct installation options and strong support services drive stronger response rates.
- **Conservation Penalties:** During Stages 2 through 6, any customer who uses water in excess of his or her calculated water budget shall be in violation of the WSCP and shall pay a Conservation Penalty Fee for each hundred cubic foot (HCF), or portion thereof, of water used in excess of a customer's water budget. The Conservation Penalty Fee shall be in addition to the volumetric charge the District collects for the potable water or recycled water delivered. The Conservation Penalty would be based on the current rate in place at time the water shortage stage is implemented.

- **Water Budget Reductions:** If increased stages must be implemented, the District will incrementally decrease the amount of water in a customer's calculated water budget. The water budget reductions for each stage include:
    - **Stages 1 through 3** – No water budget reductions.
    - **Stage 4** – Residential, multi-family and irrigation customers using potable water will have their outdoor water budgets reduced to 60 percent of their calculated outdoor water budget to meet reduced water supplies. All recycled water customers will have their outdoor water budgets reduced to 90 percent of their calculated water budget due to reduced recycled water supplies from indoor water use reductions.
    - **Stage 5** – Residential, multi-family and irrigation customers using potable water will have their outdoor water budgets reduced to 30 percent of their calculated outdoor water budget to meet reduced water supplies. All recycled water customers will have their outdoor water budgets reduced to 80 percent of their calculated water budget due to reduced recycled water supplies from indoor water use reductions.
    - **Stage 6** – Residential and multi-family customers may have their indoor water budgets reduced from 55 gallons per capita per day to 40 gallons per capita per day. There shall be no use of potable water for outdoor irrigation within the District's service area. All recycled water customers will have their outdoor water budget reduced to 70 percent of their calculated water budget due to reduced recycled water supplies from indoor water use reductions.

ES.8 Demand Management

Water conservation and demand management are an integral part of the District's water management strategy, integrating numerous and effective activities into long range planning for its supply needs. The District provides customers with the resources they need to address a continued commitment to water use efficiency. Water conservation is not often thought of as a water supply but reducing one's water use by installing more efficient fixtures, for example, directly offsets the need for the District to purchase expensive imported water. Since 2010, the District has dramatically expanded demand management programs as a core function of its efforts to reduce demand on its imported water supply. The success in these programs is evident from the per capita water use reduction exceeding the District's 2015 and 2020 targets. Demand management program expansion began with a transformation of the District's relatively flat, five-tiered rate structure to a water budget-based rate structure (WBBRS), which featured a conservation price signal. In addition to incentivizing efficient water use, the revenue generated by the higher price for out-of-budget water use provides funding for a robust rebate and outreach program. The WBBRS encourages conservation by providing each customer with a monthly customized water budget designed to provide an efficient amount of water for each customer's indoor and outdoor

water use needs. Efficient water use is billed at the lowest price and usage that exceeds the budget is billed at progressively higher rates. By emphasizing efficient use, the rate structure motivates customers to partner with the District in its effort to maintain a reliable source of water. In addition, the District has ongoing partnerships with Universities to study water use, rebate programs, and other resources that will continue to inform prudent operational and financial decisions. And the District continues to partner with local and regional agencies to provide a variety of water education and water-saving programs and opportunities for District customers.

ES.9 Conclusion

The District is well prepared to meet the water reliability needs of its customers through the proactive and integrated planning highlighted in this UWMP. While the District has exceeded its 20 percent reduction conservation target, the District recognizes the continued risks posed to current supply. Developing local resiliency will be critical to mitigating the risk of a potential future water shortage. As it moves through the UWMP planning period, the District will draw on its partnerships with customers, cities, and other water agencies to further improve its demand management programs and adaptively manage its supply with sustainable water resource projects. These partnerships will be critical to providing the greatest level of reliability at the lowest cost to customers. The District will continue to mitigate future risk by utilizing its rate structure to adjust water budgets in response to short-term water shortage conditions and increasing the adoption of water efficient technologies through rebates and education while pursuing opportunities to maximize recycled water production potential in combination with other water supply alternatives. Lastly, continued pursuit of statewide and local partnerships will be critical for managing water toward the public good because we as Californians are in this together.

Chapter 1 Introduction

Section 1.1 Urban Water Management Plan Requirements

Water Code Sections 10610 through 10657 of the UWMP Act require every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 AF of water annually to prepare, adopt, and file an UWMP with the DWR every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

This UWMP provides a detailed summary of present and future water resources and demands within the District's service area and assesses its water resource needs. The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote water use efficiency programs and policies, verify that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during drought or emergency supply conditions. Specifically, the UWMP provides water supply planning for a 25-year planning period in five-year increments and identifies water supplies needed to meet existing and future demands. MNWD's 2020 UWMP updates the 2015 UWMP in compliance with the requirements of the Act as amended in 2018, and includes a discussion of:

- Water Service Area and Facilities
- Water Sources and Supplies
- Water Use by Customer Type
- Compliance with the Water Conservation Act of 2009 (SBX7-7)
- Water Supply Reliability and DRA
- Planned Water Supply Projects and Programs
- WSCP
- Demand Management Measures

Since the original Act's passage in 1983, there have been several amendments. There are numerous additional requirements passed by the Legislature for 2020 UWMPs. The major new requirements are summarized here:

- **Five Consecutive Dry Year Water Reliability Assessment**: the Legislature modified the dry year water reliability planning from a "multi-year" time period to a "drought lasting five consecutive water years" designation.
- **DRA**: the DRA requires a supplier to assess water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.
- **Seismic Risk**: the Water Code now requires suppliers to specifically address seismic risk to various water system facilities and to have a mitigation plan. The District relies on its participation as a Member Agency in the Orange County Water and Wastewater Multi-

Jurisdictional Hazard Mitigation Plan (HMP) and the District's Emergency Response Plan (ERP) prepared in accordance with America's Water Infrastructure Act (AWIA).

- **Energy Use Information**: the Water Code now requires suppliers to include readily obtainable information on estimated amounts of energy for water supply extraction, treatment, distribution, storage, conveyance, and other water uses.
- **Water Loss Reporting for Five Years: t**he Water Code added the requirement to include the past five years of water loss audit reports.
- **WSCP**: the Legislature modified the UWMP laws to require a WSCP with specific elements. The WSCP is a document that provides a supplier with an annual assessment approach and an action plan for a drought or catastrophic water supply shortage. The District updated its WSCP to include the required elements, including six stages.
- **Groundwater Supplies Coordination**: the Legislature enacted the Sustainable Groundwater Management Act in 2014 to address groundwater conditions throughout California. The Water Code now requires suppliers' 2020 UWMPs to be consistent with Groundwater Sustainability Plans; however, the District does not utilize groundwater resources and therefore, this requirement is not applicable.
- **Lay Description**: the Legislature included a new statutory requirement for suppliers to include a lay description of the fundamental determinations of the UWMP, especially regarding water service reliability, challenges ahead, and strategies for managing reliability risks. The Executive Summary meets this requirement.

Section 1.2 Organization of this UWMP

The sections in this UWMP correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10630 through 10634. The District has developed this UWMP using the DWR Guidebook. The DWR Guidebook not only helps urban water suppliers to comply with state law, but because UWMPs must be reviewed by DWR for completeness, an UWMP structured according to the Guidebook also assists DWR in its review of the submitted UWMPs. The organization of this document generally follows the order of the chapters and sub-sections found in the DWR Guidebook, with one main exception for the WSCP, which is included as an appendix. This UWMP is organized as follows:

- **Section 1 – Introduction**. Provides a discussion on the UWMP requirements, recent legislation changes, organization of this document and consistency with the Delta Plan.
- **Section 2 – Plan Preparation**. Provides information on the District's process for developing the UWMP, including efforts in coordination and outreach.
- **Section 3 – System Description**. Includes the District's history and organizational structure, a description and maps of the service area, service area climate and demographics, and description of the public water system.

- **Section 4 – Water Use Characterization**. Describes and quantifies the current and projected urban water uses within the District's service area.
- **Section 5 – SBX7-7 Baselines and Targets**. Describe the District's methods for calculating baseline and target urban water consumption. Demonstrates achievement of the 2020 water use target.
- **Section 6 – Water Supply Characterization**. Describes and quantifies current and projected sources of water supplies available to the District. Also includes discussion of potential recycled water uses and supply availability.
- **Section 7 – Water Service Reliability and DRA**. Describes the reliability of the District's water supply and projects the reliability for the next 25 years. This description includes an analysis for normal, single dry year, and five multiple dry year scenarios; and a five-consecutive year drought starting in 2021 (DRA).
- **Section 8 – Demand Management Measures**. Describes the District's efforts to promote water use efficiency to reduce demand on water supply and addresses several demand management measures.
- **Section 9 – UWMP Adoption and Submittal**. Describes the steps taken by the District to adopt and submit the UWMP and to make it publicly available.

The DWR Guidebook includes a checklist of the elements required in the UWMP and is designed to assist DWR in its review of the submitted UWMP. The UWMP Checklist, which identifies the location of Act requirements in this Plan, is included in **Appendix A**. DWR developed standardized tables for the electronic reporting and submittal of data to DWR. Copies of the standardized tables submitted electronically to DWR have also been included in this UWMP as **Appendix B**.

Section 1.3 UWMP in Relation to Other Efforts

An UWMP may serve as a foundational document and source of information for a Water Supply Assessment (Water Code Section 10910 et seq.), and a Written Verification of Water Supply (Water Code Section 66473.7). Both statutes require detailed information regarding water supply availability be provided to city and county decision makers prior to approval of specified large development projects. Additionally, a UWMP also serves as a:

- Long-range planning document for water supply;
- Long-range planning documents for water use efficiency;
- Source data for development of a regional water plan;
- Source document for cities and counties as they prepare their General Plans;
- Key component of an Integrated Regional Water Management Plan; and
- Condition to qualify for receipt of certain State grant funds.

Section 1.3.1 2020 Long-Range Water Reliability Plan Update

The District's 2020 LRWRP Update evaluates how water demands and water supply may change over the next 30 years. The 2020 LRWRP Update evaluates water reliability in the face of a variety of risks to water supply and identifies options to enhance water resiliency for customers. The 2020 LRWRP Update is a high-level planning document intended to provide information to decision-makers regarding the

benefits of future water resource investments in the face of climate variability and other reliability threats. The 2020 LRWRP Update provides a framework for evaluating future water supply projects that results in an adaptive management approach that accounts for future risk and uncertainty. The 2020 LRWRP Update outcome is improved water resource management that provides a roadmap for ensuring reliable and cost-effective long-term water supplies for customers. The 2020 LRWRP Update can be found on the District's website: https://www.mnwd.com/reports-publications/.

Section 1.3.2 Water Shortage Contingency Plan

California Water Code Section 10632 requires that every urban water supplier prepare and adopt a WSCP, which includes an approach to conducting an Annual Assessment, and the shortage response actions the District would take in response to six standard water shortage levels. The WSCP is a guide for the District's intended actions during water shortage conditions. It is meant to improve preparedness for droughts and other impacts on water supplies by describing the process used to address varying degrees of water shortages. While intended to be a stand-alone plan that may be revised outside of the UWMP process, the California Water Code requires suppliers to initially include the WSCP as part of its 2020 UWMP.

The District's WSCP provides the plan in the event of a declared water emergency or enactment of more stringent restrictions on water use. The WSCP details six potential levels of water shortage and the specific actions the District would take to reduce water use and increase additional supplies to address the water shortage. A plan for communicating water use mandates to our customers is also presented within the WSCP. The complete WSCP is included in **Appendix C**.

Section 1.3.3 Recycled Water Optimization Study

MNWD completed its Recycled Water Master Plan (RWMP) in June 2017 and the Recycled Water Optimization Study (RWOS) in July 2019. The RWMP study identified potable irrigation meters that could feasibly be retrofitted to the recycled water system. Retrofit of all the identified potable irrigation meters to the recycled water system would have required additional seasonal storage. Through its unique partnership with Netflix, the District applied predictive modeling tools and analytics used by Netflix and decided not to pursue additional seasonal storage, which saved $20 million in less than one year. The District was able to better forecast recycled water usage and realized that instead of increasing seasonal storage for peak usage, the recycled water usage can be better managed to avoid the cost of building an unneeded infrastructure. The RWOS was performed to determine which potable irrigation customers could be retrofitted to recycled water without triggering the need for additional seasonal storage, while minimizing the cost for capital improvement projects that would be needed within the existing system and the potable make-up water that would be needed for the additional demand. The RWOS identified both near-term and long-term projects to build-out the recycled water system, further described in *Chapter 6, Section 6.5.4 Potential Recycled Water Uses*.

Section 1.3.4 Municipal Water District of Orange County 2020 UWMP

MWDOC is the regional wholesale provider of imported water that provides water supplies to the District. The Water Code requires coordination in preparation of UWMPs with any wholesale water providers or other agencies that share common infrastructure for the delivery of water, wastewater and recycled water services. Thus, MWDOC's 2020 UWMP is to be considered a supplemental reference to the District's 2020 UWMP and is expressly referenced and incorporated herein. MWDOC's UWMP can be accessed at the following website: https://www.mwdoc.com/your-water/water-supply/urban-water-management-plan/.

Section 1.3.5 Metropolitan Water District of Southern California 2020 UWMP

MWD is the regional wholesale provider of imported water that provides water supplies to MWDOC. MWD's 2020 UWMP is also be considered a supplemental reference to the District's 2020 UWMP and is expressly referenced and incorporated herein. MWD's UWMP can be accessed at the following website: http://www.mwdh2o.com/AboutYourWater/Planning/Planning-Documents.

Section 1.3.6 Demonstration of Consistency with the Delta Plan for Participants in Covered Actions

An urban water supplier that anticipates participating in or receiving water from a proposed project (covered action) such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their 2015 and 2020 UWMPs that can then be used in the certification of consistency process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance.

Delta Plan Policy WR P1 is one of fourteen regulatory policies in the Delta Plan. The Delta Plan is a comprehensive, long-term, legally enforceable plan guiding how federal, state, and local agencies manage the Delta's water and environmental resources. The Delta Plan was adopted in 2013 by the Delta Stewardship Council (DSC). Delta Plan Policy WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for a supplier that carries out or takes part in a covered action.

The District supports MWD in its participation in the Delta Conveyance Project. The proposed Delta Conveyance Project would develop new diversion and conveyance facilities in the Delta necessary to restore and protect the reliability of water deliveries in a cost-effective manner. Modernizing Delta conveyance is part of the Governor's Water Resilience Portfolio. The proposed Delta Conveyance Project would provide an alternate location for diversion of water from the Delta and would be operated in coordination with the existing south of Delta pumping facilities. The proposed Delta Conveyance Project would be considered a covered action. As such, the District is providing information that can be used in the future certification process to demonstrate consistency with Delta Plan Policy WR P1. Refer to **Appendix D** Reduced Delta Reliance Reporting, for additional details on consistency with the Delta Plan.

Chapter 2 Plan Preparation

Section 2.1 Plan Preparation

This chapter provides information on the District's process for developing the 2020 UWMP, including individual or regional planning, fiscal or calendar year reporting, units of measure, and coordination and outreach with other agencies in the region.

Section 2.1.1 Basis for Preparing a Plan

The UWMP Act requires every "urban water supplier" to prepare and adopt an UWMP, to periodically review its UWMP at least once every five years and make any amendments or changes which are indicated by the review. An "urban water supplier" is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 AFY.

The District manages Water System CA 3010073. As shown in **Table 2-1**, the District provided water to 55,013 customer connections and supplied 28,096 AF of water in FY 2019-2020 to a population of over 170,000 customers. Due to both the number of customers served and volume of water supplied, the District is considered an urban water supplier as defined by the California Water Code Section 10617.

Table 2-1: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 (AF)
CA 3010073	Moulton Niguel Water District	55,013	23,083
	Total	55,013	23,083
Notes: Units of measure are in AF. Volume of water supplied includes both potable and recycled water connections.			

Section 2.1.2 Planning and Compliance Reporting

Section 10620(d)(1) of the UWMP Act allows urban retail water suppliers to plan, comply, and report on a regional basis, on an individual basis, or both. The District prepared this 2020 UWMP on an individual reporting basis covering only the District's service area (**Table 2-2**). The District has notified and coordinated with appropriate regional agencies and stakeholders. The District is also a member of the Orange County 20x2020 Regional Alliance.

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)**		

Section 2.1.3 Fiscal Year and Units of Measure

Information prepared for and presented in this UWMP is reported based on a fiscal year (starting July 1 and ending June 30) and water volumes are presented in AF, as summarized in **Table 2-3**. One acre-foot equals about 326,000 gallons, or enough water to cover an acre of land, about the size of a football field, one foot deep.

Section 2.2 Coordination and Outreach

The District coordinated the preparation of this UWMP with the cities in the service area, and MWDOC (**Table 2-4**). The District coordinated with MWDOC and provided the wholesale agency with the District's water use projections. On January 7, 2021, District staff informed the cities the District would be reviewing the UWMP and making changes to the plan for the 2020 update and welcomed input specifically in regard to the cities development projections that were used as part of the District's water use demand forecast. The notification provided the opportunity for the cities to submit comments regarding the District's demand projection assumptions and UWMP during the update process. The District received comments on development projections during the preparation of its UWMP 2020 update. In addition, the District encouraged public participation in the development of the 2020 UWMP and provided opportunities for public review and comment. Additional information regarding outreach and public participation is included in *Chapter 9, Urban Water Management Plan Adoption Process*.

Table 2-3: Supplier Identification

Type of Supplier	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year	
☐	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)	
07/01	
Units of measure used in UWMP	
Unit	Acre-Foot (AF)
Notes: Fiscal year begins on July 1st of each year.	

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 (MWDOC)

Chapter 3 System Description

Section 3.1 History of the District Service Area

The District was formed on November 16, 1960, under the provisions of the California Water District Law, Division 13, of the Water Code of the State of California, commencing with Section 34000. Prior to the formation of the water district, the lands within the service area were primarily utilized for livestock grazing, with a small area devoted to citrus and field crop production limited by the lack of adequate local water supplies. The District was initially formed by local ranchers to secure a reliable water supply for their herds.

In 1961, the District entered into several agreements with surrounding water agencies to bring reliable supplies of water to the area including an agreement to bring treated water to the District from East Orange County Feeder Number 2 (EOCF #2) through the Tri-Cities Transmission Main, now known as the Joint Transmission Main (JTM). The District sold its first waterworks bond for $6,700,000 to fund construction of the imported water pipelines. The construction of the transmission main was a joint project between the District, Tri-Cities Municipal Water District (a district that dissolved in 2000 and SCWD assumed operation of the pipelines and infrastructure on a contract basis for what is now identified as the Joint Regional Water Supply System), Irvine Ranch Water District (IRWD), and Orange County Water Works #4 (now the City of San Juan Capistrano). This transmission line was the District's only source of water for many years.

In 1964, an amendment to the California Water District Act was passed that allowed water districts to collect and treat sewage and develop water reclamation programs. As early as 1968, a study was authorized to consider the use of treated secondary wastewater effluent for use as irrigation for the El Niguel Golf Course. In 1976, the District's 3A treatment plant was the site for the pilot "Bullrush Project" undertaken in conjunction with the Biological Water Purification Company to do advanced "tertiary" treatment of wastewater for use on landscapes. Water demands increased as the population growth continued to rise throughout the 1970s and 1980s.

Section 3.1.1 Governance

The District's elected Board of Directors (Board) is dedicated to providing our community with safe and reliable water services and wastewater treatment, along with the latest water efficiency and conservation programs. The District is governed by a seven-member Board, whose Directors are publicly elected by registered voters within the District's service area for staggered four-year terms. Each Director is elected through an at-large voting process. Policy-making and legislative authority are vested with the Board. The Board has the authority to set rates and charges for water, recycled water, and wastewater services. The Board is responsible for, among other things, setting policies governing the operation of the District, adopting the budget, appointing committees, and hiring the General Manager.

The General Manager is responsible for carrying out the policies of the Board, for overseeing the day-to-day operations of the District, and for hiring staff for the various divisions.

Section 3.2 Service Area

The District has grown tremendously since its formation; initially formed by local ranchers to provide water service to eight accounts, the District now provides water, recycled water, and wastewater service to more than 170,000 customers within a 37 square mile service area covering portions of six cities in southern Orange County. The District service area is largely built-out and includes the city of Laguna Niguel and portions of the cities of Aliso Viejo, Laguna Hills, Mission Viejo, San Juan Capistrano, and Dana Point. In 2020 within the District's service area there are 67,091 homes, of which approximately 50 percent are single-family. While its operations have evolved along with the growth of its service area, the District's primary focus has remained largely unchanged: ensuring ratepayers have a reliable, sustainable, and economical water supply for the future. **Figure 3-1** shows the service area and the portions of the six cities served by MNWD.

Section 3.2.1 Service Area Population

Population growth between 2000 and 2020 averaged 670 residents per year or an average annual growth rate of 0.41 percent. However, during the period 2004 to 2006 the annual average growth declined by 668 residents per year or 0.41 percent over those three years. As there are fewer and fewer areas to develop within MNWD's service area, population growth will primarily come from redevelopment and infill activities and is anticipated to be on average 2 percent over the next 10 years. Beginning in 2035, population is expected to decrease in the service area by approximately 1 percent through 2045. Forecast population for MNWD from 2020 to 2045 was provided by the Center for Demographic Research at California State University Fullerton (CDR). **Table 3-1** shows the population projections in five-year increments to the year 2045.

Table 3-1: Population - Current and Projected

Population Served	2020	2025	2030	2035	2040	2045
	170,236	172,134	174,202	174,241	174,169	172,802
Notes: Data provided by Center for Demographics.						

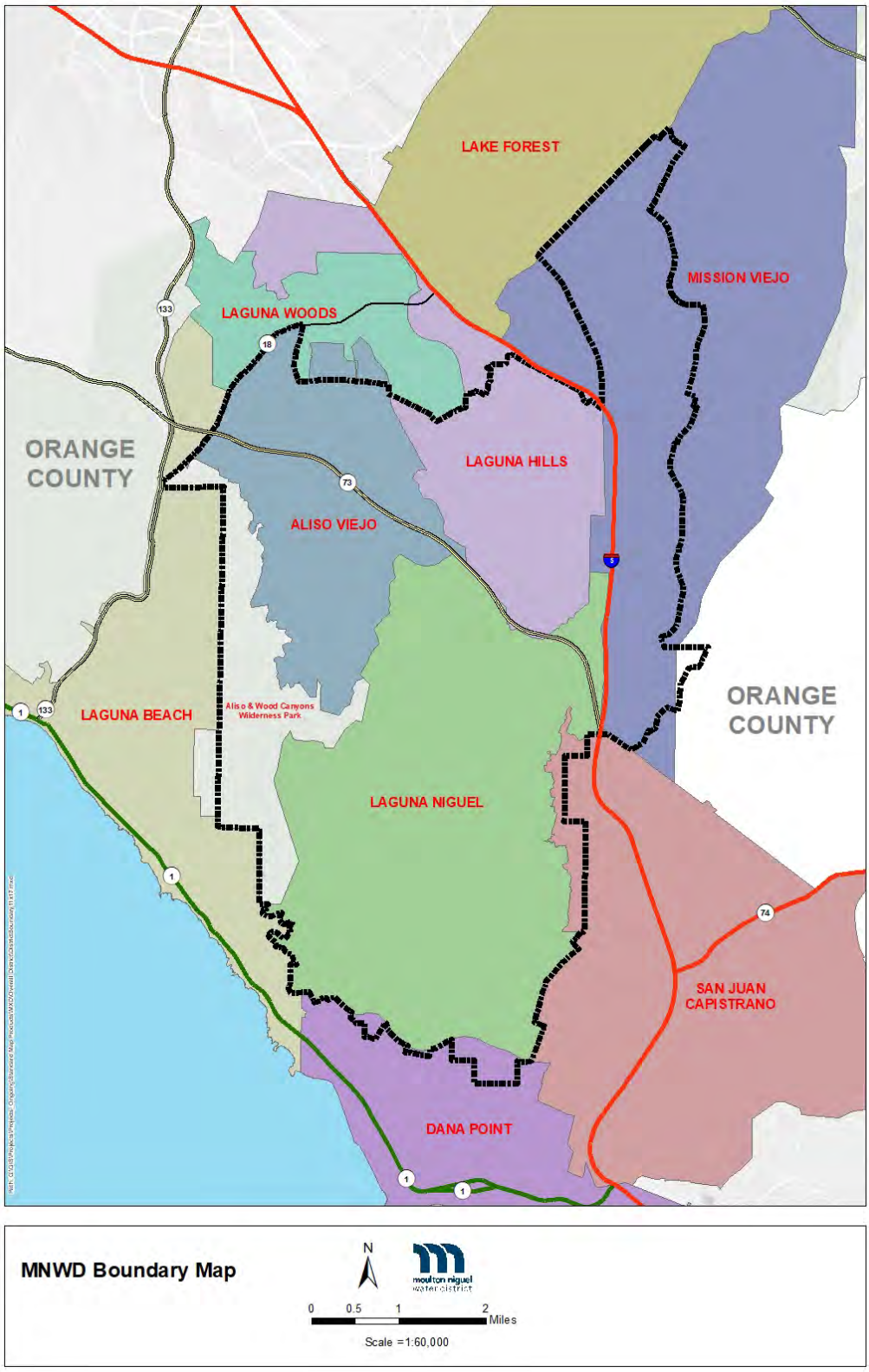


Figure 3-1: District Service Area

Section 3.3 Water Supply and Services

The District's current water needs are met by a combination of imported potable water and recycled water. The District's potable demands are supplied from imported sources via MWD and MWDOC. The recycled water supply is locally sourced and accounts for 21 percent of the overall water supply in the District for the past 5-years.

Section 3.3.1 Purchased or Imported Water

MNWD currently relies on imported water provided by MWD through MWDOC. Imported water represents approximately 79 percent of MNWD's total water supply. MWD's water supply originates from two principal sources - the Colorado River via the CRA and the Feather River watershed/Lake Oroville in Northern California through the SWP, further described in *Chapter 6, Water Supply Characterization*. Imported water delivered to MNWD is currently treated at MWD's Robert B. Diemer WTP located north of Yorba Linda or at the Baker WTP located in Lake Forest. The Baker WTP was built to provide a redundant treatment facility in the event of a Diemer WTP outage. On average approximately 70 percent of the District's water supplies are treated at the Diemer WTP and the remaining 30 percent of water supplies are treated at the Baker Treatment Plant.

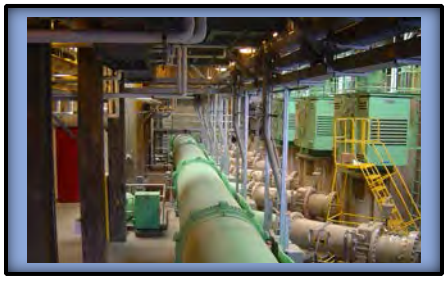
Section 3.3.1.1 Water Treatment Plants

The Diemer WTP is owned and operated by MWD and has a capacity of 520 million gallons per day (MGD). Typically, the Diemer WTP receives a blend of Colorado River water from Lake Mathews through the MWD Lower Feeder and SWP water through the Yorba Linda Feeder. The water is conveyed to MNWD through two MWD-operated transmission mains; the EOCF #2, which delivers on average 13 percent of total potable water supplies and the Allen McColloch Pipeline (AMP), which delivers on average 57 percent of supplies. MNWD receives water from the EOCF #2 through the JTM and the Eastern Transmission Main (ETM), a branch off the JTM. MNWD receives water from the AMP directly from take-outs off the AMP and indirectly from the South County Pipeline (SCP).


Baker Water Treatment Plant

The Baker WTP is a 28.1 MGD drinking WTP that was a joint regional project by five South Orange County water districts, including the District. MNWD owns 8.4 MGD of capacity in the plant. The plant provides a reliable local drinking water supply during emergencies or extended facility shutdowns on the MWD delivery system. It also increases operational flexibility by creating redundancy within the water conveyance system. Untreated water is conveyed from the CRA to Baker WTP via the Baker Pipeline and once treated, to MNWD via the SCP. The Baker Pipeline is an untreated line that connects to the Santiago Lateral of MWD's Lower Feeder.

Section 3.3.2 Imported Water Lines



MNWD imports water using the JTM (a project agreement between MNWD and other water agencies); ETM jointly owned by MNWD and the City of San Juan Capistrano[1]; and the SCP, which conveys water from the AMP to several south county water agencies. The existing imported water supply system serving Orange County is shown on **Figure 3-2**, as well as MNWD's service area.

Section 3.3.2.1 Joint Transmission Main

The JTM conveys imported water from the EOCF #2 (operated by MWD) to South Orange County. The JTM is jointly owned by MNWD, IRWD, El Toro Water District (ETWD), City of San Juan Capistrano[1], City of San Clemente, and SCWD. The JTM is operated under contract by the SCWD. MNWD serves Aliso Viejo, Laguna Hills, Laguna Niguel, and Dana Point from the JTM.

Section 3.3.2.2 Eastern Transmission Main

The ETM begins as a branch off the JTM near Moulton Parkway and Laguna Hills Drive. MNWD owns 10 cubic feet per second (CFS) of capacity in the ETM, with the remaining capacity owned by the City of San Juan Capistrano[1]. The District is the operator of the ETM by agreement with the City of San Juan Capistrano. MNWD serves Laguna Hills, Laguna Niguel, Mission Viejo, and San Juan Capistrano from the ETM.

Section 3.3.2.3 Allen McColloch Pipeline

The AMP is a major water supply line constructed by MWDOC from the Diemer WTP to South Orange County. In 1995, MWD purchased the AMP from MWDOC and now operates the AMP. The AMP terminates in the northeast section of Mission Viejo at the ETWD R-6 Reservoir and conveys water primarily to Mission Viejo and Laguna Hills.

Section 3.3.2.4 South County Pipeline

The SCP conveys water from the AMP to SMWD, MNWD, SCWD, and the cities of San Juan Capistrano[1] and San Clemente. MNWD obtains flow from the SCP at MNWD's takeout (SC-2) and delivers flow to Laguna Hills, Mission Viejo, Laguna Niguel, and Aliso Viejo via the Central Intertie Pipeline (CIP).

[1] Santa Margarita Water District submitted an application in December of 2020 to Orange County LAFCO to take over water and wastewater utilities for the City of San Juan Capistrano. The application is pending approval in 2021. Refer to LAFCO website for additional details regarding annexation of San Juan Capistrano facilities.

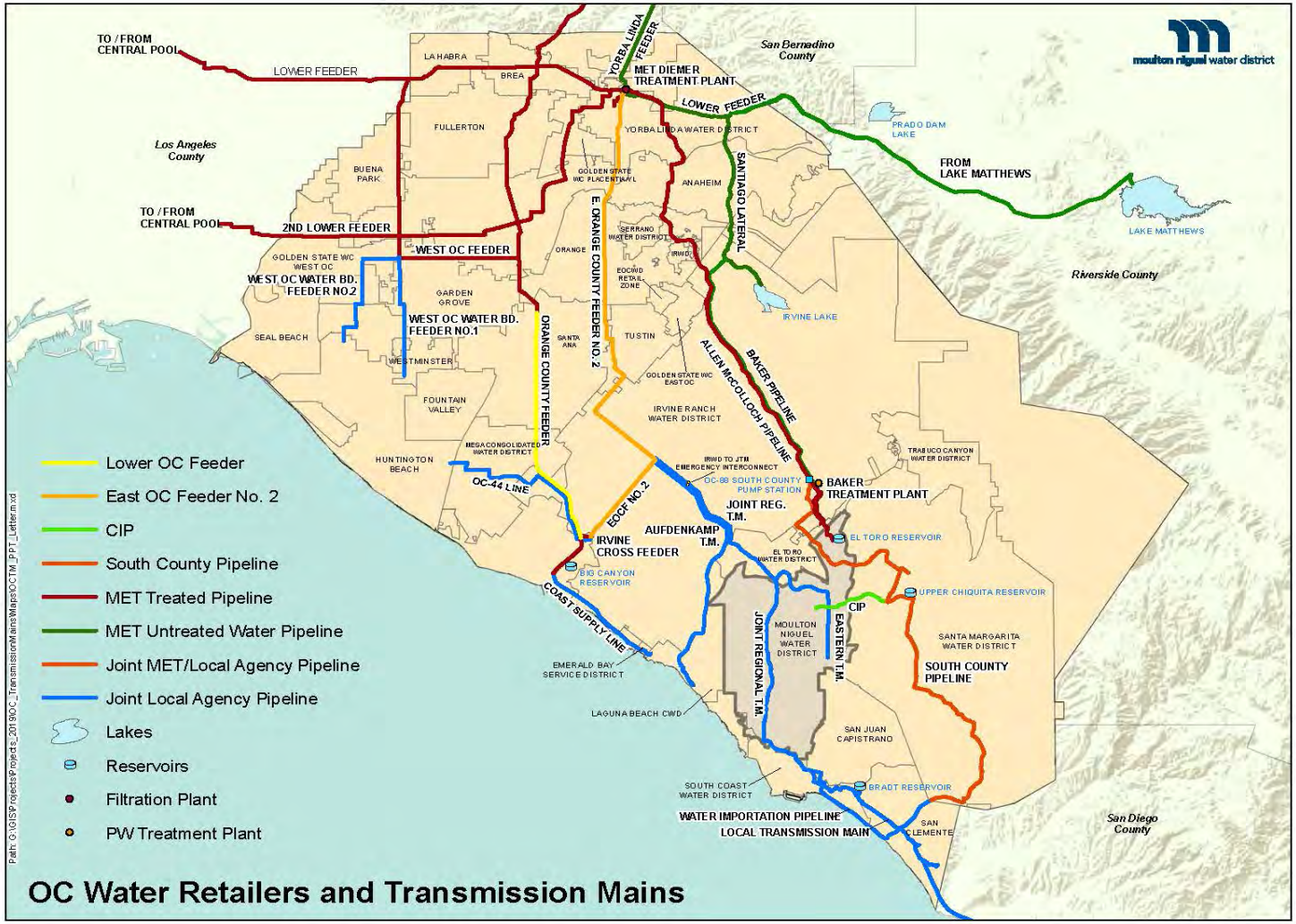


Figure 3-2: Regional and Local Water Supply System

Section 3.3.3 Water Storage Facilities

In the past decade, MNWD has been continuing to develop local water supply improvements to be able to comply with MWD's operational goal that water agencies must have 7 days' worth of storage/interconnections to withstand a planned outage of major imported water facilities. These water supply improvements include:

- IRWD/Orange County Water District (OCWD) Emergency Service Agreement – This agreement allows for an emergency supply of 10.6 MGD (16.5 CFS) of water to be supplied by IRWD using its groundwater from the Orange County Basin. This agreement currently expires in 2031.
- ETWD R-6 storage – MNWD has storage capacity of 13 million gallons (MG). The total reservoir capacity is 275 MG.
- SMWD Upper Chiquita Reservoir – MNWD has storage capacity of 90 MG. The total reservoir capacity is 244 MG.
- SCWD 5B Reservoir – MNWD has storage capacity of 700,000 gallons.

In addition, MNWD has 28 potable water and 11 recycled water operational storage reservoirs. The total potable water storage capacity within MNWD is 71 MG and the total recycled water storage capacity within the District is 17 MG. **Figure 3-3** shows the main takeout structures, pump stations and reservoirs for the potable water system.

Section 3.3.4 Pipelines and Pump Stations

MNWD operates and maintains 655 miles of potable water distribution pipelines. MNWD also operates 25 potable pump stations to pump water from lower pressure zones to the higher-pressure zones and 13 potable water pressure reducing stations and flow control facilities to convey water from high to low zones.

Section 3.3.5 Wastewater Services

The District maintains 540 miles of wastewater collection pipelines. The District's wastewater system has 19 lift stations that pump wastewater over the ridge lines to the various treatment plants for treatment and recycling. The District operates wastewater treatment Plant 3A. The District is also a member of the South Orange County Wastewater Authority ("SOCWA"), a joint powers agency comprised of ten governmental agencies, which operates three regional treatment plants and two ocean outfalls. These wastewater facilities are further described in *Chapter 6, Water Supply Characterization*. **Figure 3-4** shows the wastewater trunk lines, lift stations and treatment plants.

Figure 3-3: Potable Water System

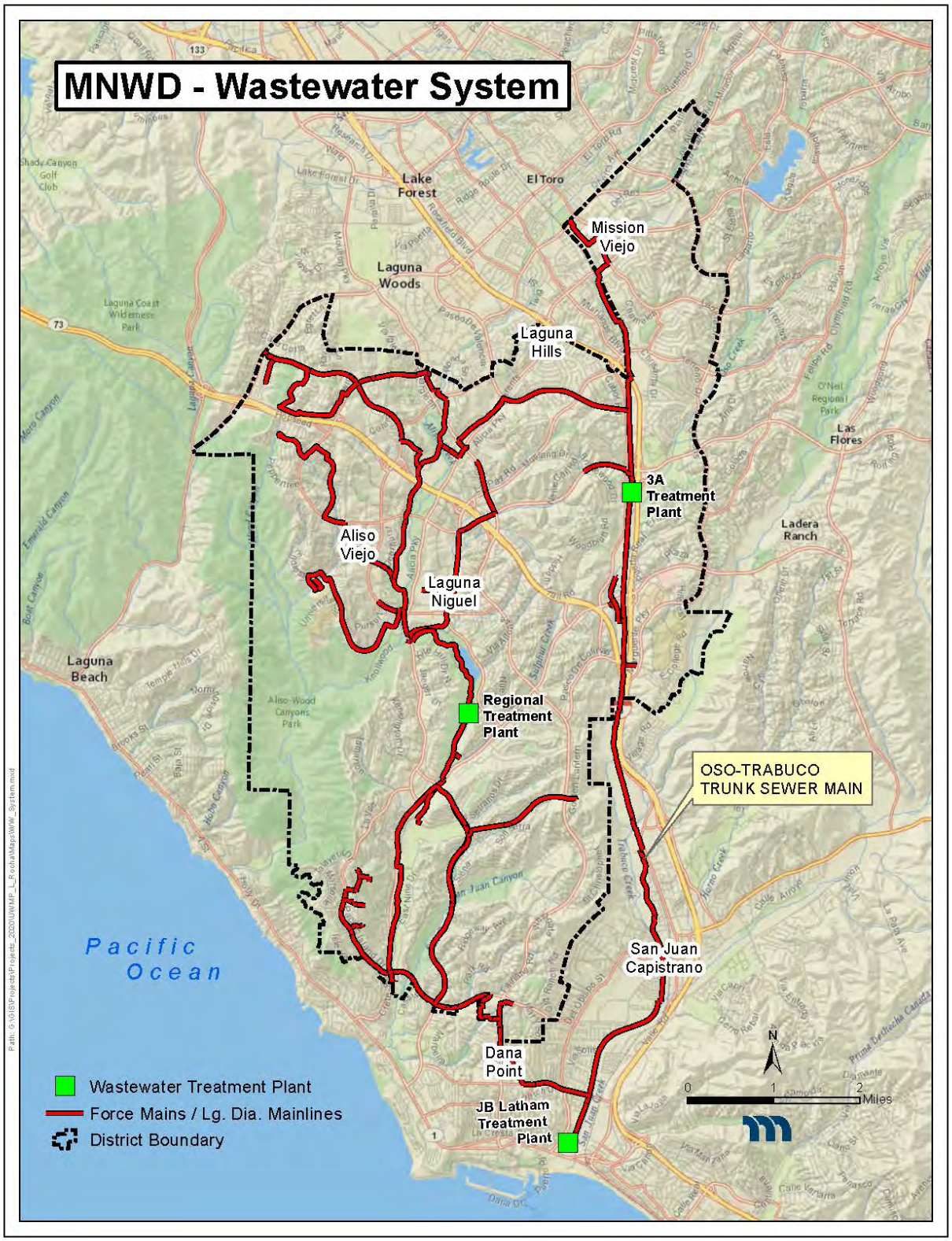


Figure 3-4: Wastewater System

Section 3.3.6 Recycled Water Supply and Services

It is the policy of the District to promote the use of recycled water to provide for the conservation and reuse of all water resources, and to utilize this resource for any approved purpose to the maximum extent possible under the laws of the State of California. This policy enables MNWD to substantially minimize the need to import water from other regions. In 1974, the District became one of the first water providers in Orange County to deliver recycled water for irrigation use. The District owns two Advanced Wastewater Treatment (AWT) facilities providing expansive recycled water service for landscaping. The District has constructed 141 miles of recycled mainline. MNWD also operates 12 recycled water pump stations to pump water from lower pressure zones to the higher-pressure zones and 13 recycled water pressure reducing stations. In addition, the District owns 1,000 AF of capacity rights in the Upper Oso recycled water reservoir, owned by Santa Margarita Water District (SMWD). **Figure 3-5** shows the recycled water transmission mains, pump stations and reservoirs.

Section 3.3.7 Climate

Located in an area known as the South Coast Air Basin (SCAB), the District's service area consists primarily of residential customers and is characterized by mild, dry summers and winters. The SCAB is a semi-arid environment with mild winters, dry, warm summers and moderate rainfall. The rainy seasons occur in the semi-permanent, high pressure zone of the Eastern Pacific Ocean. The usually mild climatological pattern is interrupted by periods of extremely hot weather, winter storms, or Santa Ana winds. Approximately 76 percent of the total annual average precipitation occurs during December through March. Average rainfall is 13.81 inches. Fall, winter, and spring are mild with warmer temperatures experienced during the summer months. The average of the daily maximum temperature year-round is 76.4 °F. **Table 3-2** summarizes weather characteristics.

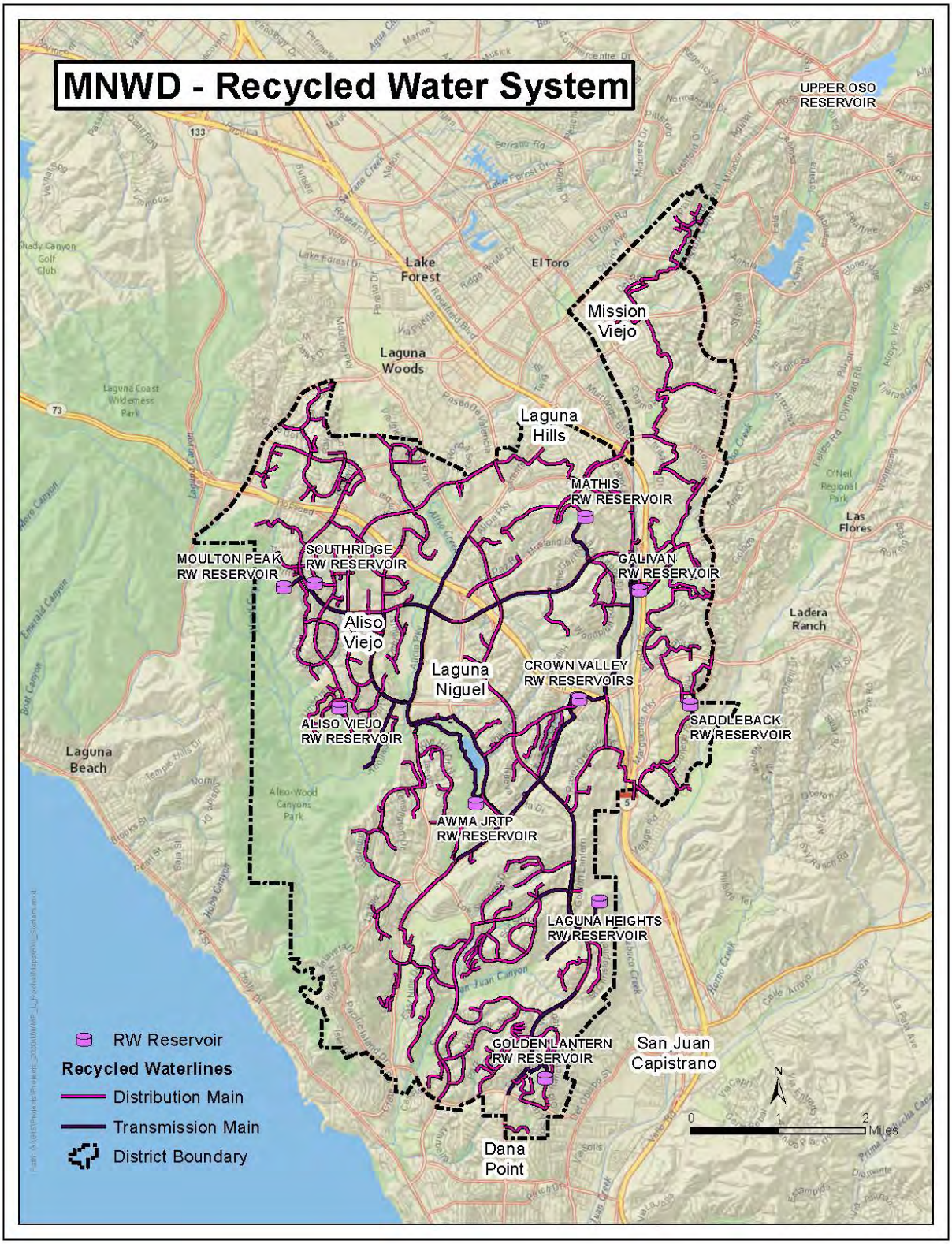


Figure 3-5: Recycled Water System

Table 3-2: Representative Weather for MNWD's Service Area

Month	Average Maximum Temperature (°F)[1]	Average Precipitation (in)[2]
January	70.3	2.92
February	69.9	3.25
March	72.0	2.20
April	73.9	0.87
May	75.7	0.29
June	78.6	0.06
July	83.2	0.05
August	85.3	0.08
September	84.3	0.28
October	79.7	0.67
November	74.6	1.05
December	69.1	2.09

[1]1980-2012 Santa Ana Fire Station Weather Station (station ID: GHCND: USC00047888).
[2] OC Public Works, Historic Rainfall Data, Laguna Niguel (Sulphur Creek Dam), 2017.

Section 3.3.8 Evapotranspiration

Evapotranspiration, or ET, is the combination of water that is lost from the soil through evaporation and through transpiration from plants as a part of their metabolic processes. It is an indicator of the amount of water that must be replaced for plants to stay alive and grow. Reference evapotranspiration, or ETo, is simply the amount of water needed by a plant. ETo varies daily with changes in temperature, relative humidity, solar radiation, and wind. As the days get longer and warmer from March to July, ETo, or the plant's need for water, gradually increases. MNWD service area ranges in elevation from 140 feet above mean sea level (AMSL) to 930 feet ASL. To reflect the significant variation in elevation, 111 micro-zones were created within MNWD, each with distinct water needs that can be derived from ETo. ET is weighted by the counts of accounts in every microzone. The median of evapotranspiration is 47.68 inches over the past eleven years. The weighted evapotranspiration ranges from 43.9 inches to 49.9 inches annually. Minimum weighted ET in MNWD service area is 41.4 inches and maximum weighted ET is 54.41 inches annually. This variability in ETo translates to fluctuating watering needs for landscape irrigation for homes, commercial properties, parks, and golf courses between the various micro-climates (refer to **Figure 3-6**).

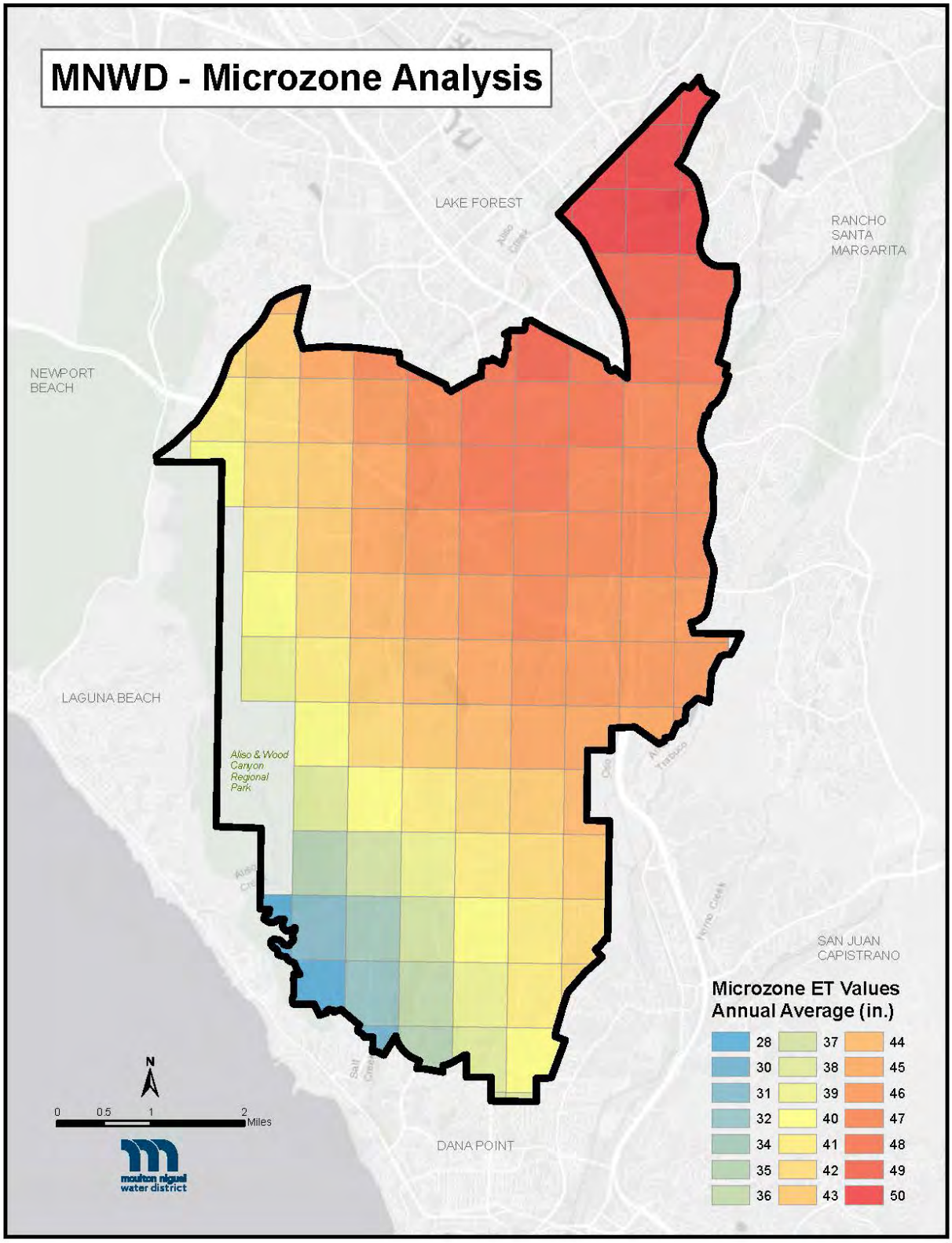


Figure 3-6: MNWD's Microzone

Section 3.4 Land Uses within Service Area

Table 3-3 summarizes land uses within the service area, as shown on **Figure 3-7**. Residential land uses are the greatest single land use occupying 51 percent of the service area, or 9,490 acres; 85 percent of the residential land use is single-family homes while the balance is composed of multi-family homes. Open space and park lands comprise the second largest land occupying 31 percent of the service area, or 5,708 acres, with most of the acreage concentrated in the Cities of Laguna Niguel and Aliso Viejo. Commercial/industrial/institutional (CII) land uses occupy 17 percent of the service area, or 3,226 acres. CII land uses are present in all cities throughout the service area; however, the greatest concentration occurs in Mission Viejo. Miscellaneous land uses, which includes freeway spaces occupy less than 1 percent of the service area, or 153 acres. As previously described, the service area is built-out, and expectations of future growth are minimal and would be primarily limited to infill and redevelopment. The anticipated future growth due to development is included in the District's demand projections and described further in *Chapter 4, Section 4.2.4 Projected Water Use*. Data collected from cities include existing and planned land uses, development constraints apparent in existing land uses, zoning, current adopted general and community plans, and guidance on likely development patterns over the next 10 years.

Table 3-3: Land Use Summary for MNWD's Service Area

Land Use Category	Total Acres	Percent
Community Facility	1,205	6.49
Freeway	153	0.82
High Density Residential	1,413	7.61
Low Density Residential	4,475	24.1
Medium Density Residential	3,602	19.4
Mixed Use	295	1.59
Neighborhood Commercial	241	1.3
Office Professional	909	4.9
Open Space	4,388	23.6
Parks	1,320	7.10
Public Commercial	454	2.44
Resort	14	0.07
Village Commercial	108	0.58
Total	**18,577**	**100%**

Source: Data provided by Cities of Laguna Hills, Laguna Niguel, Mission Viejo, Aliso Viejo, and Dana Point

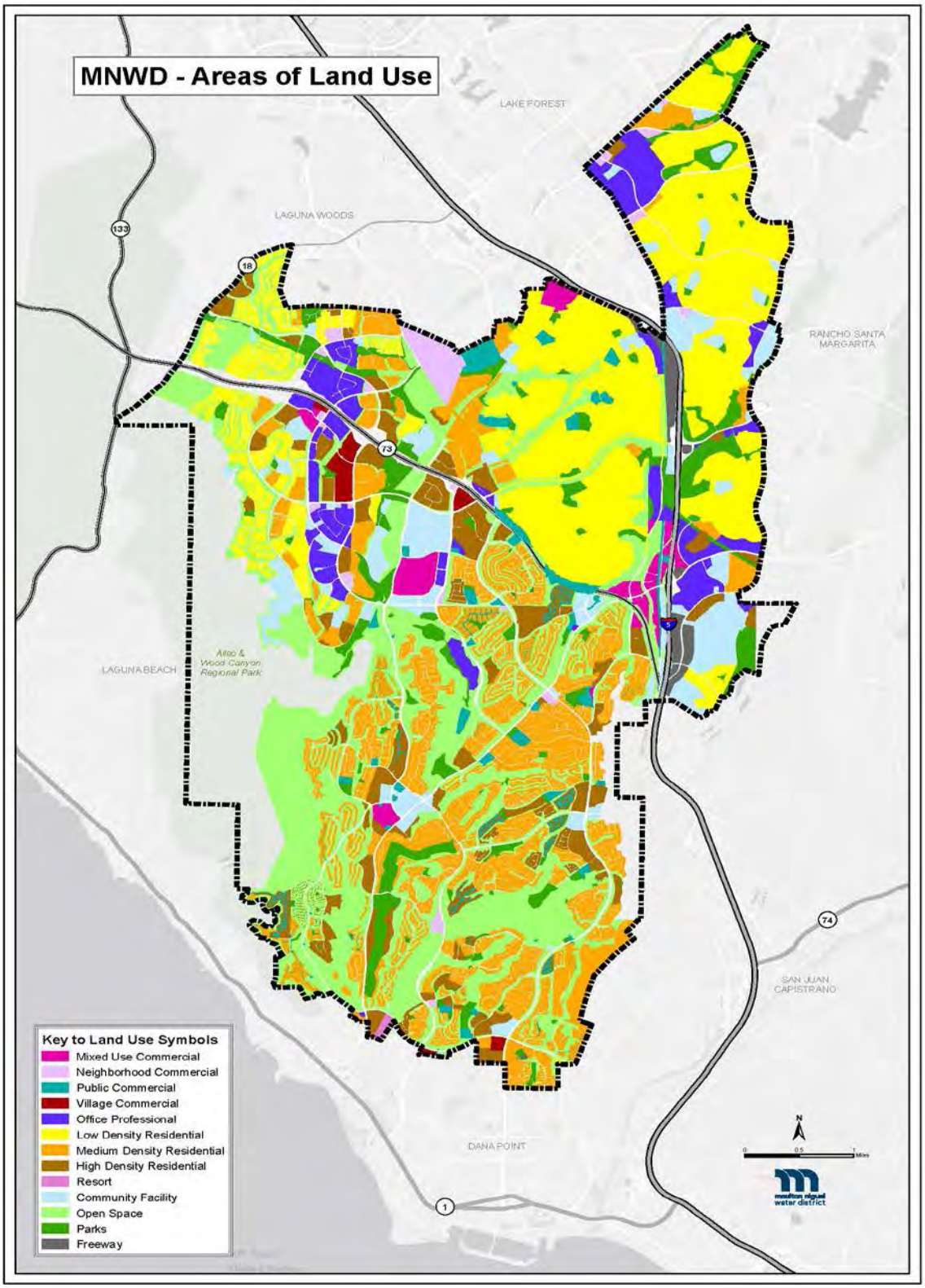


Figure 3-7: MNWD's Land Use

Section 3.5 Service Area Demographics

Table 3-4 identifies race, housing, education, economy, and income and poverty demographics in MNWD's service area.

Table 3-4: Race, Housing, Education, Economy, and Income & Poverty Demographics in Service Area

Category	Mission Viejo	Laguna Hills	Dana Point	Laguna Niguel	Aliso Viejo
Race and Ethnicity (Hispanic Origin)[1]					
White alone	77.40%	70.90%	83.40%	75.90%	70.00%
Black or African American alone	1.20%	1.50%	1.40%	1.50%	2.40%
American Indian and Alaska Native alone	0.30%	0.10%	0.40%	0.20%	0.50%
Asian alone	11.80%	14.70%	3.70%	10.30%	15.60%
Native Hawaiian and Other Pacific Islander alone	0.20%	0.10%	0.10%	0.40%	0.10%
Two or More Races	5.30%	6.50%	3.50%	5.80%	7.10%
Hispanic or Latino	17.70%	22.00%	17.60%	16.40%	18.10%
White alone, not Hispanic or Latino	65.10%	57.50%	74.10%	66.60%	58.80%
Housing					
Owner-occupied housing unit rate, 2015-2019	76.90%	72.50%	63.80%	69.00%	60.10%
Median value of owner-occupied housing units, 2015-2019	$693,000	$707,700	$878,300	$827,100	$632,900

Category	Mission Viejo	Laguna Hills	Dana Point	Laguna Niguel	Aliso Viejo
Persons per household, 2015-2019	2.8	2.82	2.26	2.59	2.72
Education					
High school graduate or higher, percent of persons age 25 years+, 2015-2019	94.20%	92.20%	94.20%	95.20%	96.40%
Bachelor's degree or higher, percent of persons age 25 years+, 2015-2019	49.00%	50.50%	51.00%	53.60%	56.20%
Economy					
In civilian labor force, total, percent of population age 16 years+, 2015-2019	65.20%	66.10%	63.00%	65.30%	75.50%
Income & Poverty					
Median household income (in 2019 dollars), 2015-2019	$118,477	$100,985	$99,409	$108,537	$112,689
Per capita income (in 2019 dollars), 2015-2019	$51,244	$52,125	$64,416	$59,581	$50,517
Persons in poverty	5.30%	8.30%	5.20%	7.20%	4.70%

Source: U.S. Census; Quick Facts; Website: https://www.cenus.gov/quickfacts/fact/table/US/PST045219
Notes: The District serves the following percent of population for each of the service area cities: Laguna Niguel (100%); Aliso Viejo (96%); Mission Viejo (33%); Laguna Hills (72%); Dana Point (9%); San Juan Capistrano (0%); Population in San Juan Capistrano is zero because the District serves commercial connections in this jurisdiction and therefore, demographics are not included in this table.
[1] This category includes both race and ethnicity and as a result exceeds 100 percent.

Chapter 4 Water Use Characterization

Section 4.1 Water Use (Potable and Non-Potable)

MNWD's current water demands are met by a combination of imported potable water and locally produced recycled water. The District's potable water supply is entirely imported water purchased from MWDOC. MWDOC in turn receives this imported water from MWD. MWD's main two sources of imported water come from the Colorado River and the Delta, further described in *Chapter 6, Water Supply Characterization*. Recycled water use has accounted for 21 percent of the overall water demand in the District since 2015, which is described in this chapter and further characterized in *Chapter 6, Section 6.5 Wastewater and Recycled Water*.

Section 4.2 Past, Current, and Projected Water Use by Sector

Section 4.2.1 Water Use by Sectors

Total water use in the District's service area is comprised of five main billing categories, and one other category:

- **Single-Family Residential** – Represents single-family detached homes and attached single-family homes, condominiums, and townhomes with individual meters.
- **Multi-Family Residential** – Represents apartments, master metered condominiums, and townhomes with master meters for the entire building or complex.
- **Commercial and Institutional** – Represents businesses, schools, hospitals, and governmental customers. The District does not have any industrial water use in the service area. Institutional is not tracked separately from commercial water use, hence they are grouped together.
- **Potable Irrigation** (Landscape) – Represents large landscape users with dedicated irrigation meters such as golf courses, common residential landscaping (e.g., homeowners associations), parks, medians, and greenbelts.
- **Recycled Irrigation**– Represents all users of recycled water, including golf courses, parks, and large residential common landscaping areas. Recycled water is further discussed in *Chapter 6, Section 6.5 Wastewater and Recycled Water*.
- **Other** – Represents water that is sold through potable hydrants and typically includes construction use.

The District does not currently use or project to have any water used for sales to other agencies, saline water intrusion barriers, groundwater recharge, conjunctive use, or agricultural.

Section 4.2.2 Past Water Use

Total water (imported potable and recycled) demands since 2000 have declined even as population has increased across the service area, as shown in **Figure 4-1**. Since 2000, District customers have reduced total water use by over 12,000 AF. Weather, drought, increased cost of imported water, and economic conditions play a role in the year-to-year demand fluctuations, however, the overall decline in imported potable water can largely be attributed to active demand management, water efficiency programs, increased use of recycled water for irrigation, and customer response to water supply conditions. The District's use of recycled water for irrigation has offset average imported potable demands by approximately 6,650 AFY over the past 20-years.

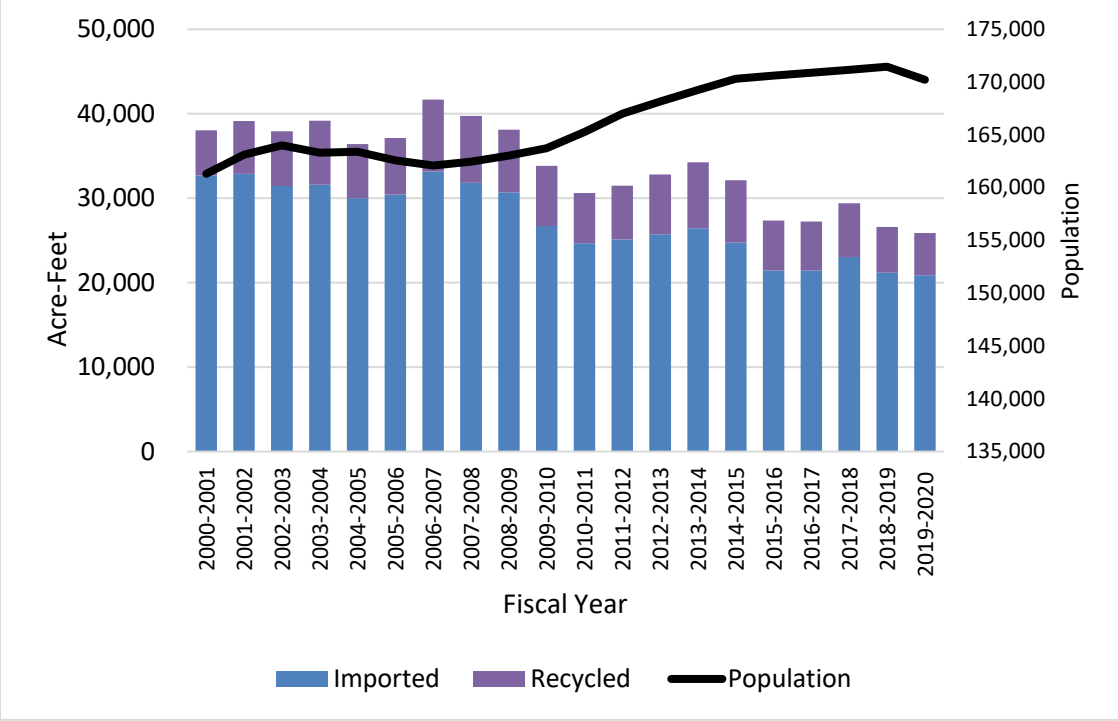


Figure 4-1: Historical Water Use

Section 4.2.3 Current Water Use

As shown in **Figure 4-2** and detailed in **Table 4-1**, residential uses (single-family and multi-family) account for nearly 57 percent of all water use during Fiscal Year (FY) 2019-2020. Figure 4-2 provides a breakdown of water use by the District's main water use sectors for FY 2019-2020, including water loss. Single-family use is the largest sector using approximately 13,964 AFY or approximately 50 percent of the total water use, followed by recycled water for irrigation use at 5,013 AFY (18 percent), potable irrigation uses at 2,645 AFY (9 percent), commercial use at 2,316 AFY (8 percent), and multi-family use at 1,914 AFY (7 percent). Water loss represented approximately 8 percent (2,224 AFY) and other water represented less than 1 percent (20 AFY) of the total water use.

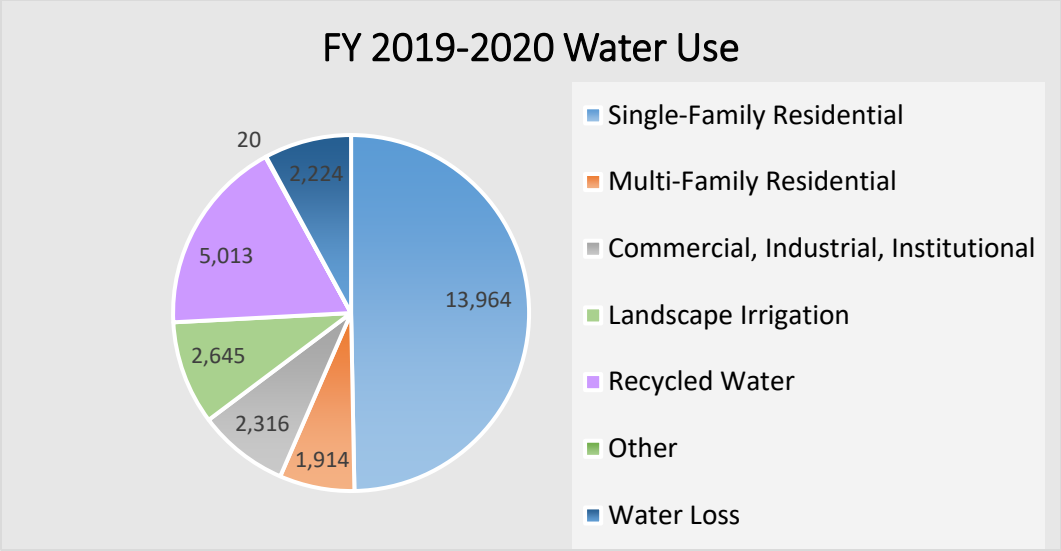


Figure 4-2: FY 2019-2020 Water Use By Sector

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

Use Type	FY 2019-2020 Actual		
Water Use Sector	**Additional Description *(as needed)***	**Level of Treatment When Delivered**	**Volume (AFY)**
Single-Family		Drinking Water	13,964
Multi-Family		Drinking Water	1,914
Commercial	Commercial and Institutional	Drinking Water	2,316
Landscape		Drinking Water	2,645
Losses			2,224
Other Potable	Potable Hydrant	Drinking Water	20
		Total	23,083
Notes: The District does not have any industrial water use in the service area. Institutional is not tracked separately from commercial water use, hence they are grouped together. Units of measure in AFY.			

Section 4.2.4 Projected Water Use

Section 4.2.4.1 Water Demand Model

To estimate the impacts of major factors that influence water demands, a multivariate statistical forecasting model was developed to produce demand forecasts through 2045. The model uses historical total monthly water production (including both imported water for potable use and recycled water for

non-potable use) as the dependent (or predictive) variable, and the following independent (or explanatory) variables:

- Projected new developments in the service area (planned from 2020 to 2030)
- Annual population of the service area (an indicator of growth from 2031 through 2045)
- Water loss
- Gallons per capita per day (GPCD) and evapotranspiration adjustment factor (ETAF) to account for water use efficiency changes in the long-term
- Conservation efforts
    - Turf removal (square-feet)
    - Water savings from turf removal and water savings devices (AFY)
- Average evapotranspiration
- Recycled water retrofits over time consistent with the assumptions in the District's RWOS.

As the District is nearly built-out, new development is primarily related to infill and denser utilization of lands. These new infill and increased density projects will replace vacant, low density commercial and residential areas. In close collaboration with the cities within the District and reflecting each of their General Plan Land Use Elements, the private development team at the District develops a 10-year projection of new development based on planned projects to develop FY 2020-2030 projections; these include some single-family residential units with most of the development being multi-family residential units. The specific projects are included in **Appendix E** and are all included in the demand projections for the 2020 UWMP. For the FY 2030-2045 period, demand is adjusted proportionally with population projections from the Cal State Fullerton Center for Demographic Research.

The forecasting model incorporates the impact of changes in the above factors on water demand over time. The model provides a range of projections with an upper bound and lower bound of demand projections, as shown in the blue shaded band in **Figure 4-3**. The upper bound of future demand projections reflect the prior projections used in the 2015 UWMP. The upper bound demand projections assume an increase in total water demand as both new and existing customers use more outdoor water because of rising temperatures driven by climate variability and other seasonal factors that could affect monthly demand. In April 2015, indoor water allocations were reduced from 65 GPCD to 60 GPCD and ETAF for potable water was reduced from 0.8 to 0.7. The District's ETAF is a combination of the crop coefficient and the irrigation efficiency factor. In other words, it is the applicable ETo required to apply to a plant. The plant factor of 0.7 represents a mixed landscape of turf and low water use plants and reflects the most common landscape features in the District's service area. The indoor water allocations were reduced further in 2018 to 55 GPCD. This upper bound demand projection assumes a continuation of indoor water allocations at 55 GPCD with an outdoor plant factor of 0.7 through 2045.

The lower bound of demand projections is a continuation of existing demands within the District that reflect active water use efficiency and conservation measures continuing to be implemented by customers. Because of its reliance on imported water deliveries to meet potable demands, the District has developed a comprehensive portfolio of demand management strategies, discussed further in *Chapter 8*. Major components of this demand management strategy include the District's WBBRS and rebate programs. To reflect the District's demand management strategies, the lower bound demand forecasts were developed to incorporate the District's policy approaches for conservation (e.g., WBBRS and various rebate programs), improvements in technology and adoption and implementation of new water saving technologies, and long-term adjustments in demand as customers respond to pricing signals. It was assumed that active indoor and outdoor conservation will continue to increase as the result of ongoing demand management, resulting in indoor water use decreasing to 45 GPCD through 2045. In addition, outdoor conservation is anticipated to continue to be implemented by customers replacing turf with low water use plants, resulting in a decrease in ETAF from the current 0.7 to 0.6 through 2045. Additionally, the District's turf removal program is assumed to be continued with the removal of 150,000 square feet per year that saves 15 gallons per square foot in the first year after removal and 40 gallons per square foot thereafter. This is below the yearly amount of turf that has been replaced since 2012, which ranged from a low of 183,000 square feet to a high of nearly 2 million square feet. Demand projections include savings from all other rebate water conservation devices resulting in an average savings of at least 30 AFY. To maintain consistency with losses reported in Section 4.3, real system losses are used for projections in this forecasting model.

Figure 4-3 shows the range of projections with the upper and lower bound projected water demands for all water use sectors (including recycled water) through 2045. Figure 4-3 also provides the historical water production and how that compares to previous demand projections from the 2010 and 2015 UWMPs. As shown, actual water use has been lower than previously projected water use, which reflects an overall decreasing demand trend. While partially driven by State-mandated emergency usage reductions implemented in 2015, the difference between projected and actual usage also reflects evolving attitudes toward water use after the recent historic multi-year drought in California. As such, the methodology for projecting future water use accounts for this continuing approach to Statewide, regional, and local demand management. Projections reported in this 2020 UWMP, represented by the dashed blue line in Figure 4-3, were calculated as the median of the upper-bound and lower-bound of future demand projections.

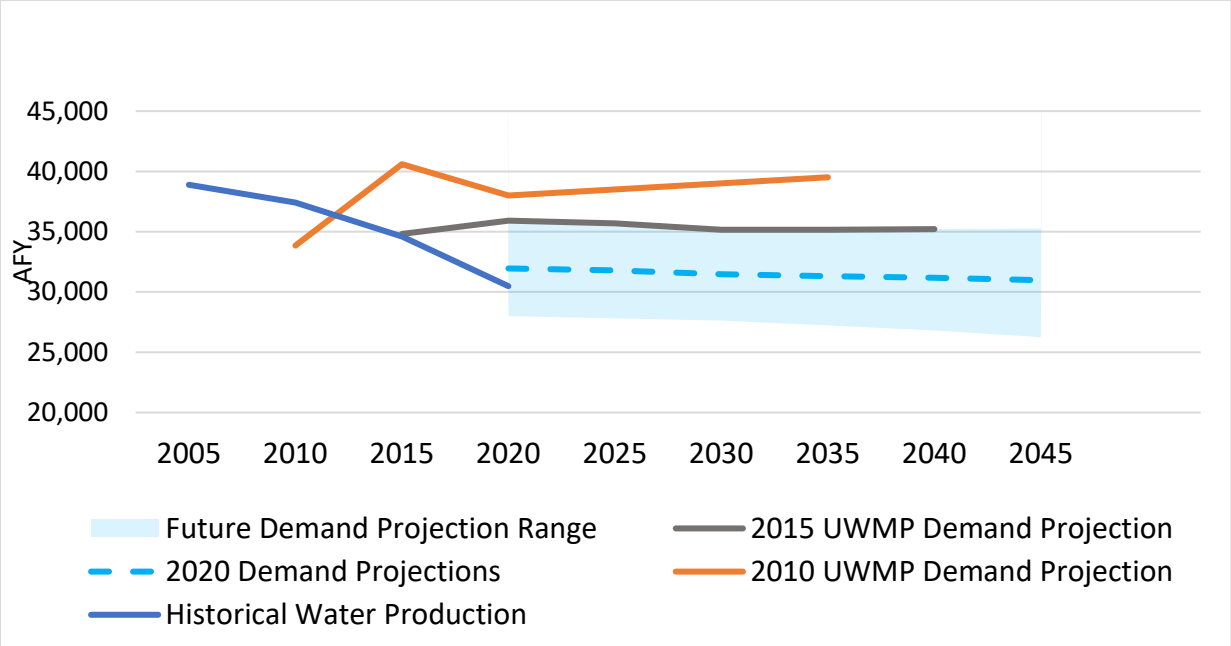


Figure 4-3: Prior and Future Water Demand Forecast

Section 4.2.5 Projected Water Use by Sector

The lower bound of demand projections are consistent with the District's current demand direction. The underlying assumptions of the lower bound of demand projections reflect the continuation of demand management efforts the District implements. Customer response to active demand management has remained steady since the 2012-2017 drought. The District will continue to actively manage demand with the goal of reaching the level of total water demand identified in the lower bound of demand projections. However, as a municipal water supply planner, the District must incorporate multiple outcomes into its policy making to effectively anticipate and plan for changing conditions. Hence, the District utilized the 2015 UWMP demand projection to represent a potential reversion to pre-2015 customer behavior and serve as an upper bound on total water demand. The projections presented in **Table 4-2** represent a synthesis of pre-drought behavior with post-drought water efficiency gains. Table 4-2 breaks down the demands for potable water use by sector. In all sectors, water usage decreases from 2020 until 2045, although at a decreasing rate. This is due in part to continued water efficiency gains and an expected population decline post 2035 as a result of the currently young population aging and moving out of the District. **Table 4-3** represents both the potable and non-potable (recycled water) projections.

Table 4-2: Retail: Use for Potable and Non-Potable Water – Projected (AF)

Use Type	Additional Description	Projected Water Use				
		2025	2030	2035	2040	2045
Single-Family		15,634	15,506	15,455	15,422	15,363
Multi-Family		1,988	1,972	1,965	1,960	1,954
Commercial	Includes Institutional	2,803	2,780	2,772	2,766	2,755
Landscape		3,350	3,323	3,312	3,305	3,292
Losses		1,906	1,841	1,768	1,694	1,614
Other Potable	Hydrant Uses	14	14	14	14	14
Total		**25,695**	**25,436**	**25,286**	**25,161**	**24,992**
Notes: Projections reflect the General Plans of each city within the District.						

Table 4-3: Retail: Use for Potable and Non-Potable Water (AF)

	2020	2025	2030	2035	2040	2045
Potable Water, Raw, Other Non-potable	23,083	25,695	25,436	25,286	25,161	24,992
Recycled Water Demand	5,013	6,398	6,346	6,326	6,312	6,288
Total Water Use	**28,096**	**32,093**	**31,782**	**31,612**	**31,473**	**31,280**
Notes: Units in acre-feet.						

Section 4.3 Distribution System Water Losses

Distribution system water losses are defined by the AWWA M36 Water Audits and Loss Control Program Guidebook as the difference between system input volumes and authorized consumption, consisting of apparent plus real losses. Apparent losses are comprised of unauthorized connections and metering inaccuracies, and real losses result from water lost from leaks in service and main lines. Distribution system losses were determined by using the AWWA Free Water Audit Software worksheet. **Table 4-4** provides the result of the AWWA Free Water Audit Software worksheet for the 12-month water loss audit reporting for the past five years.

Table 4-4: Last Five Years of Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2015	2,049
07/2016	1,919
07/2017	1,762
07/2018	1,793
07/2019	2,224
**Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
Notes: Volume in acre-feet.	

Non-revenue water consists of three components: unbilled authorized consumption (e.g., hydrant flushing, and firefighting), real losses (e.g., leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies). Real losses represent the volume of physical water lost from the distribution system, consisting of all types of leaks, breaks, and overflows. The volume of real losses is determined by subtracting the total apparent losses from the total water losses volume. In FY 2019-2020, MNWD's non-revenue potable water amounts to approximately 9.8 percent of MNWD's total water supplied (AWWA, 2021).

Water Code Section 10608.34 requires the SWRCB to adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses. Each urban retail water supplier, including the District, will be required to comply, by 2028, with an individualized volumetric water loss standard based on real loss. The SWRCB is developing the water loss performance standard. While this standard has not yet been finalized (at the time of preparation of this UWMP), the District has a proactive water loss program that is already being implemented to help the District reduce water loss. The District developed a Proactive Leak Detection team to provide leak detection surveys of the District's potable distribution system. This Leak Detection team uses remote data collection tools to track their survey progress throughout the District and develop leak detection survey routes to maximize the recovery of water lost in mainlines, laterals, and service lines. Additionally, District staff utilizes our Advanced Meter Infrastructure (AMI) network, SCADA data, and GIS database to develop a zonal water loss dashboard to provide insight into locations in the service area with greater water loss and use this information to inform leak detection survey routes. Further, District staff engages with consultants and water loss partners to identify opportunities to pilot pressure management studies to help inform water loss in the District. And the District utilizes spatial water loss data collected from our unified reported and unreported leak-break database to update our asset management database. These are several programs the District will use in the future to help meet the water loss performance

standard once established by the SWRCB. Additional information on water loss is detailed in Section 8.1.5, Programs to Assess and Manage Distribution System Real Loss.

Section 4.4 Water Use for Lower Income Households

As part of the 2020 UWMP, retail water suppliers are required to develop water use projections for "low-income" households at the single-family and multi-family levels (**Table 4-5**). These projections assist retail suppliers with compliance with Section 65589.7 of the Government Code, which requires suppliers to grant a priority for the provision of service to developments that include housing units affordable to lower income households. Consistent with this State requirement, a low-income household is defined as a household earning below 80 percent of the County of Orange's median income, adjusted for family size.

Table 4-5: 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.	4.2.4.1, Water Demand Model
Are Lower Income Residential Demands Included In Projections?	Yes

DWR guidance provides that retail water suppliers should determine the number of lower income single-family and multi-family housing units projected for the service area, as identified in the housing elements of city or county General Plans. Because portions of six cities are contained with the District's service area, low-income housing projections specifically related to the District are not identified in city or county general plans. For this reason, low-income housing projections within the District were determined using information contained in the Regional Housing Needs Assessment (RHNA).

Developed by the local council of governments (COG) in coordination with the California Department of Housing and Community Development, the RHNA process quantifies the need for housing by income group within each jurisdiction during specific planning periods and is used in Housing Element and General Plan updates. COGs are required by the State Housing Law to determine the existing and projected regional housing needs for persons at all income levels. The RHNAs goals are to prioritize local resource allocation and to help decide how to address existing and future housing needs.

Existing and projected housing needs for Orange County were incorporated into the Southern California Association of Governments' (SCAG) 6th Cycle Final Regional Housing Needs Allocation Plan. The Final 6th Cycle RHNA, which covers the planning period from October 2021 through October 2029 was adopted by the Regional Council on adopted March 4, 2021.

The projected increase in water demands for low-income households in the MNWD service area was estimated by calculating the percentage of projected low-income units in the service area as a

percentage of the total projected units from the Final 6th Cycle RHNA. Given that MNWD's service area covers portions of six cities within Orange County, a weighted average of the RHNA projection for each city served by MNWD was calculated based on the proportion of each city within the District. For example, as summarized in **Table 4-6,** approximately 27 percent of MNWD's service area lies within the City of Aliso Viejo. Based on the Final 6th Cycle RHNA, of the 48 households projected to be developed, 25 are identified as very-low and low-income households. Therefore, the area weighted projected low-income households for the City of Aliso Viejo is 7 (27 percent times 25) out of 13 (27 percent times 48), which represents 4.64 percent of total housing needs (7 divided by 151). The same procedure is repeated for all cities within MNWD's service area, which results in an overall projected housing need for low-income households of 43.36 percent as a percentage of RHNA identified development needs.

Table 4-6: Weighted Percentage of Low-income Household Needs within MNWD's Service Area

City	Percent of Area Served	No. Very-Low and Low-income Households by City (RHNA)	No. Households by City (RHNA)	No. Very-Low and Low-income Households (w/in Service Area)	No. Households by City (w/in Service Area)	Weighted Percent Low-income Households
Aliso Viejo	27%	25	48	7	13	4.64%
Dana Point	1%	63	144	1	1	0.66%
Laguna Hills	12%	39	848	47	102	31.13%
Laguna Niguel	41%	28	62	11	25	7.28%
Mission Viejo	18%	19	41	3	7	1.99%
San Juan Capistrano	1%	116	277	1	3	0.66%
Total	100%	645	1,420	70	151	43.36%

Source: SCAG, 6th Cycle Final RHNA Allocations (03/04/2021). Available: https://scag.ca.gov/housing. Date accessed: 03/12/2021.

It is important to note that the percentages of low-income household by city provided by RHNA represent "targeted" and not actual percentages of planned low-income households. As the District anticipates development beyond what is identified in the RHNA, demands attributable to new low-income development must be determined as the proportion of demands attributable to planned development. As was noted in *Section 4.2.1*, growth related demand is determined using a combination of planned development (FY 2020 – 2030) and population growth (FY 2031 – 2045). The RHNA low-income development needs are captured by the planned development estimates through 2030. The proportion of planned development attributable to needed low-income development is calculated in **Table 4-7**.

Table 4-7: Percentage of Projected Development Attributable to Low - Income Development

Total Effective Dwelling Units (EDUs)	1,584
Single-Family EDUs	*106*
Multi-Family EDUs	*1,478*
RHNA Identified Low-Income Households	70
% of Projected Residential Development	4.42%
Single-Family - % Low-Income	*0.30%*
Multi-Family - % Low-Income	*4.12%*

Table 4-8 provides a breakdown of the projected water demands for needed low-income single-family and multifamily units. As noted above, the planned development projections used to determine growth related demand are assumed to capture new low-income development, thus low-income demand is held fixed after FY 2030. The projected water demands shown here represent 4.42 percent of the growth-related projected water demand. For example, 0.89 AF of the 58 AF of growth related to single-family residential demand projected in 2025 is attributable to low-income households and 12.37 AF of the 242 AF of growth related to multi-family residential demand projected in 2025 is attributable to low-income households.

Table 4-8: Projected Water Demands for Housing Needed for Low-Income Households (AFY)

New Planned Development Related	2025	2030	2035	2040	2045
Residential Demand	300	418	419	417	394
Total Residential - Low-Income Demand	13.26	18.47	18.52	18.43	17.41
Single-Family - Total Demand	58	66	66	66	62
Single-Family - Low-Income Demand	0.89	1.24	1.24	1.23	1.17
Multi-Family - Total Demand	242	352	353	351	332
Multi-Family - Low-Income Demand	12.37	17.24	17.28	17.19	16.25

The projected demands attributable to existing low-income housing are assumed to be proportional to the percentage of low-income households in the District. The percentage of low-income households effectively serves as an upper-bound of low-income demand, as demand characteristics for low-income households are likely considerably different than those of other households. Currently, approximately 30 percent of the households served by MNWD are classified as low-income based on the six cities' household income distribution data identified in the Final 6th Cycle RHNA. **Table 4-9** provides a breakdown of the projected water needs for existing low-income single-family and multi-family units.

Table 4-9: Projected Water Demands for Existing Low-Income Households (AFY)

Existing Development Related	2025	2030	2035	2040	2045
Residential Demand	17,622	17,478	17,420	17,382	17,317
Total Residential - Low-Income Demand	5,304	5,261	5,243	5,232	5,212
Single-Family - Total Demand	15,634	15,506	15,455	15,422	15,363
Single-Family - Low-Income Demand	4,706	4,667	4,652	4,642	4,624
Multi-Family - Total Demand	1,988	1,972	1,965	1,960	1,954
Multi-Family - Low-Income Demand	598	594	591	590	588

The total projected demands for low-income households are calculated as the sum of the projected annual demand for the RHNA identified low-income housing needs and the projected annual demand for the assumed existing low-income households. The projected demands are shown in **Table 4-10** which is the addition of Table 4-9 and Table 4-8.

Table 4-10: Total Projected Water Demands for Low Income Households (AFY)

Total Residential Development Related	2025	2030	2035	2040	2045
Residential Demand	17,922	17,896	17,839	17,799	17,711
Total Residential - Low-Income Demand	5,317	5,279	5,262	5,250	5,230
Single-Family - Total Demand	15,692	15,572	15,521	15,488	15,425
Single-Family - Low-Income Demand	4,707	4,668	4,653	4,643	4,625
Multi-Family - Total Demand	2,230	2,324	2,318	2,311	2,286
Multi-Family - Low-Income Demand	611	611	609	607	604

Section 4.5 Potential Climate Variability Effects on Water Demands and Supplies

California recently experienced the 5-year drought event of 2012-2017; other notable historical droughts included 2007-09, 1987-92, 1976-77, and off-and-on dry conditions spanning more than a decade in the 1920s and 1930s (DWR, 2020). According to the MWD 2015 IRP (MWD, 2016), the past years have given Southern California a glimpse of the challenges that climate change will pose. Climate variability is a challenge to water reliability for Southern California because it could result in long-term changes in local temperature and precipitation patterns. The District relies on imported water, which is highly variable due to climate and hydrology. Climate variability is an uncertainty that MNWD considers in ensuring that current and future water demands for our community are met. Consideration of potential climate variability impacts on local water demands is essential when developing a long-term forecast. Warmer temperatures in Southern California will affect water demands by increasing the outdoor water requirements for plant life and landscapes (MWD, 2016). As average temperatures increase, outdoor irrigation water use is also expected to increase due to increased evapotranspiration rates. However, if the current trend of the transition to climate-appropriate landscapes continues, the

increased water demand for landscape irrigation due to temperature increases would be mitigated. The District continues to invest in and promote our outdoor rebate programs which are offered for transforming landscapes to low water use plants and for irrigation efficient devices, which are described further in *Chapter 8, Section 8.1.5 Residential Water Saving Programs*. The District's NatureScape Program was specifically designed with the goal to educate customers on sustainable landscaping and make it even easier for residents to take advantage of the District's rebates for replacing turf with water-efficient landscaping. Since 2011, the District has incentivized the removal of 5.67 million square feet through its residential and commercial turf removal programs. The District continues to see ongoing participating in the programs by our customers and the District will continue to prioritize its promotion to encourage participation to reduce outdoor demands.

Precipitation is the primary source of California's water supply. Most of the state's precipitation occurs in only 5 to 15 days, and that rain and snowfall result in an annual supply that is ample in average years, too little in dry ones, and too much in wet years (Delta Stewardship Council, 2018). According to the 2020 Water Resilience Portfolio, California's climate is warming and becoming even more variable, which reduces winter snowpack, intensifies drought and wildfire, and drives more intense storms that worsen flooding (California Natural Resources Agency, et. al, 2020). Potential climate change is forecasted to alter the historical hydrology of the Sierra Nevadas (the main source of SWP water that flows through the Delta) and Rocky Mountains (the main source of water for the Colorado River) (MWDOC, 2016). Increases in temperatures are estimated to significantly reduce mountain snowpack, which acts as storage for the region's imported water (MWDOC, 2016). The 2020 Water Resilience Portfolio identified rising winter temperatures will reduce mountain snowpack in the Sierra Nevada and Cascade ranges by 65 percent on average by the end of the century, increasing flashy winter runoff and flood risks while reducing spring and summer stream flow (California Natural Resources Agency, et. al, 2020). Extended, intense droughts and more extreme floods are expected to occur more frequently in the future due to climate change (Delta Stewardship Council, 2018).

Warmer temperatures throughout the state will cause higher evaporation rates, particularly during the hot summer and early fall months, contributing to reduced stream flows, drier soils, reduced groundwater infiltration, higher losses of water from surface reservoirs, increased urban and agricultural demand for irrigation water, and more water needed for ecosystem protection (Delta Stewardship Council, 2018). Warming temperatures increase the severity of our natural drought cycle, which most greatly impacts areas that depend on surface water flows (California Natural Resources Agency, et. al, 2020). The 2020 Water Resilience Portfolio stated historical hydrological patterns can no longer serve water managers as a trustworthy guide around which to plan, and climate science and projections have become increasingly important. Future conditions will continue to change and require ongoing

adjustment and adaptation of water management (California Natural Resources Agency, et. al, 2020). While it is uncertain as to the extent to which the climate changing in Southern California is impacting water demands, and specifically how climate change is impacting availability of water supplies generated outside of Southern California, the potential outcomes of a variable climate affect both supplies and demands.

Additional details regarding specific impacts of climate variability on demands and supply can be found in *Chapter 7, Water Supply Reliability Assessment*.

Chapter 5 SBX7-7 Baselines, Targets and 2020 Compliance

The California Water Conservation Act of 2009, also known as SBX7-7, required water agencies to reduce per capita water use by 20 percent by the year 2020 (20x2020). This chapter demonstrates that the District has complied with the requirements of SBX7-7. In the 2010 UWMP, the District was required to develop a baseline per capita water use and set a per capita water use target for 2015 and 2020. For the 2015 UWMP, the District was able to adjust the baseline and target per capita water use and compare 2015 per capita water use with set targets. For this 2020 UWMP, the District must demonstrate compliance with meeting its 2020 water use target. No new conditions warranted an update of the 2015 estimate.

DWR also requires agencies to submit SBx7-7 Compliance Forms, a set of standardized tables to demonstrate compliance with the Water Conservation Act. The SB X7-7 worksheets were prepared and submitted to DWR as a component of the District's 2020 UWMP. In these worksheets, found in Appendix B, the District population served, water supplied, and per capita consumption for each of the years within the 15-year range and the 5-year range were documented. Although the UWMP uses AF as its unit of measurement throughout this document, GPCD is used frequently in this chapter in accordance with the calculations required by SBX7-7. The GPCD is calculated by dividing total District water production by population, not just residential water use.

Section 5.1 Established Baselines and Targets

Water suppliers were required to establish baseline water use for two baseline periods, the 10- to 15-year baseline (baseline GPCD) and the 5-year baseline (target confirmation). In the 2015 UWMP, the District determined baseline water use during a baseline period and identified water use targets for the years 2015 and 2020 to meet the state's water reduction goal. This section describes the base period ranges used to establish the baseline GPCD and target confirmation.

Table 5-1 presents the base period ranges for the District's 15-year (FY 1990-1991 through 2004-2005) and 5-year (FY 2003-04 through 2007-08) periods. The baseline water use is calculated as a continuous 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 percent or more of their 2008 retail water delivery can use up to a 15- year average for the calculation. Recycled water use was at least 10 percent of the District's total water deliveries in 2008; therefore, a 15-year baseline period was used. The baseline daily per capita consumption for the 15-year period was 216 GPCD, resulting in a 173 GPCD 2020 target. The 5-year baseline was a target confirmation that was needed to determine whether the 2020 target met the legislation's minimum water use reduction requirements of at least a 5 percent reduction per capita for a 5-year continuous period that ended no earlier than December 31, 2007 and no later than December 31, 2010. The baseline daily per capita consumption for the 5-year period was 189. 95 percent of the 5-year base was 179 GPCD. The 179 GPCD is higher than the 2020 target for the District of 173 GPCD, thus the District 20 percent reduction from the 15-year baseline was greater than a 5 percent reduction per capita over the 5-year period.

Table 5-1: Baselines and Targets Summary From SBX7-7 Verification Form

Baseline Period	Start Year	End Year	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	1990	2004	216	173
5 Year	2003	2007	189	
*All values are in gallons per capita per day (GPCD)				
NOTES:				

Section 5.2 Target Methodology

In connection with the 2015 UWMP process, SBX7-7 and DWR provided four different methods to establish water conservation targets, where each retail urban water supplier may elect in its sole discretion what method to use. These technical methods give water suppliers flexibility in establishing per capita water use targets. The District selected Method 1 to establish its 2020 per capita water use target.

- **Method 1– 20 Percent Reduction.** The 2020 water conservation target of this method is defined as a 20 percent reduction of average per capita demand during the 15-year baseline period described above. This equated to a 2020 target of 173 GPCD for the District.
- **Method 2 – Efficiency Standards.** This target is based on calculating efficiency standards for indoor use separately from outdoor use for residential sectors and an overall reduction of 10 percent for commercial, industrial, and institutional (CII) sectors. The aggregated total of the efficiency standards in each area is then used to create a conservation target.
- **Method 3 – Hydrologic Region.** This method uses the ten regional urban water use targets for the state. A static water use conservation target for both 2015 and 2020 is assigned for Region 4: South Coast. The target for the entire South Coast region is 149 GPCD. Method 3 is based on the District reaching 95 percent of the South Coast Region target or 142 GPCD.
- **Method 4 – Savings by Sector.** This method uses previous water savings obtained through identified practices to establish a conservation target for 2020. Depending on how aggressively the water supplier has pursued water reduction and conservation in the past, a new conservation target for 2020 is assigned.

Section 5.3 2020 Compliance

Under SBX7-7, individual agency targets must be established to meet the goal of a statewide 20 percent reduction in per capita use by 2020. The 2020 target was calculated in the 2015 UWMP and was not changed in this 2020 UWMP. As noted above, the District selected Methodology 1 in 2010 and is required to use this same methodology again here to meet the requirements set forth in SBX7-7.

Methodology 1 requires a straightforward technical analysis of reducing the baseline per capita consumption by 20 percent for the target. The District baseline per capita consumption identified in SBX7-7 tables is 216 GPCD. A 10 percent reduction target required in 2015 was 194 GPCD. A 20 percent reduction target in 2020 was 173 GPCD. In conformance with SBX7-7, the District exceeded the 2015 interim target and 2020 target by achieving 140 GPCD in 2015 and 121 GPCD in 2020 (shown below in **Table 5-2**), a roughly 13 percent reduction from 2015 levels. The District has continued to be a leader in water use efficiency since the last UWMP in targeting conservation efforts to meet its per capita target. Because of these efforts, the District was well below the 2020 individual target of 173 GPCD. The worksheets to determine these targets are presented in the SBX7-7 Compliance tables submitted electronically to DWR upon the adoption of this UWMP and included in **Appendix B**.

Table 5-2: 2020 Compliance Form SBX7-7 2020 Compliance Form

2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 Total Adjustments	Adjusted 2020 GPCD*		
121	0	121	173	YES
*Notes: *All values are in Gallons per Capita per Day (GPCD)*				

Section 5.4 Regional Alliance

As a retail agency, MNWD has the option of complying individually or participating in a Regional Alliance. MNWD chose to participate in a Regional Alliance with MWDOC. MWDOC in collaboration with all its retail agencies as well as the Cities of Anaheim, Fullerton, and Santa Ana, has created the Orange County 20x2020 Regional Alliance to create flexibility in meeting the daily per capita water use targets. This Regional Alliance allows all of Orange County to benefit from regional investments, such as the groundwater replenishment system (GWRS), recycled water, and water conservation programs. Each agency within the MWDOC Regional Alliance calculates its own individual target, as if it were complying individually. The individual targets for each agency are then weighted by the supplier's population to develop a regional target. If the region does not comply with the regional target, an agency may still comply if it meets its own individual target. Information on the Regional Alliance target calculations and compliance is contained within MWDOC's 2020 UWMP (MWOC, 2021). The regional urban water use 2015 target was 173 GPCD and the 2020 target is 159 GPCD. Similar to the District's individual results, the actual 2015 GPCD achieved by the regional alliance was 125 GPCD indicating that not only has the region met its 2015 target but it is already below its 2020 water use target. The 2020 actual GPCD achieved by the regional alliance was 109 GPCD.

Chapter 6 Water Supply Characterization

Section 6.1 Purchased or Imported Water

The District's potable water supply is entirely imported water purchased from MWDOC. MWDOC in turn receives this imported water from MWD. MWD's main two sources of imported water come from the CRA and SWP, as shown in the inset map. In Fiscal Year 2018-2019, MNWD received on average about 34 percent of imported supplies from the CRA and 41 percent of supplies from the SWP. However, imported water ratios from the SWP and CRA varies throughout the year and from year to year based on hydrologic conditions in those regions. The existing imported water supply system serving Orange County is detailed in *Chapter 3, System Description*.

The District has entitlements and written contracts with MWDOC to receive imported (potable) water from MWD via the regional distribution system located in Orange County, detailed in *Chapter 3, System Description*. Although pipeline capacity rights do not guarantee the availability of water, they do guarantee the ability to convey water when it is available to the District's distribution system and therefore, operate in tandem with water entitlements and contracts to receive supplemental water for purposes of demonstrating not only water supply reliability, but also physical delivery system reliability. All imported water supplies discussed in this UWMP are available to MNWD from existing infrastructure.

The Agreement for Sale and Purchase of the AMP (Metropolitan Agreement No. 4623) among MWD, MWDOC, MWDOC Water Facilities Corporation, and certain other identified participants, including MNWD, dated July 1, 1994 (AMP Sale Agreement) requires MWD to meet MNWD's requests for water deliveries (subject to the availability of water from MWD). The AMP Sale Agreement further requires MWD to augment/increase capacity necessary to meet MNWD's projected ultimate service area water demands. Furthermore, the enumerated capacity is the nominal peaking capacity that can be exceeded subject to MWD's capacity rates based on max day demand over the past 3 years.

Section 6.1.1 State Water Project (SWP)

The Delta is a unique and valuable resource and an integral part of California's water system. It receives runoff from over 40 percent of the State's land area including flows from the Sacramento, San Joaquin, Mokelumne, Cosumnes, and Calaveras rivers. The Delta provides habitat for many species of fish, birds, mammals, and plants; supports agricultural and recreational activities; and is the focal point for water distribution throughout the State. The SWP system that brings water from northern California to the District relies on a viable Delta for its water supply.

Section 6.1.2 Colorado River Aqueduct (CRA)

Approximately 1,400 miles long and flowing through seven U.S. States and into Mexico, the Colorado River drains roughly one-twelfth of the land area of the contiguous United States. The Colorado River Basin is divided into the Upper and Lower Basins in northern Arizona. The Upper Basin spans portions of Wyoming, Colorado, New Mexico, Utah, and northern Arizona. The Lower Basin covers parts of Nevada, Arizona, California, southwestern Utah, and western New Mexico. The Colorado River also supplies water to parts of the states of Baja California and Sonora in northwestern Mexico (DOI, 2020). The Upper Colorado River Basin supplies approximately 90 percent of the water for the entire Basin. This water originates as precipitation and snowmelt in the Rocky and Wasatch Mountains. The Lower Basin is arid, with little tributary runoff reaching the mainstream of the Colorado River except during occasional rain events. Due to year-to-year fluctuations in precipitation and snowmelt, the natural water supply of the Basin is highly variable. Since most of the Basin's water supply comes from the Upper Basin, drought conditions in the Upper Basin impact water supply and resources in both the Upper and Lower Basins of the Colorado River (DOI, 2020).

Section 6.1.3 Other Contractual Agreements

MNWD has an emergency interconnection agreement with IRWD to supply treated water at 10.6 MGD with a maximum flow rate of 15.6 CFS for 30 days. The maximum incident volume IRWD will supply is 1,768 AF. The agreement also provides emergency water to the City of San Clemente, Laguna Beach County Water District, SMWD, and SCWD. Under the agreement, IRWD and the participating agencies jointly constructed various projects to transfer water to the Aufdenkamp Transmission Main and JTM. MNWD has capacity rights of 55 percent and is responsible for the same percentage of project costs and ongoing operations and maintenance. Water delivered through the interconnection is MWD water or locally produced water exchanged for MWD water. The option is not designed to address droughts, but only to be used during emergency conditions when MWD facilities are disrupted due to seismic events

or unplanned outages. The capacity right decreases over time, ultimately reaching zero in 2031 per the agreement.

Section 6.2 Groundwater

The San Juan Basin, a 26 square mile groundwater basin located in southern Orange County, is within the San Juan Creek Watershed. The San Juan Basin is comprised of four sub-basins: Upper San Juan, Middle San Juan, Lower San Juan, and Lower Trabuco and is bound on the west by the Pacific Ocean and by tertiary semi-permeable marine deposits. The San Juan Basin underlies portions of Mission Viejo, San Juan Capistrano, Dana Point and unincorporated areas of South Orange County. The Basin is recharged through flow from San Juan Creek, Oso Creek, and Arroyo Trabuco, precipitation to the valley floor, and Hot Spring Canyon spring flows.

MNWD is a member of the San Juan Basin Authority (SJBA), a joint powers authority (JPA) created in 1971 for the purpose of carrying out water resources development of the San Juan Basin. The members of the SJBA are SMWD, the District, SCWD, and the City of San Juan Capistrano. Since the San Juan Basin is categorized as a subterranean flowing stream, the SWRCB issues water rights permits for diversion and extraction of water from the basin. SJBA holds a permit for Diversion and Use of Water (Permit 21074), issued by the SWRCB (WEI, 2016). Permit 21074 was issued in October 2000 and amended in October 2011. Under Permit 21074, the SJBA may extract up to 8,026 AFY from the San Juan Basin (Basin). Currently, the City of San Juan Capistrano is the only SJBA member agency pumping water under Permit 21074. SCWD also holds a permit to divert and use water in the Basin. Permit 21138 was issued by the SWRCB in December 2002 and amended in July 2012. Under the original Permit 21138, SCWD could extract up to 976 AFY; under the amended permit, SCWD may extract up to 1,300 AFY (WEI, 2016). The District has not received any groundwater from the San Juan Basin. The District will continue to work with the interested SJBA agencies to investigate the enhancement opportunities and the District's potential to receive groundwater from the San Juan Basin, but for purposes of this 2020 UWMP, the District does not project to receive any groundwater from the San Juan Basin as a planned source of water, and therefore this resource is not further described. **Table 6-1** from DWR's UWMP tables identifies no groundwater is pumped.

Table 6-1: Groundwater Volume Pumped

☑	**Supplier does not pump groundwater. The supplier will not complete the table below.**					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type	Location or Basin Name	2016	2017	2018	2019	2020
	San Juan Basin	0	0	0	0	0
	Total	0	0	0	0	0
Notes: The District does not receive groundwater supplies from the San Juan Basin Authority.						

Section 6.3 Surface Water

For purposes of this 2020 UWMP, the District does not have any local surface water supplies available. It is possible that local surface runoff captured in Irvine Lake could be treated at the Baker WTP and made available to project participants in the event of an emergency event. However, the quantity of potential local supply from Irvine Lake has not been determined at this time, and thus from a conservative standpoint local surface water is not included as part of the District's projected water supply portfolio.

Section 6.4 Storm Water

For purposes of this 2020 UWMP, the District does not have any storm water projects or storm water supplies available. As part of the Smart Watershed Network Project, the use of dry weather runoff and storm water is being evaluated as a potential source of supply in the future. However, the quantity of potential urban runoff and storm water supplies from the watershed has not been determined at this time, and thus from a conservative standpoint storm water is not included as part of the District's projected water supply portfolio.

Section 6.5 Wastewater and Recycled Water

Section 6.5.1 Agency Coordination

There are a number of water agencies in South Orange County that provide potable water service as well as wastewater collection and treatment. These agencies depend on imported water supplies for the majority of their potable water supplies given that very little groundwater or other local supplies are available. These agencies, including the District, have been in the forefront of recycled water development to diversify water supplies. Expansion of recycled water and water reuse programs will continue to involve a close coordination with other water/wastewater agencies in South Orange County as partners in joint treatment facilities and shared conveyance infrastructure.

Section 6.5.2 Wastewater Description and Disposal

MNWD collects wastewater via a network of gravity lines, lift stations, and force mains throughout the service area. Wastewater is primarily residential in nature. There is very little contribution from commercial and industrial activities as MNWD is primarily residential.

Section 6.5.2.1 Plant 3A

The District's Plant 3A located in the city of Mission Viejo has a maximum capacity of 6 MGD and treats wastewater received from MNWD and SMWD. The District owns 72 percent of the treatment capacity, as identified with the District's capacity share agreement with SMWD. The District's wastewater flows average approximately 1.8 MGD. Plant 3A is currently operated by the District. Effluent is treated to secondary or tertiary levels depending on the disposal method, ocean outfall or beneficial reuse. Recycled water is treated to applicable Title 22 standards and used to irrigate parks and greenbelts. The District owns 100 percent of the recycled water treatment capacity. The District's average recycled water production is 1.2 MGD. Secondary effluent is conveyed to the San Juan Creek Outfall via the 3A Effluent Transmission Main. The District's average annual ocean discharge is 0.6 MGD.

Section 6.5.2.2 South Orange County Wastewater Authority (SOCWA)

South Orange County Wastewater Authority (SOCWA) is a JPA created on July 1, 2001 to facilitate and manage the treatment and disposal of wastewater for ten retail member agencies in South Orange County. SOCWA has ten member agencies that include: City of Laguna Beach, City of San Clemente, City of San Juan Capistrano, ETWD, Emerald Bay Service District, IRWD, MNWD, SMWD, SCWD, and Trabuco Canyon Water District. All these service areas receive wholesale water through MWDOC. The service area encompasses approximately 220 square miles including the Aliso Creek, Salt Creek, Laguna Canyon Creek, and San Juan Creek Watersheds. Costs for the operation and maintenance of treatment facilities by SOCWA are proportioned to each member agency primarily based on volume deliveries and/or capacity ownership of the plants. Over the past years, through active and passive conservation measures, wastewater flows in the District service area have decreased.

Within its service area, SOCWA operates three wastewater treatment plants and two ocean outfalls, with an additional nine wastewater treatment plants operated by SOCWA member agencies. Wastewater in the service area is collected at the local and regional level through a series of interceptors that convey influent to the wastewater treatment plants. The wastewater treatment plants use a conventional activated sludge process that treats wastewater to secondary treatment standards. Treated effluent throughout the service area is conveyed to two gravity flow ocean outfalls operated by SOCWA, Aliso Creek Outfall and San Juan Creek Outfall. The Aliso Creek outfall has a capacity of 33.2 MGD and extends 1.5 miles offshore near Aliso Beach in the city of Laguna Beach. The current average outfall use is approximately 9.3 MGD. The San Juan Creek outfall has a capacity of 36.8 MGD and extends 2.2 miles offshore near Doheny Beach in the City of Dana Point. The current average outfall use

is approximately 10.5 MGD. Full secondary treatment is provided at all wastewater treatment plants, with most plants exceeding this level of treatment when the water is beneficially reused.

The Coastal Treatment Plant (CTP) in Aliso Canyon, Laguna Niguel has a 6.7 MGD capacity and treats wastewater received from the City of Laguna Beach, Emerald Bay Service District, and SCWD to secondary effluent standards. The District owns 29 percent of the treatment capacity; however, the District does not currently use capacity in the CTP. The District's participation in the CTP will end in 2030, providing finality for the District's funding obligations.

The Regional Treatment Plant (RTP) in Laguna Niguel has a 12 MGD liquid waste capacity and 20 MGD solid waste handling capacity. The average capacity used is 7.3 MGD. The District owns 100 percent of the liquid treatment capacity and nearly 60 percent of solids treatment capacity. The RTP treats wastewater from MNWD's service area to secondary or tertiary levels depending on disposal method, ocean outfall or reuse such as landscape irrigation. Recycled water is treated to applicable Title 22 standards and is supplied to the District. The District owns the recycled water treatment facilities. Recycled water production is up to 7.3 MGD.

Secondary effluent is conveyed to the Aliso Creek Ocean Outfall via the SOCWA Effluent Transmission Main. Approximately 90 percent of the power needs are produced on-site from methane gas that is a byproduct of the treatment process.

The JB Latham Treatment Plant (JBLTP) located in the city of Dana Point has a 13 MGD capacity and treats wastewater from MNWD, City of San Juan Capistrano, SMWD, and SCWD to currently secondary effluent standards. The average capacity used today is approximately 6 MGD. The District owns 23 percent of the liquid treatment capacity and 22 percent of the solid's treatment capacity. The District's annual average flows are approximately 1.4 MGD. The secondary effluent is conveyed directly to the San Juan Creek Outfall as the plant does not have tertiary treatment. The District's annual average ocean discharge is approximately 1.4 MGD. Currently, there is no recycled water production at this plant.

Table 6-2 shows the share of flows to the wastewater treatment plants that the District owns capacity in 2020. **Table 6-3** summarizes wastewater treatment and discharge within the service area in 2020.

Section 6.5.3 Current Recycled Water Uses

MNWD has been a leader in wastewater reuse for irrigation purposes since 1968. Recycled water for non-potable use is delivered to customers in a separate distribution system of "purple pipes," which are required to keep recycled water separate from drinking water pipelines. MNWD produces approximately 21 percent of its supply by capturing treated water that would normally be discharged to the ocean. Treated water is reused for irrigation and other non-potable or non-drinking uses. Every gallon of recycled water used, saves a gallon of potable drinking water. In total, about 2.1 billion gallons (per FY 2016-17 results) of water is saved each year using recycled water.

In 1984, MNWD constructed a 0.6 MGD Advanced Wastewater Treatment Plant (AWT) at the RTP. This tertiary treatment facility produced water for irrigating the El Niguel Country Club in Laguna Niguel and produced approximately 350 AFY for the Country Club. In 1989, the AWT Plant was expanded from 0.6 to 2.4 MGD of tertiary treatment capacity to expand service from the El Niguel Country Club to Crown Valley Community Park, Laguna Niguel Regional Park, and several greenbelt areas within the City of Laguna Niguel. In 1996, MNWD constructed a second AWT Plant at the RTP with a capacity of 9 MGD along with an underground reclaimed water storage tank. The original 2.4 MGD plant was abandoned. In 1991, MNWD constructed a 2.4 MGD AWT facility at Plant 3A to provide recycled water for irrigation use. MNWD has expanded its reclaimed water supply capacity to provide maximum month demands for its reclaimed water distribution system. This system serves two separate hydrologic areas (HA): Laguna HA 1.1 (including the Laguna Niguel, Aliso Viejo, and Dana Point hydrologic sub-areas), and Mission Viejo HA 1.2. The system serves reclaimed water from two water reclamation treatment plants: (1) Plant 3A AWT and (2) RTP AWT. The District also has contracts to purchase recycled water from the SCWD, if necessary, and can be supplied to the distribution system through shared facilities in Laguna Niguel. MNWD also has 1,000 AF of seasonal storage for its recycled water distribution system in the Upper Oso Reservoir. **Table 6-4** presents the current and projected uses for recycled water in MNWD. **Table 6-5** provides a comparison of the projected 2020 recycled water demands from the 2015 UWMP with actual demands. The usage is limited to landscape irrigation with tertiary treated water meeting Title XXII standards.

Table 6-2: Wastewater Collected Within Service Area in 2020

☐	There is no wastewater collection system. The supplier will not complete the table below.
100%	Percentage of 2020 service area covered by wastewater collection system *(optional)*
100%	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 (AFY)**	**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? *(optional)***
MNWD	Metered	8,680	SOCWA	Regional Treatment Plant	Yes	Yes
MNWD	Metered	1,761	MWND	3A Treatment Plant	Yes	No
MNWD	Estimated	1,149	SOCWA	JB Latham Treatment Plant	No	Yes
MNWD	Estimated	0	SOCWA	Coastal Treatment Plant	Yes	Yes
Total Wastewater Collected from Service Area in 2020:		11,590				

Notes: The reported volumes are the amount of contributed wastewater from the District. In Fiscal Year 2019, the District began operating the 3A wastewater treatment plant.

Table 6-3: 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**	**Method of Disposal**	**Does This Plant Treat Wastewater Generated Outside the Service Area?**	**Treatment Level**	**2020 volumes**				
						Wastewater Treated (AFY)	**Discharged Treated Wastewater (AFY)**	**Recycled Within Service Area (AFY)**	**Recycled Outside of Service Area**	**Instream Flow Permit Requirement**
Regional Treatment Plant	Aliso Creek Ocean Outfall	Ocean	Ocean outfall	No	Tertiary	8,680	3,995	4,685	0	0
3A Treatment Plant	San Juan Creek Ocean Outfall	Ocean	Ocean outfall	Yes	Tertiary	1,761	957	804	0	0
JB Latham Treatment Plant	San Juan Creek Ocean Outfall	Ocean	Ocean outfall	Yes	Secondary, Undisinfected	1,149	1,149	0	0	0
Coastal Treatment Plant	Aliso Creek Ocean Outfall	Ocean	Ocean outfall	Yes	Tertiary	0	0	0	0	0
					Total	11,590	6,101	5,489	0	0

Notes: The District has storage in Upper Oso Reservoir leading to the differences between this table and Table 6-4 in total recycled water delivered versus treated. The quoted numbers are for the amount of wastewater contributed from the District.

Table 6-4: 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:	Moulton Niguel Water District
Name of Supplier Operating the Recycled Water Distribution System:	Moulton Niguel Water District
Supplemental Water Added in 2020 (volume) *Include units*	108.65 AF
Source of 2020 Supplemental Water	Municipal Water District of Orange County

Beneficial Use Type	**Potential Beneficial Uses of Recycled Water (Describe)**	**Amount of Potential Uses of Recycled Water (Quantity)** ***Include volume units***	**General Description of 2020 Uses**	**Level of Treatment**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Landscape irrigation (excludes golf courses)	Outdoor irrigation	7,200 AF	Slopes, medians and parkways	Tertiary	4,266	5,758	5,711	5,693	5,681	5,689
Golf course irrigation	Outdoor irrigation	1,000 AF	Golf course irrigation	Tertiary	747	640	635	633	631	629
				Total:	5,013	6,398	6,346	6,326	6,312	6,288

Table 6-5: 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 (AFY)**	**2020 Actual Use (AFY)**
Landscape irrigation (excludes golf courses)		6,762	4,266
Golf course irrigation		877	747
Other	*Losses*	472	
	Total	8,111	5,013

Section 6.5.4 Potential Recycled Water Uses

MNWD completed its RWMP in June 2017 and the RWOS in July 2019. The RWMP study identified 465 potable irrigation meters and 1,695 AFY demand that could feasibly be retrofitted to the recycled water system. Retrofit of all 465 potable irrigation meters to the recycled water system would have required additional seasonal storage. Through its unique partnership with Netflix, MNWD decided not to pursue additional seasonal storage and would limit the number of retrofits made in the future so that a maximum seasonal storage of 1,000 AF will not be exceeded during the high demand periods. MNWD saved $20 million in less than one year by applying predictive modeling tools and analytics used by Netflix. MNWD was able to better forecast recycled water usage and realized that instead of building an expensive reservoir to store water for peak usage, the recycled water usage can be better managed to avoid the cost of acquiring additional seasonal storage capacity.

Based on the existing demands and 1,000 AF of seasonal storage capacity, the RWMP determined that about 514 AFY of additional demand could be retrofitted and added to the existing recycled water system. The RWOS identified that if a portion of the sewage that is currently tributary to the JBLTP were to be captured and pumped back to either Plant 3A Treatment Plant or the RTP, about 1,274 AFY of additional demand could be retrofitted to the recycled water system while still maintaining 1,000 AF of seasonal storage capacity. 208 AFY of the retrofits have been accounted for since the completion of the RWMP. Therefore, 306 AFY (514 AFY – 208 AFY) is the remaining additional potential demand with the current supply and 1,066 AFY (1,274 AFY – 208 AFY) is the remaining additional potential demand with increased supply due to sewage diversion from JBLTP.

The RWOS was performed to determine which potable irrigation customers could be retrofitted to recycled water without triggering the need for additional seasonal storage, while minimizing the cost for capital improvement projects that would be needed within the existing system and the potable make-up water that would be needed for the additional demand. A hydraulic model was developed that evaluated three scenarios, interim, future, and final. The future and final scenarios were based on implementation of long-term improvements at Plant 3A and JBLTP. Of the 448 meters evaluated, 30 meters have been prioritized and assigned to the interim scenario. A total of 70 meters have been

prioritized and assigned to the future scenario. A total of 204 meters have been prioritized and assigned to the final scenario. The Near-Term Improvement Projects total $1.4M and are planned to be constructed in the next 5 years. The Long-Term Improvement Projects total $11.2M and are planned to be completed in the next 5 to 10 years. **Table 6-6** identifies the potential for the recycled water expansion.

Table 6-6: 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 6.5.4, page 53	Provide page location of narrative in UWMP		
Name of Action	**Description**	**Planned Implementation Year**	**Expected Increase in Recycled Water Use (AFY)**
Near-Term Improvement Projects	Expanding recycled water use with the current supply available.	2025	306
Long- Term Improvement Projects	Expanding recycled water use with increased supply due to sewage diversion from JBLTP.	2030	1,066
		Total	1,372

Section 6.6 Desalinated Water

As part of the District's 2020 LRWRP Update, the District evaluated ongoing desalination projects in the various planning stages. Two conceptual desalination projects were evaluated, the Huntington Beach Water Desalination Facility and Doheny Desal. The District has expressed interest in potentially participating in the Huntington Beach Water Desalination Facility but has not committed to participation in the project, should it be constructed. This decision will await determination of the final cost of the product water and timing of implementation. The District has not expressed interest in participating in the Doheny Desal project at this time. Given the projects are still in the planning stages and the District has not committed to participate, desalinated water is not included as part of the District's projected water supply portfolio.

Section 6.7 Exchanges or Transfers

The District does not currently have any exchange or transfer agreements in place. However, the District is always evaluating opportunities for local and regional exchanges to provide greater system and long-term reliability.

Section 6.8 Future Water Supply Options

This section presents the full range of water supply options that are considered in the 2020 UWMP. All these projects are still in the planning stages and are not currently planned for implementation. The

District will continue to evaluate the feasibility of implementing one or more of these projects, as outlined in the District's 2020 LRWRP Update. It is anticipated the District will participate in some type of emergency or dry-year water storage program by 2030.

Section 6.8.1 Direct Potable Reuse

Direct potable reuse (DPR) may offer an opportunity for MNWD to expand the use of recycled water. The planned replenishment of groundwater basins with recycled water, a form of indirect potable reuse (IPR), has been practiced in the State for over 50 years (SWRCB, 2019) with OCWD spearheading much of the innovation. OCWD has operated a system of groundwater injection wells at the Talbert Gap to keep seawater out of the groundwater basin underlying Orange County since 1965 and in 1976 started supplementing imported water with recycled water as a source of injection water (SWRCB, 2019). In 2018, the SWRCB adopted regulations for another form of IPR, surface water augmentation. Surface water augmentation allows for recycled water to be added to a surface water reservoir that is used as a source of drinking water. The first two projects proposed, both in San Diego County, are expected to be completed in the 2025-time frame (SWRCB, 2019).

DPR means the planned introduction of highly treated recycled water either directly into a public water system, as defined in Section 116275 of the Health and Safety Code, or into a raw water supply immediately upstream of a water treatment plant. AB 574 requires the SWRCB to adopt uniform water recycling criteria for DPR through raw water augmentation by December 31, 2023, with provisions for extension of the deadline. Raw water augmentation means the planned placement of recycled water into a system of pipelines or aqueducts that deliver raw water to a drinking water treatment plant that provides water to a public water system, as defined in Section 116275 of the Health and Safety Code. DPR regulations will include additional criteria to compensate for the loss of the protective benefits assured by the presence of a meaningful environmental buffer in IPR projects. DPR projects might be regulated with both Waste Discharge Requirements and public drinking water system permits, or simply a public drinking water system permit. With the establishment of DPR Regulations, protection of public health would be addressed via compliance with the regulations, as well as permits issued to public water systems. (SWRCB, 2019).

Currently a portion of municipal wastewater from MNWD is treated by SOCWA at the RTP in Laguna Niguel. Two treatment stages are employed, secondary undisinfected and tertiary, depending on the end use of the treated water. Wastewater is treated to tertiary standards when it is recycled for irrigation uses. In the winter months, there is excess wastewater that is discharged to the ocean. This available resource could be treated and either put through a natural barrier and used in the potable distribution system or directly treated to potable water. MNWD desires to maximize reuse of water from the RTP to diversify our water supply portfolio. To do this, MNWD is conducting a feasibility study utilizing Laguna Niguel Lake to determine the potential to increase beneficial use of recycled water for

implementation of a DPR Project. Due to the high cost of providing the remaining recycled water to customers, this strategy could prove more cost effective to use as a base-loaded water resource and will help the District to be more self-reliant with its local water supply sources.

Section 6.8.2 Emergency Storage Program (OCWD Groundwater Exchange/Banking)

Orange County Water District (OCWD) and MNWD are considering developing a short-term pilot storage program enabling MNWD and potentially other South County Agencies to store imported water purchased from MWD in the Orange County Groundwater Basin. The stored water would be recovered and delivered to MNWD for use during drought periods and/or emergencies (e.g., system and supply reliability). For MNWD, storage in the Orange County Groundwater Basin may represent one cost effective approach to improving water supply reliability. OCWD and MNWD have discussed a relatively small short-term (5-10 years) pilot storage program. The storage would rely on existing available recharge capacity and would not impact the operations of OCWD or the other basin producers. The potential pilot program would enable OCWD to test the concept of storage in the Orange County Groundwater Basin for SOC water agencies and help to establish the necessary institutional arrangements for such storage. OCWD and MNWD are currently finalizing a study that compiled and analyzed various storage programs throughout the southwest United States. This information will be used by OCWD to assist in the potential development of the pilot storage program. The study will be completed in 2021. At that time, MNWD will work with OCWD to determine the feasibility and timing for a potential pilot storage program.

Section 6.8.3 South Orange County Emergency Interconnection Extension & EOCF#2 Pump-In

In 2006, multiple South Orange County water agencies entered into an Emergency Services Program agreement with OCWD and MWDOC that authorized the use of groundwater by South Orange County agencies from the Orange County groundwater basin. The program was developed to deal with emergency water system outages or planned shutdown scenarios in which imported supplies normally delivered into South Orange County are curtailed, eliminated, or unavailable for up to 30 days. Following completion of that agreement, an emergency interconnection agreement was developed with IRWD to convey water from their system into the distribution system serving South Orange County. The IRWD Interconnection Agreement calls for IRWD to provide up to 30 CFS to South Orange County water agencies during emergency events (MWDOC, 2019) with MNWD receiving treated water at 10.6 MGD with a maximum flow rate of 15.6 CFS for 30 days (MNWD, 2015). The maximum incident volume IRWD will supply is 1,768 AF (MNWD, 2015).

Under the agreement, IRWD and the participating agencies jointly constructed various projects to transfer water to the Aufdenkamp Transmission Main and the JTM. MNWD has capacity rights of 55 percent and is responsible for the same percentage of project costs and ongoing operations and

maintenance (MNWD, 2015). Water delivered through the interconnection is MWD water or locally produced water exchanged for MWD water. The option is not designed to address droughts, but only to be used during emergency conditions when MWD facilities are disrupted due to seismic events or unplanned outages. Recent conversations involving MWDOC and South Orange County agencies indicates an interest in exploring with IRWD the possibilities of providing more flow than the existing agreement provides for, and/or extending the agreement past the current expiration year of 2031. MWDOC and IRWD are currently studying an expansion of the current program.

In addition to the IRWD Interconnection, OCWD and MNWD are currently studying the potential to pump water from the groundwater basin directly into the EOCF#2 under the terms of the Emergency Services Program Agreement. OCWD and MNWD are finalizing a conveyance study that is evaluating potential locations and partner agencies to consider a second emergency interconnection with the groundwater basin. That study is expected to be finalized in 2021. The intent of the pump-in to the EOCF#2 would be to supply water to South Orange County during emergency situations when MWD water is unavailable (MWDOC, 2019). The EOCF#2 is a major pipeline that runs from the Diemer WTP in Yorba Linda to central Orange County where it connects to other pipelines that convey water into South Orange County (i.e., the Joint Regional Water Supply System and the Aufdenkamp Transmission Main). This project would not be used by South Orange County for water supply reliability needs during dry years or droughts. (MWDOC, 2019).

Section 6.8.4 Strand Ranch Banking

Rosedale-Rio Bravo Water Storage District and IRWD developed groundwater banking facilities on the Strand Ranch in Kern County for use by both districts. All groundwater banking facilities on the Strand Ranch are owned by IRWD and operated and maintained by Rosedale for the duration of the project. IRWD purchased approximately 661 acres at Strand Ranch in western Kern County and entered into a 30-year water banking and exchange agreement with Rosedale-Rio Bravo Water Storage District (Rosedale). IRWD constructed approximately 502 acres of recharge basins and extraction wells on the property. Storage capacity is 50,000 AFY with recharge and recovery capacities of 17,500 AFY. In return for every 3 AF of water banked, 2 AF remains for benefit of Kern County Water Agency and IRWD can withdraw 1 AF. IRWD is limited to extracting amounts recharged minus losses as dictated in the Memorandum of Understanding.

MWDOC and IRWD entered into discussions regarding MWDOC offering participation in the IRWD Strand Ranch Water Banking Program. MWDOC plans to conduct further work on the proposed terms and conditions for MWDOC's agencies to participate in the program. The initial proposed terms and conditions as a pilot program included MWDOC paying IRWD a $25/AF annual reservation charge over the life of the agreement for up to a maximum of 5,000 AF to be reserved. If MWDOC reserved the entire 5,000 AF, the fixed cost payment would be $125,000 per year; the pilot program was suggested to extend over the next seven years; the total fixed payments over this period would be $875,000. During a MWD water allocation scenario, the water can be called at an additional cost of approximately $1,776/AF in 2025, consisting of an IRWD charge of $533/AF for facilities, the cost of water and extraction costs, plus a MWD wheeling payment of $1,243/AF (total cost is approximately $1,952/AF if

the reservation fee is included). The cost of this water is about $771/AF less than the cost of purchasing MWD water at the allocation surcharge water rate in 2025. MWDOC will be studying these terms and conditions to determine if this pilot program meets the needs of its agencies. This program would only provide supply reliability benefits (MWDOC, 2019).

Section 6.8.5 Santiago Reservoir (Emergency)

Since it was originally constructed in 1933, the primary purpose of Irvine Lake (Santiago Reservoir) is to store water for the benefit of the surrounding communities – initially to provide irrigation water for local farms, and more recently to satisfy water demands primarily for urban needs. Surface water from the Santiago Creek watershed is stored in the reservoir along with untreated water purchased from MWDOC/MWD. IRWD utilizes water from Irvine Lake for two purposes: 1) as a source of water for non-drinking purposes, such as irrigation for avocado orchards, and 2) as a source of water for the Baker WTP which treats the supply for drinking water for an estimated 85,000 homes in Orange County. Serrano Water District (SWD), a co-owner of Irvine Lake with IRWD, also uses water from Irvine Lake to supply its water treatment plant to provide drinking water to its customers in the City of Villa Park and a small part of the City of Orange (IRWD, 2020). IRWD owns 75 percent of the water rights with SWD owning the remaining 25 percent. In the event of an emergency if available, water from Irvine Lake could be treated to the maximum capacity of the Baker WTP currently 43.5 CFS to continue delivering water into South Orange County.

Section 6.8.6 MWD Treated Imported Water (Tier 1 and Tier 2)

Purchasing additional supply from MWD would be used to fill any gaps between projected water demands and existing/new local supplies. Water can be purchased from MWDOC/MWD above a member agency's annual allocation amount but is charged in addition to MWD's standard rates for water service. Each member agency has a predetermined amount of water that can be purchased at the lower Tier 1 supply rate. Purchases more than this limit will be made at the higher Tier 2 supply rate. The Tier 2 supply rate is charged on MWD water sales that exceed a member agency's Tier 1 maximum. During periods of extreme water supply shortages, MWD utilizes its Water Shortage Allocation Plan (WSAP) to allocate a specific reduced level of MWD supplies as determined by the MWD Board. If MWD member agencies need and purchase water above their allocation amount, substantial allocation surcharges are imposed. Allocation surcharges are only assessed to the extent that an agency's total annual usage exceeds its total annual allocation. The allocation surcharge structure is a two-tier structure that provides a lower level of allocation surcharge for minor overuse of allocations and a higher level of allocation surcharge for major overuse of allocations. Water use between 100 percent and 115 percent of WSAP supply allocations is currently charged with the allocation surcharge of $1,480 per AF. Water use greater than 115 percent of WSAP supply allocations is currently charged at two times the allocation surcharge or $2,960 per AF. However, these allocation surcharges are not static and are subject to increase in the future as the WSAP is implemented. Tier 2 water from MWD is often considered to be the marginal cost of imported water, since it reflects the costs for MWD in securing

higher-cost water to meet demands in excess of its baseline demands, and thus is used to compare other local investments against. The Tier 2 supply rate encourages the member agencies and their customers to maintain existing local supplies and develop cost-effective local supply resources and implement water efficiency and conservation programs.

Section 6.9 Summary of Existing and Planned Sources of Water

Currently MNWD's potable water supply is entirely imported water purchased from MWDOC. MNWD is planning to identify more local water supplies as a part of its future water supply portfolio, as outlined in the District's 2020 LRWRP Update. **Table 6-7** presents the expected future water supply projects that are anticipated to be in place over the next 10 years. The recycled water projects increase supply availability and reliability for the District. The supplies are managed to meet demands on each of the two separate systems. However, if the availability of recycled water were limited, potable water could be used to meet landscape demands, if necessary.

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

☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
Section 6-8, page 53	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier
	(y/n)	*If Yes, Agency Name*				
Recycled Water Expansion	No		Near-Term Improvement Projects	2025	All Year Types	306
Recycled Water Expansion	No		Long-Term Improvement Projects	2030	All Year Types	1,066
LRWRP Potential Projects	Yes	See Section 6.8	Emergency or Dry Year Supplies	2030	Single Dry and Multi-Dry Year	4,000
Notes: The 2020 LRWRP Update identifies many emergency and dry year sources of supply. These various potential projects are in the initial planning phases as discussed in Section 6.8.						

Table 6-8 presents the amount of water currently available to the District. The amount used in FY 2019-2020 is provided along with each supply's water quality.

Table 6-8: Water Supplies – Actual

Water Supply	Additional Detail on Water Supply	2020		
These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume (AFY)	Water Quality	Total Right or Safe Yield *(optional)*
Purchased or Imported Water	Purchased from MWDOC	23,083	Drinking Water	
Recycled Water	Produced locally	5,013	Recycled Water	
Total		28,096		

Table 6-9 presents the projected imported and recycled water supplies available to the District. Projected water supplies are estimated based on historic deliveries.

Table 6-9: Water Supplies – Projected (AFY)

Water Supply	Projected Water Supply				
	2025	**2030**	**2035**	**2040**	**2045**
Purchased or Imported Water	25,695	25,436	25,286	25,161	24,992
Recycled Water	6,398	6,346	6,326	6,312	6,288
Total	32,093	31,782	31,612	31,473	31,280

Section 6.10 Special Conditions

There are several factors that can impact water supplies. Climate variability can impact supplies, and this is addressed in Section 4.5, Potential Climate Variability Effects on Water Demands and Supplies and in *Chapter 7*. In summary, climate variability is expected to shift precipitation patterns and affect water supply, which will make water supply planning even more challenging. The areas of primary concern for the imported supply include the reduction in Sierra Nevada and Colorado River Basin snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure in the Delta. However, other conditions unique to each imported water source may also affect water supplies. SWP operations are subject to legal, environmental, and water quality factors

resulting in export reductions from the Delta, releases of additional water from storage, other operational changes associated with endangered species, or water quality requirements in the Delta. Colorado River supplies are also subject to various regulatory and environmental concerns. MWD has been active in responding to potential water quality concerns by protecting source water quality and developing water management programs that maintain and enhance water quality in the Colorado River system. These conditions have been considered in analyzing the availability of water supplies available to the District, as detailed in *Chapter 7, Water Supply Reliability Assessment*.

Section 6.11 Energy Intensity

The Water Code now requires that a readily obtainable energy intensity analysis be included in the UWMP. Energy intensity is defined as the total amount of energy an urban water supplier expends per AF to convey water from the point where the supplier acquires the water to the point of delivery. Because the District imports potable water from MWDOC and MWD, the District does not have operational control over the upstream portion of the water system. The upstream supply and conveyance energy used for untreated water consists of conveyance of water from the SWP and the Colorado River through MWD's and MWDOC's service area. Refer to MWD's 2020 UWMP for information regarding energy intensity upstream of the District's service area.

The District operates water, wastewater, and recycled water facilities within its service area. Readily available energy use data was used for the analysis in this section of the UWMP. The water entering the water management process is used to calculate energy intensity in this analysis. The energy intensity of water, or the energy needed to move one unit of water through each segment of the water-use cycle (water distribution), is expressed in kilowatt per AF (kWh/AF). **Appendix F** includes the DWR energy intensity tables and the information is summarized below.

Section 6.11.1 Water Treatment and Distribution

The water treated at the Baker WTP and all the imported water entering the District's water distribution process is used to calculate energy intensity in this analysis, as shown in **Table 6-10**. The water treatment data included in Table 6-10 is the District's water treated at the Baker Water Treatment Facility in Lake Forest. The energy use data was from IRWD's 2018 Embedded Energy plan obtained from IRWD staff. Potable distribution energy use is associated with the District's pumping stations, pressure reducing stations, reservoirs, and take-out structures.

Table 6-10: Water Energy Reporting

Potable Water	Treatment	Distribution	Total Utility	Net Utility
Volume of Water Entering Process	8,031	23,083	23,083	23,083
Energy Consumed (kWh)	7,388,520	3,753,158	11,141,678	11,141,678
Energy Intensity (kWh/vol.)	920.0	162.6	482.7	482.7

Section 6.11.2 Wastewater and Recycled Water

This section summarizes the energy used for wastewater treatment operations and recycled water. The data is taken from the District's SCE and San Diego Gas & Electric (SDG&E) accounts associated with wastewater infrastructure and from SOCWA who operates two of the wastewater treatment plants. The treatment column includes data from Plant 3A, RTP and, JBLTP. However, data obtained for RTP and JBLTP are from November 2019-October 2020 while the remainder of the data is FY 2019-2020. **Table 6-11** reports the energy intensities expended by recycled water and wastewater for readily available energy data.

Table 6-11: Wastewater and Recycled Energy Reporting

	Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Wastewater Entering Process (volume units selected above)	5,795	5,795	0	11,590
Wastewater Energy Consumed (kWh)	2,856,995	8,132,235	0	10,989,230
Wastewater Energy Intensity (kWh/volume)	493.0	1,403.3	0	948.2
Volume of Recycled Water Entering Process (volume units selected above)	0	0	5,489	5,489
Recycled Water Energy Consumed (kWh)	0	0	4,097,703	4,097,703
Recycled Water Energy Intensity (kWh/volume)	0	0	746.5	746.5

Section 6.11.3 Energy Projects

The District is working to improve the energy efficiency of its operations and partnering with research institutions to create solutions that will benefit California's water and energy industries. Renewable energy now comprises a large share of the energy supply portfolio in California. Solar energy is the dominant renewable energy available in the energy market. Power production of solar energy peaks during the day, while energy demand peaks in the evening, creating a timing imbalance between energy supply and demand (see **Figure 6-1** of "duck curve" below of net load of energy demand). Energy utilities across the state have developed time-of-use rate programs to incentivize energy users to shift demands to take advantage of the surplus of solar energy. Water production and supply operations require a substantial amount of energy, both at the retail level and in the aggregate. If water agencies can adjust more energy-intensive operations to daytime hours, it could have a significant positive effect on the state's energy grid and it would act to reduce the greenhouse gas intensity of each AF delivered, since operations would be largely powered by renewable energy.

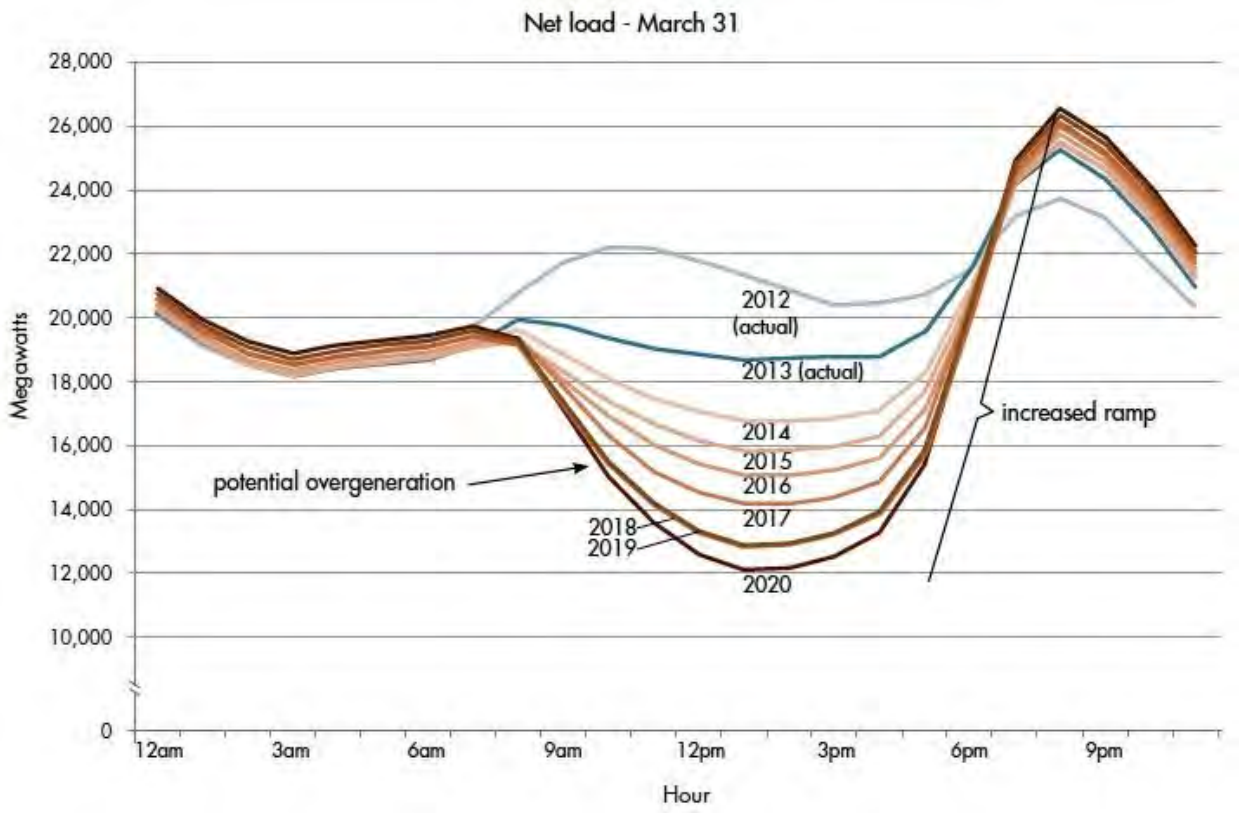


Figure 6-1: "Duck Curve" of Net Load of Energy Demand

Source: Office of Energy Efficiency & Renewable Energy, 2017.

In 2017, the District partnered with Center for Water and Energy Efficiency at the University of California, Davis to evaluate opportunities to shift pumping operations to better align with the time-of-use rates provided by its two energy service providers. The project was funded by a $3 million dollar grant from the California Energy Commission and resulted in the development of an energy demand management software application, WaterWatch, a decision support tool for operators that leverages the District's potable and recycled water hydraulic models, SCADA and GIS systems, and water consumption data. The pilot began in March 2021 and will conclude in December 2021. In a parallel effort to make this software available to water agencies Statewide, the California Water Efficiency Partnership is creating user groups to pilot the WaterWatch software at water agencies across the State.

Chapter 7 Water Service Reliability and Drought Risk Assessment

Section 7.1 Overview

The District relies on imported supplies provided by MWD through MWDOC and local recycled water supplies. Historically, most of the imported supply has come from the CRA. Improvements made to MWD's system allow greater flexibility in conveying northern California supplies from the SWP to Lake Mathews and in incorporating transfers, exchanges, and storage programs into MWD's supply portfolio.

During the 20th century, California experienced three significant historical statewide droughts: the six-year event of 1929 to 1934, the two-year event of 1976 to 1977, and the six-year event of 1987 to 1992. In the decade prior to an unusually wet 2017, all but two years were drought years; the statewide drought of 2007 to 2009 was soon followed by the statewide drought of 2012 to 2016. The 2007 to 2009 drought marked the first time that a statewide proclamation of emergency was issued because of drought impacts. A statewide proclamation was repeated with the 2012 to 2016 drought (DWR, 2020).

Section 7.2 Water Service Reliability Assessment

As a part of the 2020 LRWRP Update, the District compared the water demand forecast against water supplies and system capacity under various hydrologic and emergency outage scenarios. The difference between the demand and the existing supply and system capacity was used to identify and evaluate future water supply approaches that could be implemented by MNWD. The 2020 LRWRP Update then examined the relative risks of various supply options. The 2020 LRWRP Update analysis of system and supply reliability indicates that without future investments by MNWD, water supply gaps may occur as a result of system outages or hydrologic variability.

In addition, MWDOC undertook the "Orange County Water Reliability Study" to identify future conditions of regional water reliability, evaluate shortages that could be caused by seismic events or other unplanned system outages, evaluate shortages caused by hydrologic droughts and extended dry periods, and provide comparative information on local projects that could provide supply reliability benefits. Results indicate that with no new projects by MWD, MWDOC, and member agencies, and without the Delta Conveyance Project, there may be supply shortages in the future. However, emergency supply investments and water transfers demonstrate that regional reliability can be achieved in a cost-effective manner.

It is important to note that while the 2020 LRWRP Update identified potential supply gaps into 2050, MWD has always been able to provide the supply needed by MNWD. MWD projects that it will be able to continue to provide a reliable source of imported water to MNWD. As such, supply gaps identified in the 2020 LRWRP Update do not necessarily represent lack of supply but rather the amount of supply that would be more costly to purchase consistent with MWD's WSAP penalty fees. Given the drought

conditions experienced recently that are anticipated to occur more frequently in the future due to climate change, these potential supply gaps addressed in the 2020 LRWRP Update represent a risk to MNWD's future water supply costs that may be better balanced with cost-effective local supplies or emergency storage or interconnections that would also increase water reliability. As discussed in *Chapter 6, Section 6.8 Future Water Supply Options*, programs and projects are being investigated by MNWD, MWD, and MWDOC to continue to increase supply reliability.

Because this UWMP reliability assessment is based on the availability of potable and non-potable water supplies, not a constraint of increased costs to produce the supply, it is assumed that the District will increase its purchases of MWD supplies as necessary during dry years. Purchases of potable supplies were assumed to not exceed historical purchases. Constraints on water sources and expected water service reliability for a normal year, single dry year, and five consecutive dry years projections for 2025 through 2045, are discussed in this chapter.

Section 7.2.1 Constraints on Water Sources

The District's recycled water supply is a highly reliable supply. However, various factors have the potential to affect the availability and reliability of the District's imported potable supplies that are delivered from MWD through MWDOC. In its final draft 2020 UWMP, MWD identified risks and uncertainties that could potentially influence the reliability of its supplies associated with the following key factors:

- Sacramento River-San Joaquin River Delta Challenges
- Water Supply Conditions

In addition, the Colorado River basin has large fluctuations in annual hydrologic conditions, but these variations are buffered through a large volume of storage. Analysis of historical records suggests a potential change in the relationship between precipitation and runoff in the Colorado River basin which has contributed to a drying trend over the last couple of decades.

Water quality challenges, such as algae toxins, per- and polyfluoroalkyl substances (PFAS), and the identification of constituents of emerging concern, have a significant impact on the region's water supply conditions. The following discussion of key challenges is excerpted from the MWD 2020 UWMP, which is expressly referenced and incorporated herein, for the purpose of providing context on the District's imported supply reliability (MWD, 2021).

Bay Delta Issues. About 30 percent of Southern California's water supply moves from Northern California through the Delta, a critical link, to pumps in the south Delta. Endangered species protection and conveyance needs in the Delta have resulted in operational constraints to pumping. The Delta's declining ecosystem and the difficulties operating the SWP system have led to factors that can result in export reductions from the Delta, releases of additional water from storage, other operational changes associated with endangered species, or water quality requirements.

The District, through its contract with MWDOC to purchase water from MWD, is linked to all activities that impact supplies conveyed through the Delta. Even though, due to physical infrastructure, the District generally receives more Colorado River water than Delta water, MWD supplies are integrated. Not only do Delta restrictions impact SWP supplies, but so do voluntary transfers, Central Valley storage and transfers, in-region groundwater storage, and in-region surface water storage. This section summarizes the following specific Delta challenges.

Previous efforts to develop the California WaterFix project (to improve operational reliability through the Delta) have been reconfigured for a single tunnel and is now called the Delta Conveyance Project. This proposed project involves construction and operation of new Delta conveyance facilities to improve existing SWP facilities. New intake facilities as points of diversion would be located in the north Delta along the Sacramento River between Freeport and the confluence with Sutter Slough. A single main tunnel would convey water from the new intakes to the existing Banks Pumping Plant and potentially the federal Jones Pumping Plant in the south Delta. These new facilities would provide an alternate diversion location from the Delta and would be operated in coordination with the existing south Delta pumping facilities.

Due to new information and science on declining listed fish species populations, the U.S. Bureau of Reclamation (USBR) released the 2019 Biological Opinion and signed a Record of Decision completing its environmental review and adopting the 2019 Long-Term Operations Plan. The 2019 Long-Term Operations Plan and 2019 Biological Opinions are expected to increase SWP deliveries by an annual average of 200,000 AF compared with previous Biological Opinions. On March 31, 2020, California Department of Fish and Wildlife issued a California Endangered Species Act (ESA) incidental take permit for the SWP that included further operational restrictions on outflow. The final approved project and incidental take permit reduce long-term average SWP deliveries by more than 200,000 which would negate any potential improvement in SWP water supply reliability anticipated to result from the 2019 Biological Opinions. According to the MWD 2020 UWMP, the continued decline of some fish populations and certain operational actions in the Bay-Delta may significantly reduce MWD's water supply availability. Future new or revised Biological Opinions or incidental take authorizations under the Federal ESA and California ESA might further adversely affect SWP and CVP operations.

In December 2018, the SWRCB adopted the Phase 1 (San Francisco) Bay-Delta Water Quality Control Plan (Bay-Delta Plan) amendments and Final Substitute Environmental Document. The Phase 1 updates established new Lower San Joaquin River flow objectives and revised southern Delta salinity objectives. In July of 2018, the SWRCB released a framework that describes the draft proposal for Phase 2, which will update the flow requirements for the Delta and its contributing watersheds, including the Sacramento River and its tributaries. The framework provides additional details about the flow requirements staff is likely to propose, how these new requirements could be implemented, and preliminary information on their potential environmental benefits and water supply effects.

In addition to these key Bay-Delta challenges, new litigation, listings of additional species under the ESAs, or new regulatory requirements imposed by the SWRCB could 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 (MWD, 2021).

Water Supply Conditions. As discussed in *Section 4.5, Potential Climate Variability Effects on Water Demands and Supplies* and *Section 6.10, Special Conditions*, fluctuations in annual hydrologic conditions have been evident recently with its impacts being felt most severely on the SWP supply. Within the last decade, the SWP has experienced the lowest ever allocation of contract supplies, the lowest ever northern Sierra snowpack (affecting SWP's Feather River/ Lake Oroville supply), highest ever Sacramento River runoff, and the highest SWP allocation since 2006.

DWR's most recent SWP Delivery Capability Report (2019) found that the average delivery of Table A water (most reliable) is 157,000 AF less than that estimated for the 2017 Report. DWR takes into account water quality objectives, biological opinions, and incident take permits, among other considerations. The reduced delivery reliability is primarily due to amendments to the 2018 Coordinated Operating Agreement between the SWP and the Central Valley Project. It also is a result of an increase in the "end of September storage" target for Lake Oroville. The delivery estimates for the SWP for 2019 conditions as a percentage of Table A amounts are 7 percent under a single dry year (1977) condition, and 58 percent under long term average conditions (DWR, 2020; MWD, 2021).

Colorado River supply allocations are based on MWD's basic Colorado River apportionment plus committed programs such as the Imperial Irrigation District-MWD Conservation Program, implementation of the Quantification Settlement Agreement (QSA) agreements, and the exchange agreement with San Diego County Water Authority. Other programs have been implemented to increase reliability of this supply such as the Land Management, Crop Rotation, and Water Supply Program with Palo Verde Irrigation District, Lower Colorado River Water Supply Project, and several other projects to increase deliveries to the CRA capacity of 1.25 million AF.

A significant improvement for Colorado River supply reliability was the 2019 implementation of the (Upper and) Lower Basin Drought Contingency Plan (DCP). The lower basin agreement requires several states including California to store defined volumes of water in Lake Mead at specified levels. MWD is responsible for 85 percent of California's DCP contributions under the Lower Basin DCP. Implementation of this plan benefits MWD by enhancing its ability to store water in the reservoir and it ensures that water in storage can be delivered at a later date, as long at the reservoir level remains above 1,025 feet; water between 1,075 and 1,025 feet was previously inaccessible (MWD, 2021).

Groundwater basins and local reservoirs dropped to very low operating levels due to record dry hydrology in Southern California in 2016. Due to wetter hydrology in 2017 and 2019, the groundwater basins started to recover. However, levels in groundwater basins throughout Southern California currently remain below healthy storage levels. In addition, groundwater production in the MWD service area has remained at low levels even after the drought.

Climate change is expected to shift precipitation patterns and affect reliability of water supplies, which will make water supply planning even more challenging. The general trend is of less water storing

snowpack and greater precipitation in the Sierras, more precipitation earlier in the year when it cannot be readily utilized, and more extreme and more frequent drought and flooding events. While uncertainties remain regarding the exact timing, magnitude, and regional impacts of climate change-related temperature and precipitation changes, researchers have identified the following specific areas of concern.

- Reduction in Sierra Nevada snowpack
- Reduction in Colorado River Basin snowpack
- Increased intensity and frequency of extreme weather events
- Rising sea levels resulting in impacts to coastal groundwater basins and levee failure in the Delta due to seawater intrusion and increased risk of damage from storms, high-tide events, and the erosion of levees; and potential pumping cutbacks on the SWP and Central Valley Project due to salinity levels at the pumps

The primary constraint to the District on the availability of imported supplies during times of supply shortages is the cost, particularly when MWD's WSAP is in effect. In terms of quantity and reliability, MWD has an extensive supply augmentation program to assure its member agencies that their current and projected demands for imported supplies can be reliably met through 2045 during average/normal, single dry, and multiple-dry year conditions.

MWD's ability to ensure water supply availability and reliability to its member agencies is based in part on its Water Surplus and Drought Management Plan (WSDM). MWD developed and adopted the WSDM Plan to provide policy guidance and manage regional water supply actions under both surplus and drought conditions to achieve the overall goal of ensuring water supply reliability to its member agencies as set forth in MWD's Regional UWMP and Integrated Resources Plan (IRP). The WSDM Plan outlines various water supply conditions and corresponding actions MWD may undertake in response to moderate, serious and extreme water shortages. Under Condition 1, MWD issues a Water Supply Watch and encourages local agencies to implement voluntary dry-year conservation measures and utilize regional storage reserves. Under Condition 2, MWD issues a Water Supply Alert and calls for cities, counties, its member agencies and all other retail water providers to implement extraordinary conservation through drought ordinances and other measures to minimize the use of storage reserves. Under Condition 3, MWD may implement its WSAP, which allocates available water supplies among its member agencies based on factors such as impacts to retail customers, population and projected growth of particular member agencies, the availability of recycled water and other local supplies, conservation efforts, and other factors. At times when the WSAP is implemented, MWD member agencies do not lose their ability to receive any particular amount of imported water supplies, but instead MWD places limits on the amount of water its member agencies can purchase without facing a surcharge. In turn, MWDOC has also developed a WSAP to allocate imported supplies at the retail level in Orange County. Under these WSAPs, the availability of imported water supplies is based primarily on the need for imported supplies relative to the total need for those supplies within the MWD and MWDOC service areas.

In response to prolonged drought conditions, in April 2015 MWD declared a Condition 3 shortage and decided to implement its WSAP with the goal of achieving a 15 percent reduction in regional deliveries to its member agencies starting on July 1, 2015. Importantly, MWD confirmed that implementation of its WSAP merely involves the potential application of a surcharge to those member agencies whose deliveries of water from MWD exceed their allocations, but it does not otherwise prohibit or restrict such deliveries (MWD, 2015).

To improve long term supply availability and reliability for the region, MWD has developed an adaptive management strategy as a part of its IRP process. Reliability targets were established for imported and local water supplies and water conservation to, if successful, provide a future without water shortages and mandatory restrictions under planned conditions. For imported supplies, MWD looks to make investments in additional partnerships and initiatives to maximize Colorado River Aqueduct deliveries in dry years. For the SWP, MWD is looking to make ecologically-sound infrastructure investments so that the water system can capture sufficient supplies to help meet average year demands and to refill MWD's storage network in above-average and wet years. Lowering regional residential demand by 20 percent by the year 2020, reducing water use from outdoor landscaping, and advancing additional local supplies are among the actions MWD has undertaken to keep supplies and demands in balance.

Section 7.2.2 Year Type Characterization

Over the last almost 100 years, California experienced four periods of severe drought: 1928-34, 1976-77, 1987-92, and 2012-16. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by DWR. These rivers flow into the Delta and are the source waters for the SWP, thus MWD's selection as the single driest base year. Southern California and, in particular Orange County, sustained few adverse impacts from the 1976 to 1977 drought, due in large part to the availability of Colorado River water and groundwater stored in local groundwater basins and utilized by various Orange County agencies during drought conditions.

To analyze the variability of imported supply reliability due to climate, hydrologic conditions that define these year types were determined. **Table 7-1** presents three-year types: average, single dry year, and multiple dry years. The years selected to reflect these year types are those used by MWD since MWD's imported supplies are the predominant District water supply. MWDOC's years that were selected are presented in the discussion below of year types. These differ from MWD's because the two agencies have different sources developed by its member agencies with different hydrological conditions impacting the sources. The District's recycled water supply is 100 percent reliable during all year types, subject only to temporary interruptions due to potential infrastructure or operational issues.

Average/Normal Water Year: The normal year most closely represents median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields. MWD considers 1922 through 2017 to more closely represent the water supply conditions it considers available during a normal water year. MWDOC used the average of fiscal years 2017-18 and 2018-19 to represent the normal year. The District used the MWD range of base years.

Table 7-1: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020*	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	Average of 1922 to 2017		100%
Single-Dry Year	1977		100%
Consecutive Dry Years 1st Year	1988		100%
Consecutive Dry Years 2nd Year	1989		100%
Consecutive Dry Years 3rd Year	1990		100%
Consecutive Dry Years 4th Year	1991		100%
Consecutive Dry Years 5th Year	1992		100%
Notes: Purchased water assumption of reliability based on MWD 2020 UWMP. District's recycled water is 100% available in all year types.			

Single Dry Water Year: This is defined as the year with the minimum useable supply. The supply quantities for this condition are derived from the minimum historical annual yield. MWD identified 1977 conditions to represent the lowest water supply available. MWDOC used fiscal year 2013-14 to represent the single dry year. The District used MWD's 1977 dry year because it is reliant on MWD supplies.

Multiple Dry Water Years: This is defined as five consecutive years with the lowest average water supply availability for consecutive multiple years. Water systems are more vulnerable to these droughts of long duration because they deplete water storage reserves in local and state reservoirs and groundwater basins. MWD identified 1988 through 1992 as the driest five consecutive year historical sequence for its water supply which the District is also using. MWDOC identified fiscal years 2011-12 to 2015-16 to represent the multiple dry year sequence.

Because the District has relied on imported water supplies (in addition to recycled water) to meet its demands, the reliability levels during all hydrologic year types presented in Table 7-1 reflect MWD's determination of its ability to reliably meet the demands of its member agencies. Notably, the MWD 2020 UWMP determines that MWD is able to meet the current and projected full service demands of its member agencies under all three hydrologic conditions through 2045 by developing and implementing water resources programs and activities through its IRP preferred resource mix. This mix includes conservation; local resources such as recycled water and groundwater recovery; Colorado River supplies and transfers; SWP supplies and transfers; in-region surface reservoir storage; in-region groundwater storage; and out-of-region banking, treatment, conveyance, and infrastructure improvements.

Although MWD's reliability assumptions were used in this analysis, MWDOC's assumptions are equally important to the District. As presented in its 2020 UWMP, MWDOC has determined that it is able to meet water demands during all hydrologic year types through 2045. Similar to MWD, the reliability levels from MWDOC are due to its diversified supplies, comprehensive management, and conservation efforts working with the member agencies (MWDOC, 2021).

Section 7.2.3 Service Reliability – Supply and Demand Comparison

An assessment of District supply reliability under normal, single dry, and multiple dry years is presented here. Responses to an actual drought will follow the water use efficiency mandates of MWD's WSDM Plan, along with implementation of the appropriate stage of the District's WSCP and associated Ordinance included in Appendix C.

Water Service Reliability - Normal Year. The District has entitlements to receive imported water from MWD and has the capacity in existing transmission facilities to convey enough supply to meet its projected demands. **Table 7-2** presents a comparison between projected District water demands and the availability of future supplies to meet these demands under normal or average years through 2045. Supply totals reflect the availability of locally produced recycled water and water imported by MWD/MWDOC. The projected imported supply is estimated based on historical deliveries. Notably, both MWD and MWDOC have documented that they can reliably meet the full demands of their respective member agencies over the next 25 years and beyond.

Table 7-2: Normal Year Supply and Demand Comparison (AFY)

	2025	2030	2035	2040	2045
Supply totals	32,093	31,782	31,612	31,473	31,280
Demand totals	32,093	31,782	31,612	31,473	31,280
Difference	0	0	0	0	0
Notes: Note that demand is anticipated to decrease over time.					

Water Service Reliability - Single Dry Year. District supplies and demands were analyzed to determine impacts associated with a single dry year. District water demands between FY2012 and FY2013 were analyzed because it was the first year of the recent multi-year drought thus reflecting current outdoor demands on the system. There was an increase in demand of 4.2 percent. The 4.2 percent increase was added to the average demand presented in Table 7-2 to reflect an increase in demand associated with a future single dry year, before additional conservation outreach is implemented. This first dry year increase in demand may decrease in the future due to changes in outdoor landscaping.

The supply associated with the single dry year matched the demand. This is based on historical deliveries of purchased water, particularly during 1977, that indicate the District was able to purchase the amount needed during the single driest year hydrology. The recycled water supply is also 100 percent reliable to meet the non-potable demand.

Table 7-3 presents a comparison of projected single dry year water supply availability to the increased single dry year water demand projected for the next 20 years. This table indicates that, based on the stated reliability of MWD supply, the region can provide reliable water supplies under the single driest year hydrology to meet the single dry year demand. MWD and MWDOC have documented that their service areas are projected to be 100 percent reliable in single dry years.

Table 7-3: Single Dry Year Supply and Demand Comparison (AFY)

	2025	2030	2035	2040	2045
Supply totals	33,435	33,111	32,933	32,790	32,588
Demand totals	33,435	33,111	32,933	32,790	32,588
Difference	0	0	0	0	0

Water Service Reliability - Five Consecutive Dry Years. For the multiple year drought analysis, the projected average water demand from Table 7-2 was increased to reflect actual increased demands of 4.2 percent the first year and 4.3 percent the second year applied to a hypothetical five-year drought. For the District, the recent multi-year drought resulted in demand decreases of 6.2 percent and 14.9 percent for the third and fourth years respectively, and 0.3 percent for the following fifth year. These decreases reflect the District's demand management programs discussed in *Chapter 8, Demand Management Measures*. Only the demand increases were applied to the average projected demand and are presented in **Table 7-4**.

Table 7-4: Multiple Dry Year Supply and Demand Comparison (AFY)

		2025	2030	2035	2040	2045
First year	**Supply totals**	33,435	33,111	32,934	32,790	32,588
	Demand totals	33,435	33,111	32,934	32,790	32,588
	Difference	0	0	0	0	0
Second year	**Supply totals**	33,419	33,124	32,953	32,797	32,636
	Demand totals	33,419	33,124	32,953	32,797	32,636
	Difference	0	0	0	0	0
Third year	**Supply totals**	31,969	31,714	31,556	31,396	31,280
	Demand totals	31,969	31,714	31,556	31,396	31,280
	Difference	0	0	0	0	0
Fourth year	**Supply totals**	31,906	31,680	31,529	31,357	31,280
	Demand totals	31,906	31,680	31,529	31,357	31,280
	Difference	0	0	0	0	0
Fifth year	**Supply totals**	31,844	31,646	31,501	31,319	31,280
	Demand totals	31,844	31,646	31,501	31,319	31,280
	Difference	0	0	0	0	0

Because the District has instituted WBBRS and aggressive water use efficiency outreach, water demands typically decrease over time as outreach efforts take effect. The third dry year will typically decrease over the second year depending on outreach efforts. However, to be conservative, average demands were assumed for this analysis for the last three dry years and does not reflect any actions taken by the District in accordance with the WSCP. The average projected demands from Table 7-2 were spread evenly between each 5-year increment to arrive at an annual change in demand over time. As shown in Table 7-2, the District forecasts that normal/average year water demand will decrease over time.

Table 7-4 presents a comparison of projected multiple dry year water supply availability to the multiple dry year water demand. Based on the reliability of MWD supply, the region can provide reliable water supplies under all years of the multiple dry year hydrology. MWD and MWDOC have documented that deliveries within their service areas are projected to be 100 percent reliable in multiple dry years. The recycled water supply is also 100 percent reliable to meet the non-potable demand.

Section 7.2.4 Description of Management Tools and Options

The District can meet its customers' demands in all hydrologic year types through 2045. Water management tools and options to maximize local resources and minimize the need to import water from the Colorado River and Delta have been developed over the years. The District has implemented local based management tools and options to maximize the use of local water resources and minimize the need to import water from the Colorado River and Delta. These include the expansion of the MNWD recycled water program, a budget-based pricing policy, and additional demand management activities, further discussed in *Chapter 8, Demand Management Measures*. Actions also include participating in MWDOC's regional conservation programs.

MWD continues to develop its supply portfolio to reduce dependence on Delta supplies, particularly during dry and multiple dry years. Projects include multi-year water transfers and new diversion and conveyance facility exporting water from the Delta. MWD's reliance on supplies from the Delta watershed are expected to decrease by 314,000 AF over the 2010 baseline, a decrease of about 5.2 percent of 2045 demands. Increased regional self-reliance primarily comes from water use efficiency, conjunctive use projects, water recycled, and local/regional water supply and storage projects. MWD has prepared a detailed analysis that demonstrates consistency with the Delta Plan policy WR P1 (MWD 2021, Appendix 11). Because the District has no control over the sources of water MWD provides, consistency documented in MWD's UWMP is incorporated here by reference.

Section 7.3 Drought Risk Assessment

The newly required DRA offers an opportunity to test the District's near-term supply reliability by assuming the next five consecutive years are dry. The analysis of a five-year drought beginning in 2021 reflects the water service reliability assessment required under Water Code Section 10635(b).

Section 7.3.1 Data, Methods, and Basis for Shortage Condition

Data, methods, and the basis for water shortage conditions are described here. MNWD relies on imported supplies and locally developed recycled water. The assessment of imported water supplies took into consideration historical drought hydrology, plausible changes on projected supplies and

demands under climate change conditions, anticipated regulatory changes, and other applicable criteria MWD utilized in assessing each of its supplies.

The DRA assumed that the five driest consecutive years on record for the water supplier will occur over the next five years. This hydrologic sequence was discussed in Section 7.2.3 above and reflects the availability of supplies during the 1988 to 1992 drought. Changes that may influence the DRA include wetter or drier monthly and annual hydrology due to normal and climate change-induced conditions, an increase in the availability of imported supplies due to MWD and MWDOC enhancing their supply portfolios, and the increased offset of potable supplies with recycled water to meet non-potable water demands.

Normal unconstrained projected water use (demands) identified in *Chapter 4, Section 4.2.4 Projected Water Use,* was used here as the base demands to compare against supply availability, and prior to determining if implementation of any shortage actions is needed to reduce these demands. The 2020 water demands were increased annually over five years to 2025. Accounting for changes in demands due to dry year conditions, as noted in Table 7-4, demands increased 4.2 and 4.3 percent respectively during the first two years of a five-year drought. Aggressive conservation outreach resulted in an actual reduction in demands of 6.2 percent the third year, 14.9 percent the fourth year, and 0.3 percent the final year. However, to be conservative, the first two years of increases and average demands for the following three years were utilized in the DRA assumptions of demand response during a drought.

Section 7.3.2 Assessment Water Source Reliability

It is likely that the next five-year drought will not replicate the historical drought hydrology exactly due to variability in climatic conditions and an updated adopted WSCP that will be in place. However, not knowing what the exact variability will be, the basis for the DRA is based on actual conditions that occurred; therefore, data from the historical multiple year drought were utilized for supplies and the more recent response to a multiple year drought used for demands.

The District relies entirely on the utilization of imported water and recycled water to meet demands within its service area. In determining the reliability of each water source, the MWD and MWDOC 2020 UWMPs were reviewed for the assessment of reliability of water supplies. It is documented that the imported supply was 100 percent reliable during the previous two multiple year droughts. MWD evaluated its water shortage risk and determined that it has supply sufficient for a drought period starting in 2021 that lasts through 2025 based on the driest five-year historical sequence. MWD also determined that it has supply capabilities sufficient to meet expected demands from 2025 through 2045 under a single dry year condition and a period of drought lasting five consecutive water years, as well as in a normal water year (MWD, 2021).

Regarding short term outages, if the District's MWD/MWDOC treated water supply were to be unavailable for any outage reason, the Baker WTP can treat raw water imported or provided from local sources via Baker Pipeline. The District has greatly increased local emergency reliability by its participation in this project which was implemented in 2017.

The District's recycled water supply is a highly reliable supply to continue meeting landscaping and other non-potable water demands within the service area in the future. Although this supply can be impacted by drought conditions due to a reduction in indoor water usage during long term droughts, thus reducing wastewater production, it is not anticipated that dry year conditions will result in a reduction significant enough to impact recycled water supplies. This is because there is more supply than demand and the greatest dry year water savings are associated with outdoor landscaping rather than indoor wastewater generating uses. Recent reductions during multiple year droughts did not result in any limitations on the availability of the non-potable supply.

Section 7.3.3 Total Water Supply and Use Comparison

Table 7-5 demonstrates supply reliability during a hypothetical five-year drought starting in 2021. Because of the highly reliable imported and recycled water supplies, the gross water use can be met with the supplies. Supplies do not need to be augmented over this five-year period to meet demands and use reductions are not required to be implemented to meet available supply. The District has a very effective water use management program under dry year or emergency conditions that is employed as needed and has historically resulted in a significant reduction in water demand by the third year. Again, the DRA was conservative in not reflecting the reduction in water use by the third year yet there is no shortfall due to the District's highly reliable supplies.

In accordance with the compiled information and analyses provided herein, and as documented in the 2020 UWMPs prepared by MWD and MWDOC, MNWD can meet its customers' demands in all hydrologic year types through 2045, even with a potential increase in dry year demands. The reliable supplies reflect not only regional projects and comprehensive water supply planning by MWD and MWDOC, but also the forward-thinking planning and efforts the District has undertaken to develop its recycled water supplies and conservation programs, thus greatly reducing reliance on imported supplies. As demonstrated in its projected declining water demands, MNWD will continue to further reduce reliance on imported water supplies.

Table 7-5: Five-Year Drought Risk Assessment

2021	Total
Gross Water Use	30,104
Total Supplies	30,104
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%

2022	Total
Gross Water Use [Use Worksheet]	30,982

Total Supplies [Supply Worksheet]	30,982
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%

2023	Total
Gross Water Use [Use Worksheet]	30,494
Total Supplies [Supply Worksheet]	30,494
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%

2024	Total
Gross Water Use [Use Worksheet]	31,924
Total Supplies [Supply Worksheet]	31,924
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%

2025	Total
Gross Water Use [Use Worksheet]	32,093
Total Supplies [Supply Worksheet]	32,093
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
Resulting % Use Reduction from WSCP action	0%

Chapter 8 Demand Management Measures

Section 8.1 Demand Management Measures

Since 2010, the District has dramatically expanded demand management programs as a core function of its efforts to reduce demand on imported water supplies. Although the District is well below its SBX7-7 compliance target of 173 GPCD (as discussed in *Chapter 5*), water efficiency and supply reliability will remain high priorities. Demand management program expansion began with a transformation of the District's relatively flat, five-tiered rate structure to a WBBRS, which featured a strong conservation price signal. In addition to incentivizing efficient water use, the revenue generated by the higher price for out-of-budget water use provides funding for a robust rebate and outreach program. This Chapter provides a detailed overview of the policies in place and the history of the development of demand management programs.

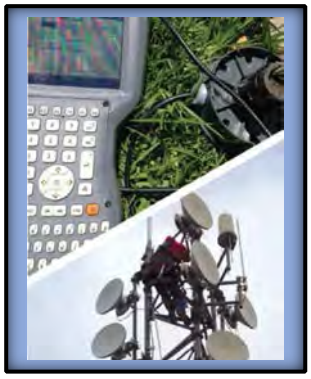
Section 8.1.1 Water Conservation and Waste Prevention Ordinances

As discussed in the WSCP (Appendix C), the District updated its WSCP Ordinance in May 2021 to expand water conservation best management practices, and to adopt its updated WSCP which can be enacted in times of drought, water shortages, and water shortage emergencies. Ordinance 21-03 prescribes water conservation rules and regulations, as well as water conservation best management practices which shall be in effect at all times. These practices are described in Appendix C.

Section 8.1.2 Metering

All service connections within the District's service area are metered. Meter accuracy is a top priority of the District. As such, the District maintains a robust meter testing and replacement program. Each year, the District tests a random representative sample of residential meters at different flow volumes to assess the accuracy of its small meter population. Commercial meter testing is performed on a 3-year schedule with high-volume meters prioritized for more frequent testing to optimize staff resources and minimize non-revenue water. Additionally, an average of 3,000 of the District's 55,000 meters are replaced each year.

Both Automatic Meter Reading (AMR) and AMI are in place within the service area. Through more than $2 million in federal grants received from the U.S. Department of Interior Bureau of Reclamation, the District has progressively updated meter technology as part of its "Advanced Metering Infrastructure" program. These upgraded smart meters will help the District improve operations and enable all customers to monitor their hourly water usage through the MyWater MNWD online customer portal. Through a successful pilot, the District already installed more than 9,000 smart meters on all recycled and potable water dedicated irrigation accounts, all commercial and multi-family accounts, and to over 1,800 residential accounts. The final phase of AMI implementation includes the installation of approximately 45,600



smart meters for the remaining residential customers and is expected to be completed in early 2022. This project is expected to save more than 500 million gallons of water every year. As of FY 2019-2020, the District has 35,409 customers signed up for the online portal, which is around 64 percent of total customers.

Section 8.1.3 Conservation Pricing

The District first implemented WBBRS in July of 2011. The WBBRS encourages conservation by providing each customer with a monthly customized water budget designed to provide an efficient amount of water for each customer's indoor and outdoor water use needs. Efficient water use is billed at the lowest price and usage that exceeds the budget is billed at progressively higher rates. **Figure 8-1** shows how the price per unit consumed increases dramatically as water use increases. By emphasizing efficient use, the rate structure motivates customers to partner with the District in its effort to maintain a reliable source of water.

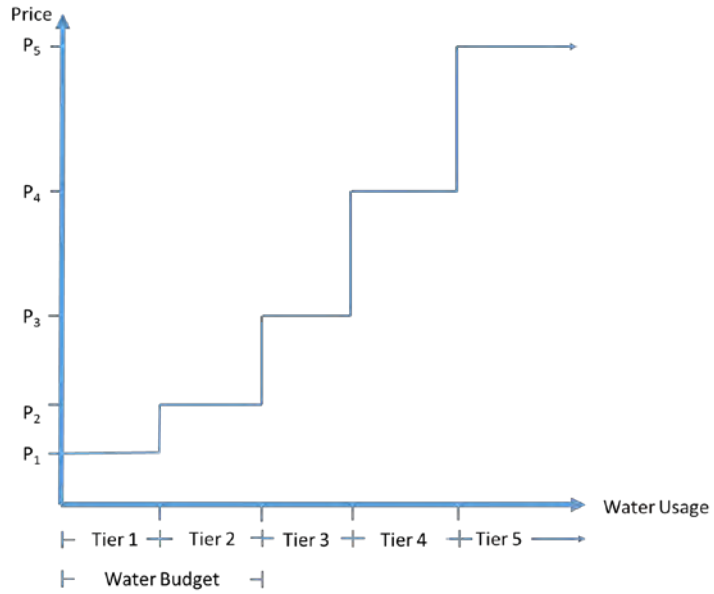


Figure 8-1: Example of Tiered Price Rates

Note: The price per unit of water increases as the amount of water consumed increases causing the customer to pay a higher unit rate for water consumed over their water budget.

The District provides a five-tier rate structure to single-family and multi-family residents and a four-tier rate structure to its non-residential (e.g., commercial, potable water irrigation, and recycled water irrigation) customers. The total water budget for residential customers consists of Tiers 1 and 2, in which Tier 1 is the monthly calculated indoor water budget and Tier 2 is the monthly calculated outdoor water budget. The total water budget for non-residential customers is represented by Tier 1. Customers who exceed their water budgets are billed at rates associated with higher tiers depending on how much excess water is used relative to their total water budget, as shown in **Table 8-1**.

Table 8-1: Tier Widths by Customer Type

Tier	Single-Family, Multi-Family Residential	Commercial, Irrigation and Recycled
Tier 1	Indoor Water Budget	Total Water Budget
Tier 2	Outdoor Water Budget	101% to 125% of Water Budget
Tier 3	101% to 125% of Total Water Budget	126% to 150% of Total Water Budget
Tier 4	126% to 150% of Total Water Budget	Over 150% of Total Water Budget
Tier 5	Over 150% of Total Water Budget	

Monthly water budgets are determined for the District's residential customers using the equation shown in **Figure 8-2**. The residential indoor water budget (i.e., Tier 1) is determined by multiplying the number of persons in the household by 55 gallons per person per day. All outdoor water budgets (i.e., Tier 2 for residential and Tier 1 for potable and recycled water irrigation customers) is determined by the size of irrigable area, localized weather data, and a plant factor. The District calculates water budgets and resulting bills on a monthly basis to provide customers with timely communication about their water use.

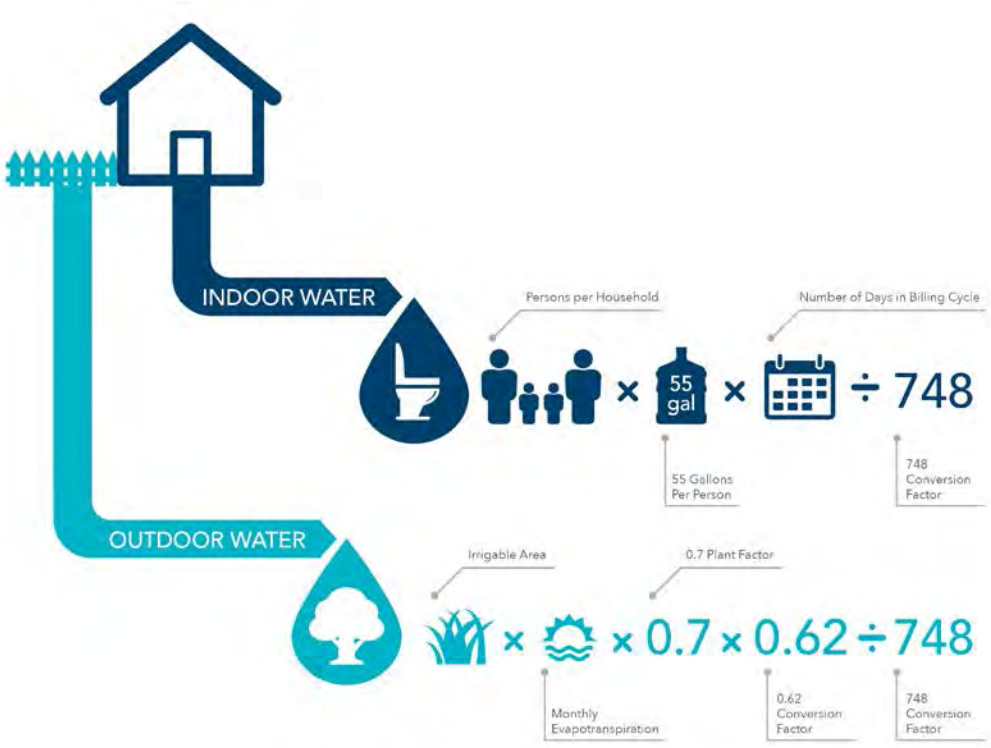


Figure 8-2: Residential Customer Water Budget Calculation

Water budgets for dedicated irrigation customers consist of an outdoor allocation based on irrigable area, evapotranspiration, and a range of plant factors for different uses and water supplies, as shown in **Figure 8-3**.

Figure 8-3: Dedicated Irrigation Landscape Budget Equations

Each commercial indoor account receives a water budget based on a three-year historical rolling average of the customer's water usage for that month, as shown in **Figure 8-4**. Most commercial customers have two metered connections: a dedicated irrigation meter and a commercial indoor meter.

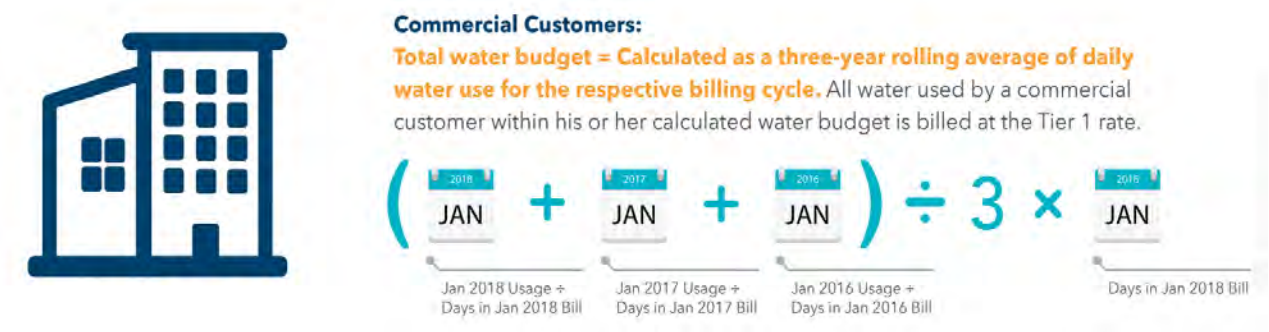


Figure 8-4: Commercial Water Budget Equation

The District's rate structure utilizes water budgets to promote the efficient use of water. Customers who use water inefficiently (i.e., in excess of their calculated water budgets) place greater demands on the District's potable and recycled water systems and supplies. Inefficient customers are therefore subject to higher water use rates to offset the costs that are created as a result of the higher demand placed on the systems. A portion of the revenue from over budget consumption is used to fund conservation and reliability projects (i.e., Fund 6, refer to **Figure 8-5**). The District invests the incremental rate difference between the unit price and the cost of water into a Water Conservation Fund, which provides funding for alternative water supplies, water saving rebates, water conservation programs, and demand management measures to increase the efficient use of water and offset demand.

Part of the rate structure's success also stems from the District's financial planning efforts to align its fixed and variable costs with fixed and variable revenue streams, which provides a level of revenue stability during periods of drought or economic downturn. Fixed costs are recovered through a fixed service charge on the customer's monthly bill and annual property tax revenue, while variable costs are recovered through volumetric water rates on a customer's monthly bill. Property tax and unrestricted revenues are then used to offset a portion of the in-budget volumetric rates, effectively setting in-budget rates below the marginal cost of water, to provide customers with an incentive to remain efficient. Additionally, if customers conserve, there is less of a need to fund new demand offset programs resulting in a nexus between where revenue is generated and the use of the funds. Given that the rate structure is designed to increase efficiency, the expectation is that any increase in consumption is temporary.

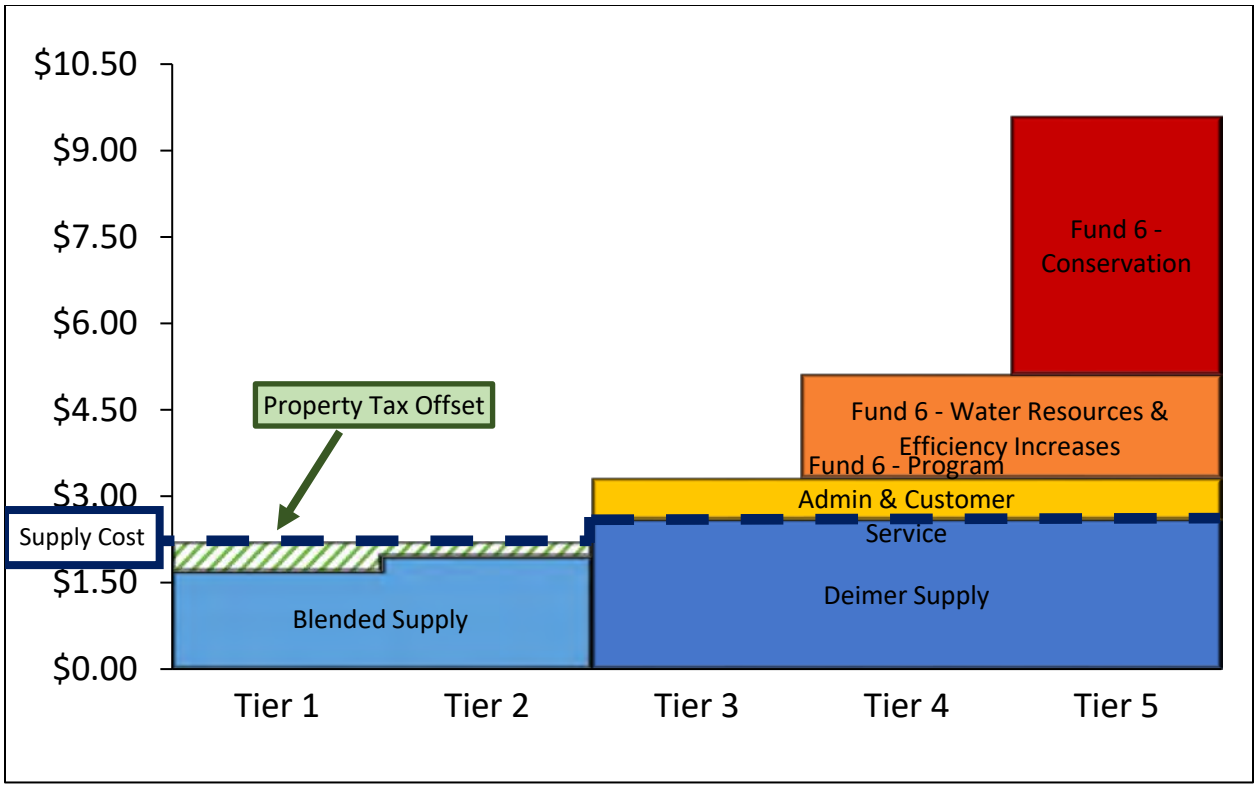


Figure 8-5: Residential Potable Water Rate Components

During the 2012-2016 drought crisis, the District demonstrated its innovative and resourceful approach to addressing major challenges. The District worked closely with agencies throughout the state to drive decisions and policies that will have immediate and long-term effects on the public. The Water Efficiency Fund is critical to the District's contribution and impact to the statewide discussions as the District has been recognized by the State and our peers in the water community as being a leader in demand management. Our conservation programs, partnerships with academic institutions, coordination of the statewide California Data Collaborative, and WBBRS are just some of the reasons why the District has been successful. Developing strategies and tools to further achieve efficiency and conservation while ensuring reliable service and economic health for local communities will be paramount going forward.

Section 8.1.4 Public Education and Outreach

A key component of the District's demand management program is public education and outreach. The District has developed a comprehensive public education and outreach strategy to promote water use efficiency programs and resources to reduce high bills and resolve leaks. The education and outreach efforts can be broadly classified by the type of interaction between the District and customers: direct communication with customers, community presence, regional messaging, educational

programs, residential and commercial water saving programs, events, and workshops.

Section 8.1.4.1 Communication with Customers

The District uses a data-driven, multichannel approach to educate customers and maximize engagement. The District's outreach evolves in response to customer feedback, campaign testing, and website, marketing, and survey data. The various marketing channels used for outreach and education include bill communications, direct mail, door hangers, website, social media, digital ads, emails, video, customer portal, and online tools and applications.

Water Bills, On-Bill Messages: The District's WBBRS calls for additional information to be communicated on the customer bills. Prominently displayed on each bill are the factors that are used to calculate the customer's budget, which includes the number of residents in the household, amount of irrigated area, and the evapotranspiration total for the billing period. The water use is segmented into different tiers with increasing rates if the customer exceeds their individually calculated water budget. The bill format is easy to understand and includes a bar chart that compares the current usage to the usage for the same month of the prior year. The bill features a dedicated space to transmit important messages to customers. The District routinely uses this feature to apprise its residents and businesses of new programs, upcoming events, and information about water rates.

Envelope Snipes and Bill Inserts: The District utilizes the envelope snipe the bills are sent in to transmit important water efficiency and seasonal messages to customers. Along with the envelope snipe, the District includes one or more bill inserts each month to provide customers with detailed information on programs, events, workshops, and educational campaigns.

Customer Portal: MyWater MNWD – residential and commercial customers use this online portal or its companion phone application to start/stop service, pay bills, check monthly/daily/hourly usage, explore conservation rebates and programs, and receive leak alert notifications. Customers can also send the District ConnectMe requests, report water waste, submit water efficiency and billing questions, and assign guest access to property managers, landscapers, landlords, tenants, and account conservators. The portal also allows customers access to detailed 13-month use history and allows customers to compare month to month of water usage information. Visit mywater.mnwd.com to learn more.

Door Hangers: Door hangers provide a simple and convenient way to communicate important messages to customers who are not at the property at the time of a site visit. The District utilizes door hangers for a variety of messages, including:

- Notification that a smart meter has recently been installed with steps to sign-up for the MyWater MNWD customer portal and leak alerts;
- Notification to inform a customer that movement was observed on their water meter which could indicate a leak at the property. The hanger provides the customer with suggestions to help them locate the leak by listing some of the most common issues such as leaking irrigation valves, leaky toilet float valves, leaky faucets, or a leak in the service line from the meter to the house. It also provides contact information for the District so they can request further assistance;
- Hourly usage data is downloaded, for non-AMI customers, and a door hanger with representative water usage data is left to assist customers with high water usage concerns; and,
- Provide the current meter read and results of a troubleshooting session for customers requesting water meter test and calibration results.

Postcards: The District uses postcards to send residents information about upcoming events, over-budget usage, and water efficiency tools, programs, and resources. The District uses a segmentation approach to ensure that customers are only receiving postcards that are relevant to them.

Email Outreach: The District utilizes email outreach to provide customers with District news and information about upcoming events, over budget usage, and water efficiency tools, programs, and resources. The interactive channel allows for live links and easy access to information for customers. The District uses customer segmentation to divide email subscribers into smaller segments based on set criteria, to ensure customers are receiving information most relevant to them. The District relies on A/B testing and email data to determine the direction of email outreach.

District website: The District consistently updates its website, adding timely information for our customers and stakeholders. The District also proactively enhances and expands landing pages to provide information on conservation programs, rebates, and water saving tips.

Online tools and applications: A water budget calculator was developed for customers to obtain a better understanding of the factors that are used to determine a water budget and how they are affected by the weather or the number of days in the relevant billing period. The District also developed a customer-facing application to help them understand and quantify evapotranspiration for their specific location and developed a customer-facing rebate calculator to support the District's NatureScape Turf-to-Native Garden Program.

Social media: The District also expanded its presence on social media sites such as LinkedIn, Facebook, Twitter, YouTube, and Nextdoor. As part of our outreach, the District utilizes tools to place digital ads promoting rebates and water conservation on Facebook, GoogleAds, and LinkedIn. A website landing page was developed for our rebates, and the rebates are advertised in local newspapers, social media sites, at community events, and at our California Friendly Landscape workshops.

Informational Videos: The District has developed and posted informational videos on our website to give customers additional tools to help conserve water. Over the period of 2015-2020, the District produced the following videos:

- A video series to educate customers on how to read their water meter to identify potential leaks within the home.
- A video that focuses on irrigation systems and maintenance protocols to keep the irrigation system efficient year-round. It highlights the importance of adjusting irrigation schedules to maintain a healthy landscape and prevent overwatering.
- In collaboration with MWD and the California Native Plant Society, the District developed an 8-part video series entitled the "Calscape Nursery Training Program", which provides education for nursery and landscape professionals on how to maintain California native plants in the nursery setting and how to explain their benefits and care requirements to customers.
- A video titled "NatureScapers: The Real Landscapes of Orange County" was developed to document the landscape transformation process the customers experience when they participate in the NatureScape Turf-to-Native Garden Program.
- A video series, "Potty Talk", consists of four short videos and walks customers through the basic parts of the toilet and provides information on how to check toilets for leaks and how to make necessary repairs making sure toilets are working efficiently.

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Section 8.1.4.2 Community Presence

In order to develop a general awareness about efficient water use and get residents interested in the services and benefits that the District provides, the District increased its presence in the communities it serves.

Newsletters: Monthly newsletters provide customers with timely information about the District, including details on events, grant awards, capital projects, water efficiency, and special milestones (e.g., in the past five years, the District celebrated 50 years as a recycled water service provider and its 60th anniversary as a District). These newsletters were emailed to customers in a digital format and as bill inserts included in every customer bill. Prior to COVID-19, newsletters were distributed to all local city halls, libraries, and community centers, and they were also available at the District's booth during local community events.

Press Releases: The District issues press releases on District news, community events, educational workshops, as well as information on conservation tips.

NatureScape Garden Tour: The District provides an informative and fun community-based event that is a self-guided journey to some of South Orange County's most inspiring NatureScape gardens, featuring watershed-friendly landscape elements, native plants, and interactive educational stations. Participants also have the opportunity to learn about native landscapes from knowledgeable staff and docents. In 2020, due to COVID-19, we were unable to host an in-person garden tour, so the District launched the Online NatureScape Garden Tour, so customers could experience these beautiful, multiple benefit gardens from their home computer. The online garden tour can be found here: https://www.mnwd.com/naturescape-garden-tour/.

Live Smart Community Event: In 2017, the District held our third Live Smart Community Event, where we partnered with local cities, businesses, utilities, and garden centers to promote water and energy conservation, rebates, and California Native gardening. Several hundred people attended the free community event with numerous exhibitors and activities for all to enjoy. The District also provided resources and information to ensure communities are prepared for emergencies.

Information booths at fairs and public events: The District is an active participant in local community events in the cities that it serves. At these events, the District typically has a booth where employees provide informational items about the District and its water sources, as well as water saving tips. These booths often contain demonstrations of water saving devices. In a typical year, prior to the pandemic, the District staffs an average of 20 information booths per year, reaching hundreds of customers annually at public events.

H2O for HOAs Workshops: In partnership with the County, regional cities, and water districts, the District is leading an initiative to bring together the HOA community, particularly Board Members, Property Managers, Professional Landscapers, and HOA Residents, to provide education and information on various topics relating to sustainable water management and watershed protection. To learn more and see an archive of past presentations, visit https://www.mnwd.com/h2o-for-hoas.

Fix-A-Leak Expo: In March 2018, the District created an informative and interactive event demonstrating common leak and overwatering issues and how to resolve them. The expo features multiple booths, including a meter demonstration, how to diagnose and repair a leaky toilet, landscape irrigation troubleshooting, and a children's Seek the Sneaky Leak activity.

Speakers Bureau: Through the District's Speakers Bureau program, staff provide presentations to homeowner associations, city councils, chambers, local realtor associations, and other groups upon request. Topics include: WBBRS, water supply, water quality, infrastructure, data & innovation, rebates, and water efficiency resources. To learn more, visit https://www.mnwd.com/speakersbureau.

Section 8.1.4.3 Educational Programs

The District recognizes the value in teaching children about the importance of water and the need for everyone to use it wisely. Our goal is to have students learn at an early age that water conservation is a California way of life.

Project WET (Water Education Today): Project WET is an international water education program that is administered in California by the Water Education Foundation. Project WET provides educators and resource managers with materials and lesson plans mapped to California's educational standards on a range of water related topics, including sustainability, chemistry, geography, and social sciences. The District has hosted several Project WET seminars and facilitation trainings for teachers across South Orange County. For more information about Project WET, visit the Water Education Foundation's website: https://www.watereducation.org/project-wet.

Future Leaders of Water (FLOW) Initiative: The FLOW Initiative seeks to inspire a new generation of water professionals through the development of new strategic partnerships and programs with local educators, schools, and colleges. This initiative will encourage future talent to consider water as a career and equip those already in the industry with the leadership skills necessary to maintain a safe and sustainable water supply. The FLOW Initiative engages academic institutions, professional associations, and community groups to be active partners in the effort to shepherd talented people from all backgrounds toward a career in the water industry.

Watershed Field Trips: Through a partnership with Orange County Coastkeeper (OCCK) and its

Watershed Heroes: Actions Linking Education and Stewardship program (W.H.A.L.E.S), the District brings water education into and outside of the classroom. For middle schools and high schools located in the District's service area, the District offers in-class presentations and field trips to a local watershed to teach students about the importance of being water-efficient, preventing urban runoff, watershed health, and global sustainability. From 2018 – 2020, OCCK conducted watershed presentations for over 1,360 students and 1,120 students took part in the field trips. This program pivoted to a distance learning format when schools closed in March of 2020, enabling students to benefit from this important curriculum despite the challenging circumstances of the pandemic. Learn more about watershed field trips here: mnwd.com/watershed-field-trips.

Water UCI Middle School Challenge: The University of California, Irvine (UCI) is a leading research institution in the region with a campus-wide initiative called Water UCI that facilitates collaboration across schools, departments, and existing research centers around questions of fundamental and applied water science, technology, management, and policy. The core group is comprised of faculty and researchers representing the schools of engineering, biological sciences, public health, social sciences, law, social ecology, and others. The District began partnering with Water UCI in 2019 to bring their Water UCI Middle School Challenge to schools in its service area. With the Middle School Challenge, UCI students are trained to lecture local middle school students about the California water system and the challenges posed by water scarcity. UCI students then work with the middle school students to guide them as they develop innovative ideas for water conservation. The event culminates when middle school students in the program present their ideas to fellow students, teachers, family members, professors, and water industry professionals, with awards going to the top teams.

Water Energy Education Alliance: The District has been a proud sponsor of the Water Energy Education Alliance (WEEA) since 2019. WEEA was formed with the goal to build and strengthen Career Technical Education (CTE) programs in the water, wastewater, and energy sectors for Southern California high school students. The District is involved in an Orange County advisory group focusing on South Orange County initiatives; in particular, the District is working with Saddleback College, Santiago Canyon College, North County Regional Occupation Program, IRWD, and others to develop career pathways for local students interested in pursuing careers in the water and wastewater industries.

Online Education Center: The District website hosts an online education center with fun and interactive content for students of all ages to learn more about water. Resources include water education videos from the Department of Water Resources, interactive resources from Project WET, MWD, and the U.S. Geological Survey's Water Science School, plus downloadable water education activities. These

resources are free of charge and available to students, parents, and teachers in our service area. Visit the Online Education Center here: mnwd.com/online-education-center.

General Manager for a Day: The District welcomed a new General Manager for the day, a local fifth grader with a keen interest in water issues. The student joined District staff and local officials for a facility tour of a regional lift station and a regional treatment plant. He saw firsthand how the District safeguards the region's water supplies and treats wastewater in an environmentally responsible manner.

MWDOC School Education Programs: The District utilizes some of MWDOC's water education school programs to reach an average of 4,500 elementary school students in the District's service area every year, teaching them the water cycle, the importance and value of water, and how to be a good environmental steward. Program curricula aligns with the California Next Generation Science Standards and other science standards established by the State of California.

The Discovery Cube of Orange County: The Discovery Cube of Orange County provides educational programming to 3rd-6th grades in assembly-style presentations that are grade specific and performed on site at the schools. Students are engaged in environmental-based lessons that emphasize the value and importance of water. Students are tested on their water knowledge with a keypad device before an assembly program begins and at the conclusion of the program to gauge concept retention. The Discovery Cube administers the program, handling the outreach, scheduling, and implementation of the program. Also, the program is available in a live, online format with sessions that include student interaction through chat and online polling, student Q & A, demonstrations, visual imagery, and pre- and post-activities. Assembly topics by grade are as follows:

- Third Grade: Local climate, health of ecosystems, and the necessity of water for all living things
- Fourth Grade: Local water resources, and how humans affect, depend on, and benefit from water
- Fifth Grade: Water supply, water cycle, and ways to be water efficient
- Sixth Grade: Humans, weather, and other natural cycles affect the health of ecosystems

Coro Fellows Program of Southern California: The District focuses on educating the next generation of leaders on water policy. From youth to emerging professionals, the District appreciates the opportunity to share experience and educate the next generation of leaders on local and statewide water issues. The District hosted groups of Fellows and provided education on public policy and infrastructure, cost-effective investments, and maintenance of water infrastructure. The District wants future leaders to learn from The District's leadership as an innovator in water management. During the site visits, Coro Fellows also learned about the Board's initiatives and policies regarding long-term planning, data-driven decision-making, and the importance of developing local, regional, and statewide partnerships to address the State's water reliability needs.

Shows that Teach: In 2019, MWDOC partnered with Shows that Teach to bring water education programs to kindergarten through second grades. The program is called, "H2O, Where Did You Go?" and is a fun, educational, and interactive assembly-style program that uses music, humor, and audience participation to engage students on topics which include:

- The Journey of Water
- Aqueducts and Reservoirs
- How Water Gets to Our Taps
- What is Evaporation?
- States of Water: Solid, Liquid, Gas
- Aquifers: Gravel, Sand, and Rock
- Reasons to Use Water Wisely, and more

The sessions are available in a live online format, as well, for one to eight classes at a time. Sessions include song, video, comedy improvisation, student question and answer, and pre- and post-activities. The contractor handles all of the program marketing, bookings, and program implementation.

Poster Contest: Each year, MWDOC holds a Water Awareness Poster Contest to focus attention on our most precious natural resource. To participate, Orange County students in grades K-12 develop posters with artwork that reflects the theme for that year's water awareness message. The goal is to get children thinking about how they can use water wisely and to facilitate discussion about water between children and their friends, parents, and teachers. Each year, more than 1,500 poster entries are received through the contest. During a special judging event, a total of 40 winning posters are selected. All winners – and their parents, teachers, and principals – are invited to attend a special awards ceremony with Ricki the Raindrop at the Discovery Cube of Orange County. At the awards ceremony, the winners are presented with their framed artwork as well as other special prizes. The top 5 winners are selected to move on to compete in the MWD Poster Contest where the best 12 are featured in their annual calendar. Participating teachers are entered into a drawing for a pizza party.

Children's Water Education Festival: Each year, District staff look forward to hosting a booth and presenting at the largest water education festival of its kind, the annual Children's Water Education Festival (Festival). The Festival is presented by the Orange County Water District, the National Water Research Institute, the Disneyland Resort, MWDOC, and other sponsors. Each year, more than 5,000 students participate in the Festival over the course of this two-day event. Held at the University of California, Irvine, the Festival presents a unique opportunity to educate students in grades four through six about local water issues and help them understand how they can protect water resources and the environment. Students attend the Festival with their teacher and classmates, visiting a variety of booths focused on different water-related topics throughout the day. Participating organizations engage the

students through interactive educational presentations that are aligned with the science content standards established by the State of California. Since its inception, more than 135,000 children from schools throughout Orange County have experienced the Festival and all it has to offer. Each year, the District hosts a booth and has led a variety of activities related to conservation and watershed education.

Section 8.1.5 Residential Water Saving Programs

NatureScape Turf-to-Native Garden Program: NatureScape is a direct-installation Turf-to-Native Garden Program that helps customers replace turfgrass with a watershed-friendly California native landscape. NatureScape participants receive a free pre-qualification landscape and irrigation assessment, 50 percent off landscape design fees, turf removal, new landscape installation, and an educational site visit 90 days after installation to ensure the proper care and maintenance of the new landscape. NatureScape breaks the rebate mold by providing customers with a $2 per square foot instant rebate on the day their landscape is installed – no waiting required for a rebate check in the mail. NatureScape connects customers with an experienced landscape designer and installation contractor team that supports customers with their landscape transformation from start to finish. The goal is to educate customers on sustainable landscaping and make it even easier for residents to take advantage of the District's generous rebates for replacing turf with water-efficient landscaping. NatureScape is one of three turf replacement programs offered by the District. Since 2011, the District has incentivized the removal of 5.67 million square feet through its residential and commercial turf removal programs.

Sustainable Landscaping Classes: The District conducts approximately 20 California Friendly Landscape Training classes each year to help homeowners design and maintain watershed-friendly landscapes. The program consists of in-person or virtual classes that focus on landscape and design concepts, plant selection with an emphasis on California native plants, landscape maintenance, and watering practices for climate appropriate plants. One of the District's most popular offerings, the average attendance per landscape class is 25 people, resulting in approximately 500 participants per year.

Smart Timer Direct Installation Program (Smart Timer Program): In 2016, the District partnered with the University of California, Riverside to assess awareness, adoption, and overall performance of its residential rebate programs. The study found that even after the worst drought in California's recorded history, awareness and adoption of outdoor water savings devices were low among residents. The study also found that smart irrigation timers were the most cost-effective device in the District's rebate portfolio and that smart timers had the most potential for increasing outdoor water efficiency. Since 2017, the District has operated the Smart Timer Direct Installation Program, which provides residential customers with up to two free smart timers and discounted professional installation. Through the Smart Timer Program, the District has installed over 2,100 controllers, which allows the District to save over 46.9 million gallons of water each year.

Irrigation Efficiency Workshops: The District provides irrigation workshops from late spring through early fall to provide information about efficient irrigation practices. Through the workshop, residents learn about the District's water supply, the financial benefits of irrigating efficiently, WBBRS, evapotranspiration, irrigation troubleshooting, irrigation controller settings, and the benefits of smart technology to assist with outdoor watering. The workshop features a hands-on tutorial to teach customers how to calculate their water budget and how to program their irrigation timer.

Calscape Nursery Program: The District, in partnership with MWD, California Native Plant Society (CNPS), and more than a dozen local water agencies, launched the Calscape Nursery Program, a first-of-its-kind market transformation initiative to raise awareness about the multiple benefits of California native plants with the public and increase their availability at California nurseries. The Calscape Nursery Program provides participating nurseries with free registration, a "store window" on Calscape.org, and access to a CA native plant database. Additionally, nursery professionals can access free video-based training on native plants to learn about the proper care, maintenance, watering, and planting of California native plants. Participating nurseries receive free point-of-sale and digital marketing materials to promote native plants in the nursery setting, as well as pot stickers with the Calscape Nursery Program logo to clearly identify CA native plants. Educational materials are made available for consumers to learn how to plant and maintain water-efficient flowers, trees, shrubs and succulents. To learn more about the Calscape Nursery Program visit: https://nurseries.calscape.org.

Home Saving Surveys: The District provides its residential customers with free Home Saving Surveys to help troubleshoot high bills, irrigation leaks, sprinkler timer issues, landscape measurements, and more. Home Saving Surveys act as an educational tool for customers who want to learn how to adjust their irrigation timer or how to be more efficient with their water use. In FY 2019-2020, the District started conducting virtual home savings surveys due to COVID-19. The District conducted more than 2,263 residential Home Saving Surveys and 193 commercial surveys from FY 2015 to FY 2020.

Fix-A-Leak Campaign: The District is an EPA WaterSense partner and annually participates in the Fix-A-Leak Campaign. Each March, the District operates a large-scale outreach campaign to provide its single-family and multi-family residents with educational messaging and free toilet tests to help them diagnose a leaky flapper. Year-round the District provides resources and educational campaigns to help customers fix small leaks before they turn into big problems. The District makes it easy for customers to check their toilet for leaks by providing toilet dye tabs and has created a "Potty Talk" video series to help customers learn how to find and fix toilet leaks. Learn more about the District's Fix-A-Leak campaign and watch its "Potty Talk" video series at https://www.mnwd.com/fix-a-leak/.

Southern California Gas Company (SoCalGas) Energy Savings Assistance Program (ESAP) Partnership: The District partners with SoCalGas to bring their Energy Savings Assistance Program to disadvantaged customers served by both utilities, offering them direct installation of water and energy saving devices. In particular, the ESAP program provides income-qualifying residents with high efficiency clothes washers, high efficiency shower heads and faucet aerators, thermostatic shower valves, tub diverters, and more.

Section 8.1.6 Commercial Water Saving Programs

Commercial Surveys: The District offers commercial businesses free indoor and landscape surveys to evaluate water use, check for leaks, assess the efficiency of existing water-using devices and appliances, provide education on WBBRS, suggest rebates and programs, review irrigation timer settings, and discuss outdoor watering practices and water-use behaviors. Participating businesses receive a comprehensive report with water usage history, water use and site analysis, suggested rebates and programs with a return-on-investment analysis, and links to other helpful resources.

School Retrofit Program: The School Retrofit Program helps local schools increase their water efficiency and lower their bills. Through the program, schools are provided with free high efficiency showerheads, faucet aerators, toilets, and urinals, as well as free professional installation. The District has partnered with its two local school districts, Saddleback Valley Unified School District and Capistrano Valley Unified School District, to develop educational signage which are installed near the high efficiency devices and explain water savings for each device type. Since 2017, the District has retrofitted nine schools in its service area.

Pilot HOA Assistance Program: The District piloted a HOA Assistance Program in 2019 which provided local HOAs with a free needs assessment to determine the landscaping priorities for each community, a free landscape assessment to evaluate their irrigation and landscape conditions, a comprehensive report filled with water efficiency resources, a detailed site analysis, and recommended site and irrigation improvements, and a follow-up meeting with community members to discuss an implementation

strategy. Three HOAs successfully participated in the pilot and the District is looking to scale this program to provide more communities in its service area with high quality landscaping assistance.

San Diego Gas &Electric (SDG&E) Business Energy Solutions Program Partnership: Customers of both the District and SDG&E with commercial kitchens were eligible for instant rebates on select water and energy-saving devices such as pre-rinse spray valves, faucet aerators, ice machines, electric steam cookers, and gas steam cookers. Eligible customers received complimentary energy and water assessments and professional installation of approved devices by the SDG&E-approved contractor.

Professional Landscaper Training Classes: In addition to teaching customers about proper irrigation methods and maintenance practices, the District hosted two types of professional landscape training classes from 2016-2020. From 2017-2018, the District offered local landscape and design professionals two opportunities to become Watershed Wise Landscape Professional (WWLP) certified. This certification qualifies conservation, water quality, and landscape professionals to evaluate irrigation systems and factor rainwater use efficiency into an outdoor water efficiency analysis. The WWLP workshop provides participants with a deeper understanding of the plant-soil-water relationship, plant water requirements, landscape water budgeting, irrigation management and using rainwater as a resource to reduce landscape water and resource use, regardless of the climate in which the landscape is situated.

From 2018-2019, the District offered several professional landscaper trainings in both English and Spanish from the Bilingual Training Institute (BTI). The ten-week training workshops were geared for professional landscapers and irrigators; attendees received technical training from an industry professional on the following topics:

- Hydraulic Principles of Irrigation Systems
- Troubleshooting Irrigation Systems
- Valve Troubleshooting
- Electrical Troubleshooting
- Fundamentals of Drip Irrigation
- Sustainable Water Management Principles
- Practical Techniques for Irrigation Scheduling
- Smart Controller Programming
- Water Budgets for Landscapes
- Watershed Approach to Sustainable Landscapes

Section 8.1.7 Programs to Assess and Manage Distribution System Real Loss

The District completes a thorough and complete audit on the billing and tracking of water use and water loss each fiscal year. In accordance with the SB 555, the District has completed the water audit and water balance using the AWWA software for Fiscal Year 2014 through Fiscal Year 2020. Staff has completed training in the AWWA water audit methodology and the component analysis process. The District utilizes the Survey123 and ArcGIS Collector applications to record and track reported and unreported leaks. Data collected on each leak includes: the date and time the leak was reported, the leak run time from report to repair, the estimated leak volume, the type of leaking pipe or fitting, pipe material and size, pressure, and the leak location with GPS coordinates. The District's GIS department is able to map all leaks in GIS to provide further analysis and inform the refinement of the District's asset management plan. Repairs of all reported leaks and breaks are made as quickly as possible and to the extent they are cost-effective. In 2019, the District created its own leak detection team consisting of a three-person crew to survey the District's service area. The District purchased new leak detection equipment consisting of acoustic listening equipment, correlators, ground microphones, and a portable insertion meter to measure the actual rate of water loss on service lines. The District has an ongoing meter replacement program, in addition to the current deployment of AMI technology which will cover the entire meter population within the next year, providing near real-time notifications of leaks to our customers and staff. The District's valve crew works to ensure all valves are in proper working order to isolate leaks on mainlines as quickly as possible. The District will continue to improve its water loss performance in a manner consistent with the AWWA methodology. *Chapter 4* details the District's distribution system losses. The District has instituted the following projects in the past several years to reduce water loss:

1. Six years of annual water loss audits of our potable distribution system
2. A water loss audit of the recycled water distribution system using AMI data
3. Two real loss and apparent loss component analyses in FY 14-15 and FY 17-18
4. Piloted satellite-based flyover technology to identify water loss
5. Piloted AI-based technology to predict pipe failure
6. Exploring AI & machine learning technology to predict meter failure and reduce apparent water loss
7. Use of Survey123 GIS application for remote data collection to capture leak loss data for both reported and unreported leaks
8. Use of ArcGIS Collector application to track and quantify miles of mains surveyed
9. District Metered Area and AMI water loss detection pilot
10. Moulton Niguel staff received leak detection training from leak detection specialists
11. Development of proactive leak detection survey team (Full-time Moulton Niguel staff), and
12. Hosted a leak detection workshop with MWDOC and its member agencies.
13. Piloting a pressure management control solution for one of its closed zone systems

Section 8.1.8 Water Conservation Program Coordination and Staffing Support

The District has employed a full-time conservation coordinator since 2001 and created the Water Efficiency Department in 2010 just prior to implementing WBBRS. The District's Water Efficiency Department manages the District's water and energy efficiency programs, landscape workshops, water

education programs, water use and water loss reporting, conducts pilots and studies related to demand, water savings, and cost-effectiveness, and provides customer service to residents and businesses with questions related to water efficiency programs and inefficient water usage. Currently, the Water Efficiency Department consists of the Water Efficiency Manager, Senior Water Efficiency Specialist, Water Efficiency Analyst, Water Efficiency Supervisor, and four Water Efficiency Representatives.

The Water Efficiency Department is responsible for a variety of tasks related to conservation and community outreach, including: responding to calls about high bills and increased consumption, outreach to customers with unusually high usage, customer interaction at our headquarters and throughout the District by field personnel, education of how water budgets work, bill adjustment processing, applying budget modifications for additional household members or square footage of irrigated area or other special circumstances, home and commercial water surveys, site inspections, promoting and staffing landscape and irrigation workshops, providing school education programs, attending community and HOA events, distributing conservation supplies to hotels and restaurants, participating in regional water use efficiency meetings at MWDOC and MWD, and tracking data on our water use efficiency fund and rebate programs.

Section 8.1.9 Other Demand Management Measures

District staff work closely with MWDOC, the regional wholesaler, to develop and implement District and regional water use efficiency programs. The District offers a wide variety of rebates to its customers designed to promote water conservation. The District provides supplemental funding for various devices and pre- and post-inspections for turf removal rebates.

Section 8.1.9.1 Residential Rebates – Indoor

The District provides two indoor rebates to residents, as described further below. **Table 8-2** summarizes each rebate program, the reimbursement cost amount. The District's rebate programs are available on the District's website: https://www.mnwd.com/rebates/.

High Efficiency Clothes Washers: Almost 15 percent of water used inside the home is for laundry. New high efficiency clothes washers (HECW) use up to 55 percent less water than older models. Switching to a high efficiency clothes washer may provide a water savings of 4,800 gallons per year. The District offers a rebate of up to $285 per washer installed that has a high efficiency symbol and is listed on the Consortium for Energy Efficiency (CEE) Tier 1 qualifying product list.

Premium High Efficiency Toilets: The District offers rebates for Premium High Efficiency Toilets (Premium HETs) using 4-liters (1.06 gpf) or less at $40 per toilet. Premium HETs use almost 20 percent less water than the WaterSense standard and flush the same amount of waste just as effectively.

Section 8.1.9.2 Residential Rebates – Outdoor

The District has several outdoor rebates available to customers, as described further below. Table 8-2 summarizes each rebate program, the reimbursement amount. The District's rebate programs are available on the District's website: https://www.mnwd.com/rebates/.

Weather Based Irrigation Controller: Weather based irrigation controllers (WBICs), aka Smart Timers, allow for a more accurate, customized irrigation setting by automatically adjusting watering schedule and amount of water in response to changing weather conditions. Not only does this save water by reducing unnecessary watering, but it also allows for customization of irrigation schedules to meet the landscape's specific plant and climate needs. The District provides rebates up to $330 per controller and up to two controllers for less than 1 acre of landscape and up to $75 per station for more than 1 acre of landscape.

Rotating Sprinkler Nozzles: Rotating nozzles provide directed, uniform water distribution to plants, eliminating wasteful runoff. They use a lower flow rate than traditional spray nozzles and can help you reduce your outdoor water use by up to 30 percent. The District's rebate amount is up to $6 per nozzle with a minimum of 30 nozzles for residential customers.

Soil Moisture Sensor Systems: Soil moisture sensor controllers are placed below ground in the root zones of lawns and landscapes to determine if and how long to water. They are available as stand-alone controllers or add-on devices to existing controllers. They have been shown to reduce outdoor water use by as much as 70 percent without sacrificing the quality or health of landscape. The residential rebate amount is up to $330 per controller with a sensor for properties less than one acre, or $75 per station for properties one acre or larger.

Turf Removal: Turf grass is one of the most water-intensive plants in a customer's landscape. By removing 500 sq. ft. of turf, an estimated 9,000 gallons of water is saved per year. To qualify for a rebate, a pre-inspection is required to determine the amount of turf being removed, as well as confirm the grass is alive and irrigated. A post-inspection is also a requirement to verify the total square feet of turf removed in order to calculate the rebate amount. This rebate is administered by MWDOC and offers turf removal rebates at $2.00 per square foot. Nearly 6,000,000 square feet of turf has been removed in the District's service area as of 2020, making us a program leader in Orange County.

Rain Barrels and Cisterns: Rain barrels and cisterns allow for the capture of rainwater that falls onto the roof for reuse on the customer's landscape. Plants and microbes prefer rainwater because it is naturally "soft" and free of chlorine, fluoride, and other constituents. Rain barrels help reduce ocean water pollution by preventing rain from carrying fertilizers, pet waste, and other harmful debris into the ocean. Rebates start at $35 per barrel or $250 per cistern, rain barrels must hold at least 50 gallons or cisterns

must hold at least 200 gallons and be designed specifically to capture rain. The barrel must have a cover to prevent mosquitoes from entering the water.

Table 8-2: Residential Rebates

Residential Rebates	
Program	**Current Rebate Level**
High Efficiency Clothes Washers	Up to $285 per washer
High Efficiency Toilets	Up to $40 per toilet
Rotating Sprinkler Nozzles	Up to $6 per nozzle
Cisterns	Start at $250
Smart Irrigation Timers	Up to $330 per controller
Soil Moisture Sensors	Up to $330 per sensor
Rain Barrels	Up to $35 per barrel
Turf Removal	Up to $2 per sq.ft.
NatureScape	Up to $2 per sq.ft.

Section 8.1.9.3 Commercial Rebates – Indoor

The District has several indoor commercial rebates available to customers, as described further below. **Table 8-3** summarizes each rebate program and the reimbursement amount. The District's rebate programs are available on the District's website: https://www.mnwd.com/commercialrebates/.

Zero & Ultra Low Water Urinals: Ultra low water urinals provide effective, low-maintenance flushing in public restrooms while reducing water consumption by as much as 88 percent. Zero water urinals are an improvement over traditional urinals in both maintenance and hygiene. Zero water urinals use no water at all, saving an average of 45,000 gallons of water per year. The District provides an incentive up to $200 per urinal.

Premium High Efficiency Toilets: Replacing a 3.5 gallon per flush (gpf) toilet with a WaterSense 1.28 gpf toilet may save an average of 10,000 gallons per year per business. Rebates for Premium High Efficiency Toilets using 4-liters (1.06 gpf) or less are offered at $40 per toilet. Premium high efficiency toilets use almost 20 percent less water than the WaterSense standard and flush the same amount of waste just as effectively.

Plumbing Flow Control Valve: Flow Control Valves are designed to maintain water pressure while reducing water flow in faucets and showers by up to 60 percent. The District's rebate provides $5 per valve with a minimum of 10 valves.

Cooling Tower Conductivity and pH Controllers: Automated monitoring and control are the keys to maintaining cooling system efficiency. By accurately transmitting information to the valves that control the amount of blow down (water drained from the cooling tower reservoir) and subsequent makeup water, a conductivity controller can dramatically reduce operating expenses. Annual water savings with a new cooling tower conductivity controller can be as much as 800,000 gallons. The District provides

rebate incentives up to $1,225 for cooling tower conductivity controllers and $2,750 for pH-cooling tower controllers.

Air Cooled Ice Machines: New air-cooled ice machines use less energy and water to make ice quickly and efficiently. To qualify for an MNWD rebate, air cooled ice machines must replace older existing water-cooled ice machines. Older water-cooled ice machines typically use 90 gallons of water to produce 100 pounds of ice, with an additional 180 gallons of water per 100 pounds of ice to cool the machine. Air cooled ice machines use 15-25 gallons of water per 100 pounds of ice and do not use water to cool the machine, thereby achieving significant water savings. By installing an air-cooled ice machine, water savings could be as much as 219,000 gallons per year. Rebates are available for up to $1,750 per machine.

Connectionless Food Steamers: Restaurants often use food steamers to maintain or warm food. New water-efficient connectionless (pressure-less) food steamers, which have no water line or sewer discharge line, have been developed. This type of food steamer is intended for small to medium-size restaurants. Based on a study by the Food Service Technology Center, connectionless food steamers save an average of 81,500 gallons per year with an estimated 10-year life span. Rebates are available for up to $985 per compartment.

Dry Vacuum Pumps: Vacuum pumps are used in medical applications for drying, distilling, evaporating, degasifying, freezing, suction, and laboratory analysis. Liquid ring vacuum pumps use large amounts of water as a liquid seal to create the vacuum. Converting to dry vacuum pumps will reduce water and sewer expenses. Dry vacuum pumps are capable of creating an airtight seal without the use of water by utilizing parts machined within extremely close tolerances. Rebates are available for up to $125 per 0.5 horsepower pump with a maximum of 2 horsepower.

Laminar Flow Restrictors: Laminar flow restrictors placed on faucets do not draw air into the water stream and produce a non-aerated clear stream of water which inhibits bacterial growth and transmission. Reduced flow rates can reduce water and energy costs. Retrofitting an existing faucet with a laminar flow restrictor can save up to 7,500 gallons per device. Laminar flow restrictors eligible for the SoCal WaterSmart rebate are to be installed in hospitals, urgent care, and other health care related facilities. Devices should meet California Office of Statewide Health Planning and Development standards. Rebates are available for up to $10 per restrictor with a minimum of 10 restrictors installed.

Section 8.1.9.4 Commercial Rebates - Outdoor

The District has several outdoor commercial rebates available to customers, as described further below. Table 8-3 summarizes each rebate program and the reimbursement cost amount. The District's rebate programs are available on the District's website, https://www.mnwd.com/commercialrebates/.

Turf Removal: Turf grass is one of the most water-intensive plants in a customer's landscape. By removing 500 sq. ft. of turf, an estimated 9,000 gallons of water is saved per year. To qualify for a rebate, a pre-inspection is required to determine the amount of turf being removed, as well as to confirm the grass is alive and irrigated. A post-inspection is also a requirement to verify the total square

feet of turf removed to calculate the rebate amount. The District offers turf removal rebates at $2.00 per sq. ft.

Large Rotary Spray Nozzles: High efficiency nozzle retrofits for large rotary sprinklers replace standard plastic nozzles with durable metal nozzles. These replacement nozzles are resistant to wear and provide a high uniformity of water distribution. Retrofitting existing plastic large rotary sprinkler heads with metal high efficiency nozzles could result in an annual water savings of up to 6.5 percent. They are mostly used on golf courses and other open landscapes for long range and close-in watering. High efficiency nozzle retrofits provide healthier, greener turf and improved distribution and uniformity with lower water and energy costs. Lower maintenance costs are also achieved. Rebates are offered at up to $28 per set (8 set minimum).

Rotating Sprinkler Nozzles: Retrofitting existing pop-up spray heads with rotating nozzles can save up to 6,600 gallons per nozzle over a five-year period. Rebates are offered at up to $6 per nozzle with a minimum of 30 nozzles.

Cisterns: Cisterns allow customers to capture the rain that falls onto the roof and reuse it later to water the landscape. Rebates start at $250 per cistern and must hold at least 200 gallons and be designed specifically to capture rain.

Drip Irrigation: Drip irrigation allows water to drip slowly to the roots of plants, either onto the soil surface or directly into the root zone through a network of valves, pipes, tubing, and emitters. Traditional overhead sprinklers have a water efficiency of 70 percent or lower, while drip irrigation is 90 percent efficient. Commercial sites may be eligible to receive $0.70 per square foot of converted area. The installed drip irrigation equipment must be listed on the Eligible Products List and a minimum of 250 square feet of irrigated area must be converted.

Weather Based Irrigation Controllers: Weather based irrigation controllers, aka Smart Timers, allow for more accurate, customized irrigation programming by automatically adjusting the schedule and amount of water in response to changing weather conditions. Smart timers use information about your plants, soil, and weather conditions to give your landscape the right amount of water year-round. Not only should this save water by reducing unnecessary watering, but it also allows for customization of irrigation schedules to meet the landscape's specific plant and climate needs. The estimated water savings per year for 2,000 sq. ft. of irrigated area is approximately 17,204 gallons. Commercial rebates are offered at up to $75 per station for all properties.

Soil Moisture Sensor Systems: Soil moisture sensor controllers are placed below ground in the root zones of lawns and landscapes to determine if and how long to water. They are available as stand-alone controllers or add-on devices to existing controllers. They have been shown to reduce outdoor water use by as much as 70 percent without sacrificing the quality or health of the landscape. The commercial rebate amount is up to $75 per station for all properties.

In-Stem Flow Regulators: In-stem flow regulators control water flow in irrigation systems at the sprinkler head. They are recommended for parks, schools, office complexes, golf courses, nurseries, and other commercial irrigation applications. Retrofitting existing pop-up spray heads with in-stem flow regulators can save up to 1,000 gallons per device. The rebate amount is up to $1 per regulator.

Table 8-3: Commercial Rebates

Commercial Rebates	
Program	**Current Rebate Level**
High Efficiency Toilets	Up to $40 per toilet
Ultra-Low & Zero Water Urinals	Up to $200 per urinal
Air-Cooled Ice Machines	Up to $1,750 per machine
Connectionless Food Steamers	Up to $985 per compartment
Cooling Tower Controllers	Up to $1,225 per conductivity controller Up to $2750 per pH controller
Dry Vacuum Pumps	Up to $125 per 0.5 horsepower
Laminar Flow Restrictors	Up to $10 per restrictor
Large Rotary Spray Nozzles	Up to $28 per set
Drip Irrigation	Up to $0.70 per sq.ft.
Rotating Sprinkler Nozzles	Up to $6 per nozzle
Smart Irrigation Timers	Up to $75 per station
Soil Moisture Sensors	Up to $75 per station
In-Stem Flow Regulators	Up to $1 per regulator
Turf Removal	Up to $2 per sq.ft.
Cisterns	Starts at $250 per cistern
Plumbing Flow Control Valve	$5 per valve

Section 8.2 Implementation Over the Past Five Years

The measures described in the previous section were implemented within the last five years.

Section 8.3 Planned Implementation to Achieve Water Use Targets

Even with its many accomplishments in demand management, the District is committed to achieving even greater water savings throughout its service area. As noted in *Chapter 5*, the District is approximately 30 percent below its SBX7-7 2020 compliance target. The District expects to continue to implement its current conservation programs to encourage conservation and maintain per-capita consumption below the compliance target.

New programs that will be implemented include:

- **HOA Assistance Program**: A full-scale program to provide HOAs with a needs assessment, comprehensive landscape and irrigation system assessment, water management support, access to outdoor rebates and programs, and educational programs.

- **Water Efficiency Marketplace**: A web-based module incorporated into the District's customer portal, this provides residential customers with a marketplace to purchase water-efficient devices with an instant rebate and shipping directly to their homes.
- **Enterprise Portfolio View**: A web-based module incorporated in the District's customer portal, this provides commercial customers with the ability to view their usage in the aggregate, pay multiple bills at a time, receive leak alerts, and group accounts into portfolios which can be assigned to HOA Board members, property or site managers, and landscaping professionals.

Section 8.4 Water Use Objectives (Future Requirements)

The demand management measures described throughout this section will be used to help the District meet future water use objectives. As necessary, the District will modify the formula for developing water-based budget rates (refer to Figures 8-2 and 8-3) to align with the future water use objectives for certain water use sectors. The District will continue to work to find innovative programs to help customers use water wisely and reduce water waste.

Chapter 9 Urban Water Management Plan Adoption Process

This section provides the information required by the UWMP Act related to adoption of the UWMP and WSCP and external coordination and outreach activities carried out by MNWD as required by the California Water Code.

Section 9.1 Inclusion of all 2020 Data

Data provided in this plan reflects fiscal years beginning July 1. Data utilized is current through the end of the last full fiscal year – June 30, 2020. This 2020 UWMP serves as an update to MWND's 2015 UWMP. As required by California Water Code Section 10631(h), MWDOC provided its member agencies information that quantified water availability to meet their projected demands over the next 25 years. Based on the projections of retail demand and local supply development provided by MWDOC's member agencies and the imported supply availability described in MWD's 2020 UWMP, MWDOC provided data specific to each member agency to be used by that agency to update its own UWMP.

Section 9.2 Notice of Public Hearing

Recognizing that close coordination among other relevant public agencies is key to the success of its UWMP and WSCP, MNWD worked closely with many other entities to develop and update these planning documents, including but not limited to other water suppliers that share a common source, water management agencies, and other relevant public agencies to the extent practicable. MNWD also encouraged public involvement by holding two public hearings for stakeholders to learn and ask questions about their water supply and all related aspects of the WSCP and the 2020 UWMP, as further discussed below. MNWD's notifications are described below.

Section 9.2.1 Notice to Cities and County

MNWD notified in writing all cities and the County within its service area at least 60 days prior to the public hearings for the 2020 UWMP. As shown in Table 9-1, MNWD sent a Letter of Notification to the County of Orange and all cities within the District's service area on March 24, 2021 to state that it was in the process of preparing an updated WSCP and UWMP, respectively (**Appendix G**). These agencies were also notified of the date, time, and location of the respective public hearings for the WSCP and 2020 UWMP. Furthermore, prior to each of the hearings on and adoption of the WSCP and then the UWMP, a copy of the WSCP and UWMP were made available for public review. As discussed below, MNWD also ensured the notice of the time and place of the respective public hearings were published within its service area in accordance with the requirements of Section 6066 of the Government Code.

Section 9.2.2 Notice to Public

MNWD encouraged the active involvement of diverse social, cultural, and economic constituents of the population and community within its service area prior to and during preparation of the 2020 UWMP. As discussed herein, that public interest and involvement in the WSCP and UWMP was encouraged

through various means, including public noticing of the availability of the draft document for review on the District's website. Given the Covid-19 pandemic, a hard copy of the draft document was not made available at District headquarters given the office was closed to the public. However, it was available for review on the District's website and was made available by request. MNWD also encouraged public involvement by holding a public hearing for residents to learn and ask questions about their water supply and all related aspects of the WSCP and 2020 UWMP. The notice, which included the time and location of the public hearings on the WSCP and UWMP, is included in **Appendix G**, and was published in the OC Register newspaper once a week for two consecutive weeks with at least five days between each notice for both the WSCP and UWMP. The notice for the WSCP was published on April 24, 2021 and May 1, 2021. The notice for the UWMP was published in the Orange County Register on May 16, 2021 and May 23, 2021. A copy of the published notifications are included in Appendix G.

Table 9-1: Notification to Cities and Counties

City or Water District	60 Day Notice	Notice of Public Hearing
City of Laguna Niguel	☑	☑
City of Laguna Hills	☑	☑
City of San Juan Capistrano	☑	☑
City of Mission Viejo	☑	☑
City of Aliso Viejo	☑	☑
City of Dana Point	☑	☑
El Toro Water District	☑	☑
South Coast Water District	☑	☑
Santa Margarita Water District	☑	☑
Laguna Beach County Water District	☑	☑
Municipal Water District of Orange County	☑	☑
County Name	**60 Day Notice**	**Notice of Public Hearing**
Orange County	☑	☑

Section 9.3 Public Hearing(s) and Adoption

The WSCP public hearing was conducted on May 13, 2021 at 6:00 p.m. during a regularly scheduled meeting of the MNWD Board of Directors at MNWD's Main Office in Laguna Niguel. The UWMP public hearing was conducted on June 10, 2021 at 6:00 p.m. during a regularly scheduled meeting of the MNWD Board of Directors at MNWD's Main Office in Laguna Niguel. Public hearing(s) notifications were sent to cities and the County list in Table 9-1. The hearings provided an opportunity for all residents, businesses, and other stakeholders in the District's service area to learn and ask questions about their water supply and the key elements of the District's WSCP and 2020 UWMP. MNWD also ensured during the public hearings that the community and interested stakeholders were provided an opportunity to provide input on the District's WSCP and UWMP and that the District considered the economic impacts of the WSCP and UWMP. A copy of the draft WSCP and 2020 UWMP was made available for public inspection on MNWD's website 30 days prior to the respective public hearings.

The WSCP was considered for adoption by the Board of Directors on May 13, 2021. A copy of the resolution for adoption of the WSCP is provided in Appendix C. The UWMP is was considered for adoption by the Board of Directors on June 10, 2021. A copy of the resolution for adoption of the UWMP is provided in **Appendix H**. A staff report and presentation for both the WSCP and 2020 UWMP reviewed the information gathering process, the data obtained, and the conclusions that served as the basis of the Draft WSCP and 2020 UWMP. The President of the Board of Directors then opened each of the respective Public Hearing where all comments were recorded.

As required by California Water Code, MNWD summarized Water Conservation Programs implemented to date, and compared the implementation to those as planned in its 2020 UWMP.

Section 9.4 Urban Water Management Plan Submittal

The District's adopted 2020 UWMP and related data tables were provided electronically to DWR through the WUEdata online submittal tool that DWR developed. Electronic copies of the 2020 UWMP were submitted to the California State Library (a hard copy was provided), MWDOC, City of Laguna Niguel, City of Aliso Viejo, City of Laguna Hills, City of Mission Viejo, City of Dana Point, City of San Juan Capistrano, County of Orange, and other entities in accordance with the UWMP Act, no later than 30 days after adoption.

Section 9.5 Public Availability

MNWD will make the Final 2020 UWMP and WSCP available for public review at MNWD's website no later than 30 days after filing the document with DWR. The documents can be found at https://www.mnwd.com/reports-publications/.

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Appendix A UWMP Checklist

Appendix A: UWMP Checklist

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and Overview	Sections 1.1 and 1.2
Chapter 1	10630.5	Each plan shall include a simple description of the supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a supplier may also choose to include a simple description at the beginning of each chapter.	Summary	Executive Sumary
Section 2.2	10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1.1
Section 2.6	10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.2 and Section 9.2
Section 2.6.2	10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan Preparation	Section 9.2.2 and Appendix G
Section 2.6, Section 6.1	10631(h)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) - if any - with water use projections from that source.	System Supplies	Section 2.2; Table 2-4
Section 2.6	10631(h)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Wholesale Only; N/A
Section 3.1	10631(a)	Describe the water supplier service area.	System Description	Sections 3.1 and 3.2
Section 3.3	10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3.7
Section 3.4	10631(a)	Provide population projections for 2025, 2030, 2035, 2040 and optionally 2045.	System Description	Table 3-1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the supplier's water management planning.	System Description	Section 3.5
Sections 3.4 and 5.4	10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Table 3-1
Section 3.5	10631(a)	Describe the land uses within the service area.	System Description	Section 3-4, Table 3-3 and Figure 3-7
Section 4.2	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2; Tables 4-1 through 4-3; Figures 4-1 through 4-3
Section 4.2.4	10631(d)(3)(C)	Retail suppliers shall provide data to show the distribution loss standards were met.	System Water Use	Section 4.3; Table 4-4
Section 4.2.6	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans and other policies or laws.	System Water Use	Table 4-5 and Section 4.2.4.1
Section 4.2.6	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System Water Use	Section 4.2 and Table 4-5
Section 4.3.2.4	10631(d)(3)(A)	Report the distribution system water loss for each of the 5 years preceding the plan update.	System Water Use	Section 4.3;Table 4-4
Section 4.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.4
Section 4.5	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System Water Use	Section 4.5 and Section 6.10
Chapter 5	10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Sections 5.1-5.3; Tables 5-1 and 5-2; Appendix B, DWR Tables
Chapter 5	10608.24(a)	Retail suppliers shall meet their water use target by December 31, 2020.	Baselines and Targets	Section 5.3; Table 5-2
Section 5.1	10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Wholesale Only

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 5.2	10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	N/A; District did not adjust GPCD
Section 5.5	10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.1
Section 5.5 and Appendix E	10608.4	Retail suppliers shall report on their compliance in meeting their water use targets. The data shall be reported using a standardized form in the SBX7-7 2020 Compliance Form.	Baselines and Targets	Appendix B, DWR Tables
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought.	System Supplies	Sections 7.2.2 and 7.2.3
Sections 6.1	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, *including changes in supply due to climate change.*	System Supplies	Sections 7.2.2 and 7.2.3
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System Supplies	Section 6.1 and Section 6.9
Section 6.1.1	10631(b)(3)	Describe measures taken to acquire and develop planned sources of water.	System Supplies	Section 6.8
Section 6.2.8	10631(b)	Identify and quantify the existing and planned sources of water available for 2020, 2025, 2030, 2035, 2040 and optionally 2045.	System Supplies	Table 6-9; Appendix B, DWR Table 6-9
Section 6.2	10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2; Table 6-1
Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2; Table 6-1
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System Supplies	Section 6.2
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2
Section 6.2.2.1	10631(b)(4)(B)	For unadjudicated basins, indicate whether or not the department has identified the basin as a high or medium priority. Describe efforts by the supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	System Supplies	Section 6.2
Section 6.2.2.4	10631(b)(4)(C)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Section 6.2
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.7
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5 and Tables 6-2 and 6-3
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.3 and Table 6-4
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.3 and Tables 6-4 and 6-5
Section 6.2.5	10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.4 and Table 6-6
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.4 and Table 6-6
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area with quantified amount of collection and treatment and the disposal methods.	System Supplies (Recycled Water)	Section 6.5.2 and Tables 6-2 and 6-3
Section 6.2.8, Section 6.3.7	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and for a period of drought lasting 5 consecutive water years.	System Supplies	Sections 6.8 and 6.9
Section 6.4 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a supplier can readily obtain.	System Suppliers, Energy Intensity	Section 6.11 and Tables 6-10 and 6-11 and Appendix F
Section 7.2	10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.2.1
Section 7.2.4	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.2.4
Section 7.3	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.2.3
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water Supply Reliability Assessment	Section 7.3 and Table 7-5
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts 5 consecutive years.	Water Supply Reliability Assessment	Section 7.3.1
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water Supply Reliability Assessment	Section 7.2 and Section 7.3
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.	Water Supply Reliability Assessment	Section 7.3.3 and Tables 7-4 and 7-5
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water Supply Reliability Assessment	Sections 4.5, 6.10, 7.2.1, and 7.3
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water Shortage Contingency Planning	Appendix C
Chapter 8	10632(a)(1)	Provide the analysis of water supply reliability (from Chapter 7 of Guidebook) in the WSCP	Water Shortage Contingency Planning	Appendix C, Section 2.2
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the water shortage contingency plan to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water Shortage Contingency Planning	Appendix C, Section 11.1
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the supplier will use each year to determine its water reliability.	Water Shortage Contingency Planning	Appendix C, Section 3.1 and Section 3.2
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water Shortage Contingency Planning	Appendix C, Section 3.1.1
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10, 20, 30, 40, 50 percent shortage and greater than 50 percent shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water Shortage Contingency Planning	Appendix C, Section 4.1
Section 8.3	10632(a)(3)(B)	Suppliers with an existing water shortage contingency plan that uses different water shortage levels must cross reference their categories with the six standard categories.	Water Shortage Contingency Planning	Appendix C, Section 4.1, Table 4-1
Section 8.4	10632(a)(4)(A)	Suppliers with water shortage contingency plans that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water Shortage Contingency Planning	Appendix C, Section 5.1.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water Shortage Contingency Planning	Appendix C, Section 5.1.1
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water Shortage Contingency Planning	Appendix C, Section 5.1.3
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions are appropriate to local conditions.	Water Shortage Contingency Planning	Appendix C, Section 5.1.4
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water Shortage Contingency Planning	Appendix B, DWR Table 8-2
Section 8.4.6	10632.5	The plan shall include a seismic risk assessment and mitigation plan.	Water Shortage Contingency Plan	Appendix C, Section 5.3
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water Shortage Contingency Planning	Appendix C, Chapter 6
Section 8.5 and 8.6	10632(a)(5)(B) 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water Shortage Contingency Planning	Appendix C, Section 6.2 and Section 6.3
Section 8.6	10632(a)(6)	Retail supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water Shortage Contingency	Appendix C, Chapter 7
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the supplier to enforce shortage response actions.	Water Shortage Contingency Planning	Appendix C, Chapter 8
Section 8.7	10632(a)(7)(B)	Provide a statement that the supplier will declare a water shortage emergency Water Code Chapter 3.	Water Shortage Contingency Planning	Appendix C, Chapter 8
Section 8.7	10632(a)(7)(C)	Provide a statement that the supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water Shortage Contingency Planning	Appendix C, Chapter 8
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix C, Sections 9.1 and 9.2
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water Shortage Contingency Planning	Appendix C, Sections 9.1 and 9.2; Table 9-1
Section 8.8	10632(a)(8)(C)	Retail suppliers must describe the cost of compliance with Water Code Chapter 3.3: Excessive Residential Water Use During Drought	Water Shortage Contingency Planning	Appendix C, Sections 9.1 and 9.2
Section 8.9	10632(a)(9)	Retail suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water Shortage Contingency Planning	Appendix C, Chapter 10
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water Shortage Contingency Planning	Appendix C, Chapter 12
Sections 8.12 and 10.4	10635(c)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 30 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Appendix C, Chapter 13
Section 8.12	10632(c)	Make available the Water Shortage Contingency Plan to customers and any city or county where it provides water within 30 after adopted the plan.	Water Shortage Contingency Planning	Appendix C, Chapter 13
Sections 9.1 and 9.3	10631(e)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Wholesale Only; N/A
Sections 9.2 and 9.3	10631(e)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 8.1 and 8.2
Chapter 10	10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan Adoption, Submittal, and Implementation	Section 9.3
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Reported in Table 10-1.	Plan Adoption, Submittal, and Implementation	Section 9.2

2020 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	2020 UWMP Location
Section 10.4	10621(f)	Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.	Plan Adoption, Submittal, and Implementation	Section 9.4
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the urban water supplier made the plan and contingency plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan and contingency plan.	Plan Adoption, Submittal, and Implementation	Appendix G
Section 10.2.2	10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Section 9.2 and Appendix G
Section 10.3.2	10642	Provide supporting documentation that the plan and contingency plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Appendices C and H
Section 10.4	10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 9.4
Section 10.4	10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 9.4
Sections 10.4.1 and 10.4.2	10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Section 9.4
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 9.5
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its water shortage contingency plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Appendix C, Chapter 13
Section 10.6	10621(c)	If supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan Adoption, Submittal, and Implementation	N/A; District is not regulated by PUC.
Section 10.7.2	10644(b)	If revised, submit a copy of the water shortage contingency plan to DWR within 30 days of adoption.	Plan Adoption, Submittal, and Implementation	Appendix C, Chapter 13

Appendix B DWR Tables

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 *
Add additional rows as needed			
CA 3010073	Moulton Niguel Water District	55,013	23,083
	TOTAL	55,013	23,083
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
Units of measure are in AF. Volume of water supplied includes both potable and recycled water connections.			

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**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)**		

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
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: Fiscal year begins on July 1st of each year	

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
Add additional rows as needed
Municipal Water District of Orange County (MWDOC)
NOTES:

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	170,236	172,134	174,202	174,241	174,169	172,802
NOTES: Data provided by Center for Demographics.						

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume*
Add additional rows as needed			
Single Family		Drinking Water	13,964
Multi-Family		Drinking Water	1,914
Commercial	Commercial and Institutional	Drinking Water	2,316
Landscape		Drinking Water	2,645
Losses		Drinking Water	2,224
Other Potable	Potable Hydrant	Drinking Water	20
		TOTAL	23,083
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: The District does not have any industrial water use in the service area. Institutional is not tracked separately from commercial water use, hence they are grouped together. Units of measure in AFY.			

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*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		15,634	15,506	15,455	15,422	15,363
Multi-Family		1,988	1,972	1,965	1,960	1,954
Commercial	Includes institutional	2,803	2,780	2,772	2,766	2,755
Landscape		3,350	3,323	3,312	3,305	3,292
Losses		1,906	1,841	1,768	1,694	1,614
Other Potable	Hydrant uses	14	14	14	14	14
TOTAL		25,695	25,436	25,286	25,161	24,992
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Unit of measure is AF. Projections reflect the General Plans of each city within the District.						

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	23,083	25,695	25,436	25,286	25,161	24,992
Recycled Water Demand[1] *From Table 6-4*	5,013	6,398	6,346	6,326	6,312	6,288
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	28,096	32,093	31,782	31,612	31,473	31,280

[1] Recycled water demand fields will be blank until Table 6-4 is complete

*[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*

NOTES: Units in acre-feet.

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]
07/2015	2049
07/2016	1919
07/2017	1762
07/2018	1793
07/2019	2224
[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: Volume in acre-feet.	

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) *Drop down list (y/n)*	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	4.2.4.1, Water Demand Model
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

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	*1990*	*2004*	*216*	*173*
5 Year	*2003*	*2007*	*189*	

**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:

Submittal Table 5-2: 2020 Compliance **From** **SB X7-7 2020 Compliance Form** *Retail Supplier or Regional Alliance Only*				
2020 GPCD				
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*	2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
121	*0*	*121*	*173*	*Yes*
**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: *All values are in Gallons per Capita per Day (GPCD)				

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☑	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
TOTAL		0	0	0	0	0
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

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.					
100	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
100	Percentage of 2015 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? *Drop Down List*	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? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
MNWD	Metered	8,680	SOCWA	Regional Treatment Plant	Yes	Yes
MNWD	Metered	1,761	MNWD	3A Treatment Plant	Yes	No
MNWD	Estimated	1,149	SOCWA	JB Latham Treatm	No	Yes
MNWD	Estimated	0	SOCWA	Coastal Treatmen	Yes	Yes
Total Wastewater Collected from Service Area in 2020:		11,590				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES: The reported volumes are the amount of contributed wastewater from the District. In Fiscal Year 2019, the District began operating the 3A wastewater treatment plant.						

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) 2*	Method of Disposal ***Drop down list***	Does This Plant Treat Wastewater Generated Outside the Service Area? ***Drop down list***	Treatment Level ***Drop down list***	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area [3]	Recycled Outside of Service Area	Instream Flow Permit Requirement
Regional Treatment Plant	Aliso Creek Ocean Outfall	Ocean		Ocean outfall	No	Tertiary	8,680	3,995	4,685	0	0
3A Treatment	San Juan Creek	Ocean		Ocean outfall	Yes	Tertiary	1,761	957	804	0	0
JB Latham	San Juan Creek	Ocean		Ocean outfall	Yes	Secondary,	1,149	1,149	0	0	0
Coastal	Aliso Creek	Ocean		Ocean outfall	Yes	Tertiary	0	0	0	0	0
						Total	11,590	6,101	5,489	0	0

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.
[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES: The District has storage in Upper Oso Reservoir leading to the differences between this table and Table 6-4 in total recycled water delivered versus treated. The quoted numbers are for the amount of wastewater contributed from the District.

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:	Moulton Niguel Water District
Name of Supplier Operating the Recycled Water Distribution System:	Moulton Niguel Water District
Supplemental Water Added in 2020 (volume) *Include units*	108.65 AF
Source of 2020 Supplemental Water	Municipal Water District of Orange County

Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)
Agricultural irrigation										
Landscape irrigation (exc golf courses)	Outdoor Irrigation	7,200 AF	Slopes, medians, and parkways	Tertiary	4,266	5,758	5,711	5,693	5,681	5,659
Golf course irrigation	Outdoor Irrigation	1,000 AF	Golf course irrigation	Tertiary	747	640	635	633	631	629
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	5,013	6,398	6,346	6,326	6,312	6,288
				2020 Internal Reuse						

[1] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

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. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	**2015 Projection for 2020** [1]	**2020 Actual Use**[1]
Insert additional rows as needed.		
Agricultural irrigation		
Landscape irrigation (exc golf courses)	6,762	4,266
Golf course irrigation	877	747
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)	472	
Total	8,111	5,013

[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.

NOTE: Other category includes water loss associated with recycled water use.

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 6.5.4, page 53	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			
Near-Term Improvement Projects	Expanding recycled water use with the current supply available.	2025	306
Long-Term Improvement Projects	Expanding recycled water use with increased supply due to sewage diversion from JBLTP.	2030	1,066
		Total	1,372
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Section 6-8, page 54	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
Recycled water expansion	No		Near-Term Improvement Projects	2025	All Year Types	306
Recycled water expansion	No		Long-Term Improvement Projects	2030	All Year Types	1,066
LRWRP Potential Projects	Yes	See Section 6.8 of the UWMP	Emergency or Dry-Year Supplies	2030	Single-Dry and Multi-Dry Year	4,000
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: The Long-Range Water Reliability Plan (LRWRP) identifies many emergency and dry-year sources of supply. These various potential projects are in the initial planning phases as discussed in the UWMP Section 6.8.						

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Purchased or Imported Water	Purchased from MWDOC	23,083	Drinking Water	
Recycled Water	Produced locally	5,013	Recycled Water	
	Total	28,096		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

OPTIONAL Table 6-8ds: Source Water Desalination

☑	Neither groundwater nor surface water are reduced in salinity prior to distribution.									
Plant Name or Well ID	Plant Capacity	Intake Type *Drop down list*	Source Water Type *Drop down list*	Influent TDS	Brine Discharge *Drop down list*	Volume of Water Desalinated				
						2016	2017	2018	2019	2020
					Total	0	0	0	0	0
**Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*										
Notes:										

Submittal Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Purchased or Imported Water		25,695		25,436		25,286		25,161		24,992	
Recycled Water		6,398		6,346		6,326		6,312		6,288	
Total		32,093	0	31,782	0	31,612	0	31,473	0	31,280	0

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

NOTES

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**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	rage of 1922 to 2017		100%
Single-Dry Year	1977		100%
Consecutive Dry Years 1st Year	1988		100%
Consecutive Dry Years 2nd Year	1989		100%
Consecutive Dry Years 3rd Year	1990		100%
Consecutive Dry Years 4th Year	1991		100%
Consecutive Dry Years 5th Year	1992		100%

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

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

NOTES: Purchased water assumption of reliability based on MWD 2020 UWMP. District's recycled water is 100% available in all year types.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals (*autofill from Table 6-9)*	32,093	31,782	31,612	31,473	31,280
Demand totals *(autofill from Table 4-3)*	32,093	31,782	31,612	31,473	31,280
Difference	0	0	0	0	0
NOTES: Note that demand is anticipated to decrease over time.					

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	33,435	33,111	32,933	32,790	32,588
Demand totals*	33,435	33111	32,933	32,790	32,588
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	33,435	33,111	32,934	32,790	32,588
	Demand totals	33,435	33,111	32,934	32,790	32,588
	Difference	0	0	0	0	0
Second year	Supply totals	33,419	33,124	32,953	32,797	32,636
	Demand totals	33,419	33,124	32,953	32,797	32,636
	Difference	0	0	0	0	0
Third year	Supply totals	31,969	31,714	31,556	31,396	31,280
	Demand totals	31,969	31,714	31,556	31,396	31,280
	Difference	0	0	0	0	0
Fourth year	Supply totals	31,906	31,680	31,529	31,357	31,280
	Demand totals	31,906	31,680	31,529	31,357	31,280
	Difference	0	0	0	0	0
Fifth year	Supply totals	31,844	31,646	31,501	31,319	31,280
	Demand totals	31,844	31,646	31,501	31,319	31,280
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Note: Totals can be entered directly or from the Optional Planning T

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

2021	Total
Total Water Use	30,104
Total Supplies	30,104
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	30,982
Total Supplies	30,982
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	30,494
Total Supplies	30,494
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	31,924
Total Supplies	31,924
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	32,093
Total Supplies	32,093
Surplus/Shortfall w/o WSCP Action	0
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	0%

Submittal Table 8-1
Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Shortage Response Actions (*Narrative description*)
1	Up to 10%	The District would initiate a public education campaign and request voluntarily water use reduction through implementation of Conservation Best Management Practices and would increase promotion of water efficiency programs. No bill adjustments for swimming pool refills. Recycled water customers may not use potable water for outdoor use. Supply augmentation with additional MWD imported purchases, as needed. These measures would be used in subsequent stages.
2	Up to 20%	Increase public education campaign. The District would implement a Conservation Penalty to all billing units of water used in excess of 125% of the customer's monthly water budget. New plant bill adjustment only granted for newly installed California friendly vegetation.
3	Up to 30%	Further increase public education campaign. Conservation Penalty will be applied to all billing units of water used in excess of 100% of the customer's monthly water budget.
4	Up to 40%	Intensify public education campaign. Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 40%. Recycled water customers shall have their outdoor water budgets reduced by 10%. Conservation Penalty will be applied to all billing units of water used in excess of their reduced water budget.
5	Up to 50%	Further intensify public education campaign. Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 70%. Recycled water customers shall have their outdoor water budgets reduced by 20%. Conservation Penalty will be applied to all billing units of water used in excess of their reduced water budget. Emergency supply augmentation, as available.
6	>50%	Ongoing public education campaign.Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 100%. Indoor water budgets would be reduced from 55 GPCD to 40 GPCD. Recycled water customers shall have their outdoor water budgets reduced by 30%. Conservation Penalty will be applied to all billing units of water used in excess of their reduced water budget. Emergency supply augmenentation, as available.

NOTES: Refer to the WSCP for the complete list of actions included in each stage.

Submittal Table 8-2: Demand Reduction Actions

Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Expand Public Information Campaign	100 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency programs.	No
1	Other	2, 218 AF	Voluntary Reductions through conservation BMPs	No
2	Expand Public Information Campaign	200 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency measures, including conservation BMPs.	No
2	Implement or Modify Drought Rate Structure or Surcharge	4,436 AF	Conservation Penalty applied to water use in excess of 125% of water budget	Yes
3	Expand Public Information Campaign	275 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency measures, including conservation BMPs.	No
3	Implement or Modify Drought Rate Structure or Surcharge	6,654 AF	Conservation Penalty applied to water use in excess of 100% of water budget	Yes
4	Expand Public Information Campaign	375 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency measures, including conservation BMPs.	No
4	Implement or Modify Drought Rate Structure or Surcharge	8,872 AF	Conservation Penalty applied to water use in excess of modified water budget; outdoor water budgets would be reduced by 40 percent.	Yes
5	Expand Public Information Campaign	460 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency measures, including conservation BMPs.	No

5	Implement or Modify Drought Rate Structure or Surcharge	11,090 AF	Conservation Penalty applied to water use in excess of modified water budget; outdoor water budgets would be reduced by 70 percent.	Yes
6	Expand Public Information Campaign	550 AF	The public education campaign would promote all of the District's indoor and outdoor rebate programs and other water use efficiency measures, including conservation BMPs.	No
6	Implement or Modify Drought Rate Structure or Surcharge	13,308 AF	Conservation Penalty applied to water use in excess of modified water budget; outdoor water budgets eliminated and indoor water budgets reduced from 55 GPCD to 40 GPCD.	Yes
NOTES: Demand reduction estimates are based on 2020 actual potable water use. Quantified amounts assumes reductions up to 10 percent for Stage 1, 20 percent for Stage 2, 30 percent for Stage 3, 40 percent for Stage 4, 50 percent for Stage 5, and 60 percent for Stage 6. However, actual demand reductions achieved during a stage may fall within the range identified in the WSCP. The demand reduction estimates for the drought rate structure or surchage are based on conditions experienced in the 2015 drought and studies regarding price elasticity of water. While the demand reduction estimates are quantified in this table for each action, there is a relationship between rates, outreach, and customer understanding to overall water demand reduction. These estimates were made for purposes of this table but it is important to note that direct conclusions should not be drawn but rather the understanding that there is a correlation between customers choosing to use water efficiently and when rate structure changes are paired with outreach and education. Hence, it is difficult to estimate the exact amount of demand reductions that could be expected for each action separately and rather all actions work together to produce the necessary reductions along with regional influences on demand reductions.				

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1	Other Purchases	1,154 AF	MNWD could purchase additional imported supplies from MWD to meet shortage demands.
2	Other Purchases	2,308 AF	MNWD could purchase additional imported supplies from MWD to meet shortage demands.
3	Other Purchases	3,463 AF	MNWD could purchase additional imported supplies from MWD to meet shortage demands.
4	Other Purchases	4,617 AF	MNWD could purchase additional imported supplies from MWD to meet shortage demands.
5	Other Actions (describe)	1,768 AF	Emergency supply available from South Orange County interconnection during emergency water shortages.The maximum incident volume IRWD will supply is 1,768 AF .
6	Other Actions (describe)	1,768 AF	Emergency supply available from South Orange County interconnection during emergency water shortages.The maximum incident volume IRWD will supply is 1,768 AF .

NOTES: The other purchase amounts listed in Stages 1-4 are based on 2020 potable water use. It is assumed the District could purchase additional supplies from MWD at potentially higher tier rates to supplement supplies during a drought; up to 5 percent for Stage 1, 10 percent for Stage 2, 15 percent for Stage 3 and 20 percent for Stage 4. Stages 5 and 6 may have access to emergency supply from our interconnection agreement (i.e., from emergency outages and not during a drought).

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
City of Laguna Niguel	Yes	Yes
City of Aliso Viejo	Yes	Yes
City of Laguna Hills	Yes	Yes
City of Mission Viejo	Yes	Yes
City of Dana Point	Yes	Yes
City of San Juan Cap	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Orange County	Yes	Yes

NOTES: In addition to cities, notices were also sent to neighboring water districts including: El Toro Water District, South Coast Water District, Santa Margarita Water District, Laguna Beach County Water District and the District's wholesaler, Municipal Water District of Orange County.

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES: Population for service area obtianed from Center for Demographic Research (CDR) at Cal State Fullerton.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	170,236
NOTES: Population for service area obtained from Center for Demographic Research (CDR) at Cal State Fullerton.	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	23,083			-		-	**23,083**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Municipal Water District of Orange County Purchases
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	23,083	-	23,083

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 2
This water source is *(check one)* **:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 3
This water source is *(check one)* **:**	

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
23,083	170,236	**121**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD Enter "0" if Adjustment Not Used Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]	TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
121	-	-	-	-	121	173	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES: Population for service area obtianed from Center for Demographic Research (CDR) at Cal State Fullerton.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	170,236
NOTES: Population for service area obtianed from Center for Demographic Research (CDR) at Cal State Fullerton.	

SB X7-7 Table 4: 2020 Gross Water Use							
Compliance Year 2020	**2020 Volume Into Distribution System** *This column will remain blank until SB X7-7 Table 4-A is completed.*	**2020 Deductions**					**2020 Gross Water Use**
		Exported Water *	**Change in Dist. System Storage*** (+/-)	**Indirect Recycled Water** *This column will remain blank until SB X7-7 Table 4-B is completed.*	**Water Delivered for Agricultural Use***	**Process Water** *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	23,083			-		-	**23,083**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Municipal Water District of Orange County Purchases
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	23,083	-	23,083

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 2
This water source is *(check one)* **:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 3
This water source is *(check one)* **:**	

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
23,083	170,236	**121**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD Enter "0" if Adjustment Not Used Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]	TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
121	-	-	-	-	121	173	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

Appendix C WSCP

ORDINANCE NO. 21-03

AN ORDINANCE OF THE MOULTON NIGUEL WATER DISTRICT ADOPTING THE WATER SHORTAGE CONTINGENCY PLAN AND PRESCRIBING WATER CONSERVATION RULES AND REGULATIONS

WHEREAS, the Moulton Niguel Water District (District) is a California Water District organized and operating according to California law; and

WHEREAS, periodic droughts are a historic fact in the State of California; and

WHEREAS, the District derives the water that it delivers to its customers from waters imported from outside District boundaries; and

WHEREAS, the quality and quantity of imported water is under the control of other agencies, and may be subject to conditions beyond the control of those other agencies or the District; and

WHEREAS, California Constitution Article X, Section 2 and California Water Code Section 100 provide that because of conditions prevailing in the state of California (the "State"), it is the declared policy of the State that the general welfare requires that the water resources of the State shall be put to beneficial use to the fullest extent of which they are capable, the waste or unreasonable use of water shall be prevented, and the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and the public welfare; and

WHEREAS, pursuant to California Water Code Section 106, it is the declared policy of the State that the use of water for domestic use is the highest use of water and that the next highest use is for irrigation; and

WHEREAS, pursuant to California Water Code Sections 375-378, the District is authorized to adopt and enforce a water conservation program to reduce the quantity of water used by persons within its jurisdiction for the purpose of conserving the water supplies of the District; and

WHEREAS, California, including Orange County, experienced significant dry year conditions in 2012-2017, which led local water agencies to declare water shortage conditions that triggered drought actions; and

WHEREAS, beginning on January 17, 2014, when then Governor Brown proclaimed condition of statewide drought, the District experienced a direct impact on the reliability of available water supplies. The District's reliability was increased through customer curtailment due to demand management measures implemented; and

WHEREAS, following the end of the statewide drought conditions, the California Legislature amended the Urban Water Management Planning Act in 2018 to include additional water shortage planning requirements. Water Code Section 10632 now mandates the adoption of Water Shortage Contingency Plans (WSCP) with prescribed elements, and the District must describe in its WSCP the legal authorities that empower the District to enforce shortage response actions identified in its WSCP; and

WHEREAS, because of the prevailing conditions in the State and the declared policy of the State, the District hereby finds and determines that it is necessary and appropriate for the District to amend, adopt, implement, and enforce a water conservation program to reduce the quantity of water used by consumers within the District to ensure that there is sufficient water for human consumption, sanitation, and fire protection and to ensure the District can implement and enforce the shortage response actions specified in its WSCP; and

WHEREAS, pursuant to California Water Code Section 350, the Board of Directors is authorized to declare a water shortage emergency to prevail within its jurisdiction when it finds and determines that the District will not be able to or cannot satisfy the ordinary demands and requirements of water consumers without depleting the water supply of the District to the extent that there would be insufficient water for human consumption, sanitation, and fire protection, and as more fully set forth in this chapter, based upon the occurrence of one or more of the following conditions or circumstances:

A. A general water supply shortage due to increased demand and/or limited supplies.
B. Distribution or storage facilities of the District, or any agency supplying water to the District, become inadequate or are restricted.
C. A major failure of the supply, storage, and/or distribution facilities of the District or any agency supplying water to the District.
D. Contamination of the water supply, storage, and/or distribution facilities of the District or any agency supplying water to the District.
E. Act of nature which in the opinion of the District constitutes an emergency situation or which require special water conservation actions.

WHEREAS, in the event the District determines that it is necessary to declare that a water shortage emergency exists, this Ordinance authorizes the District to implement certain shortage response measures and a water conservation and regulatory program to regulate water consumption activities within the District and ensure that the water delivered in the District is put to beneficial use for the greatest public benefit, with particular regard to domestic use, including human consumption, sanitation, and fire protection, and that the waste or unreasonable use of water is prevented; and

WHEREAS, the District is authorized to prescribe and define by ordinance restrictions, prohibitions, and exclusions for the use of water during a threatened or existing water shortage and adopt and enforce a water conservation and regulatory program to: (i) prohibit the waste of District water or the use of District water during such period; (ii) prohibit use of water during such periods for specific uses that the District may from time to time find nonessential; and (iii) reduce and

restrict the quantity of water used by those persons within the District for the purpose of conserving the water supplies of the District; and

WHEREAS, the District hereby finds and determines that as hereby amended, the District shall: (i) implement water conservation and water shortage response measures; (ii) regulate the water consumption activities of persons within the District for the purposes of conserving and protecting the District's water supplies, reducing the quantity of water consumed, and deterring and preventing the waste or unreasonable use or unreasonable method of use of valuable water resources; and (iii) establish and collect regulatory fees and impose administrative penalties as set forth herein to accomplish these purposes and/or recover the costs of the District's water conservation and regulatory program; and

WHEREAS, the District hereby finds and determines that it is desirable to codify the rules and regulations governing its actions, and the actions of persons using and consuming water within the District, particularly during declared water shortages and water shortage emergencies, to protect the general welfare and the District's water supplies, and to reduce water consumption in accordance with the declared policies and laws of the State; and

WHEREAS, the District desires to adopt a WSCP in the form attached hereto as Exhibit A, and by this reference, incorporated herein, and further desires to establish standards and procedures to enable implementation and enforcement of local water shortage contingency measures. These measures align with the California Water Code Section 353 which specifies that "when the governing body has so determined and declared the existence of an emergency condition of water shortage within its service area, it shall thereupon adopt such regulations and restrictions on the delivery of water and the consumption within said area of water supplied for public use as will in the sound discretion of such governing body conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection."

NOW THEREFORE BE IT ORDAINED by the Board of Directors of the Moulton Niguel Water District as follows:

Section 1. Findings and Determinations

The District hereby finds and determines that the above recitals are true and correct and incorporated herein.

Section 2. Adoption of Water Shortage Contingency Plan

The District hereby adopts the Water Shortage Contingency Plan in the form attached hereto as Exhibit A, and by this reference, such Water Shortage Contingency Plan is incorporated as if fully set forth herein. This Ordinance, including the Water Shortage Contingency Plan attached hereto and incorporated herein, shall also serve as the District's Water Conservation Ordinance in accordance with Section 375 *et seq.* of the California Water Code.

Section 3. Amendments to District Rules and Regulations.

The District's Article IV Rules and Regulations, Section 5.N., and Exhibit G, amendments to Section 5.N., are hereby amended in their entirety and replaced with the following rules and regulations governing water conservation:

N. Water Conservation

1. Findings and Intent

(A) **Findings.** The Board of Directors finds and determines that it is necessary and appropriate for the District to adopt, implement, and enforce a water conservation program, based on the WSCP, to reduce the quantity of water used by persons within the District to ensure that there is sufficient water for human consumption, sanitation, and fire protection. The District further finds and determines that during periods of drought, water shortages, and water shortage emergencies the general welfare requires that the District maximize the beneficial use of its available water resources to the extent that it is capable, and that the waste or unreasonable use, or unreasonable method of use of water shall be prevented and the conservation of water is to be extended with the view to the reasonable and beneficial use thereof in the interests of the people of the District and for the public health, safety, and welfare.

(B) **Intent.** This Section 5.N. is intended to establish:

(1) permanent water conservation Best Management Practices (BMPs) and response measures;

(2) six water shortage levels that provide defined response actions to be implemented during times of declared water shortage or declared water shortage emergency;

(3) rules, regulations, and restrictions on water use (the "Rules") to be implemented during declared water shortage stages, with increasing restrictions on water use in response to decreasing water supplies and worsening water shortage conditions.

(C) **Demand Management Through Rate Structure Design.** The District's water budget-based rate structure is designed and intended to be a water demand management tool and to proportionately recover the costs of providing water service within the District. The District's efforts in managing its water supply are best achieved through its water budget-based rate structure and the calculated water budgets provided to the District's customers.

(D) **Use of Property.** This Section 5.N. is not intended to repeal, abrogate, annul, impair or in any way interfere with the free use of property by covenant, deed, or other private agreement or with restrictive covenants running with the land to which the District provides water services.

2. Purposes and Scope

(A) **Purposes.** The purposes of this Section 5.N. are to:

(1) protect the health, safety, and welfare of the citizens and property owners of the District;

(2) assure the maximum beneficial use of available water supplies;

(3) attempt to provide sufficient water supplies to meet, at a minimum, the basic needs of human consumption, sanitation, and fire protection; and

(4) authorize restrictions in water use during declared water shortages to maximize the beneficial use of water, and the imposition of penalties for violations of the Rules.

(B) **Scope.** The provisions of this Section 5.N. shall apply to all persons within the District and all property served by the District wherever situated, regardless of whether any person using potable water or recycled water has a contract or account for water service. Nothing in this Section 5.N. is intended to affect or limit the ability of the District to respond to an emergency, including an emergency that affects the ability of the District to supply water.

3. <u>Definitions</u>

For the purposes of this Section 5.N., the following words, terms, and phrases shall have the following meanings:

(A) "Appellant" means the person appealing the imposition of a penalty imposed by the District for a violation of the Rules pursuant to this Section 5.N.

(B) "BMPs" mean best management practices.

(C) "Calculated water budget" means the water budget calculated by the District for each customer in accordance with the District's water rate structures.

(D) "Calculated recycled water budget" means the recycled water budget calculated by the District for each customer in accordance with the District's recycled water rate structure.

(E) "District" means the Moulton Niguel Water District.

(F) "General Manager" means the General Manager of the District or her or his authorized designee.

(G) "Immediate emergency" shall have the meaning set forth in Section 5.N.6.(C).

(H) "Person" means any natural person, firm, joint venture, joint stock company, partnership, public or private association, club, company, corporation, business trust,

organization, public or private agency, government agency or institution, school district, college, university, any other user of water provided by the District, or the manager, lessee, agent, servant, officer or employee of any of them or any other entity which is recognized by law as the subject of rights or duties.

(I) "Potable Water" means that water furnished to the customer which complies with federal and State drinking water regulations and standards, or any other applicable standards, for human consumption.

(J) “Property owner” or “owner” means the record owner of real property as shown on the most recently issued equalized assessment roll.

(K) “Recycled water” means water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.

(L) “Rules” shall have the meaning set forth in in Section 5.N.1.(B)(3).

(M) “State” means the state of California, including any department or regulatory agency thereof.

(N) “Water customer” or “customer” means a person who, according to the District’s records, has an account with the District and receives water service or recycled water service to a parcel of property.

(O) “WSCP” means Water Shortage Contingency Plan.

(P) “Water shortage emergency” means a condition existing within the District in which the ordinary water demands and requirements of persons within the District cannot be satisfied without depleting the water supply of the District to the extent that there would be insufficient water for human consumption, sanitation, and fire protection. A water shortage emergency includes both an immediate emergency, in which the District is unable to meet current water needs of persons within the District, as well as a threatened water shortage, in which the District determines that its future supply of water may not meet an anticipated future demand.

4. Permanent Water Conservation Requirements– Prohibition Against Waste

Water Conservation Best Management Practices. The District implements water conservation BMPs to conserve water, prevent the waste or unreasonable use or unreasonable method of use of water, and preserve the District’s water supplies. The District’s water conservation BMPs shall be in effect at all times as prescribed by the Board and shall be permanent. Violations of this Section constitute waste and an unreasonable use of water.

(A) **Installation of Water Conservation Devices.** No water shall be provided by the District for internal or external use to any residential, commercial, industrial, agricultural, recreational, governmental, or public building or structure of any kind which is constructed or

altered and in which either internal or external irrigation or domestic water piping or water fixtures are to be installed, extended, or altered in any way, including, but not limited to, any plumbing, water piping, or water fixtures for which a construction permit is required to be obtained from the County of Orange or its successor, or for which District approval of plans and service applications are required, unless the new, extended, or altered plumbing, water piping, or other water using facilities conform to the requirements and standards of the District's Rules and Regulations.

(B) **Standards for Water Conservation Devices.** The required water conservation devices and standards of the District are those set forth on Exhibit "F" to these Rules and Regulations. Nothing herein provided shall be deemed to relieve any person from compliance with the plumbing code of the County of Orange or any other state or local plumbing or building requirements.

(C) **Limits on Watering Hours.** Watering or irrigating any lawn, landscape, or other vegetated area with potable water may be prohibited between the hours of 9:00 a.m. and 5:00 p.m. Pacific time on any day, except by use of a hand-held bucket or similar container reasonably used to convey water for irrigation purposes, a hand-held hose equipped with a fully functioning, positive self-closing shut-off nozzle or device may be used during the otherwise restricted period. If necessary, and for very short periods of time for the express purpose of adjusting or repairing an irrigation system, one may operate an irrigation system during the otherwise restricted period.

(D) **No Watering During Rain.** Watering or irrigating any outdoor landscapes with potable water during and up to forty-eight (48) hours after one quarter inch (¼") rainfall within a twenty-four (24) hour period is prohibited.

(E) **Plant Low-Water Demand Plants and Trees.** When installing new or renovated landscaping, it is recommended that all customers utilize only low-water demand trees and plants. New turf should only be installed for functional purposes. Functional turf is defined as turf used for athletic or high traffic areas.

(F) **No Excessive Water Flow or Runoff.** No person shall cause or allow watering or irrigating any lawn, landscape, or other vegetated area in a manner that causes or allows excessive runoff of potable or recycled water onto an adjoining sidewalk, driveway, street, alley, gutter or ditch, parking lots, structures, non-irrigated areas, or off the property.

(G) **No Washing Down Hard or Paved Surfaces.** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with an a fully functioning, positive self-closing shut-off device or a low-volume, high-pressure cleaning machine equipped to recycle any water used.

(H) **Obligation to Fix Leaks, Breaks or Malfunctions.** Excessive use, loss or escape of potable or recycled water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system should be avoided for any period of time after such escape of

water should have reasonably been discovered and corrected and in no event more than five (5) days of receiving notice from the District, is prohibited.

(I) **Re-circulating Water Required for Decorative Water Fountains and Decorative Water Features.** Operating a decorative water fountain or other decorative water feature that does not use re-circulated water is prohibited.

(J) **Limits on Washing Vehicles.** Using potable water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited, except by use of a hand-held bucket or similar container, a hand-held hose equipped with an a fully functioning, positive self-closing automatic water shut-off nozzle or a low volume power washer with a fully functioning, positive self-closing shut-off nozzle. This paragraph does not apply to commercial car washes or the washing of vehicle regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.

(K) **Drinking Water Served Upon Request Only.** Eating or drinking establishments, including but not limited to a restaurant, hotel, café, cafeteria, bar, club or other public place where food or drinks are sold, served, or offered for sale, should only provide drinking water to persons when expressly requested.

(L) **Commercial Lodging Establishments Must Provide Option to Not Launder Linens Daily.** Hotels, motels and other commercial lodging establishments should provide customers the option of not having towels and linens laundered daily. Commercial lodging establishments should prominently display notice of this option in each bathroom using clear and easily understood language.

(M) **Installation of Single Pass Cooling Systems.** Single pass cooling systems shall not be installed in buildings requesting new potable water service.

(N) **Ceased Installation of Non-Recirculating Water Systems in Commercial Car Washes and Laundry Systems.** Non-recirculating water systems in commercial car washes and laundry systems shall not be installed.

(O) **Restaurants Required to Use Water Conserving Dish Wash Spray Valves.** Food preparation establishments, such as restaurants or cafés, shall not use non-water conserving dish wash spray valves.

(P) **Swimming Pools and Spa Covers.** Property owners who have a swimming pool or a spa are encouraged to cover the facilities to minimize water loss due to evaporation.

(Q) **Water Waste and Unreasonable Water Use Prohibited**. The waste or unreasonable use or unreasonable method of use of water by any person shall be prohibited at all times.

(R) **Recycled Water Use Required if Available**. After the District has provided to the user an analysis demonstrating that recycled water is available, cost effective, and safe for the intended use, and the user has been given a reasonable time to make the conversion to recycled water, the use of potable water is prohibited unless otherwise granted exemption by the General Manager or their designee.

(S) **Water Recycling – New Service**. Prior to the connection of any new service, the District will determine whether recycled water is available and safe for the intended use to supply all or some of the water needed by the user. If available, and safe for the intended use, recycled water must be used.

5. Water Shortages

Reductions in Water Supply. Should the water conservation BMPs be inadequate to protect the District's potable water supply, the District Board of Directors reserves the right to implement further mandatory Rules to reduce the amount of water used within the District. The Rules are necessary to respond to any significant reductions to the District's water supply as a result of drought, natural disasters, regulatory action, and planned or unplanned potable water shortages, including but not limited to, shortages arising from the following circumstances or events that are or may impact the District's water supply:

(A) Metropolitan Water District of Southern California (MWD) and/or the Municipal Water District of Orange County (MWDOC), the District's wholesale water supplier, has determined that a drought, water shortage, or water shortage emergency exists or has implemented or taken other actions requiring a reduction in water demand;

(B) MWD's Water Supply Allocation Plan implementation or other actions resulting in a reduction in water supply;

(C) The State has determined that a drought, water shortage, or water shortage emergency exists;

(D) The State has implemented restrictions on the use of water or reduced or restricted the delivery of wholesale water to the District;

(E) Regional or statewide importation or local distribution systems or facility(ies) have failed or have been shut down (e.g., a main break, reservoir, pipeline, canal, or other distribution or conveyance system failure);

(F) Alternative water supplies are limited or unavailable; and,

(G) Any other natural disaster that impacts the availability of water to the District.

6. Declaration of Water Shortages

(A) **Determination of Water Supply Shortage.** The District will follow the written decision-making process defined in the WSCP to assess water supply reliability on an annual basis and shall submit a water shortage assessment report to the California Department of Water Resources by July 1 of each year.

(1) The District will determine if a water shortage exists based on the water shortage criteria and stages defined in the WSCP.

(2) In the event a water shortage is triggered according to the procedures and conditions defined in the WSCP, the Board of Directors will declare a shortage according to the defined water shortage levels in the WSCP and as set forth below.

(B) **Declaration of Water Shortage Emergency.** Excepting in event of a breakage or failure of water treatment, storage, or conveyance infrastructure causing an immediate emergency (an "immediate emergency"), the declaration of a water shortage emergency during any water shortage stage shall be made in accordance with California Water Code Sections 350 *et seq.* The District will follow the written decision-making process defined in the WSCP to declare a water shortage.

(C) **Determination of Immediate Emergency.** Notwithstanding the forgoing, if an immediate emergency occurs and the Board of Directors cannot meet in time to act to protect the public interest pursuant to this Section 5.N., the General Manager is hereby authorized and directed to implement such provisions of this Section 5.N. upon his or her written determination that the District cannot supply adequate water to meet the ordinary demands of water consumers, and that such implementation is necessary to protect the public health and safety.

(1) The implementation of any such provisions shall take effect immediately upon making a public announcement of the immediate emergency and publication of such immediate emergency on the District's website.

(2) Such written determination shall be delivered to the Board of Directors and considered at a general or special meeting for review, revocation, or ratification. Such meeting shall be held upon the earliest date that a quorum of the Board of Directors is available.

(3) At the Board of Directors meeting, the General Manager shall update the Board of Directors on the severity and length of the immediate emergency.

(4) During an immediate emergency, the District may specify temporary restrictions on the use of potable and recycled water. Any person who willfully fails to comply with those temporary restrictions may be subject to an administrative penalty of $500 per offense and have his or her water meter locked by the District.

(D) **Actions or Restrictions by the State or Other Agencies.** In the event the State or other agencies, through executive action, emergency legislation or other actions, impose water conservation requirements that are not included in in this water conservation ordinance, the Board of Directors is authorized to implement and enforce such requirements as authorized by law.

7. Water Supply Shortage Levels and Response Actions

(A) **Shortage Stages**. The District hereby establishes six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40 and 50 percent shortages and greater than 50 percent shortage, as set forth below. The District's water shortage levels and response actions are aligned with the State water shortage levels and defined in the District's WSCP and therefore comply with the Water Code Section 10632 (a)(3) as identified above. (Wat. Code Section 10632 (a)(3)(A).)

(B) **Water Shortage Stage 1 –** Water Shortage Stage 1 constitutes a consumer demand reduction of up to 10%. Shortage response actions listed under this stage include:

(1) **Voluntary Reductions.** During Water Shortage Stage 1 ("Stage 1"), the District's conservation efforts will be focused on voluntary reductions in potable water use. Potable and recycled water customers may reduce demand by following the District's BMPs.

(2) **Refills of Swimming Pools.** Any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.

(3) **Mandatory Rules Governing Potable Water Use.** During Stage 1, recycled water customers shall be prohibited from using potable water for outdoor irrigation.

(C) **Water Shortage Stage 2 –** constitutes a consumer demand reduction of up to 20%. Shortage response actions listed under this stage include:

(1) **Mandatory Rules Governing Customer Water Budgets.** During Water Shortage Stage 2 ("Stage 2"), all water customers, both potable and recycled, are prohibited from using water in excess of their calculated water budget.

(2) **Penalties.** During Stage 2, a Conservation Penalty will be applied to all billing units of water used in excess of 125% of the customer's monthly water budget. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 3 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 2. Stage 2 penalties for 2021 are listed in the table below for illustrative purposes. The

penalty would be based on the current rate in place at time the water shortage stage is implemented.

(a) Such penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.

Single Family/Multi-Family Stage 2 Conservation Penalty
Tier 5 Water Rate - Tier 3 Water Rate = Conservation Penalty

Calendar Year	Tier 5 Water Rate (a)	Tier 3 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	3.59	6.27

Commercial and Irrigation Stage 2 Conservation Penalty
Tier 4 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	3.59	6.27

Recycled Stage 2 Conservation Penalty
Tier 4 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.32	3.05	6.27

(3) **Refills of Swimming Pools.** During Stage 2, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of their calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.

(4) **New Plant Bill Adjustments.** During Stage 2, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

(D) **Water Shortage Stage 3 –** Water Shortage Stage 3 constitutes a consumer demand reduction of up to 30%. Shortage response actions listed under this stage include:

(1) **Mandatory Rules Governing Customer Water Budgets.** During Water Shortage Stage 3 ("Stage 3"), all water customers, both potable and recycled, shall be prohibited from using water in excess of their individually calculated water budgets.

(2) **Penalties.** During Stage 3, a Conservation Penalty will be applied to all billing units of water used in excess of 100% of the customer's monthly water budget. The Conservation Penalty for Residential and Multi-Family customers will equal the difference between the Tier 5 and Tier 2 water rates. The Conservation Penalty for Commercial, Irrigation, and Recycled customers will equal the difference between the Tier 4 and Tier 1 water rates. Stage 3 penalties for 2021 are listed in the table below for illustrative purposes. The penalty would be based on the current rate in place at time the water shortage stage is implemented.

(a) Such penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.

Single Family/Multi-Family Stage 3 Conservation Penalty
Tier 5 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 5 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Commercial and Irrigation Stage 3 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Recycled Stage 3 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.32	1.63	7.69

(3) **Refills of Swimming Pools.** During Stage 3, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.

(4) **New Plant Bill Adjustments**. During Stage 3, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

(E) **Water Shortage Stage 4 –** Water Shortage Stage 4 constitutes a consumer demand reduction of up to 40%. Shortage response actions listed under this stage include:

(1) **Modification of Potable Water Budgets**. During Water Shortage Stage 4 ("Stage 4"), Single Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 40% due to reduced water supplies.

(2) **Modification of Recycled Water Budgets**. During Stage 4, Recycled water customers shall have their outdoor water budgets reduced by 10% due to reduced recycled water supplies.

(3) **Mandatory Rules Governing Customer Water Budgets**. During Stage 4, all water customers, both potable and recycled, shall be prohibited from using water in excess of their individually calculated water budgets.

(4) **Penalties.** During Stage 4, any customer who willfully uses water in excess of his or her modified water budget will be subject to a Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers will equal the difference between the current Tier 5 and Tier 2 rates. The Conservation Penalty for Commercial, Irrigation, and Recycled water customers will equal the difference between the current Tier 4 and Tier 1 water rates. Stage 4 penalties for 2021 are listed in the table below for illustrative purposes. The penalty would be based on the current rate in place at time the water shortage stage is implemented.

(a) The penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.

Single Family/Multi-Family Stage 4 Conservation Penalty
Tier 5 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 5 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Commercial and Irrigation Stage 4 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Recycled Stage 4 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.32	1.63	7.69

(5) **Refills of Swimming Pools.** During Stage 4, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.

(6) **New Plant Bill Adjustments**. During Stage 4, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

(F) **Water Shortage Stage 5 –** Water Shortage Stage 5 constitutes a consumer demand reduction of up to 50%. Shortage response actions listed under this stage include:

(1) **Modification of Potable Water Budgets.** During Water Shortage Stage 5 ("Stage 5"), Single Family Residential, Multi-Family Residential, and Irrigation customers using potable water will have their outdoor water budgets reduced by 70% to meet reduced water supplies.

(2) **Modification of Recycled Water Budgets.** All Recycled water customers shall have their outdoor water budgets reduced by 20% due to reduced recycled water supplies.

(3) **Mandatory Rules Governing Customer Water Budgets.** During Stage 5, all water customers shall be prohibited from using water in excess of their modified water budgets.

(4) **Penalties.** During Stage 5, any customer who willfully uses water in excess of his or her modified water budget will be subject to a Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers will equal the

difference between Tier 5 and Tier 2 water rates. The Conservation Penalty for Commercial, Irrigation, and Recycled water customers will equal the difference between the current Tier 4 and Tier 1 water rates. Stage 5 penalties for 2021 are listed in the table below for illustrative purposes. The penalty would be based on the current rate in place at time the water shortage stage is implemented.

(a) Such penalty shall be in addition to the water service fees the District charges for the water delivered.

Single Family/Multi-Family Stage 5 Conservation Penalty
Tier 5 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 5 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Commercial and Irrigation Stage 5 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Recycled Stage 5 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.32	1.63	7.69

(5) **Refills of Swimming Pools.** During Stage 5, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.

(6) **New Plant Bill Adjustments**. During Stage 5, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

(G) **Water Shortage Stage 6 –** Water Shortage Stage 6 constitutes a consumer demand reduction of over 50%. Shortage response actions listed under this stage include:

(1) **Modification of Potable Water Budgets.** During Water Shortage Stage 6 ("Stage 6"), Single Family Residential, Multi-Family Residential, and Irrigation customers using potable water will have their outdoor water budgets reduced by 100% to meet reduced water supplies.

(a) all Single-Family Residential and Multi-Family Residential customers shall have their indoor water budgets reduced from 55 gallons per capita per day to 40 gallons per capita per day;

(2) **Modification of Recycled Water Budgets**. During Stage 6, all Recycled customers will have their outdoor water budgets reduced by 30% to meet reduced recycled water supplies.

(3) **Mandatory Rules Governing Customer Water Budgets.** During Stage 6, all customers shall be prohibited from using water in excess of their modified water budgets. All outdoor irrigation with potable water shall be prohibited within the District's service area.

(4) **Penalties.** During Stage 6, any customer who willfully uses water in excess of his or her modified water budget will be subject to a Conservation Penalty. The Conservation Penalty for Single Family Residential and Multi-Family Residential customers will equal the difference between the current Tier 5 and Tier 2 rates. The Conservation Penalty for Commercial, Irrigation, and Recycled water customers will equal the difference between the current Tier 4 and Tier 1 water rates. Stage 6 penalties for 2021 are listed in the table below for illustrative purposes. The penalty would be based on the current rate in place at time the water shortage stage is implemented.

(a) Such penalty shall be in addition to the water service fees the District charges for the water delivered.

Single Family/Multi-Family Stage 6 Conservation Penalty
Tier 5 Water Rate - Tier 2 Water Rate = Conservation Penalty

Calendar Year	Tier 5 Water Rate (a)	Tier 2 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Commercial and Irrigation Stage 6 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.86	2.42	7.44

Recycled Stage 6 Conservation Penalty
Tier 4 Water Rate - Tier 1 Water Rate = Conservation Penalty

Calendar Year	Tier 4 Water Rate (a)	Tier 1 Water Rate (b)	Conservation Penalty (a) - (b)
2021	9.32	1.63	7.69

(5) **Refills of Swimming Pools.** During Stage 6, no customer shall refill a swimming pool.

(6) **Plant Bill Adjustments.** During Stage 6, no customer shall install new landscaping.

8. Protocols for Communication

Notice and Publication. Upon declaration of a water shortage, the District will inform all relevant stakeholders, such as customers, the public, interested parties, and local, regional, and state governments, of the effective date of the water shortage response actions associated with the relevant stage according to the communication protocols identified in the District's WSCP.

9. Violations and Remedies

(A) **Misdemeanor Violations.** It shall be unlawful for any person to willfully violate the provisions of this Section 5.N. A violation of any of these provisions is a misdemeanor in accordance with California Water Code Section 377.

(B) **Other Remedies.** In addition to any other remedies provided in this Section 5.N or available under applicable law, the District may alternatively seek injunctive relief in the Superior Court or take enforcement action, including discontinuing or appropriately limiting water service to any customer, for violations of this Section 5.N. All remedies provided herein shall be cumulative and not exclusive.

10. Notice and Collection of Penalties

(A) **Notice and Due Process.** As set forth in Section 5.N.8, upon the declaration of a water shortage stage and publication of the notice required herein, due and proper notice shall be deemed to have been given each and every person supplied water within the District of the Rules governing the applicable water shortage stage.

(B) **Collection of Penalties.** Any penalty imposed pursuant to the Rules of any applicable water shortage stage set forth in this Section 5.N. may be collected on a customer's water bill. Any penalty shall be applicable to water used in violation of the Rules during the first complete billing cycle after the declaration of the applicable water shortage stage.

(C) **Notice of Violation**. The receipt of a water bill with any applicable penalties shall serve as notice of violation of the District's Rules.

11. Appeal Procedures

(A) **Appeal Request**. Any person (an "Appellant") who wishes to appeal the imposition of an administrative penalty imposed by the District pursuant to this Section 5.N. shall comply with the following procedures:

(B) **Appeal Request Form.** An Appeal Request form shall be submitted to the Conservation Department.

(1) Appeal Request forms may be obtained at the District's Main Office or downloaded from the District's website at www.MNWD.com.

(2) An Appeal Request form shall be received by the District no later than thirty calendar days from the date that the Appellant's water bill for the four-week period in which the penalty or penalties were imposed is due.

(C) **Additional Documentation.** Additional documentation may be requested at the discretion of the District. Such documentation may include, but is not limited to, school records, driver's licenses, business licenses, lease agreements.

(D) **Site Survey.** After an Appeal Request form has been received, a site survey may be required by District staff to verify the irrigated square footage of the property where the water was delivered. The site survey will be at no charge to the person and will require the person who submitted the Appeal Request form to be present.

(E) **District Response.** A response to an Appeal Request shall be provided by the District within thirty calendar days from receipt of the Appeal Request form.

(F) **Review of Denial of Appeal Request.** If an Appeal Request is denied, the Appeal Request form may be resubmitted by the Appellant for review by the District's Assistant General Manager. The Decision by the District's Assistant General Manager shall be final.

12. Hardship Waiver

(A) **Undue and Disproportionate Hardship.** If, due to unique circumstances, a specific requirement of the WSCP would result in undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to water users generally or to similar property of classes of water users, then the person may apply for a waiver to the requirements as provided in this section.

(B) **Written Finding.** The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user's property.

(C) **Application and Documentation.** Application for a waiver must be on a form prescribed by the District. The application must be accompanied by photographs, maps, drawings, and/or other information, including a written statement of the applicant.

(D) **Required Findings for Waiver.** An application for a waiver will be denied unless the District's General Manager finds, based on the information provided in the application supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the District, all of the following:

(1) That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other residents and businesses;

(2) That because of special circumstances applicable to the property or its use, the strict application of the WSCP would have a disproportionate impact on the property of use that exceeds the impacts to residents and businesses generally;

(3) That the authorizing of such waiver will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the District to effectuate the purpose of the WSCP and will not be detrimental to the public interest; and

(4) That the condition or situation of the subject property of the intended use of the property for which the waiver is sought is not common, recurrent or general in nature.

(E) **Approval Authority.** The District's General Manager or designee must act upon any completed application no later than ten (10) days after submittal and may approve, conditionally approve, or deny the waiver. The applicant requesting the waiver must be promptly notified in writing of any action taken. Unless specified otherwise at the time a waiver is approved, the waiver will apply to the subject property during the period of the mandatory water supply shortage condition. The decision of the District's General Manager will be final.

Section 4. Conflicting Provisions

If provisions of Section 5.N. are in conflict with each other, other provisions of the Article IV, any other resolution or ordinance of the District, or any State law or regulation, the more restrictive provisions shall apply.

Section 5. Severability

If any provision, section, subsection, sentence, clause or phrase of this Ordinance, or the application of same to any person or set of circumstances, is for any reason held to be unconstitutional, void or invalid, the validity of the remaining portions of this Ordinance shall not be affected, it being the intent of the Board of Directors in adopting this Ordinance that no portions, provisions, or regulations contained herein shall become inoperative, or fail by reason of the

provisions, or regulations contained herein shall become inoperative, or fail by reason of the unconstitutionality of any other provision hereof, and all provisions of this Ordinance are declared to be severable for that purpose.

Section 6. Exemption from California Environmental Quality Act

The District finds that this chapter and actions taken hereafter pursuant to this chapter are exempt from the provisions of the California Environmental Quality Act (CEQA) of 1970 as specific actions necessary to prevent or mitigate an emergency pursuant to Section 15307 of the CEQA Guidelines.

Section 7. Effective

This Ordinance shall be effective immediately upon adoption. The Secretary of the Board is hereby directed to publish this Ordinance in accordance with Water Code Section 376.

APPROVED, ADOPTED, and **SIGNED** this 13th day of May, 2021.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Moulton Niguel Water District held on May 13, 2021 by the following vote:

Duane Cave:	AYE
Richard Fiore:	AYE
Donald Froelich:	AYE
William Moorhead:	AYE
Brian Probolsky:	AYE
Diane Rifkin:	AYE
Sherry Wanninger:	AYE

President
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

Secretary
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

EXHIBIT A
WATER SHORTAGE CONTINGENCY PLAN

[see attached]

moulton niguel water district

Water Shortage Contingency Plan

2021

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Chapter 1 Introduction

Moulton Niguel Water District (District or MNWD) relies on imported water and locally produced recycled water to meet customer demands. Imported water is purchased from Metropolitan Water District of Southern California (MWD). More frequent and longer-lasting dry periods, regulatory constraints, and seismic risks can result in water delivery system outages that increase stress on water supply reliability. As a result, the District must be prepared to take reasonable actions to balance water demands during a water shortage.

Recent legislative changes to the California Water Code (CWC) introduced a new Section 10632, which requires every urban water supplier prepare and adopt a Water Shortage Contingency Plan (WSCP) as part of its Urban Water Management Plan (UWMP). While an element of the UWMP, the WSCP is a stand-alone document that can be separately amended. In 2018, two long-term conservation bills, Senate Bill (SB) 606 and Assembly Bill (AB) 1668, were signed into law by Governor Jerry Brown. The two bills amended portions of the CWC including Section 10632, which mandates a WSCP with certain required elements. The WSCP is a guide for the District's intended actions during a water shortage.

A water shortage is the lack of sufficient available water resources to meet the demands of water usage within the District, either for a short-term or long-term duration. This WSCP is a detailed proposal for use in the event of drought, water supply reductions, failure of a water distribution system, other emergencies, or regulatory statutes, rules, regulations, or policies reducing water supplies by state and federal agencies with jurisdiction over the District. As the District is responsible for serving its customers with reliable, economical, high-quality water and recycled water services, the District is committed to managing available water supply during normal conditions as well as water shortage conditions such as during droughts or water system emergencies. Due to the possibility of increasing water supply strain caused by more frequent and extreme droughts, the District must be prepared for potential constraints on its local and imported water supply. This WSCP is meant to improve preparedness for droughts and other impacts on water supplies by describing the process used to address varying degrees of water shortages.

Section 1.1 Background

In February 2015, the District Board of Directors adopted Ordinance 15-01 laying the foundation for actions during times of a water shortage or emergency. Pursuant to State law, the District was required to adopt a WSCP to address specific "stages" of action to be undertaken in response to water supply shortages. A plan generally included within each stage specified levels of reduction in the use of water that are appropriate for a water agency's service area. Recognizing that water is its most vital resource, the District adopted the WSCP in February 2015, with five water shortage stages and mandates to enable the District to respond to potential shortages, including up to a 50 percent reduction in water supply. In each stage specific practices were identified to reduce water use to preserve the District's water supplies and protect public health and safety. During the most recent drought of 2015, Ordinance 15-01 served as an effective planning tool in reducing water demands and use.

Prior to 2015, the District's Water Conservation Program was contained within the District's Rules and Regulations that had been updated in 2008 as a mechanism to reduce demand under the 2009 to 2010 drought conditions. The 2015 WSCP was revised to utilize the District's Water Budget Based Rate Structure to implement varying stages of restrictions using pricing signals to encourage water use efficiency and conservation. The 2021 WSCP and its implementation Ordinance No. 21-03, Ordinance of the MNWD Adopting the Water Shortage Contingency Plan and Prescribing Water Conservation Rules and Regulations (Ordinance No. 21-03) is a mechanism by which the Board of Directors may implement varying stages of restrictions on water usage resulting from conditions under which normal water usage levels cannot be met. This is achieved by adjusting water allocation parameters to respond to varying levels of water supply conditions. Using the District's Water Budget Based Rate Structure to adjust water allocation parameters empowers customers to personalize decisions on how best to use their individualized water budget. The 2015 WSCP was presented in the form of an ordinance (15-01) to give the District the ability to issue penalties if a customer was in violation of an implemented water shortage stage. The 2021 WSCP is being updated in accordance with CWC Section 10632(a) to include the required WSCP elements and contains six water shortage stages that provide an increasing scale of water use restrictions. Ordinance No. 21-03 prescribes water conservation rules and regulations to enable the District to enforce its shortage response actions specified in Chapter 4 herein.

Section 1.2 Organization of this Document

The WSCP covers the following required elements as set forth by CWC Section 10632:

- **Chapter 1** – Provides an introduction of the WSCP and organization of this document.
- **Chapter 2** – Provides a summary of the water supply analysis and water reliability findings from the 2020 UWMP.
- **Chapter 3** – Provides a description of procedures to conduct and approve the Annual Supply and Demand Assessment.
- **Chapter 4** – Provides an explanation of the WSCP's six standard water shortage levels corresponding to ranges of up to 10, 20, 30, 40, 50, and more than 50 percent shortages.
- **Chapter 5** – Provides a description of the WSCP's shortage response actions that align with the defined shortage levels.
- **Chapter 6** – Identifies the District's 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.
- **Chapter 7** – Identifies the compliance and enforcement measures the District will implement to achieve a reduction in water use.
- **Chapter 8** – Provides a description of the legal authorities that enable the District to implement and enforce its shortage response actions.
- **Chapter 9** – Provides a description of the financial consequences of and responses for each supply shortage stage.
- **Chapter 10** – Identifies how the District will monitor and report water use to ensure the shortage response actions are being achieved.

- **Chapter 11** – Identifies reevaluation and improvement procedures for evaluating the functionality of the WSCP and describes the process to adopt, submit, and amend the WSCP.
- **Chapter 12** – Identifies and defines special water features.
- **Chapter 13** – Identifies the plan, adoption and submittal process for the WSCP.

Chapter 2 Water Supply Reliability

Section 2.1 Water Supply Reliability Analysis

This section summarizes key components related to water system reliability conducted pursuant to CWC Section 10635. The District continues to prioritize water reliability and developing projects or programs to meet customer demands as identified in its 2020 Long Range Water Reliability Plan. The 2020 Long Range Water Reliability Plan is the District's long-term plan to assure adequate water supplies for its customers. However, during periods of extreme drought or emergencies, water shortages may occur from time to time that will require implementation of programs that temporarily reduce water use. The purpose of this WSCP is to provide direction on specific actions to be taken by District staff and customers in response to severe water supply shortage conditions. This WSCP describes the conditions which constitute a water shortage and provides actions for managing water supply and demands during a declared water shortage. Whatever the magnitude of shortfall the District may experience, the WSCP has the following goals:

- Conserve the District's water supply for the greatest public benefit;
- Mitigate the effects of a water supply shortage on public health and safety, economic activity, and customer lifestyle; and
- Utilize the individualized water budgets to encourage available water supplies to be used for the most essential purposes for the duration of the water shortage.

Section 2.1.1 Water Reliability Threats

Critical to the WSCP is understanding how reliability threats could impact the District and its ability to meet the needs of its customers. Imported water supplies are susceptible to system and supply reliability disruptions. System reliability is the ability to meet customer demands during unplanned emergency outages (e.g., seismic events, facility failures, and other catastrophic events) of key facilities. Supply reliability is the ability to meet customer demands during hydrologic variability (e.g., drought and high temperatures) and long-term changes in available imported water supply. Both system and supply reliability disruptions impact the District's ability to serve its water customers. (MNWD, 2021)

Deliveries of imported supplies are dependent on an extensive network of facilities used to acquire, treat, pump, store, and convey imported supplies to the District. Water systems are vulnerable to seismic events (as well as other unplanned facility failures and catastrophes) that could result in varying degrees of water supply disruptions for periods of days, weeks, or months. Given the presence of several major earthquake fault lines in proximity to MWD facilities, earthquakes have a high potential for resulting in an infrastructure outage that could disrupt service to and within the District. System reliability disruptions for the District can be caused by outages of key water facilities, such as MWD's Robert B. Diemer Water Treatment Plant (Diemer WTP) located north of Yorba Linda which delivers water to the District, as well as conveyance and distribution pipelines, such as the East Orange County Feeder No. 2 (EOCF2), or Allen McCollough Pipeline (AMP).

Supply reliability disruptions can be caused by droughts, environmental regulations resulting in restrictions in water exports from the Sacramento-San Joaquin River Delta (Delta), seismic risks to levees in the Delta that protect it from seawater intrusion, and long-term climate variability. Of the many factors affecting supply reliability, the factor with the greatest degree of variability and with the largest

impact on supplies is climate variability and associated effects on hydrology. Climate variability adds a layer of uncertainty in estimating the future availability of imported water. While different climate change models show differing effects, potential changes could include more precipitation falling in the form of rain rather than snow and earlier snowmelt. Earlier snowmelt would result in more runoff occurring in the winter rather than spread out over winter and spring, which in turns impacts supply availability during late spring and summer. **Figure 2-1** depicts some of the potential reliability disruptions to the District service area. (MNWD, 2021)

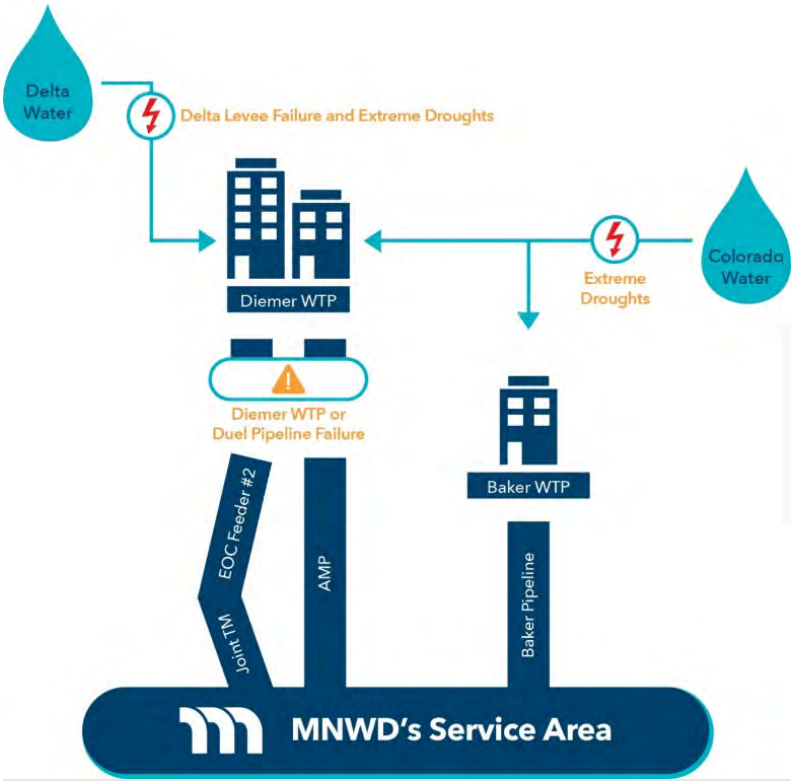

Figure 2-1. Water Delivery Supply and System Risks Representation

Section 2.1.2 Reductions in Water Supply

A water shortage occurs when water supply is insufficient to meet water demands. Reductions in water usage may be necessary to respond to any significant impacts that may reduce the available water supply to the District, including but not limited to shortages arising from the following specific circumstances or events:

(1) MWD and/or the Municipal Water District of Orange County (MWDOC), the District's wholesale water supplier, has determined that a drought, water shortage, or water shortage emergency exists or has implemented or taken other actions requiring a reduction in water demand;
(2) MWD Water Supply Allocation Plan implementation or other actions resulting in a reduction in water supply;

(3) The State has determined that a drought, water shortage, or water shortage emergency exists;
(4) The State has implemented restrictions on the use of water or reduced or restricted the delivery of wholesale water to the District;
(5) Regional or statewide importation or local distribution systems or facility(ies) have failed or have been shut down (e.g., a main break, reservoir, pipeline, canal, or other distribution or conveyance system failure);
(6) Alternative water supplies are limited or unavailable; and,
(7) Any other natural disaster that impacts the availability of water supply to the District.

Section 2.2 Water Service Reliability

CWC Section 10632(a)(1) directs the WSCP to include an "analysis of water supply reliability conducted pursuant to CWC Section 10635," which requires an assessment of the reliability of its water service to customers in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years as well as a drought risk assessment. The water service reliability and drought risk assessment are contained within the UWMP, Chapter 7 and are incorporated herein (MNWD, 2021). A summary of the results is included herein. Because the District has relied on imported water supplies (in addition to recycled water) to meet its demands, the reliability levels during all hydrologic year types presented in Chapter 7 of the District's UWMP reflect MWD's determination of its ability to reliably meet the demands of its member agencies. Notably, the MWD 2020 UWMP determines that MWD can meet the current and projected full service demands of its member agencies under all three hydrologic conditions through 2045 by developing and implementing water resources programs and activities through its Integrated Resources Plan preferred resource mix (MWD, 2021). This mix includes conservation; local resources such as recycled water and groundwater recovery; Colorado River supplies and transfers; SWP supplies and transfers; in-region surface reservoir storage; in-region groundwater storage; and out-of-region banking, treatment, conveyance, and infrastructure improvements. In addition, MWDOC's assumptions are equally important to the District. As presented in MWDOC's 2020 UWMP, MWDOC has determined that it is able to meet water demands during all hydrologic year types through 2045 (MWDOC, 2021). Similar to MWD, the reliability levels from MWDOC are due to its diversified supplies, comprehensive management, and conservation efforts working with the member agencies.

As detailed in Chapter 7, Sections 7.2 and 7.3 of the District's UWMP (MNWD, 2021), the District can meet customers' demands in all hydrologic year types through 2045, even with a potential increase in dry year demands. The reliable supplies reflect not only regional projects and comprehensive water supply planning by MWD and MWDOC, but also the forward-thinking planning and efforts the District has undertaken to develop its recycled water supplies and conservation programs, thus greatly reducing reliance on imported supplies.

Chapter 3 Annual Water Supply and Demand Assessment Procedures

Section 3.1 Annual Supply and Demand Assessment

Pursuant to CWC Section 10632(a)(2), the District must include in its WSCP the procedures used for conducting an annual Water Supply and Demand Assessment (Annual Assessment). This chapter describes:

> (A) the written decision-making process that the District will use each year to determine its water supply reliability, and
>
> (B) the key data inputs and assessment methodology used to evaluate the District's water supply reliability, including:
>
> > (i) current year unconstrained demand, considering weather, population growth, and other influencing factors such as policies used to manage current supplies to meet demand objectives in future years;
> >
> > (ii) current year available supply, considering hydrological and regulatory conditions in the current year and one dry year;
> >
> > (iii) existing infrastructure capabilities and plausible constraints;
> >
> > (iv) a defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment;
> >
> > (v) description and quantification of each source of water supply.

The Annual Assessment is a determination of the near-term outlook for supplies and demands and how a perceived shortage may relate to WSCP shortage stage response actions in the current calendar year. This determination is based on information available to the District at the time of the analysis. CWC Section 10632(a)(2)(B)(ii) requires the Annual Assessment to determine "current year available supply, considering hydrological and regulatory conditions in the current year and one dry year." Starting in 2022, the District shall conduct an annual water supply and demand assessment pursuant to CWC Section 10632(a) prior to July 1 of each year.

Section 3.1.1 Data and Methodologies

Section 3.1.1.1 Sources of Supply

The District's current water needs are met by a combination of imported potable water and recycled water. Recycled water supply is locally sourced. The District is an urban retail water provider dependent on imported supplies of potable water via MWD through its member agency, MWDOC, a wholesale importer of water from MWD. MWD's principal sources of water supplies are the State Water Project and the Colorado River. MWD receives water delivered from the State Water Project under State Water Contract provisions, including contracted supplies, use of carryover storage in San Luis Reservoir, and

surplus supplies. MWD holds rights to a basic apportionment of Colorado River water and has priority rights to an additional amount depending on availability of surplus supplies. Water management programs supplement these Colorado River supplies. To secure additional supplies, MWD has groundwater banking partnerships and water transfer and storage arrangements within and outside its service area. Refer to Chapter 6 of the District's UWMP, incorporated herein, for additional details on the District's water supply sources. The District regularly coordinates with MWDOC and MWD regarding supply projections and potential shortages as part of its overall planning efforts. The annual evaluation process is conducted in steps to determine if a regional demand reduction is needed, and if so, at what level.

Section 3.1.1.2 Supply

On an annual basis, the District performs an evaluation of its imported water supply. The District conducts an analysis based on the MWD Water Surplus and Drought Management update and MWDOC Water Supply Condition Update report to review supply and demand conditions and evaluate projected water supply availability and estimated demand for the following year based on the current hydrologic conditions. To determine imported water supplies available to the District on an annual basis, the District coordinates with MWDOC and MWD regarding projected supplies. MWD water supplies available to MWDOC vary based on hydrologic conditions of that year and the corresponding State Water Project Table A Allocations, and Colorado River Drought Contingency Operations. MWD and MWDOC undertake an analysis to determine whether water supplies will be deficient relative to estimated regional water demands for the year. MWD then evaluates whether the amount of water in storage will be sufficient to meet regional demands. The District reviews the monthly MWD Water Surplus and Drought Management update which provides a preliminary accounting of water supply, demand, and storage conditions. The District also reviews the monthly MWDOC Water Supply Condition Update report that tracks climate conditions and anticipated water supplies available to the region. Final supply projections are typically available by June of each year. Should MWD or MWDOC identify a potential regional supply shortage and implement their respective Water Supply Allocation Plans (WSAP), the District will also implement water conservation and water shortage response measures, as deemed necessary by the Board of Directors. Absent implementation of the MWD WSAP or MWDOC WSAP, no supply shortages for the year would be anticipated.

In addition, supply conditions that may be considered include, but are not limited to:

(1) District water supply conditions and storage levels;
(2) Statewide water supply conditions;
(3) MWD storage levels;
(4) Local water supply and demand conditions;
(5) Actions by surrounding wholesale and retail water agencies; and
(6) Any other conditions the General Manager believes will adversely affect the District's available water supply.

Section 3.1.1.3 Infrastructure Considerations

The Annual Assessment will consider any infrastructure issues that may pertain to near-term water supply reliability, including repairs and construction that may temporarily constrain capabilities, as well as any new projects that may add to system capacity, both at the local and regional level. In addition, the District coordinates with MWDOC and MWD to identify MWD shutdowns that may impact supply reliability and allow the District to plan accordingly. In the event the District anticipates that an infrastructure issue is likely to impede the District's capability to distribute water during the current year, then the issue would be documented, and the determination of water reliability in the Annual Assessment would be adjusted accordingly.

Section 3.1.1.4 Other Factors

Water quality is of paramount importance to water supply reliability. Every year, the District conducts approximately 12,000 water quality tests that are independently analyzed at state-of-the-art laboratories. District staff work diligently to ensure that our drinking water complies with the science-based water quality standards set by the Environmental Protection Agency and the State Water Resources Control Board. For the Annual Assessment, any known issues related to water quality will be considered for their potential effects on water supply reliability.

Section 3.1.1.5 Unconstrained Demand

For the purpose of the Annual Assessment and WSCP, CWC Section 10632(a)(2)(B)(i) directs the District to use current year "unconstrained demand" when assessing water supply reliability. The WSCP and Annual Assessment define unconstrained demand as expected water use in the upcoming year, based on recent water use, and before any projected shortage response actions that may be taken under the WSCP. Unconstrained demand is distinguished from observed demand, which may be constrained by preceding, ongoing, or future actions, such as emergency supply allocations during a multi-year drought. WSCP shortage response actions to constrain demand are inherently extraordinary; routine activities such as ongoing conservation programs and regular operational adjustments are not considered as constraints on demands.

The District will forecast unconstrained demands based on evaluating trends using a 3-year moving average of annual demand and adding a 5 percent contingency to be conservative in water needs for the following year. The District will adjust its near-term demand forecast for the Annual Assessment to account for extraordinary demand management measures that the District may have already put into effect for the current year. Extraordinary demand management measures may include intensified communication and public outreach, and water budget reductions to its customers through implementation of the District's WSCP. Non-extraordinary water savings from regular conservation and community outreach activities are considered part of the District's normal demands and are not counted again for assessments of unconstrained demand.

Section 3.1.1.6 Evaluation Criteria

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

- Estimation of available supplies for current year and dry year scenarios (as described in Section 3.1.1.2).
- Estimation of unconstrained demands for current year and dry year scenarios (as described in Section 3.1.1.5).

Demands are then compared to projected imported supplies to determine if a shortage is projected. These criteria findings will also be given additional context and influenced by infrastructure considerations and other factors discussed above which will differ from year to year. Should a supply gap be projected, the water shortage stage would be based on the severity of the supply gap. If a regional shortage exists, the next action is to determine the appropriate shortage response level and actions for the District. District staff will present a completed Annual Assessment determination for approval by the District's General Manager. Upon approval, District staff will then formally submit the Annual Assessment to the California Department of Water Resources by July 1. The Annual Assessment Report will document any anticipated shortage, any triggered shortage response actions, associated compliance and enforcement actions, and communication actions.

Section 3.2 Decision-Making Process

This section describes the decision-making process the District will use each year to determine and report to the State its water supply reliability. The results from this process will also determine how the District declares water shortage levels and associated response actions.

The District's decision-making process begins with an assessments of its water demand and the availability of imported supplies from MWD to determine if supplies are sufficient to meet demands. The District also includes a review of local and regional infrastructure issues to determine possible limitations to supply availability. If water supplies are sufficient to meet forecasted demands, no water shortage stages would be triggered.

In the event that demands cannot be met with available water supplies and MWD is in allocation, the District will evaluate the severity of the allocation and the resulting regional supply shortage level. The District would analyze how much supply is available to its customers and would assess a shortage level based on expected supply shortages and enter the appropriate corresponding shortage level, as outline in Section 3.3, Declaration of Water Shortages.

Section 3.3 Declaration of Water Shortages

The implementation of any given stage of the WSCP requires an action by the District's Board of Directors. Based on the results of the Annual Assessment, and if deemed necessary, the General Manager will present recommended conservation measures for the Board of Directors to consider during periods of a water shortage based on the best information available at the time. Recommendations are provided on the implementation and/or termination of water shortage stages. The declaration of any water shortage stage will be through the adoption of a resolution of the Board of Directors only after a public hearing at which customers have an opportunity to be heard to protest the declaration and to present their respective needs to the Board of Directors in accordance with CWC Sections 350-359. Notice of the time and place of the public hearing shall be published pursuant to

Section 6061 of the Government Code at least seven days prior to the date of the public hearing in a newspaper printed, published, and circulated within the area in which the water supply is distributed, or if there is no such newspaper, in any newspaper printed, published, and circulated in Orange County (CWC Section 351).

The water shortage stage designated becomes effective as determined by the Board of Directors and specified in the resolution. After adopting the resolution, the declaration of the Board of Directors of the water shortage emergency shall be made by public announcement on the District's website and shall be published a minimum of one time in a newspaper of general circulation. As water supply conditions either deteriorate or improve, the General Manager will return to the Board of Directors to recommend, as appropriate, revising the appropriate water shortage stage of response. The General Manager may recommend transitioning to the next higher stage if the reduction efforts at the initial stage do not achieve the needed result or conversely to a lower stage if smaller demand reductions are determined to be needed. A water shortage ends when supplies improve to the point where the water system can support normal water demand. The WSCP stage in effect at the time must be officially rescinded by the Board by way of a resolution and public notice is given that the water shortage is over.

Section 3.3.1 Determination of Immediate Emergency

In case of an immediate emergency if the Board of Directors cannot meet in time to act to protect the public interest, the General Manager has the authority to implement such provisions of this WSCP and Ordinance 21-03. The provisions shall be implemented upon the General Manager's written determination that the District cannot supply adequate water to meet the ordinary demands of water consumers and that such implementation is necessary to protect the public health and safety.

(1) The implementation of any such provisions shall take effect immediately upon making a public announcement of the immediate emergency and publication of such immediate emergency on the District's website.

(2) Such written determination shall be delivered to the Board of Directors and considered at a general or special meeting for review, revocation, or ratification. Such meeting shall be held upon the earliest date that a quorum of the Board of Directors is available.

(3) At the Board of Directors meeting, the General Manager shall update the Board of Directors on the severity and length of the immediate emergency.

(4) During an immediate emergency, the District may specify temporary restrictions on the use of potable and recycled water. Any person who willfully fails to comply with those temporary restrictions may be subject to an administrative penalty of $500 per offense and have his or her water meter locked by the District.

The District has invested in several regional projects to support system reliability in the event of an earthquake or power outage, including the Baker Water Treatment Plant and Upper Chiquita Reservoir. Prior to these investments, the District was at less than 7 days of system reliability in the event of a Diemer Water Treatment Plant outage. Building these infrastructure improvements for system reliability

more than quadrupled the average number of days of system reliability to 31. With active demand management programs and the system reliability improvements, the District is at over 31 days of average day system reliability as of March 2021 based on the previous 12 months of water demand.

Chapter 4 Six Standard Water Shortage Stages

Section 4.1 Stages

CWC Section 10632(a)(3)(A) identifies six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage from the normal levels of supply availability. Each of the shortage levels represent an ever-increasing gap between normally available supplies and normally expected customer water use. The overall concept is that water shortages of different magnitudes require different measures to overcome the deficiency. This section establishes the stages of escalating response to short-term and long-term water shortages.

The District's WSCP includes six stages; each stage is associated with a water conservation target and applies to both long-term supply shortages and catastrophic interruptions of water supplies. **Table 4-1** describes the various stages and corresponding shortage levels. Stage 1 results in voluntary reductions while Stages 2 through 6 result in required actions. The District will implement the appropriate stage based on assessed water supply and demand conditions. It shall not be necessary to implement any water shortage stage prior to another; the water shortage stages may be implemented in any reasonable order as determined by the Board. Higher stages will be implemented if additional demand reductions are required to address increasing water supply shortages. Each stage consists of specific requirements, prohibitions, penalties, and/or rate structure modifications to encourage the appropriate level of conservation.

Table 4-1: WSCP Level and Corresponding Shortage Level

WSCP Stage	Percent Supply Reduction	Customer Action Type
1	≤10%	Voluntary
2	10 – 20%	Mandatory
3	20 – 30%	Mandatory
4	30 – 40%	Mandatory
5	40 – 50%	Mandatory
6	≥50%	Mandatory

Chapter 5 Shortage Response Actions

This section describes the six-stage approach and overall strategy for dealing with water shortages and presents the recommended menu of actions for reducing water demand during a declared water shortage, including shortage response actions that align with defined shortage levels**.** Each stage includes a set of demand reduction measures that become progressively more stringent as the shortage condition escalates. This WSCP strives to balance available supplies in times of shortage as much as possible through reductions in outdoor water use. At each stage, public health and sanitation usage is afforded the highest priority by cutting back on indoor water use the least. **Table 5-1** provides a summary of the water shortage stages and the response actions implemented in each stage to reduce demand to meet supply levels.

Section 5.1 Response Actions

Shortage response actions included in this WSCP are a combination of locally appropriate prohibitions on end use, consumption reduction methods, supply augmentation, and operational change measures. Each of these actions are further described in the following sections. To determine the additional specific actions that should be taken at each level, the District will evaluate conditions specific to the timing, supply availability, and cost, along with other pertinent variables at the time a WSCP stage is implemented. Numerous variables can influence the supply reduction levels during a water supply shortage. These variables include, but are not limited to, State Water Project allocation, conditions on the Colorado River, MWD storage supplies, local storage, local demands, and season. The recommended actions to reduce water use are presented below. It is meant to inform the public and decision-makers about the types of measures the District would implement under various water shortage stages but should not be construed as limiting other possible options. Specific circumstances will vary with each shortage and decisions about the most appropriate response would be based on the water supply and demand conditions at the time and the judgment of the General Manager. These measures are intended as a list of probable measures for advance preparation purposes rather than a set of measures to be strictly followed, recognizing that as supply and demand change over time, the ultimate decision of actions to address the shortage may also change. Depending on the situation, the Board may not implement each of the identified actions in a response level but select only those that are appropriate. In addition, the Board may adopt additional actions not listed below. It is important to recognize that flexibility in selecting the most appropriate stage may be needed.

Section 5.1.1 Demand Reduction

This section presents the locally appropriate actions for reducing demand during a declared water shortage**.** The District always requires Water Conservation Best Management Practices (BMPs) (or permanent water waste prohibitions) which are listed in Section 5.1.4 Permanent Water Conservation Requirements – Prohibition Against Waste and Section 5.1.5 Other Water Conservation Measures Available for Implementation. The WSCP response actions are considered in addition to these mandatory Water Conservation BMPs.

The focus of this plan is primarily on measures that reduce demand. Each stage includes a set of demand reduction measures that become progressively more stringent as the shortage condition escalates. This WSCP strives to balance available supplies as much as possible through:

- **Public Education Campaigns**: The District would implement a multi-channel outreach and education campaign to encourage customers to take action to reduce water use.
- **Expanded Outreach for Water Efficiency Programs**: Water efficiency programs provide customers with the means and guidance to lower their water usage. Customer-friendly programs, rebates and incentives, direct installation options and strong support services drive stronger response rates.
- **Conservation Penalties:** During Stages 2 through 6, any customer who uses water in excess of his or her calculated water budget shall be in violation of the Ordinance No. 21-03 and shall pay a Conservation Penalty Fee for each hundred cubic foot (HCF), or portion thereof, of water used in excess of a customer's water budget, as detailed in each stage. The Conservation Penalty Fee shall be in addition to the volumetric charge the District collects for the potable water or recycled water delivered.
- **Water Budget Reductions:** If increased stages must be implemented, the District will incrementally decrease the amount of water in a customer's water budget.

At each stage, the District would initiate an increasingly focused public education campaign that calls for actions to reduce water waste and provides the tools necessary to participate in the District's water efficiency programs. Beginning at Stage 2, the WSCP rate policies would incrementally reduce the allocation of water in the "upper" tiers of the District's water budget-based rate structure (refer to UWMP Section 9.1.3, Conservation Pricing for additional details on the water budget-based rate structure). The reductions in water use focus on reductions in overbudget outdoor water use first. At each stage, public health and sanitation usage is afforded the highest priority by cutting back on reducing indoor water use only at the last Stage 6, if needed. This approach results in customers more quickly incurring higher tier rates if they do not reduce their consumption in accordance with the WSCP stage. Any customer who uses water in excess of the calculated water budget shall be in violation of the rules and regulations established by the District's Ordinance No. 21-03 and shall pay an administrative penalty for water used in excess of a customer's water budget. A summary of the tier allocation changes in each stage and for each customer class is summarized in **Table 5-1**. A complete list of all actions in each stage is summarized below.

The WSCP mirrors the District's integrated 2015 drought response strategy, which received accolades from the SWRCB as a best practice in the industry in rate design and as is included as a case study by the California Department of Water Resources (DWR) in the appendices of the 2020 UWMP Guidebook. A key component of the drought response strategy was public education and outreach. With the 2012 to 2017 drought in California, Governor Brown's declared state of emergency, and SWRCB mandatory reductions in water use, the District developed a comprehensive public education and outreach strategy to affect reductions in water use. A multi-pronged approach was used to reach as many customers as possible using a variety of messaging platforms and targeting methods. In the 2015 UWMP, the District's

direct communication efforts were plotted alongside a comparison of calendar year 2014 to calendar year 2015 total water production. The 2015 UWMP illustrated the relationship between rates, outreach, and customer understanding to overall water demand reduction. However, it is important to note that direct conclusions should not be drawn but rather the understanding that there is a correlation between customers choosing to use water efficiently and when rate structure changes were paired with outreach and education. Hence, it is difficult to estimate the exact amount of demand reductions that could be expected for each action separately and rather all actions work together to produce the necessary reductions along with regional influences on demand reductions.

Section 5.1.1.1 Stage 1

Water Shortage Stage 1 constitutes a consumer demand reduction of up to 10%. Shortage response actions listed under this stage include:

- **Voluntary Reductions.** During Water Shortage Stage 1 ("Stage 1"), the District's conservation efforts will be focused on voluntary reductions in potable and recycled water use. Potable and recycled water customers may reduce demand by following the District's BMPs.
- **Refills of Swimming Pools.** Any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.
- **Mandatory Rules Governing Potable Water Use.** During Stage 1, recycled water customers shall be prohibited from using potable water for outdoor irrigation.

Section 5.1.1.2 Stage 2

Water Shortage Stage 2 constitutes a consumer demand reduction of up to 20%. Shortage response actions listed under this stage include:

- **Mandatory Rules Governing Customer Water Budgets.** During Water Shortage Stage 2 ("Stage 2"), all water customers, both potable and recycled, are prohibited from using water in excess of their calculated water budget.
- **Penalties.** During Stage 2, a conservation penalty will be applied to all billing units of water used in excess of 125% of the customer's monthly water budget. The conservation penalty for residential and multi-family customers equals the difference between Tier 5 and Tier 3 rates, and for commercial, potable irrigation, and recycled customers, the conservation penalty equals the difference between Tier 4 and Tier 2, as detailed in Chapter 7, Table 7-1. The penalty would be based on the current rate in place at time of the water shortage stage implemented. Such penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.
- **Refills of Swimming Pools.** During Stage 2, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of their calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.
- **New Plant Bill Adjustments.** During Stage 2, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the

South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

Section 5.1.1.3 Stage 3

Water Shortage Stage 3 constitutes a consumer demand reduction of up to 30%. Shortage response actions listed under this stage include:

- **Mandatory Rules Governing Customer Water Budgets.** During Water Shortage Stage 3 ("Stage 3"), all water customers, both potable and recycled, shall be prohibited from using water in excess of their individually calculated water budgets.
- **Penalties.** During Stage 3, a conservation penalty will be applied to all billing units of water used in excess of 100% of the customer's monthly water budget. The conservation penalty for residential and multi-family customers will equal the difference between the Tier 5 and Tier 2 water rates. The conservation penalty for commercial, irrigation, and recycled customers will equal the difference between the Tier 4 and Tier 1 water rates, as detailed in Chapter 7, Table 7-1. The penalty would be based on the current rate in place at time of the water shortage stage implemented. Such penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.
- **Refills of Swimming Pools.** During Stage 3, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.
- **New Plant Bill Adjustments.** During Stage 3, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

Section 5.1.1.4 Stage 4

Water Shortage Stage 4 constitutes a consumer demand reduction of up to 40%. Shortage response actions listed under this stage include:

- **Modification of Potable Water Budgets**. During Water Shortage Stage 4 ("Stage 4"), single family residential, multi-family residential, and potable irrigation customers shall have their outdoor water budgets reduced by 40% due to reduced water supplies.
- **Modification of Recycled Water Budgets**. During Stage 4, recycled water customers shall have their outdoor water budgets reduced by 10% due to reduced recycled water supplies.
- **Mandatory Rules Governing Customer Water Budgets**. During a Stage 4, all water customers, both potable and recycled, shall be prohibited from using water in excess of their individually calculated water budgets.
- **Penalties.** During Stage 4, any customer who willfully uses water in excess of his or her modified water budget will be subject to a conservation penalty. The conservation penalty for residential and multi-family customers will equal the difference between the current Tier 5 and Tier 2 rates. The conservation penalty for commercial, irrigation, and recycled water customers

will equal the difference between the current Tier 4 and Tier 1 water rates, as detailed in Chapter 7, Table 7-1. Such penalty shall be in addition to the water service fees the District charges for the water delivered to the customer.

- **Refills of Swimming Pools.** During Stage 4, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.
- **New Plant Bill Adjustments**. During Stage 4, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

Section 5.1.1.5 Stage 5

Water Shortage Stage 5 constitutes a consumer demand reduction of up to 50%. Shortage response actions listed under this stage include:

- **Modification of Potable Water Budgets.** During Water Shortage Stage 5 ("Stage 5"), single family residential, multi-family residential, and irrigation customers using potable water will have their outdoor water budgets reduced by 70% to meet reduced water supplies.
- **Modification of Recycled Water Budgets.** All recycled water customers shall have their outdoor water budgets reduced by 20% due to reduced recycled water supplies.
- **Mandatory Rules Governing Customer Water Budgets.** During Stage 5, all water customers shall be prohibited from using water in excess of their modified water budgets.
- **Penalties.** During Stage 5, any customer who willfully uses water in excess of his or her modified water budget will be subject to a conservation penalty. The conservation penalty for residential and multi-family customers will equal the difference between Tier 5 and Tier 2 water rates. The conservation penalty for commercial, irrigation, and recycled water customers will equal the difference between the current Tier 4 and Tier 1 water rates, as detailed in Chapter 7, Table 7-1. Such penalty shall be in addition to the water service fees the District charges for the water delivered.
- **Refills of Swimming Pools.** During Stage 5, any customer who refills a swimming pool shall not receive a bill adjustment for water usage in excess of his or her calculated water budget and shall be billed for water used according to the applicable tier for the corresponding use.
- **New Plant Bill Adjustments**. During Stage 5, any person installing new landscaping, a new plant variance will only be granted for California friendly vegetation as defined by the Water Use Classifications of Landscape Species ("WUCOLS") to have low or very low watering needs for the South Coastal Region. The classifications can be found at http://ucanr.edu/sites/WUCOLS/Plant_Search/.

Section 5.1.1.6 Stage 6

Water Shortage Stage 6 constitutes a consumer demand reduction of over 50%. Shortage response actions listed under this stage include:

- **Modification of Potable Water Budgets.** During Water Shortage Stage 6 ("Stage 6"), single family residential, multi-family residential, and irrigation customers using potable water will have their outdoor water budgets reduced by 100% to meet reduced water supplies.
    - All single-family residential and multi-family residential customers shall have their indoor water budgets reduced from 55 gallons per capita per day to 40 gallons per capita per day;
- **Modification of Recycled Water Budgets**. During Stage 6, all recycled customers will have their outdoor water budgets reduced by 30% to meet reduced recycled water supplies.
- **Mandatory Rules Governing Customer Water Budgets.** During Stage 6, all customers shall be prohibited from using water in excess of their modified water budgets. All outdoor irrigation with potable water shall be prohibited within the District's service area.
- **Penalties.** During Stage 6, any customer who willfully uses water in excess of his or her modified water budget will be subject to a conservation penalty. The conservation penalty for single family residential and multi-family residential customers will equal the difference between the current Tier 5 and Tier 2 rates. The conservation penalty for commercial, irrigation, and recycled water customers will equal the difference between the current Tier 4 and Tier 1 water rates, as detailed in Chapter 7, Table 7-1. Such penalty shall be in addition to the water service fees the District charges for the water delivered.
- **Refills of Swimming Pools.** During Stage 6, no customer shall refill a swimming pool.
- **Plant Bill Adjustments.** During Stage 6, no customer shall install new landscaping.

Table 5-1: WSCP Response Actions by Stage

Water Shortage Stage – Shortage Percentage	Shortage Response Actions	Estimated Maximum Demand Reduction	Response Action Type
Stage 1 – Demand Reduction of up to 10%	Request for voluntary reductions in potable water use through implementation of Conservation Best Management Practices[1]	2,308 Acre-feet	Voluntary
	No bill adjustments for swimming pool refills[1]		Mandatory
	Recycled water customers may not use potable water for outdoor use[1]		Mandatory
Stage 2 – Demand Reduction up to 20%	Customers requested to stay within water budget[1]	4,617 Acre-feet	Mandatory
	Conservation Penalty will be applied to all billing units of water used in excess of 125% of the customer's monthly water budget		Mandatory
	New plant bill adjustment only granted for newly installed California friendly vegetation[1]		Mandatory
Stage 3 – Demand Reduction up to 30%	Conservation Penalty will be applied to all billing units of water used in excess of 100% of the customer's monthly water budget	6,925 Acre-feet	Mandatory
Stage 4 – Demand Reduction up to 40%	Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 40%	9,233 Acre-feet	Mandatory
	Recycled water customers shall have their outdoor water budgets reduced by 10%		Mandatory
	Conservation Penalty will be applied to all billing units of water used in excess of modified monthly water budget		Mandatory
Stage 5 – Demand Reduction up to 50%	Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 70%	11,542 Acre-feet	Mandatory

Water Shortage Stage – Shortage Percentage	Shortage Response Actions	Estimated Maximum Demand Reduction	Response Action Type
	Recycled water customers shall have their outdoor water budgets reduced by 20%		Mandatory
	Conservation Penalty will be applied to all billing units of water used in excess of modified monthly water budget		Mandatory
	Emergency Supply Augmentation, as available		Operational
Stage 6 – Demand Reduction ≤ 50%	Single-Family Residential, Multi-Family Residential, and Potable Irrigation customers shall have their outdoor water budgets reduced by 100%	13,850 Acre-feet	Mandatory
	Single-Family Residential and Multi-Family Residential customers shall have their indoor water budgets reduced from 55 gallons per capita per day to 40 gallons per capita per day		Mandatory
	Recycled water customers shall have their outdoor water budgets reduced by 30%		Mandatory
	Conservation Penalty will be applied to all billing units of water used in excess of modified monthly water budget		Mandatory
	No customer shall refill a swimming pool		Mandatory
	No customer shall install new landscaping		Mandatory
	Emergency Supply Augmentation, as available		Operational
Notes: [1] Response action applies to subsequent stages.			

Section 5.1.2 Supply Augmentation

The District has two main options for supply augmentation during emergency situations and during droughts, the emergency services agreement and additional MWD supply purchases, both of which are detailed below. The District is currently working on other emergency and drought supply options, as detailed in the UWMP Chapter 6, Future Supply Options, incorporated herein.

Section 5.1.2.1 Emergency Service Agreement

The District currently has an Emergency Service Agreement with Irvine Ranch Water District (IRWD) and Orange County Water District (OCWD). In 2006, multiple South Orange County (SOC) water agencies entered into a 25-year agreement with IRWD and OCWD to receive water from the IRWD system with subsequent conveyance into the distribution system serving SOC. The program was developed to deal with emergency water system outages or planned shutdown scenarios in which imported supplies normally delivered into SOC are curtailed, eliminated, or unavailable for up to 30 days. The initial term of the Emergency Services Agreement expires in 2031. The Emergency Services Agreement and subsequent operating agreement calls for IRWD to provide up to 30 CFS to SOC water agencies during emergency events (MWDOC, 2019). As part of that operating agreement, the District can be supplied up to 15.6 CFS for 30 days (MNWD, 2015) from IRWD. The maximum incident volume IRWD will supply is 1,768 AF (MNWD, 2015).

Under the agreement, IRWD and the participating agencies jointly constructed various projects to transfer water to the Aufdenkamp Transmission Main and the Joint Transmission Main. Water delivered through the interconnection is MWD water or locally produced water exchanged for MWD water. The option is not designed to address droughts, but only to be used during emergency conditions when MWD facilities are disrupted due to seismic events or unplanned outages. Recent conversations involving MWDOC and SOC agencies indicates an interest in exploring with IRWD the possibilities of providing more flow than the existing agreement provides for, and/or extending the agreement past the current expiration year of 2031. The amount of water IRWD can make available to SOC water agencies during emergencies is diminishing over time as water demands within IRWD increase. MWDOC and IRWD are currently studying an expansion of the current program.

The District is also exploring options for developing a second interconnection to the OCWD groundwater basin with either the City of Santa Ana, City of Tustin, or City of Orange. The new interconnection would operate similarly to the existing IRWD interconnection and only be utilized under emergency conditions when MWD facilities are not providing treated imported water.

Section 5.1.2.2 MWD Additional Supply Purchases

Purchasing additional supply from MWD could be used to fill any gaps between projected water demands and existing local supplies during droughts. Water can be purchased from MWDOC/MWD above a member agency's annual allocation amount but is charged in addition to MWD's standard rates for water service. Each member agency has a predetermined amount of water that can be purchased at the lower Tier 1 supply rate. Purchases more than this limit will be made at the higher Tier 2 supply rate. The Tier 2 supply rate is charged on MWD water sales that exceed a member agency's Tier 1 maximum. During periods of extreme water supply shortages, MWD utilizes its WSAP to allocate a specific reduced

level of MWD supplies as determined by the MWD Board. If MWD member agencies need and purchase water above their allocation amount, substantial allocation surcharges are imposed. Allocation surcharges are only assessed to the extent that an agency's total annual usage exceeds its total annual allocation. The allocation surcharge structure is a two-tier structure that provides a lower level of allocation surcharge for minor overuse of allocations and a higher level of allocation surcharge for major overuse of allocations. Water use between 100 percent and 115 percent of WSAP supply allocations is currently charged with the allocation surcharge of $1,480 per acre-foot. Water use greater than 115 percent of WSAP supply allocations is currently charged at two times the allocation surcharge or $2,960 per acre-foot. However, these allocation surcharges are not static and are subject to increase in the future as the WSAP is implemented. Tier 2 water from MWD is often considered to be the marginal cost of imported water, since it reflects the costs for MWD in securing higher-cost water to meet demands in excess of its baseline demands, and thus is used to compare other local investments against. The Tier 2 supply rate encourages the member agencies and their customers to maintain existing local supplies and develop cost-effective local supply resources and implement water efficiency and conservation programs.

Section 5.1.3 Operational Changes

During times of water shortage, it is imperative that the District also review its own operational consumptive uses of water in order to find short term water saving opportunities.

- **Recycled Water for Non-Domestic Uses.** Beginning at Stage 2, all water used for construction must be recycled water. The District will coordinate with developers/contractors to identify available recycled water connection points or determine if the construction of a new recycled water connection point is feasible and cost-effective.
- **Prohibition of Irrigation with Potable Water.** During Stage 6, if determined necessary for compliance, the District may turn off and lock potable dedicated irrigation meters to ensure no water is used during this stage.
- **Water System Pressure Management.** The District may reduce the system pressure in various zones to reduce system leakages and losses as well as decreasing the flow through customer connections. Should this occur, the District will continue to monitor system pressure through its supervisory control and data acquisition (SCADA) network to ensure adequate fire protection flow.
- **Retail Water Meters.** The District may adjust the criteria used for retail meter calibration, repair, and replacement that would result in an increase of meter repair and replacements. This would result in a decrease to apparent water loss and thus increased awareness of customer water use.
- **Water Loss Audits.** The District may adjust the frequency and scope of water loss audits to learn how much water is being lost in the system so that operation improvements and maintenance can be prioritized and targeted to maximize water efficiency.

Section 5.1.4 Permanent Water Conservation Requirements – Prohibition Against Waste

The District implements water conservation BMPs to conserve water, prevent the waste or unreasonable use or unreasonable method of use of water, and preserve the District's water supplies. The following water conservation BMPs shall be in effect at all times as prescribed by the Board and shall be permanent. Violations of this Section constitute waste and an unreasonable use of water in violation of Ordinance No. 21-03.

A. **Installation of Water Conservation Devices.** No water shall be provided by the District for internal or external use to any residential, commercial, industrial, agricultural, recreational, governmental, or public building or structure of any kind which is constructed or altered and in which either internal or external irrigation or domestic water piping or water fixtures are to be installed, extended, or altered in any way, including, but not limited to, any plumbing, water piping, or water fixtures for which a construction permit is required to be obtained from the County of Orange or its successor, or for which District approval of plans and service applications are required, unless the new, extended, or altered plumbing, water piping, or other water using facilities conform to the requirements and standards of the District's Rules and Regulations.
B. **Standards for Water Conservation Devices.** The required water conservation devices and standards of the District are those set forth in Exhibit "F" to the District's Rules and Regulations. Nothing provided shall be deemed to relieve any person from compliance with the plumbing code of the County of Orange or any other state or local plumbing or building requirements.
C. **Limits on Watering Hours.** Watering or irrigating any lawn, landscape, or other vegetated area with potable water may be prohibited between the hours of 9:00 a.m. and 5:00 p.m. Pacific time on any day, except by use of a hand-held bucket or similar container reasonably used to convey water for irrigation purposes, a hand-held hose equipped with a fully functioning, positive self-closing shut-off nozzle or device may be used during the otherwise restricted period. If necessary, and for very short periods of time for the express purpose of adjusting or repairing an irrigation system, one may operate an irrigation system during the otherwise restricted period.
D. **No Watering During Rain.** Watering or irrigating any outdoor landscapes with potable water during and up to forty-eight (48) hours after one quarter inch (¼") rainfall within a twenty-four (24) hour period is prohibited.
E. **Plant Low-Water Demand Plants and Trees.** When installing new or renovated landscaping, it is recommended that all customers utilize only low-water demand trees and plants. New turf should only be installed for functional purposes. Functional turf is defined as turf used for athletic or high traffic areas.
F. **No Excessive Water Flow or Runoff.** No person shall cause or allow watering or irrigating any lawn, landscape, or other vegetated area in a manner that causes or allows excessive runoff of potable or recycled water onto an adjoining sidewalk,

driveway, street, alley, gutter or ditch, parking lots, structures, non-irrigated areas, or off the property.

G. **No Washing Down Hard or Paved Surfaces.** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios, or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with an a fully functioning, positive self-closing shut-off device or a low-volume, high-pressure cleaning machine equipped to recycle any water used.

H. **Obligation to Fix Leaks, Breaks or Malfunctions.** Excessive use, loss or escape of potable or recycled water through breaks, leaks or other malfunctions in the water user's plumbing, irrigation, or distribution systems for any period of time after such escape of water should have reasonably been discovered and corrected and in no event more than five (5) days of receiving notice from the District, is prohibited.

I. **Re-circulating Water Required for Decorative Water Fountains and Decorative Water Features.** Operating a decorative water fountain or other decorative water feature that does not use re-circulated water is prohibited.

J. **Limits on Washing Vehicles.** Using potable water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited, except by use of a hand-held bucket or similar container, a hand-held hose equipped with an a fully functioning, positive self-closing automatic water shut-off nozzle or a low volume power washer with a fully functioning, positive self-closing shut-off nozzle. This paragraph does not apply to commercial car washes or the washing of vehicle regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles used to transport food and perishables.

K. **Drinking Water Served Upon Request Only.** Eating or drinking establishments, including but not limited to a restaurant, hotel, café, cafeteria, bar, club, or other public place where food or drinks are sold, served, or offered for sale, should only provide drinking water to persons when expressly requested.

L. **Commercial Lodging Establishments Should Provide Option to Not Launder Linens Daily.** Hotels, motels, and other commercial lodging establishments should provide customers the option of not having towels and linens laundered daily. Commercial lodging establishments should prominently display notice of this option in each bathroom using clear and easily understood language.

M. **Installation of Single Pass Cooling Systems.** Single pass cooling systems shall not be installed in buildings requesting new potable water service.

N. **Ceased Installation of Non-Recirculating Water Systems in Commercial Car Washes and Laundry Systems.** Non-recirculating water systems in commercial car washes and laundry systems shall not be installed.

O. Restaurants Required to Use Water Conserving Dish Wash Spray Valves. Food preparation establishments, such as restaurants or cafés, shall not use non-water conserving dish wash spray valves.

P. Swimming Pools and Spa Covers. Property owners who have a swimming pool or a spa are encouraged to cover the facilities to minimize water loss due to evaporation.

Q. Water Waste and Unreasonable Water Use Prohibited. The waste or unreasonable use or unreasonable method of use of water by any person shall be prohibited at all times.

R. Recycled Water Use Required if Available: After the District has provided to the user an analysis demonstrating that Recycled Water is available, cost effective, and safe for the intended use, and the user has been given a reasonable time to make the conversion to recycled water, the use of potable water is prohibited unless otherwise granted exemption by the General Manager or their designee.

S. Water Recycling – New Service: Prior to the connection of any new service, the District will determine whether recycled water is available and safe for the intended use to supply all or some of the water needed by the user. If available, and safe for the intended use, recycled water must be used.

Section 5.1.5 Other Water Conservation Measures Available for Implementation

The following water conservation measures may be implemented at any water shortage stage, in addition to, or supplementary to, the shortage response actions set out in Table 5-1 and Sections 5.1.1, 5.1.3 and 5.1.4. The Board may implement any or none of the following measures by resolution at the time of a shortage declaration.

(1) Large Landscape Areas – Rain Sensors: Large landscape areas, such as parks, cemeteries, golf courses, school grounds, and playing fields, that use landscape irrigation systems to water or irrigate, must use landscape irrigation systems with rain sensors that automatically shut off such systems during periods of rain or irrigation timers which automatically use information such as evapotranspiration sensors to set an efficient water use schedule.

(2) Recycled Water for Construction Purposes: Recycled or non-potable water must be used for construction purposes when available, feasible, and safe as deemed by the District.

(3) Water Conserving Plumbing Standards – Change in Service: Upon the establishment of new water service or a new customer of record for an existing service, all existing plumbing fixtures (including but not limited to toilets, showerheads, and faucets) must be retrofitted exclusively with water-conserving plumbing fixtures. The water use standards permitted will be the stricter of those current standards approved by the California Energy Commission, County of Orange, or the City in which the property is located.

(4) Irrigated Parkways: The use of potable water to irrigate ornamental turf on public street parkways or verges is prohibited.

(5) Irrigated Medians: The use of potable water to irrigate ornamental turf on public street medians is prohibited.

(6) Other Measures: Other measures as may be required by the State or deemed necessary by the Board.

Section 5.2 Emergency Response Plan

A catastrophic interruption may lead to a proclamation of a water shortage and could be any event (either natural or human induced) that causes a water shortage severe enough to classify as a Stage 4 to 6 water supply shortage conditions. To prepare for catastrophic events, the District has prepared an Emergency Response Plan (ERP) in accordance with America's Water Infrastructure Act (AWIA). AWIA Section 2013 requires community (drinking) water systems serving more than 3,300 people to develop or update risk assessments and ERPs. The District's ERP is considered a confidential document and summarized herein. The District's ERP addresses a variety of potential emergency situations directly affecting the District's system. The ERP establishes Incident Specific Response Procedures (ISRP's) for different emergency conditions which outline the steps staff will take to respond to, evaluate, and mitigate the emergency. ISRP's were developed for a variety of water supply interruptions, including, but not limited to power outages; water contamination; earthquakes; flooding; wildfire; loss of water supply; chemical spills; and terrorist events. The District's ERP provides a framework for an organized response to an emergency. The primary objectives of the ERP are to maintain the functionality of the water distribution system, assess the system and if necessary, make rapid repair to any damage, and prevent any further damage. The ERP includes procedures to utilize existing agency resources as well as processes to request support through Water Emergency Response Organization of Orange County (WEROC) (described below), and mutual aid partners via CalWARN. The ERP is designed to align with strategic plans to mitigate the impacts of identified hazards and threats and improve system resilience. These plans include:

- 2020 Moulton Niguel Water System Risk and Resilience Assessment
- 2019 Orange County Regional Water and Wastewater Hazard Mitigation Plan
- Annex K, 2019 Orange County Regional Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan

In late 2019 through early 2020, a probability-based Risk and Resilience Assessment was conducted for MNWD in accordance with AWIA and the American National Standards Institute (ANSI)/American Water Works Association (AWWA) J100 Standard using the Program to Assist Risk & Resilience Examination software tool. MNWD identified critical assets, which are defined as those assets that if lost would limit or prevent the accomplishment of the agency's mission and the natural and malevolent threats that those assets could potentially face. MNWD also participated the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan (HMP) dated August 2019, described further below (MWDOC 2019).

Section 5.3 Seismic Risk Assessment and Mitigation Plan

Given the great distances that imported supplies travel to reach Orange County, the region is vulnerable to interruptions along hundreds of miles aqueducts, pipelines, and other facilities associated with delivering supplies to the region. The District is a participant (Member Agency [MA]) in the Orange

County Water and Wastewater Multi-Jurisdictional HMP. Hazard mitigation plans form the foundation for a community's long-term strategy to identify vulnerability to natural and man-made hazards. The plans also aim to reduce disaster losses by breaking the cycle of disaster damage, reconstruction, and repetitive damage. According to the federal Disaster Mitigation Act of 2000, State and local governments are required to develop hazard mitigation plans and update them every five years as a condition for receiving certain types of non-emergency disaster assistance. The Risk Assessment in the HMP summarizes the hazards and risks that pose a threat to Orange County, including seismic risk. The seismic risk to the District is summarized in Section 5.3.2. The primary HMP treats the entire County as the planning area and identifies which MAs are subject to a profiled hazard. The Annex was prepared to provide additional information specific to MNWD with a focus on the risk assessment and mitigation strategy (MNWD, 2019). The Annex identifies the mitigation actions, including the priority, hazard addressed, risk, timeframe, and potential funding sources. Both documents are available online: https://www.mwdoc.com/your-water/emergency-management/emergency-management-resources/.

Section 5.3.1 Water Emergency Response Organization of Orange County (WEROC)

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

Two dedicated WEROC Emergency Operations Centers (EOCs) are located within Orange County. Both sites are maintained in a state of readiness if they will be activated following a major emergency disaster. WEROC EOCs are staffed by trained volunteer personnel from the water community. WEROC's Emergency Radio Communication System consists of two mountain-top radio repeaters and several control stations. WEROC is a flexible and dynamic program that continues to make improvements to its emergency preparedness plan, emergency response facilities, and its training program to address new issues as they surface. During a disaster, WEROC will work cooperatively with MWD through their Member Agency Response System to facilitate the flow of information and requests for mutual aid within MWD's 5,100 square mile service area. WEROC also provides updated information to MWD's EOC at Eagle Rock.

Section 5.3.2 Seismic Risk

For the District, the primary system reliability risks are seismic events. Within Southern California, there are several known active faults with varying levels of activity that can generate significant earthquakes and cause widespread damage to infrastructure. The risk of earthquake damage to infrastructure from

these active faults is manifested through different seismic hazards, including seismically induced ground shaking, seismically induced ground failure, and surface fault displacement.

In 2015, the United States Geologic Survey (USGS) released the Uniform California Earthquake Rupture Forecast Version 3 (UCERF3), which provides a forecast for the likelihood of rupture for earthquake faults within California. Southern San Andreas Fault was identified as having the highest likelihood (19 percent) of a magnitude 6.7 earthquake or greater in the next 30 years. UCERF3 further states that the there is a 93 percent chance of a magnitude 6.7 or greater earthquake occurring on one of the faults within Southern California within the next 30 years, and a 36 percent chance of a magnitude 7.5 or greater earthquake occurring within the next 30 years (MWD, 2018). Earthquakes that have occurred within or near Southern California since 1900 include five strong earthquake events (magnitude 6.0 – 6.9) and three major earthquake events (magnitude 7.0 - 7.9) (MWD, 2020). In 2019, two significant earthquakes events occurred in the region. On July 4, 2019, a magnitude 6.4 earthquake occurred near Ridgecrest, approximately 122 miles north/northeast of Los Angeles. Then on July 5th, a magnitude 7.1 earthquake occurred in the same vicinity (MWD, 2020). While these earthquakes did not cause damage to the MWD service area, they are a reminder that earthquake risk is always present, and that the region must take steps to prepare and respond.

Several major earthquake fault lines intersect with the Diemer WTP and treated imported pipelines that convey water to MNWD. Diemer WTP can be impacted by a seismic event from the Whittier Fault, while regional pipelines (EOCF2 and AMP) can both be impacted during seismic events from the Puente Hills Fault and the Peralta Hills Fault. The San Joaquin Hills fault can also impact the EOCF2 but treated water may be available to be delivered through the AMP to supply water to MNWD. In general, pipelines are more resilient and flexible than water treatment plants, so they can tolerate higher ground accelerations (MNWD, 2015). The Baker WTP is located further away from the active fault lines and is less susceptible to earthquake damage compared to Diemer WTP. The Baker WTP was constructed to provide backup capacity in the event of a Diemer WTP outage. The HMP and Annex document the mitigation strategies for the District relating to seismic events and are incorporated by reference herein.

Section 5.4 Shortage Response Action Effectiveness

As previously stated, this WSCP strives to balance available supplies as much as possible through information education campaigns, reductions in water use and associated conservation penalties, and promotion of water efficiency rebates.

The District's water budget-based rate structure consists of five tiers for residential customers, which comprise the majority of the District's customers; the first two tiers make up the base allocation, while the remaining three tiers are comprised of usage in excess of the base allocation and are subject to conservation charges. The advantage of the water budget-based rate structure is the ability for the District to define efficient consumption for each individual and assign increasing disincentives for wasteful use above the base allocation. The water budget-based rate structure creates a pricing incentive to stay within the individually determined efficient water budget with relatively high rates

steadily increasing into the upper tiers. This sends the signal to customers that everyone has less water to use and pushes customers into the higher tiers to provide disincentive for noncompliance.

The conservation penalty is imposed on a volumetric basis and is in addition to volumetric consumption charges. The specific water budget modifications and conservation penalty amounts will depend on the stage of water shortage, customer class, and amount of inefficient water use. Unlike traditional water rate structures wherein users are billed at either a uniform rate or specific rate tiers common to all users, water budget-based rate structures employ a scientific and policy-based methodology to determine a reasonable amount of water needed for each water user within a water system for indoor and outdoor usage. Developing water budgets within an agency provides customers with valuable information on a reasonable amount of usage for their household, as well as their usage trends. Rates based on water budgets send a price signal to water users that is directly tied to their usage efficiency, as tiers based on water budgets generally increase in cost as users approach or exceed their budgeted allotment.

The usage trends and data derived from water budgets are also very useful in analyzing District's plans including the WSCP that may affect District customers. The WSCP methodology used is to lower outdoor usage in the WSCP stages with the logic that outdoor usage has more elastic demand, hence, on the margin, customers are more willing to reduce outdoor use first. Elasticity of demand refers to the degree to which demand responds to a change in another economic factor, such as price. In the more extreme upper WSCP stages, the indoor allocation would be reduced to provide incentive for further demand reduction. The District had great success in linking the water budget-based rate structure to its WSCP to utilize the water budget rate structure to send drought messaging in 2012-2017. Further, the funds generated by the conservation penalty are tracked separately from the General Fund revenue and contribute to the Water Use Efficiency Fund that funds the District's water supply reliability and water efficiency and conservation programs.

The ability of a water agency to target a specific end use and, through policy, reduce usage is highly dependent on the current efficiency of the agency's customers. For instance, further reductions for customers who already are at the theoretical limits of outdoor irrigation efficiency would essentially require those customers to kill their landscapes to meet further water use reductions. In addition, a water agency in aggregate can be highly efficient in end uses and still have a small contingent of wasteful users. For instance, in a water budget-based rate structure, the wasteful users pay high water rates, which then fund conservation programs that allow customers to switch to cutting edge low water use technology and native landscapes. A 2016 study by Mukherjee et al. found that the urgency of decreasing water demand in California requires effective pricing mechanisms, and cited MNWD as an example of an agency which has effectively established conservation-based water rates while complying with Proposition 218 requirements. A 2019 study by the Environmental Finance Center at the University of North Carolina at Chapel Hill found that rate structures adopted by California water agencies during the recent drought influenced price signals, and that both rates themselves and elements of the rate structure were necessary to create price signals that incentivize conservation (MWDOC, 2020).

In 2008, DWR selected MWDOC for an Urban Drought Assistance Grant and corresponding study to estimate savings in household water consumption which can be attributed to adoption of water budget-based rate structure by MWDOC member agencies under the DWR grant study. The District participated in this study given the conversion to the water budget-based rate structure. The Water Budget Evaluation Study Five Year Monitoring Report was completed in 2020 to fulfil the five-year reporting requirement of the agency's 2008 Urban Drought Assistance Grant agreement with DWR. The study concluded a 1% increase in water price was associated with a decrease in water demand of 2.4% for MNWD's residential customers (MWDOC, 2020). The study also concluded that simply communicating information to households about their water usage and efficiency relative to a reasonable, science-based budgeted allocation can result in savings.

Based on the price elasticity identified in the MWDOC study, the District undertook an analysis to determine how much demand reduction could be expected through implementation of the conservation penalties in each of the WSCP stages. Each stage assumes a reduction in water usage for residential and potable irrigation accounts focusing first on outdoor water use reductions, though it should be noted that there is uncertainty in predicting the actual water reductions in other customer classes and other types of water use that will likely occur during each water shortage stage. It is assumed that the amount of reduction would vary by customer since a customer's ability and willingness to reduce water usage depends on the use of the water and their characteristics that can influence their use, the policies being applied to that customer class, and ultimately the price signal they receive. The analysis assumed that not all the water usage targeted by the WSCP rate policies was eliminated; rather that some of the targeted water usage would shift to the next higher tier, increasing the price signal a customer would receive through their bill but not necessarily a signal strong enough to encourage major change. Similarly, the analysis would expect for there to be some customers who typically do not use their entire budget so adjusting budget parameters for those customers would not cause a change in their total bill even though their budget was reduced. Past data derived from water budgets and customer consumption trends show that a majority of MNWD customers stay within their water budgets. To summarize, the analysis follows a robust methodology by incorporating demand response to price signal from past studies, customer characteristics and historical usage data of MNWD customers controlling for relevant factors that would determine demand reductions in WSCP stages.

Chapter 6 Communication Protocols

The District conducts communications and outreach regarding water supplies and water use efficiency as an ongoing activity during normal supply conditions. However, clear and effective communications between the District and its stakeholders become even more important if supply conditions become abnormal and the District needs to activate its Ordinance No. 21-03. Communication during a water shortage is critical to relay information to employees, other government agencies, customers, the public, the media, and others about potential risks to our water supply, and how the District is responding to those risks. Public outreach programs can help increase awareness of water shortages, while customer services and water efficiency programs can encourage customers to actively participate in demand reducing strategies. Primarily, the District relies on robust information sharing and the generation of awareness related to water shortage conditions and the conservation measures that exist for the relevant stage. Effective communication is essential to the success of the implementation of the WSCP and its implementing Ordinance No. 21-03 in achieving the desired water use reductions. A strong communication plan will educate customers on the water supply situation. All stakeholders need to be adequately informed about water supply conditions, understand the need to use water wisely, and know what actions they are being requested or required to take to mitigate the shortage. Prior to a formal declaration of a water shortage, the District will provide stakeholders with as much advance notice as possible. In addition, the more severe the shortage, the more robust public information campaign will be needed. The public communications strategy will be consistent with the District's Crisis Communication Plan.

Section 6.1 Crisis Communication Plan

The District created a Crisis Communication Plan (MNWD, 2021) that provides an approach to assist in effectively managing and communicating during an emergency or crisis, including during a water shortage stage. The Crisis Communication Plan outlines the District's guidelines and instructions for communicating during an emergency or crisis. The District aims to provide crisis related information in a timely and accurate manner to enhance understanding of a water supply conditions, build trust and credibility, encourage constructive dialogue, and provide guidance on appropriate protective actions. Good communication procedures outlined in the Crisis Communication Plan will guide staff on when and how to communicate (e.g., who is responsible for notifying the crisis communication team and outside agencies, and what information should be relayed), who should be notified, and what platform to deliver messages (e.g., various communication channels). The Crisis Communication Plan includes the various channels the District will utilize to convey critical messages regarding water shortage allocations and voluntary and mandatory actions. Use of all forms of media may be employed, which could include public service announcements on radio and cable television, social media as well as earned media, and advertisements in local newspapers. The Crisis Communication Plan will be used to distribute information to the District's stakeholders following the adoption of the resolution declaring the applicable water shortage stage. Key attributes of the Crisis Communication Plan are summarized in this chapter.

Section 6.2 Notice and Publication

Within five (5) days of the adoption of the resolution declaring the applicable water shortage stage, the District shall make a public announcement of the applicable water shortage stage. Such declaration and notice shall provide the conditions under which each water shortage stage is to be initiated or terminated and the conservation response measures to be implemented in accordance with the applicable water shortage stage. As detailed in the Crisis Communication Plan, the District shall notify the customers, elected officials, and other key stakeholders regarding the water shortage condition, actions to be taken, goals customers are intended to achieve, and how these actions and goals will be implemented. In addition, the public at large will be informed of the situation and actions the District will be taking. Communications may occur through any of the communication methods identified in the Crisis Communication Plan, including but not limited to billing inserts, special mailings, e-mail, social media, roadway signage, newsletters, and education programs. Literature appropriate to the emergency or drought circumstance will be provided regarding the water shortage condition, conservation methods, and water-savings devices. The District's website, www.mnwd.com, will be the central location for messaging and customer communications.

Section 6.3 Communication Guidelines

Table 6-1 provides the recommended communication protocols to help guide customer campaigns during implementation of a water shortage stage. It is meant primarily to help inform the public and decision-makers about the types of measures the District would take under various water shortage stages and to aid in communications with customers but should not be construed as limiting other possible options. Specific circumstances will vary with each shortage and decisions about the most appropriate response should be based on the water supply and demand conditions at the time. These actions are thus intended as a list of probable measures for advance preparation purposes rather than a set script to be strictly followed, recognizing that as supply and demand change over time, or as a shortage evolves, the ultimate choice of options and actions to best address the shortage may also change. It is also important to recognize that flexibility in selecting the most appropriate stage may be needed.

In the event of a catastrophic supply interruption that requires water use to be quickly prioritized for or limited to essential public health and safety needs, the District will immediately deploy appropriate strategies from Water Shortage Stages 1 through 6. In addition, outreach messaging will reflect emergency conditions and the need to focus on health and public safety.

Table 6-1: Communication Guideline

Stage	Communication Protocols	Suggested Customer Demand Reduction Actions
1	• Initiate public information campaign; produce and distribute fact-based informational materials; • Announce water supply conditions and emphasize ways to conserve immediately; • Include increased conservation messages on website and in standard outreach efforts; and • Enhance promotion of ongoing water efficiency programs targeted advertising.	• Voluntary water conservation requested of all customers; • Adhere to water waste prohibitions; • Water budget notifications; and • Promote water efficiency programs.
2	• Intensify public information campaign conveying mandatory water-use restrictions, supply conditions and ways to save water; • Provide regular supply condition updates to customers; and • Continue promotion of ongoing water efficiency programs programs/tools.	• Encourage customers to stay within water budget; • Encourage regular household meter reading by customers in the Portal; • Encourage household fix a leak; and • Intensify promotion of water efficiency programs.
3	• Expand campaign and messages to raise awareness for more severe water-saving actions/behaviors by customers; • Conduct specialized outreach to reduce discretionary outdoor water use while minimizing landscape damage; and • Establish targeted and focused social media advertising strategies.	• Require customers to stay within budget or pay conservation penalty; and • Promote home water savings programs to help customers identify water savings opportunities.
4	• Conduct issue briefings with elected officials and other key civic and business leaders; • Scale up campaign and frequency of messages to reflect water shortage condition; and	• Promote outdoor water rationing for residential customers or pay conservation penalty.

Stage	Communication Protocols	Suggested Customer Demand Reduction Actions
	• Increase outreach efforts for high-volume customers.	
5	• Partner with other agencies to expand public information campaign, as available; • Suspend promotion of long-term water use efficiency programs/tools to focus on imminent needs; and • Emphasize work being done by MNWD to alleviate the impacts of such a severe shortage.	• Further reduce residential water allocations; and • Discourage various uses deemed to be non-essential.
6	• Update campaign and messages to reflect likely need to focus water use on health/safety needs.	• Prohibit outdoor irrigation; and • Continue all measures initiated in prior stages as appropriate.

Chapter 7 Compliance and Enforcement

Section 7.1 Penalties, Charges, and Other Enforcement of Prohibitions

Measures called for in the stages of the District's WSCP will be primarily enforced through Conservation Penalty fees described in Chapter 5 and educational marketing programs described Chapter 6 and as enforceable by Ordinance No. 21-03. The District utilizes water budget notifications in all stages and because of the District's Advanced Metering Infrastructure Program, the District could quickly identify those customers that repeatedly exceed budget allocations and can target messages to specific customers. The primary financial penalty for excessive use is the ascending tier water rates used by the District, with increasing rates for higher levels of use. Ascending tier rates are in-place during normal and water shortage conditions. The Conservation Penalty Fee would be added to a customer's bill along with the notification of the water use and exceedance of the customer's budget. During Stage 2, any customer who uses water in excess of 125% of his or her calculated budget shall be in violation of Ordinance No. 21-03 and shall pay an administrative penalty ("Conservation Penalty") for each hundred cubic feet (HCF), or portion thereof, of water used in excess of a customer's water budget. During Stages 3 through 6, any customer who uses water in excess of his or her calculated water budget shall be in violation of Ordinance No. 21-03 and shall pay an administrative penalty ("Conservation Penalty") for each hundred cubic feet (HCF), or portion thereof, of water used in excess of a customer's water budget. The Conservation Penalty shall be in addition to the volumetric charge the District collects for the potable water or recycled water delivered. The water demand reductions for each of the stages, the water budget adjustments, and the conservation penalties, that may be imposed are shown in **Table 7-1**. The implementation of any stage of the WSCP is dependent on Board of Directors action, contemplating the District's water supply conditions and demand expectations.

The District's appeal procedures are identified in Ordinance No. 21-03.

Table 7-1: Conservation Penalty by Stage

Stage	Excess Water Use Restriction	Modified Water Budget	Conservation Penalty for Residential and Multifamily	Conservation Penalty for Commercial, Irrigation & Recycled
Stage 1	None	N/A	None	None
Stage 2	125% of water budget	N/A	Tier 5 – Tier 3 water rates	Tier 4 – Tier 2 water rates
Stage 3	100% of water budget	N/A	Tier 5 – Tier 2 water rates	Tier 4 – Tier 1 water rates
Stage 4	100% of modified water budget	Outdoor water budget reduced by 40% for residential and irrigation; outdoor water budget reduced by 10% for recycled	Tier 5 – Tier 2 water rates	Tier 4 – Tier 1 water rates
Stage 5	100% of modified water budget	Outdoor water budget reduced by 70% for residential and irrigation; outdoor water budget reduced by 20% for recycled	Tier 5 – Tier 2 water rates	Tier 4 – Tier 1 water rates
Stage 6	100% of modified water budget	Outdoor water budget reduced by 100% for residential and irrigation; outdoor water budget reduced by 30% for recycled; Residential indoor water budget reduced to 40 gallons per person	Tier 5 – Tier 2 water rates	Tier 4 – Tier 1 water rates

Chapter 8 Legal Authorities

The District has the legal authority to implement and enforce its WSCP. California Constitution Article X, Section 2 and CWC Section 100 provide that water must be put to beneficial use, the waste or unreasonable use or unreasonable method of use of water shall be prevented, and the conservation of water is to be exercised with a view of the reasonable and beneficial use thereof in the interest of the people and the public welfare. Sections of CWC Chapter 3 commencing with Section 350 of Division 1, provide the authority for the governing body of a water agency to declare a water shortage and to adopt and enforce water conservation restrictions. (Wat. Code Sections 350-359, 375-378.0.) If necessary, the District shall declare a water shortage emergency in accordance with CWC Chapter 3 of Division 1. Once having declared a water shortage, the District is provided with broad powers to implement and enforce regulations and restrictions for managing a water shortage. For example: CWC Section 375(a) provides:

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

(Water Code Section 375(a).) CWC Section 375(b) grants the District authority to set prices to encourage water conservation.

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

Pursuant to these authorities, the District is adopting Ordinance No. 21-03, which prohibits waste and imposes water conservation requirements, including six stages of water shortage conditions and conservation requirements in each stage. The stages are consistent with CWC Section 10632(a)(3) and include the declaration of a water shortage emergency as appropriate in compliance with CWC Section 350.

The General Manager is authorized and directed to implement the provisions of the WSCP, as enabled by the District's Ordinance No. 21-03, an Ordinance of the Moulton Niguel Water District Adopting the Water Shortage Contingency Plan and Prescribing Water Conservation Rules and Regulations (Ordinance No. 21-03), as provided for herein. The Ordinance amends and replaces the District's Rules and Regulations regarding Water Conservation and empowers the District to implement and enforce its shortage response actions identified herein. The District shall coordinate with its service area cities that receive water supply services, for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558).

Chapter 9 Financial Consequences of WSCP

There are three major financial impacts that will occur as a result of each supply shortage stage. During each subsequent stage:

- Certain District operating costs will increase as it spends more on outreach efforts, water efficiency rebate programs, enforcement of State-mandated restrictions on customers, and additional reporting to the State;
- District water sales revenues will decrease as water conservation is realized; and
- Expenses from imported water purchases will decrease as water conservation is realized.

The financial impacts of each stage will depend on the actual reductions in water and recycled water consumption, the subsequent decreases in water purchase costs, and the increases to the Water Use Efficiency program operating costs. All these elements were estimated based on best available data and reasonable forecasting assumptions, as described below.

Section 9.1 Changes in Operating Budget

The following describes the assumed changes in operating budget with each water shortage stage.

Section 9.1.1 Imported Water Costs

The District purchases treated water and untreated water from MWD via wholesale purchases through MWDOC. This assessment assumed that MNWD's imported water costs would decrease by the amount of water conserved multiplied by the cost of imported water, $1,104 per acre-foot (AF). The total water purchases from FY 2019-2020 were used for purposes of forecasting future water purchase costs. The avoided costs of purchased water for each stage are summarized in **Table 9-1**, based on the predicted water conservation percentages shown in Table 9-1. During drought events, MWDOC may charge drought surcharges if MNWD does not achieve target reductions for the given water shortage stage. If MWDOC imposes such drought surcharge rates, this analysis assumes that those costs will be passed through directly to MNWD customers. Given the uncertainty of those costs (how much they would be and whether they would even be incurred), their impact was not modeled as part of this assessment. The cost of recycled water supply remains largely the same to MNWD, regardless of whether customers purchase the water. As such, changes in recycled water consumption were assumed to have a negligible impact on the District's operating expenses.

Section 9.2 Summary of Financial Impacts

The financial impact of each water shortage stage was assessed to ensure that the shortage stage policies would not cause dramatic changes to the District's General Fund balance because of decreased water sales. To project the change in rate revenues, the tier definitions and assumed levels of conservation for each water shortage stage were applied to customer water use patterns from FY 2019-2020. In other words, the calculated change in rate revenues considered the reduction in total water usage as well as the shift in water usage towards higher tiers. The analysis used domestic and recycled water rates for 2021.

These reductions in rate revenues were coupled with the changes in MNWD operating costs because of reduced water sales. Table 9-1 summarizes the impact to the District's General Fund. It is important to note that impacts to the District's Water Efficiency Fund have been omitted from Table 9-1. Consistent with recommendations in the UWMP guidebook, longer term demand reductions associated with infrastructure improvements or installation of water-efficient appliances and fixtures have not been factored into the savings calculations. Any rate or penalty revenue that the District collects in excess of the marginal supply cost of water is separately maintained in the District's Water Efficiency Fund and is applied towards rebates and other water efficiency programs. As such, including the water use efficiency program costs along with additional penalty and rate revenue associated with newly out of budget usage would skew the presentment of realistic financial impacts to the District for each of the stages. The District's experience responding to mandated demand reductions in 2015 corroborates this approach as the District's financial position improved during that time despite significant reductions in demand and historic levels of rebate participation and water use efficiency outreach costs.

Table 9-1: Predicted Change in Revenue

Stage	Percent Supply Reduction	Change in General Fund Rate Revenue	Savings from Reduced Water Purchases	Change in General Fund Balance
1	≤10%	($969,591)	$1,224,398	$254,807
2	10 – 20%	($2,085,080)	$2,448,795	$363,715
3	20 – 30%	($4,432,775)	$4,897,590	$464,815
4	30 – 40%	($6,649,163)	$7,346,385	$697,222
5	40 – 50%	($8,865,551)	$9,795,180	$929,629
6	≥50%	($11,081,938)	$12,243,975	$1,162,037

As previously mentioned, the actual financial impact of each water shortage stage will depend on variables that MNWD has little or no control over. Preliminary sensitivity analysis indicates that variations in the amount of water conservation by customers may result in significant swings in net revenue, though the impact to the District's financial position would be limited.

If customers do not conserve as much as planned, there will be an increase in net revenues and vice versa. This dynamic is driven by the fact that customers will largely be paying top-tier rates for any water that they do not otherwise conserve. That top-tier water is more expensive than MNWD's marginal cost of purchased water; therefore, the net revenue would increase. If customers conserve less than forecasted, net revenue will increase, and the Water Efficiency Fund reserves will increase. In this circumstance, the District's first course of action would be to increase water use efficiency program expenditures to achieve more water use reductions.

The rate design is such that decreases in water usage above the individual budget only impact the District's Water Efficiency Fund. The marginal cost of water is used as a point to delineate revenue that goes to the Water Efficiency Fund versus that used to pay for imported water through the District's

General Fund. If customers use less water in the higher tiers, less money is needed for conservation and water reliability projects. Hence, the clear nexus in design provides a mechanism to mitigate risk from changes in water use. Reduced water usage within the individually calculated water budget increases net revenues due to the price to the customer being lower than the cost of imported water. To achieve this, the District allocated property tax revenue it receives to provide incentive for increasingly efficient water usage.

MNWD's drought penalty policies have been structured to minimize the financial impact of the water shortage stages to both customers and the District, while also achieving the water conservation goals set by the District's WSCP. If actual water conservation falls short of the target reductions for a given stage, the District intends to use the increase in net revenues to increase conservation efforts such as outreach and rebate funding, or otherwise offset future rate increases. Conversely, if actual water conservation exceeds the target reductions, MNWD has established reserves that will enable the District to temporarily withstand the revenue shortfall which would only be in the Water Efficiency Fund and would not be needed with customers meeting efficiency goals. These policies will help MNWD to maintain financial stability and promote necessary water conservation during implementation of a water shortage stage.

Chapter 10 Monitoring and Reporting

Section 10.1 District's Advanced Metering Infrastructure

Water use in the District's service area is 100 percent metered. The District upgraded its meter technology as part of its "Advanced Metering Infrastructure" program. These upgraded smart meters help the District improve operations and enable all customers and the District to monitor hourly water usage. The Advanced Metering Infrastructure system provides a concise method for monitoring the effectiveness and efficiency of the WSCP measures. The ability for the District and our customers to view daily insights and get proactive notifications can help ensure that customers have the information they need to stay within their water budget.

During a water shortage stage, a monthly production forecast and water budget are developed for each customer class. Depending on the shortage stage, actual production and demands are monitored monthly to verify that the budgeted goals are being met. The status would be reported to the General Manager. If the trend in consumption is such that demands are exceeding water budgets greater than anticipated, the General Manager and Board of Directors are notified so that corrective action (such as increased public education campaigns and customer notifications) can be taken.

Section 10.2 State Water Board Monthly Reporting

On May 9, 2016, the Governor issued Executive Order B-37-16 to make water conservation a way of life in California and directed the State Water Resources Control Board to establish permanent reporting and data collection by urban water suppliers. On April 21, 2020, the State Water Resources Control Board adopted Resolution No. 2020-0009, which requires monthly urban water conservation reporting. The Urban Water Supplier Reporting tool is used for monthly reporting. The monthly reporting required by the State Water Resources Control Board will be used for reporting purposes of this WSCP, when a stage is implemented.

Chapter 11 WSCP Refinement Procedures

Section 11.1 Plan Review and Update

Reevaluation and improvement procedures are used to ensure water shortage responses are adequate and appropriate mitigation strategies are implemented as needed. The District will periodically evaluate the elements of the WSCP and update as necessary to ensure conformance with CWC requirements. The WSCP will be reviewed at least every five years as part of the UWMP update process, but the frequency of the re-evaluation could increase based on lessons learned, new statutory requirements, continued local supply development, and other factors as determined by the District. The District may also amend the WSCP to address factors that would have a significant effect on conservation planning.

Chapter 12 Special Water Feature Distinction

CWC Section 10632(b) requires the District to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

For purposes of this WSCP, a swimming pool or pool means any structure intended for swimming or recreational bathing that contains water over 18 inches deep. “Swimming pool” includes in-ground and above-ground structures and includes, but is not limited to, hot tubs, spas, portable spas, and nonportable wading pools. A decorative water feature is considered artificially supplied with water and could include fountains, ponds, and waterfalls. Decorative water features are designed for visual appreciation, not for public play and interaction. As such, a decorative water feature may use or be able to use recycled or recirculated water, whereas pools and spas must use potable water for health and safety considerations.

Chapter 5, Section 5.1.4 identifies Permanent Water Conservation Requirements that includes water conservation BMPs that have been established to conserve water, prevent the waste or unreasonable use or unreasonable method of use of water, and preserve the District’s water supplies. BMP I requires re-circulating water for decorative water fountains and decorative water features. The BMP prohibits the operation of a decorative water fountain or other decorative water feature that does not use re-circulated water. BMP P encourages property owners who have a swimming pool or a spa to cover the facilities to minimize water loss due to evaporation.

Chapter 13 Plan Adoption, Submittal, and Availability

The District provided notice of the availability of the Draft 2020 UWMP (including the WSCP) and notice of the public hearing to consider adoption of both plans in accordance with CWC Sections 10621(b) and 10642. The public review draft of the WSCP was posted on the District's website, https://www.mnwd.com/reports-publications/. The notice of availability of the WSCP was sent to service area cities and County, as well as neighboring water agencies. The District held a Board workshop for the Draft WSCP on April 14, 2021 to provide an opportunity for early input on the WSCP. Newspaper notices of the public availability of the Draft Ordinance and WSCP and notification for the public hearing was published in the Orange County Register on April 24, 2021 and May 1, 2021, as required by the CWC. The District held a public hearing on May 13, 2021 to solicit public comments and then adopt the WSCP. In fulfillment of CWC Sections 10632(c) and 10645(a) and (b), the District's Final WSCP was posted on the District's website, https://www.mnwd.com/reports-publications/, following the adoption by the District's Board of Directors. The District shall make its WSCP available to its customers and the cities and county within which it provides water supplies no later than 30 days after adoption in conformance with CWC section 10632(c). The District will also submit a copy to DWR. If revised, the District shall submit a copy of the WSCP to DWR within 30 days of adoption.

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Appendix D Delta Reliance

Appendix D Reduced Delta Reliance Reporting

Section 1.1 Background

The Delta Plan is a comprehensive, long-term resource management plan for Sacramento-San Joaquin Bay Delta that was developed as part of the Delta Reform Act of 2009 (Water Code Section 85000 et seq) and includes both regulatory policies and recommendations, aimed at promoting a healthy Delta ecosystem. Under the Delta Reform Act of 2009, state and local public agencies proposing a covered action (e.g., a project) in the Delta, prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council. Because Moulton Niguel Water District (MNWD or District) is a member of Municipal Water District of Orange County (MWDOC) and recipient of Metropolitan Water District of Southern California (Metropolitan or MWD) supplies, the District may receive water under a future "covered action" through MWD's participation in the proposed Delta Conveyance Project.

An urban water supplier that anticipates participating in or receiving water from a proposed covered action, such as the Delta Conveyance Project, should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1). Delta Plan Policy WR P1 (California Code of Regulations, Title 23, Section 5003) is one of fourteen regulatory policies in the Delta Plan. WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for any supplier that is participating in or carrying out a proposed covered action or receiving Delta water from a proposed covered action. Within the supplier's UWMP, information should be provided that can be used to demonstrate consistency with this policy.

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

> *(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:*
>
> *(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed inparagraph (1) of subsection (c);*
>
> *(2) That failure has significantly caused the need for the export, transfer, or use; and*
>
> *(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self- reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code Section 1011(a).

The analysis and documentation provided below include the elements described in WR P1(c)(1) that need to be included in the District's UWMP to support a certification of consistency for a future covered action.

Section 1.2 Summary of Expected Outcomes for Reduced Reliance on the Delta

As stated in WR P1 (c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self- reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

The expected outcomes for the District's regional self-reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2020 – Final Draft (Guidebook Appendix C) issued in March 2021. The data used in this analysis represent the total regional efforts of MWD, MWDOC, and its member agencies, including the District, and were developed in conjunction with MWD as part of the UWMP coordination process.

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for the District's Delta reliance and regional self-reliance. The results show that as a region, MWDOC, MWD, and its member agencies, including the District, are measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used.

Section 1.2.1 Expected Outcomes for Regional Self-Reliance for the District

- Near-term (2025) – Normal water year regional self-reliance is expected to increase by 6,967 AF from the 2010 baseline; this represents an increase of about 17.7 percent of 2025 normal water year retail demands (Table 2).
- Long-term (2045) – Normal water year regional self-reliance is expected to increase by nearly 7,700 AF from the 2010 baseline, this represents an increase of about 19.4 percent of 2045 normal water year retail demands (Table 2).

Section 1.3 Demonstration of Reduced Reliance on the Delta

The methodology used to determine the District's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in DWR's UWMP Guidebook Appendix C, including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources. Some of the key assumptions underlying the District's demonstration of reduced reliance include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- All analyses were conducted at the service area level, and all data reflect the total contributions of the District and MWDOC, in conjunction with information provided by MWD.
- No projects or programs that are described in the UWMPs as "Projects Under Development" were included in the accounting of supplies.

Section 1.3.1 Baseline and Expected Outcomes

In order to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from the District's 2005 UWMP as the UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on).

Consistent with the 2010 baseline data approach, the expected outcomes for reduced Delta reliance and improved regional self-reliance for 2015 and 2020 were taken from the District's 2010 and 2015 UWMPs respectively. Expected outcomes for 2025-2045 are from the current 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Section 1.3.2 Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands, rather than normal water year supplies to calculate expected outcomes in terms of the percentage of water used. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as the District need to explicitly calculate, and report water use efficiency savings separate from service area demands to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise, the effect of water use efficiency savings on regional self-reliance would be overestimated. **Table 1** shows the results of this adjustment for the District. Supporting narratives and documentation for the data shown in Table 1 are provided below.

Section 1.3.2.1 Service Area Demands with Water Use Efficiency

The service area demands shown in Table 1 represent the total retail water demands for the District's service area and include residential, commercial, potable irrigation, and recycled demands. These demand types and the modeling methodologies used to calculate them are described in Chapter 4 of the District's UWMP.

Section 1.3.2.2 Non-Potable Water Demands

The non-potable water demands shown in Table 1 represent demands for recycled water. Additionally, non-potable supplies have a demand hardening effect due to the inability to shift non-potable supplies to meet potable water demands. When water use efficiency or conservation measures are implemented, they fall solely on the potable water users. This is consistent with the approach for water conservation reporting used by the State Water Resources Control Board.

Section 1.3.2.3 Total Service Area Population

The District's total service area population as shown in Table 1 come from the Center for Demographic Research, as described in Chapter 3 of the District's UWMP.

Section 1.3.2.4 Water Use Efficiency Since Baseline

The water use efficiency numbers shown in Table 1 represent the formulation the District utilized, consistent with Appendix C of the UWMP Guidebook approach.

Service area demands, excluding non-potable demands, are divided by the service area population to get per capita water use in the service area in gallons per capita per day (GPCD) for each five-year period. The change in per capita water use from the baseline is the comparative GPCD from that five-year period compared to the 2010 baseline. Changes in per capita water use over time are then applied back to the District's service area population to calculate the estimated WUE Supply. This estimated WUE Supply is considered an additional supply that may be used to show reduced reliance on Delta water supplies.

Table 1: Calculation of WUE and Calculation of Service Area Water Demands Without WUE

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	44,914	40,600	35,444	32,093	31,782	31,612	31,473	31,280
Non-Potable Water Demands	9,800	8,500	7,639	6,398	6,346	6,326	6,312	6,288
Potable Service Area Demands with Water Use Efficiency Accounted For	35,114	32,100	27,805	25,695	25,436	25,286	25,161	24,992

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Population	167,600	174,342	172,876	172,134	174,202	174,241	174,169	172,802

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Per Capita Water Use (GPCD)	187	164	144	133	130	130	129	129
Change in Per Capita Water Use from Baseline (GPCD)		(23)	(43)	(54)	(57)	(57)	(58)	(58)
Estimated Water Use Efficiency Since Baseline		4,427	8,414	10,369	11,061	11,219	11,329	11,212

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	44,914	40,600	35,444	32,093	31,782	31,612	31,473	31,280
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline		4,427	8,414	10,369	11,061	11,219	11,329	11,212
Service Area Water Demands without Water Use Efficiency Accounted For	44,914	45,027	43,858	42,462	42,843	42,831	42,802	42,492

The demand and water use efficiency data shown in Table 1 were collected from the following sources:

- Baseline 2010 values – District's 2005 UWMP, Tables 2 and 8
- 2015 values – District's 2010 UWMP, Tables 2-2 and 2-9
- 2020 values – District's 2015 UWMP, Table 2-2 and DWR Tables 4-2 and 6-4, Errata
- 2025-2045 values – District's 2020 UWMP, DWR Table 6-9

It should be noted the results of this calculation differs from what the District calculated under Chapter 5 pertaining to the Water Conservation Act of 2009 (SB X7-7) due to differing formulas.

Section 1.4 Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. **Table 2** shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in **Table 2** represent efforts to improve regional self-reliance for the District's entire service area. Supporting narratives and documentation for the data shown in Table 2 are provided below.

The results shown in Table 2 demonstrate the District's service area is measurably improving its regional self-reliance. In the near-term (2025), the expected outcome for normal water year regional self-reliance increases by 6,967 AF from the 2010 baseline; this represents an increase of about 17.7 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year regional self-reliance is expected to increase by more than 7,700 AF from the 2010 baseline; this represents an increase of about 19.4 percent of 2045 normal water year retail demands.

Section 1.4.1 Water Use Efficiency

The water use efficiency information shown in Table 2 is taken directly from Table 1.

Section 1.4.2 Water Recycling

The water recycling values shown in Table 2 reflect the total recycled water production in service area as described in Chapter 6 of the District's UWMP.

Table 2: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency		4,427	8,414	10,369	11,061	11,219	11,329	11,212
Water Recycling	9,800	8,500	7,639	6,398	6,346	6,326	6,312	6,288
Stormwater Capture and Use								
Advanced Water Technologies								
Conjunctive Use Projects								
Local and Regional Water Supply and Storage Projects								
Other Programs and Projects the Contribute to Regional Self-Reliance								
Water Supplies Contributing to Regional Self-Reliance	9,800	12,927	16,053	16,767	17,407	17,545	17,641	17,500

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	44,914	45,027	43,858	42,462	42,843	42,831	42,802	42,492

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	9,800	12,927	16,053	16,767	17,407	17,545	17,641	17,500
Change in Water Supplies Contributing to Regional Self-Reliance		3,127	6,253	6,967	7,607	7,745	7,841	7,700

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	21.8%	28.7%	36.6%	39.5%	40.6%	41.0%	41.2%	41.2%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		6.9%	14.8%	17.7%	18.8%	19.1%	19.4%	19.4%

Section 1.5 Reliance on Water Supplies from the Delta Watershed

Metropolitan's service area as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies and demand management measures. Quantifying the District's investments in self-reliance, locally, regionally, and throughout Southern California is infeasible for the reasons noted in Section 1.6. Due to the regional nature of these investments, the District is relying on Metropolitan's regional accounting of measurable reductions in supplies from the Delta Watershed.

The results shown in **Table 3** demonstrate that Metropolitan's service area, including MWDOC and the District, is measurably reducing its Delta reliance. In the near-term (2025), the expected outcome for normal water year reliance on supplies from the Delta watershed decreased by 301 TAF from the 2010 baseline; this represents a decrease of 3 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline; this represents a decrease of just over 5 percent of 2045 normal water year retail demands.

Section 1.6 Infeasibility of Accounting Supplies from the Delta Watershed for Metropolitan's Member Agencies and their Customers

Metropolitan's service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan's member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan's member agencies, and those agencies' customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan's member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan's conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on the District's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Table 3: MWD Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Supplies from the Delta Watershed	NA	(419,000)	(417,000)	(301,000)	(310,000)	(312,000)	(314,000)	(314,000)
Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	**Baseline (2010)**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	23.5%	22.9%	22.4%	21.9%
Change in Percent of Supplies from the Delta Watershed	NA	-7.6%	-6.6%	-3.0%	-3.7%	-4.3%	-4.8%	-5.2%

Metropolitan's costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan's revenues are collected directly from its member agencies. Properties within Metropolitan's service area pay a property tax that currently provides approximately 8 percent of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan's costs are funded through rates and charges paid by Metropolitan's member agencies for the wholesale services it provides to them.[1] Thus, Metropolitan's member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and Conservation Programs within Metropolitan's service area.

Because of the integrated nature of Metropolitan's systems and operations, and the collective nature of Metropolitan's regional efforts, it is infeasible to quantify each of Metropolitan member agencies' individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan's regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction does not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan member agencies receive blended resources from Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

Section 1.6.1 Colorado River Programs

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns, operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

[1] A standby charge is collected from properties within the service areas of 21 of Metropolitan's 26 member agencies, ranging from $5 to $14.20 per acre annually, or per parcel if smaller than an acre. Standby charges go towards those member agencies' obligations to Metropolitan for the Readiness-to-Serve Charge. The total amount collected annually is approximately $43.8 million, approximately 2 percent of Metropolitan's fiscal year 2021 annual budgeted revenues.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

Section 1.6.2 Storage Investments/Facilities

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000 acre-feet of that storage capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL). Some reservoirs such as Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, and Orange County Reservoir, which have a total combined capacity of about 3,500 AF, are used solely for regulating purposes. The total gross storage capacity for the larger remaining reservoirs is 1,757,600 AF. However, not all of the gross storage capacity is available to Metropolitan; dead storage and storage allocated to others reduce the amount of storage that is available to Metropolitan to 1,665,200 AF.

Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; **Table 4** lists the groundwater conjunctive use programs that have been developed in the region.

Table 4: MWD Conjunctive Use Programs

Program	Metropolitan Agreement Partners	Program Term	Max Storage AF	Dry-Year Yield AF/Yr
Long Beach Conjunctive Use Storage Project (Central Basin)	Long Beach	June 2002-2027	13,000	4,300
Foothill Area Groundwater Storage Program (Monkhill/ Raymond Basin)	Foothill MWD	February 2003-2028	9,000	3,000
Orange County Groundwater Conjunctive Use Program	MWDOC OCWD	June 2003-2028	66,000+	22,000
Chino Basin Conjunctive Use Programs	IEUA TVMWD Watermaster	June 2003-2028	100,000	33,000
Live Oak Basin Conjunctive Use Project (Six Basins)	TVMWD City of La Verne	October 2002-2027	3,000	1,000
City of Compton Conjunctive Use Project (Central Basin)	Compton	February 2005-2030	2,289	763
Long Beach Conjunctive Use Program Expansion in Lakewood (Central Basin)	Long Beach	July 2005-2030	3,600	1,200
Upper Claremont Basin Groundwater Storage Program (Six Basins)	TVMWD	Sept. 2005- 2030	3,000	1,000
Elsinore Basin Conjunctive Use Storage Program	Western MWD Elsinore Valley MWD	May 2008- 2033	12,000	4,000
TOTAL			**211,889**	**70,263**

Section 1.6.3 Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has

spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

Section 1.6.3.1 Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 103,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

Local Projects Program - In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of $154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

Groundwater Recovery Program - The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large amounts of degraded groundwater in the region were

not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants, provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

Local Resources Program - In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to $250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

Competitive Local Projects Program - In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to $250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

Seawater Desalination Program - Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

2007 Local Resources Program - In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to $250 per acre-foot, calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

2014 Local Resources Program - A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the $250 per acre-foot was not providing enough of an incentive for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

- Option 1 – Sliding scale incentive up to $340/AF for a 25-year agreement term
- Option 2 – Sliding scale incentive up to $475/AF for a 15-year agreement term
- Option 3 – Fixed incentive up to $305/AF for a 25-year agreement term

On-site Retrofit Programs - In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or $975 per acre-foot of up-front cost, which equates to $195 per acre-foot for an estimated five years of water savings ($195/AF x 5 years) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized the On-site Retrofit Program (ORP), with an additional budget of $10 million. This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. As of fiscal year 2019/20, the ORP has successfully converted 440 sites, increasing the use of recycled water by 12,691 acre-feet per year.

Stormwater Pilot Programs - In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of $12.5 million for the stormwater pilot programs ($5 million for the District Use Pilot and $7.5 million for the Recharge Pilot).

Current Status and Results of Metropolitan's Local Resource Programs - Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2020, Metropolitan provided about $13 million for production of 71,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan provided about $4 million to support projects that produced about 50,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested $680 million to fund 85 recycled water projects and 27 groundwater recovery projects that have produced a cumulative total of about 4 million acre-feet.

Conservation Programs - Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an important part of balancing regional supplies and demands. Water conservation efforts were seen

as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Incentive-Based Conservation Programs

Conservation Credits Program - In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of $75 per acre-foot of estimated water savings. The $75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from $75 to $154 per acre-foot in 1990 and from $154 to $195 per acre-foot in 2005. In fiscal year 2020 Metropolitan processed more than 30,400 rebate applications totaling $18.9 million.

Member Agency Administered Program - Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

Water Savings Incentive Program - There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

Non-Incentive Conservation Programs - In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

Current Status and Results of Metropolitan's Conservation Programs - Since 1990, Metropolitan has invested $824 million in conservation rebates that have resulted in a cumulative savings of 3.27 million acre-feet of water. These investments include $450 million in turf removal and other rebates during the last drought which resulted in 175 million square feet of lawn turf removed. During fiscal year 2020, 1.06 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

Section 1.6.4 Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and water use efficiency programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the regional level, Metropolitan's member agencies and their customers have together made substantial contributions to the region's reduced reliance.

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Appendix E Development Projections

moulton niguel water district

Exhibit E
Private Development Report

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moulton niguel water district

EXHIBIT E: PRIVATE DEVELOPMENT STATUS REPORT

AS OF JUNE 2021

1) PROJECT NAME:
Alicia Parkway and Bentley (Old Dealership)
Phase 2

PROJECT LOCATION:
East side of Alicia Parkway between Bentley and Hon, Laguna Hills

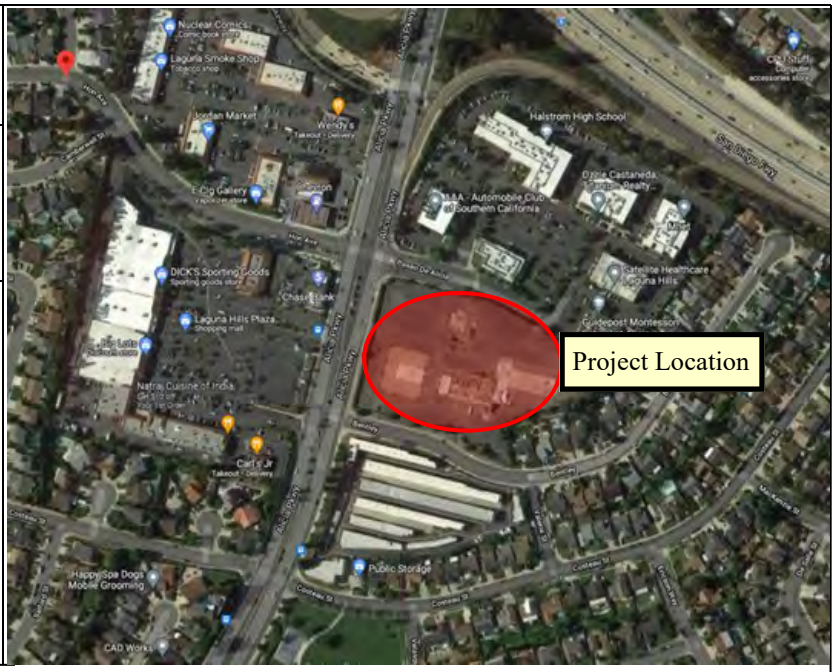
PROJECT SPECIFICS:

Building Size:: 4,000 Commercial Sq. Ft.
10,000 Irrigation Sq. Ft.

Estimated Connection Fee: $31,000

Estimated Construction Start: Summer 2021

Phase/Notes:



ADDITIONAL NOTES: Water Supply Assessment is not triggered.

2) PROJECT NAME:
Laguna Niguel Town Center Project

PROJECT LOCATION:
City of Laguna Niguel adjacent to City Hall and Orange County Fire Station No. 5

PROJECT SPECIFICS:

Building Size: 275 Dwelling Units
206,500 Commercial Sq.Ft.
4,469 Irrigation Sq.Ft.

Estimated Connection Fee: $224,112

Estimated Construction Start:: Unknown

Phase/Notes: Project is in the Conceptual Design Phase. Engineering Feasibility letter issued.

ADDITIONAL NOTES: Water Supply Assessment has been prepared for the project and approved by MNWD.

3) PROJECT NAME:
ABC Ice House

PROJECT LOCATION:
27762 Forbes Road, Laguna Niguel

PROJECT SPECIFICS:

Building Size: 115 Dwelling Units
3,080 Commercial Sq.Ft.
2,000 Irrigation Sq.Ft.

Estimated Connection Fee: $55,000

Estimated Construction Start:: Unknown

Phase/Notes: Project is in the Design Phase.

ADDITIONAL NOTES: Projects included as part of the Gateway Specific Plan Water Supply Assessment that has been prepared and approved by MNWD.

4) PROJECT NAME:
Morningstar Developer

PROJECT LOCATION:
28570 Marguerite Parkway, Mission Viejo

PROJECT SPECIFICS:

Building Size: 138 Dwelling Units
37,000 Commercial Sq.Ft.
1,210 Irrigation Sq,Ft.

Estimated Connection Fee: $42,000

Estimated Construction Start:: Fall 2021

Phase/Notes: Project is in the final Planning Phase.

ADDITIONAL NOTES: Water Supply Assessment not triggered**.** Connection Fees include an offset from previously paid connection fees for past development.

5 PROJECT NAME:
Senior Housing Project

PROJECT LOCATION:
27942 & 27949 Forbes Road, Laguna Niguel

PROJECT SPECIFICS:

Building Size: 300 Dwelling Units
2,500 Irrigation Sq.Ft.

Proposed Connection Fee: $40,000

Estimated Construction Start: Unknown

Phase/Notes:

ADDITIONAL NOTES: Projects included as part of the Gateway Specific Plan Water Supply Assessment that has been prepared and approved by MNWD.

6) PROJECT NAME:
Townhomes

PROJECT LOCATION:
Paseo De Colinas and Golden Lantern , Laguna Niguel

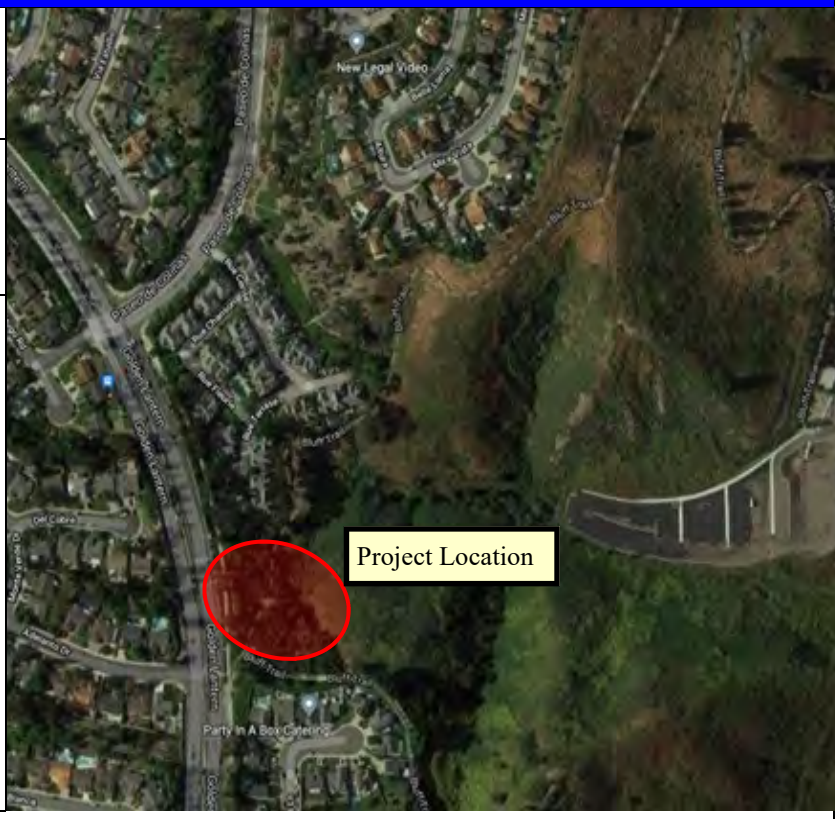
PROJECT SPECIFICS:

Building Size: 31 Dwelling Units
15,000 Irrigation Sq.Ft.

Estimated Connection Fee: $85,000

Estimated Construction Start:: Unknown

Phase/Notes:



ADDITIONAL NOTES: Water Supply Assessment not triggered.

7) PROJECT NAME:
O'Hill Ridge 129 Tract 93-129

PROJECT LOCATION:
Below Old Ranch Road, Laguna Niguel - an extension off of O'Hill Ridge Road.

PROJECT SPECIFICS:

Building Size: 4 Single-Family Residential Units
400,00 Irrigation Sq,Ft.

Estimated Connection Fee: $16,000

Estimated Construction Start: Unknown

Phase/Notes: Engineering Feasibility Study and preliminary requirements complete . Project in Planning Phase.

ADDITIONAL NOTES: Properties will require ejector pumps for wastewater service, or an Interagency Agreement with City of San Juan Capistrano to allow for the City to provide this service. Water Supply Assessment not triggered.

8) PROJECT NAME:
Playa Blanca - Tentative Tract 17721

PROJECT LOCATION:
West side Crown Valley Parkway & Paseo Del Niguel, near El Niguel Country Club

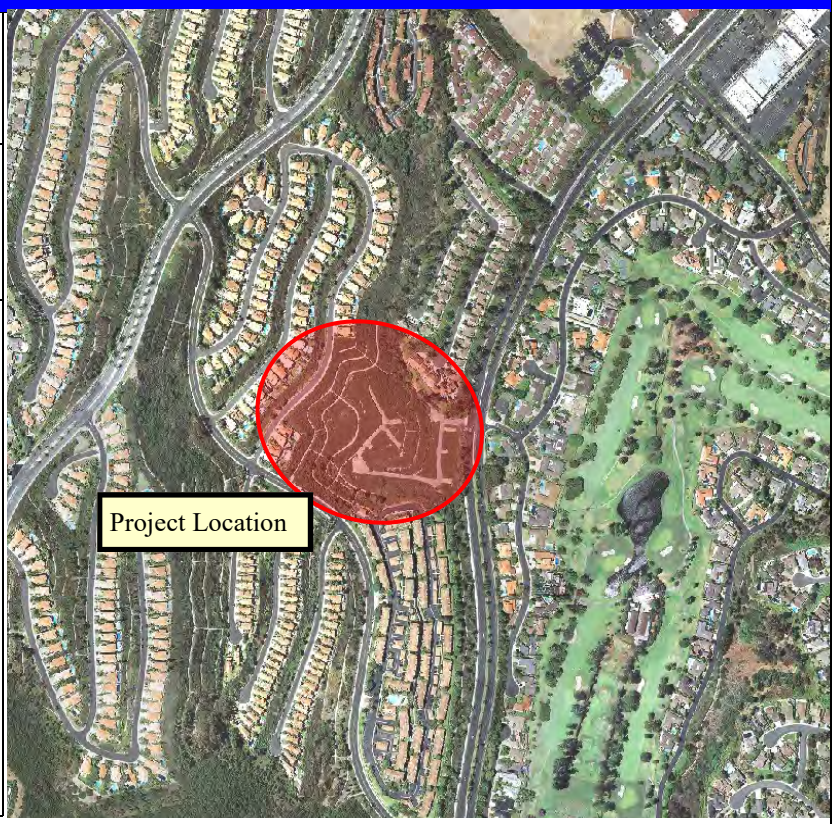
PROJECT SPECIFICS:

Building Size: 40 Dwelling Units
18,000 Irrigation Sq.Ft.

Estimated Connection Fee: $92,000

Estimated Construction Start: Unknown

Phase/Notes: Project is in the Conceptual Design Phase.



NOTES: Water Supply Assessment not triggered.

9) PROJECT NAME:
Three Flags Center

PROJECT LOCATION:
27601 Forbes Road., Laguna Niguel

PROJECT SPECIFICS:

Building Size: 360 Dwelling Units
23,000 Irrigation Sq.Ft.

Estimated Connection Fee: $40,000

Estimated Construction Start:: Unknown

Phase/Notes:

ADDITIONAL NOTES: Project included under the Gateway Specific Plan Water Supply Assessment that has been prepared and approved by MNWD.

10) PROJECT NAME:
Senior Housing

PROJECT LOCATION:
24600 La Plata, Laguna Niguel

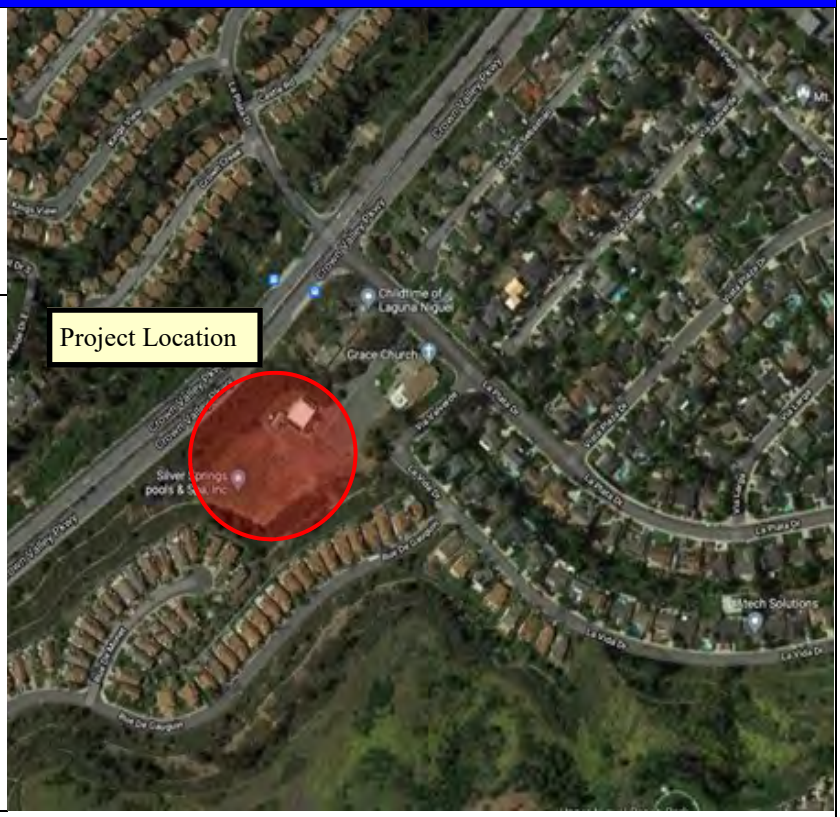
PROJECT SPECIFICS:

Building Size: 250 Dwelling Units
10,000 Commercial Sq.Ft.

Estimated Connection Fee: $28,000

Estimated Construction Start: Unknown

Phase/Notes:



ADDITIONAL NOTES: Water Supply Not Triggered.

11) PROJECT NAME:
Sun Pointe - Tract 17433

PROJECT LOCATION:
End of Avenida Del Caballo above Mercedes Dealership, Laguna Niguel.

PROJECT SPECIFICS:

Building Size: 71 Single-Family Residential Units
28,908 Irrigation Sq. Ft.

Estimated Connection Fee: $284,000

Estimated Construction Start: Unknown

Phase/Notes: Horizontal drilling has been performed to dewater the site and stabilize the area. Dewatering efforts were successful, but redesign required to retain and stabilize the site without affecting the adjoining Mercedes dealership parcel below.

ADDITIONAL NOTES: Site has had numerous proposals over the years. Existing road alignments will be changed and significant grading performed. Current design includes the relocation of Rancho Underground Pump Station. Water Supply Assessment not triggered.

Appendix F Energy Tables

Urban Water Supplier: *Moulton Niguel 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: 6/30/2020

☐ Is upstream embedded in the values reported?

	Water Volume Units Used	Urban Water Supplier Operational Control: Water Management Process: Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Non-Consequential Hydropower (if applicable): Hydropower	Net Utility
Volume of Water Entering Process	AF				*8031*	*23083*	*23083*		*23083*
Energy Consumed (kWh)	*N/A*				*7388520*	*3753158*	*11141678*		*11141678*
Energy Intensity (kWh/vol. converted to MG)	*N/A*	*0.0*	*0.0*	*0.0*	*920.0*	*162.6*	*482.7*	*0.0*	*482.7*

Quantity of Self-Generated Renewable Energy

0 kWh

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

Metered Data

Data Quality Narrative:

The data included is metered data provided by SCE and SDG&E for the District's various potable water distribution system. The water treatment data is water treated at the Baker Water Treatment Facility. The energy use data was provided in the 2018 Embedded Energy plan for the Baker Plant provided by IRWD.

Narrative:

The distribution totals above include potable water. Potable distribution energy use is associated with the District's pumping stations, pressure reducing stations, reservoirs, and take out structures. The treatment totals include MWD untreated water that is treated at the Baker Water Treatment Plant, operated by IRWD. Only the District's portion of treated water received is included in the treatment total.

Urban Water Supplier: *Moulton Niguel 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	6/30/2020	**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)		*5795*	*5795*		*11590*
Wastewater Energy Consumed (kWh)		*2856995*	*8132235*		*10989230*
Wastewater Energy Intensity (kWh/volume)		*493.0*	*1403.3*	*0.0*	*948.2*
Volume of Recycled Water Entering Process (volume units selected above)				*5489*	*5489*
Recycled Water Energy Consumed (kWh)				*4097703*	*4097703*
Recycled Water Energy Intensity (kWh/volume converted to MG)		*0.0*	*0.0*	*746.5*	*746.5*

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)*

Metered Data

Data Quality Narrative:

The energy use data is taken from the District's SCE and SDG&E accounts associated with specific infrastructure for the lift stations and wastewater treatment Plant 3A. Energy consumption data for the Regional Treatment Plant and JB Latham Plant was provided by SOCWA. The treatment column includes data from Plant 3A, the Regional Treatment Plant, and JB Latham Plant. The data for Regional Treatment Plant and JB Latham is total energy consumed from November 2019 to October 2020 and is not on the FY but serves as a proxy for one year comparable energy data. The remainder of the data is from FY 19.

Narrative:

The data for the collection/conveyance of wastewater is associated with 23 of the District's wastewater lift stations that are assumed to carry all influent flows to the three wastewater treatment plants serving the District (Plant 3A, Regional Treatment Plant and JB Latham). The treatment data is associated with three wastewater treatment plants serving the District.

Appendix G Public Notices

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (DDOYLE@CITYOFALISOVIEJO.COM)

Mr. David Doyle
City Manager
City of Aliso Viejo
12 Journey Suite 100
Aliso Viejo, CA 92656

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Doyle,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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The District is encouraging local agencies, the public, and other interested parties to participate in the development of the 2020 UWMP and WSCP, and we are available to meet with you, if desired.

A copy of the District's Draft 2020 UWMP, WSCP, and the 2015 UWMP Addendum will be available for review on the District's website (www.mnwd.com). The WSCP will be available for public review by April 1, 2021. The District will hold a public hearing on the WSCP on May 13, 2021. The 2020 UWMP and 2015 UWMP Addendum will be available for review by May 1, 2021. The District will also hold a public hearing on the 2021 UWMP and 2015 UWMP Addendum on June 13, 2021. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meetings. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code section 6066. Please provide any written comments regarding the draft 2020 UWMP to the address below or by email no later than June 1, 2021. The District will provide your agency with the final UWMP and WSCP within 30 days of final adoption by the Board of Directors.

Send Comments To: Moulton Niguel Water District
26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (MKILLEBREW@DANAPOINT.ORG)

Mr. Mike Killebrew
City Manager
City of Dana Point
33282 Golden Lantern
Dana Point, California 92629

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Killebrew,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (KROSENFIELD@LAGUNAHILLSCA.GOV)

Mr. Kenneth H. Rosenfield
Acting City Manager
City of Laguna Hills
24035 El Toro Rd
Laguna Hills, CA 92653

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Rosenfield,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (tletourneau@@cityoflagunaniguel.org)

Ms. Tamara Letourneau
City Manager
City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Ms. Letourneau,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (dwilberg@cityofmissionviejo.org; cityadmin@cityofmissionviejo.org)

Mr. Dennis Wilberg
City Manager
City of Mission Viejo
200 Civic Center
Mission Viejo, CA 92691

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Wilberg,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (BSIEGEL@SANJUANCAPISTRANO.ORG)

Mr. Benjamin Siegel
City Manager
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Siegel,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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Send Comments To: Moulton Niguel Water District
26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL

Mr. Hugh Nguyen
Orange County Clerk - Recorder
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Nguyen,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (dcafferty@etwd.com)

Dennis P. Cafferty
General Manager
El Toro Water District
24251 Los Alisos Blvd
Lake Forest, CA 92630

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Cafferty,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

Among other information and analyses, the 2020 UWMP will evaluate current and projected water supplies and demands within the District's service area during normal, single-dry, and multiple-dry year periods over the next 25-year planning horizon. The 2020 UWMP will also include information regarding water conservation efforts. The District is separately updating its WSCP which manages supply and demand during times of drought and emergencies and provides a detailed plan for actions the District may implement in the case of an actual water shortage condition. And the District is also considering an Addendum to the 2015 UWMP to demonstrate consistency with the Delta Plan Policy to Reduce Reliance on the Delta through Improved Regional Water Self-Reliance (California Code Reg., tit. 23, Section 5003).

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Additional notice regarding the time and place of the public hearing will be published in accordance with Government Code section 6066. Please provide any written comments regarding the draft 2020 UWMP to the address below or by email no later than June 1, 2021. The District will provide your agency with the final UWMP and WSCP within 30 days of final adoption by the Board of Directors.

Send Comments To: Moulton Niguel Water District
26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656
Attn: Laura Rocha, Senior Water Resources Planner
lrocha@mnwd.com

Thank you for your cooperation and involvement in these updates. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (kvandermaaten@lbcwd.org)

Mr. Keith Van Der Maaten
General Manager
Laguna Beach County Water District
306 3rd Street
Laguna Beach, CA 92651

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Van Der Maaten,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (hdelatorre@mwdoc.com)

Mr. Harvey De La Torre
Assistant General Manager
MWDOC
18700 Ward Street
Fountain Valley, CA 92708

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. De La Torre,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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Sincerely,

Joone Lopez
General Manager

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (rshintaku@scwd.org; tkjolsing@scwd.org)

Mr. Rick Shintaku
General Manager
South Coast Water District
31592 West Street
Laguna Beach, CA 92651

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Shintaku,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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Sincerely,

Joone Lopez
General Manager

CC: Taryn Kjolsing

moulton niguel water district

March 23, 2021

SENT VIA FIRST CLASS MAIL AND E-MAIL (danf@smwd.com)

Mr. Daniel Ferons
General Manager
Santa Margarita Water District
26111 Antonio Pkwy
Rancho Santa Margarita, CA 92688

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Review and Changes**

Dear Mr. Ferons,

The Moulton Niguel Water District (District) is currently preparing and updating its 2020 Urban Water Management Plan (2020 UWMP) in accordance with the California Urban Water Management Planning Act, the Water Conservation Act of 2009, and other applicable laws. The District is providing this notice to your agency pursuant to Water Code section 10621(b), which requires the District to notify the cities and County within its service area of the update at least sixty days prior to holding a public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP and Water Shortage Contingency Plan (WSCP) to the California Department of Water Resources before the July 1 deadline.

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lrocha@mnwd.com

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Sincerely,

Joone Lopez
General Manager

moulton niguel water district

May 27, 2021

Mr. David Doyle
City Manager, City of Aliso Viejo
12 Journey Suite 100
Aliso Viejo, CA 92656
SENT VIA E-MAIL (DDOYLE@CITYOFALISOVIEJO.COM)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Doyle,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Mike Killebrew
City Manager
City of Dana Point
33282 Golden Lantern
Dana Point, California 92629
SENT VIA E-MAIL (MKILLEBREW@DANAPOINT.ORG)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Killebrew,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Kenneth H. Rosenfield
Acting City Manager
City of Laguna Hills
24035 El Toro Rd
Laguna Hills, CA 92653
SENT VIA E-MAIL (KROSENFIELD@LAGUNAHILLSCA.GOV)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Rosenfield,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Ms. Tamara Letourneau
City Manager
City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677
SENT VIA E-MAIL (tletourneau@@cityoflagunaniguel.org)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Ms. Letourneau,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Dennis Wilberg
City Manager
City of Mission Viejo
200 Civic Center
Mission Viejo, CA 92691
SENT VIA E-MAIL (dwilberg@cityofmissionviejo.org; cityadmin@cityofmissionviejo.org)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Wilberg,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Benjamin Siegel
City Manager
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675
SENT VIA E-MAIL (BSIEGEL@SANJUANCAPISTRANO.ORG)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Siegel,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Hugh Nguyen
Orange County Clerk - Recorder
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Nguyen,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Dennis P. Cafferty
General Manager
El Toro Water District
24251 Los Alisos Blvd
Lake Forest, CA 92630
SENT VIA E-MAIL (dcafferty@etwd.com)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Cafferty,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

A copy of the District's Draft 2020 UWMP and the 2015 UWMP Addendum is available for review on the District's website (https://www.mnwd.com/reports-publications/). The District will provide your agency with the final UWMP within 30 days of final adoption by the Board of Directors. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Keith Van Der Maaten
General Manager
Laguna Beach County Water District
306 3rd Street
Laguna Beach, CA 92651
SENT VIA E-MAIL (kvandermaaten@lbcwd.org)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Van Der Maaten,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

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Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Harvey De La Torre
Assistant General Manager
MWDOC
18700 Ward Street
Fountain Valley, CA 92708
SENT VIA E-MAIL (hdelatorre@mwdoc.com)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. De La Torre,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

A copy of the District's Draft 2020 UWMP and the 2015 UWMP Addendum is available for review on the District's website (https://www.mnwd.com/reports-publications/). The District will provide your agency with the final UWMP within 30 days of final adoption by the Board of Directors. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez

Joone Lopez, General Manager

moulton niguel water district

May 27, 2021

Mr. Rick Shintaku, General Manager
South Coast Water District
31592 West Street
Laguna Beach, CA 92651
SENT VIA E-MAIL (rshintaku@scwd.org; tkjolsing@scwd.org)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Shintaku,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

A copy of the District's Draft 2020 UWMP and the 2015 UWMP Addendum is available for review on the District's website (https://www.mnwd.com/reports-publications/). The District will provide your agency with the final UWMP within 30 days of final adoption by the Board of Directors. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez

Joone Lopez, General Manager

CC: Taryn Kjolsing

moulton niguel water district

May 27, 2021

Mr. Daniel Ferons
General Manager
Santa Margarita Water District
26111 Antonio Pkwy
Rancho Santa Margarita, CA 92688
SENT VIA E-MAIL (danf@smwd.com)

Subject: **Moulton Niguel Water District 2020 Urban Water Management Plan Update; Notice of Public Hearing Revised Date**

Dear Mr. Ferons,

On March 24, 2021, Moulton Niguel Water District (District) provided a 60-day notice regarding preparation of our 2020 Urban Water Management Plan (2020 UWMP) and 2015 UWMP Addendum in accordance with the California Urban Water Management Planning Act. The notice identified the District would hold the public hearing for the District's Board of Directors to consider adopting and submitting its 2020 UWMP to the California Department of Water Resources on June 13, 2021. This letter is to notify you of the public hearing date correction. The District will hold the public hearing on the 2020 UWMP and 2015 UWMP Addendum on June 10, 2021 beginning at 6PM. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend these public hearings in person. Members of the public may listen and provide public comment telephonically at the Board meeting. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

A copy of the District's Draft 2020 UWMP and the 2015 UWMP Addendum is available for review on the District's website (https://www.mnwd.com/reports-publications/). The District will provide your agency with the final UWMP within 30 days of final adoption by the Board of Directors. Should you have any questions or concerns, please feel free to contact the 2020 UWMP Project Manager, Laura Rocha at (949) 416-4550 or at lrocha@mnwd.com.

Sincerely,

Joone Lopez

Joone Lopez, General Manager

The Orange County Register
1771 S. Lewis Street
Anaheim, CA 92805
714-796-2209

5245411

BEST BEST & KREIGERS ATTORNEYS AT LAW
ATTN: MONICA CASTANON
3390 UNIVERSITY AVE., 5TH FLOOR
RIVERSIDE, CA 92501

FILE NO. 28258.00204.

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA, } **SS.**

County of Orange

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of The Orange County Register, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

04/24/2021, 05/01/2021

I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct:

Executed at Anaheim, Orange County, California, on Date: May 01, 2021.

Sandra Campos

Signature

PROOF OF PUBLICATION

Legal No. **0011456200**

NOTICE OF ORDINANCE ADOPTING WATER SHORTAGE CONTINGENCY PLAN AND PRESCRIBING WATER CONSERVATION RULES AND REGULATIONS

The Moulton Niguel Water District (District) Board of Directors (Board) will review and consider approving an Ordinance adopting its Water Shortage Contingency Plan (WSCP) and Prescribing Water Conservation Rules and Regulations (Rules) to implement the WSCP. The District's WSCP has been developed to manage supply and demand during times of drought and emergencies and provides a detailed plan for actions the District may implement in the case of an actual water shortage condition. The Board will conduct a public hearing to consider and receive comments and community input on the District's WSCP and Rules. The WSCP and Rules, as summarized below, will be considered at its regularly scheduled Board Meeting on **Thursday, May 13, 2021 at 6 pm** at the District's Headquarters, 26880 Aliso Viejo Parkway, Aliso Viejo, CA 92656. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend this public hearing in person. Members of the public may listen and provide public comment telephonically. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#. Below is a summary of the proposed Ordinance and the WSCP.

California, including Orange County, experienced significant dry year conditions in 2012-2017, which led local water agencies to declare water shortage conditions that triggered drought actions. Following the end of the statewide drought conditions, the California Legislature amended the Urban Water Management Planning Act in 2018 to include additional water shortage planning requirements. Water Code Section 10632 now mandates the adoption of a WSCP with prescribed elements. Pursuant to State law, the District is required to adopt a WSCP to address specific "stages" of action to be undertaken in response to water supply shortages. The District's water shortage stages and response actions are aligned with the State water shortage stages and comply with Water Code Section 10632. Recognizing that water is our most vital resource, the District's WSCP includes six water shortage stages (each a "Stage") corresponding to progressive ranges of up to 10, 20, 30, 40 and 50 percent shortages and greater than 50 percent shortage and mandates during each Stage specific water conservation practices to reduce unreasonable and wasteful water use and preserve the District's water supplies.

The WSCP will authorize the District to make adjustments to customers' calculated water budgets during specified stages. During Stages 2-6, any customer who uses water in excess of his or her calculated water budget shall be in violation of the Rules and shall pay an administrative penalty ("Conservation Penalty") for each unit of water (one unit of water is equal to one hundred cubic feet (HCF), or 748 gallons), or portion thereof, of water used in excess of a customer's water budget. The Conservation Penalty shall be in addition to the Volumetric Charge the District collects for the potable water or recycled water delivered. The water demand reductions for each of the Stages, the water budget adjustments, and the Conservation Penalties that may be imposed are described below. The implementation of any stage of the WSCP is dependent on Board action, contemplating the District's water supply conditions and demand expectations.

Stage 1 - Efforts in Stage 1 are focused on a voluntary reduction. No restrictions on water use will be implemented, and no adjustments will be made to customers' assigned water budgets.

Stage 2 - During Stage 2, all water customers, both potable and recycled, using water in excess of 125% of their calculated water budgets shall be in violation of the Rules. Any water used in excess of their water budgets will be subject to the Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 3 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 2. The penalty would be based on the current rate in place at time of the water shortage stage is implemented.

Stage 3 - During Stage 3, all water customers, both potable and recycled, using water in excess of their calculated water budgets shall be in violation of the Rules. Any water used in excess of their water budgets will be subject to the Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 2 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 1. The penalty would be based on the current rate in place at time of the water shortage stage is implemented.

Stage 4 - During Stage 4, residential, multi-family and irrigation customers using potable water will have their outdoor water budgets reduced to 60% of their calculated outdoor water budget to meet reduced water supplies. All recycled water customers will have their outdoor water budgets reduced to 90% of their calculated water budget due to reduced recycled water supplies from indoor water use reductions. Customers using water in excess of their modified water budgets shall be in violation of the Rules. Any water used in excess of their modified water budgets will be subject to a Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 2 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 1. The penalty would be based on the current rate in place at time of the water shortage stage is implemented.

Stage 5 - During Stage 5, residential, multi-family and irrigation customers using potable water will have their outdoor water budgets reduced to 30% of their calculated outdoor water budget to meet reduced water supplies. All recycled water customers will have their outdoor water budgets

reduced to 80% of their calculated water budget due to reduced recycled water supplies from indoor water use reductions. Customers using water in excess of their modified water budgets shall be in violation of the Rules. Any water used in excess of their modified water budgets will be subject to a Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 2 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 1. The penalty would be based on the current rate in place at time of the water shortage stage is implemented.

Stage 6 - During Stage 6, all residential and multi-family customers will have their indoor water budgets reduced from 55 gallons per capita per day to 40 gallons per capita per day. All residential and multi-family customers using potable water in excess of their modified indoor water budgets, shall be in violation of the Rules. There shall be no use of potable water for outdoor irrigation within the District's service area. All recycled water customers will have their outdoor water budget reduced to 70% of their calculated water budget due to reduced recycled water supplies from indoor water use reductions. All recycled water customers using recycled water in excess of their modified recycled water budget shall be in violation of the Rules. Any customer who uses water in excess of his or her modified or assigned water budget will be subject to a Conservation Penalty. The Conservation Penalty for Residential and Multi-Family customers equals the difference between Tier 5 and Tier 2 rates, and for Commercial, Potable Irrigation, and Recycled customers, the Conservation Penalty equals the difference between Tier 4 and Tier 1. The penalty would be based on the current rate in place at time of the water shortage stage is implemented.

For a copy of the entire Ordinance, WSCP, and Rules or for more information, please visit the District's website: https://www.mnwd.com/app/uploads/2021/04/Draft-Ordinance-21-XX-and-Water-Shortage-Contingency-Plan.pdf or contact Laura Rocha, Senior Water Resources Planner, at lrocha@mnwd.com .

Publish: Orange County Register April 24, May 1, 2021 11456200

The Orange County Register
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714-796-2209

5245411

BEST BEST & KREIGERS ATTORNEYS AT LAW
ATTN: MONICA CASTANON
3390 UNIVERSITY AVE., 5TH FLOOR
RIVERSIDE, CA 92501

FILE NO. 28258.00204.

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA, } **SS.**

County of Orange

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of The Orange County Register, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

05/22/2021

I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct:

Executed at Anaheim, Orange County, California, on Date: May 22, 2021.

Sandra Campos

Signature

PROOF OF PUBLICATION

Legal No. **0011463293**

ORDINANCE ADOPTING WATER SHORTAGE CONTINGENCY PLAN AND PRESCRIBING WATER CONSERVATION RULES AND REGULATIONS

The Moulton Niguel Water District (District) Board of Directors (Board) approved an Ordinance adopting its Water Shortage Contingency Plan (WSCP) and Prescribing Water Conservation Rules and Regulations (Rules) to implement the WSCP at its regular Board meeting on **Thursday, May 13, 2021**. The District's WSCP has been developed to manage supply and demand during times of drought and emergencies and provides a detailed plan for actions the District may implement in the case of an actual water shortage condition. The WSCP and Rules are summarized below.

California, including Orange County, experienced significant dry year conditions in 2012-2017, which led local water agencies to declare water shortage conditions that triggered drought actions. Following the end of the statewide drought conditions, the California Legislature amended the Urban Water Management Planning Act in 2018 to include additional water shortage planning requirements. Water Code Section 10632 now mandates the adoption of a WSCP with prescribed elements. Pursuant to State law, the District is required to adopt a WSCP to address specific "stages" of action to be undertaken in response to water supply shortages. The District's water shortage stages and response actions are aligned with the State water shortage stages and comply with Water Code Section 10632. Recognizing that water is our most vital resource, the District's WSCP includes six water shortage stages (each a "Stage") corresponding to progressive ranges of up to 10, 20, 30, 40 and 50 percent shortages and greater than 50 percent shortage and mandates during each Stage specific water conservation practices to reduce unreasonable and wasteful water use and preserve the District's water supplies.

The WSCP authorize the District to make adjustments to customers' calculated water budgets during specified stages. During Stages 2-6, any customer who uses water in excess of his or her calculated water budget shall be in violation of the Rules and shall pay an administrative penalty ("Conservation Penalty") for each unit of water (one unit of water is equal to one hundred cubic feet (HCF), or 748 gallons), or portion thereof, of water used in excess of a customer's water budget. The Conservation Penalty shall be in addition to the Volumetric Charge the District collects for the potable water or recycled water delivered. The water demand reductions for each of the Stages, the water budget adjustments, and the Conservation Penalties that may be imposed are described below. The implementation of any stage of the WSCP is dependent on Board action, contemplating the District's water supply conditions and demand expectations.

Stage 1 - Efforts in Stage 1 are focused on a voluntary reduction. No restrictions on water use will be implemented and no adjustments will be made to customers' assigned water budgets.

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The Ordinance was unanimously approved by the Board with the following votes:

AYES: Cave, Fiore, Froelich, Moore, Probolsky, Rifkin, and Wanninger
NOES:
ABSTAIN:
ABSENT:

For a copy of the entire Ordinance WSCP, and Rules or for more information, please visit the District's website: https://www.mnwd.com/reports-publications/ or contact Laura Rocha, Senior Water Resources Planner, at lrocha@mnwd.com .

Publish: Orange County Register May 22, 2021 11463293

The Orange County Register
1771 S. Lewis Street
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5245411

BEST BEST & KREIGERS ATTORNEYS AT LAW
ATTN: MONICA CASTANON
3390 UNIVERSITY AVE., 5TH FLOOR
RIVERSIDE, CA 92501

FILE NO. 28258.00204.

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA, } **SS.**

County of Orange

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of The Orange County Register, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

05/16/2021, 05/23/2021

I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct:

Executed at Anaheim, Orange County, California, on Date: May 23, 2021.

Sandra Campos

Signature

PROOF OF PUBLICATION

Legal No. **0011458428**

MOULTON NIGUEL WATER DISTRICT
NOTICE OF PUBLIC HEARING
2020 URBAN WATER MANAGEMENT PLAN &
ADDENDUM TO THE 2015 UWMP

NOTICE IS HEREBY GIVEN that on June 10, 2021 at 6:00 PM in the meeting room of the Board of Directors of the Moulton Niguel Water District (District), 26880 Aliso Viejo Pkwy, Aliso Viejo, CA 92656, the Board of Directors of the District will conduct a public hearing pursuant to California Water Code Sections 10608.26 and 10642 to consider and receive comments and input on the District's 2020 Urban Water Management Plan (UWMP) and Addendum to the 2015 UWMP. In an effort to prevent the spread of Covid-19 (Coronavirus), and in accordance with the Governor's Executive Order N-29-20, there will be no public location for the public to attend this public hearing in person. Members of the public may listen and provide public comment telephonically. Meeting dial in information is: Dial 1-669-900-9128; Meeting ID is 942-941-7034#; Passcode is 26161#.

A copy of the District's Draft 2020 UWMP and Addendum to the 2015 UWMP is available for public review on the District's website at https://www.mnwd.com/reports-publications/. The District's 2020 UWMP has been developed for implementation in accordance with the requirements of the Urban Water Management Planning Act, California Water Code Sections 10610 through 10657, and the Water Conservation Act of 2009, California Water Code Sections 10608 through 10608.64. Public input from diverse social, cultural, and economic elements of the population is encouraged and will be considered as part of the 2020 UWMP process. Input from and coordination with the County of Orange, the cities within which the District provides water supplies, and other public agencies will be considered throughout the process. (Water Code Sections 10620(d)(3); 10621(b); 10642.)

Any written comments regarding the Draft 2020 UWMP and Addendum to the 2015 UWMP should be submitted no later than 5:00 p.m. on June 1, 2021 to the address set forth above or via email at LRocha@mnwd.com, attention Laura Rocha, Senior Water Resources Planner. Public comments are permitted at the public hearing at the time and place first set forth above. Upon conclusion of the public hearing, the Board of Directors of the District may revise, change, modify, and/or adopt the 2020 UWMP and Addendum to the 2015 UWMP. Questions regarding the public hearing, the 2020 UWMP, or Addendum to the 2015 UWMP should be directed to Laura Rocha at LRocha@mnwd.com. If you are disabled and need accommodation to participate in the public hearing, please call the District's Board Secretary at (949) 448-4023 for assistance at least three (3) working days prior to the hearing so that reasonable accommodations can be made.

Publish: Orange County Register May 16, 23, 2021 11458428

Appendix H UWMP Adopting Resolution

RESOLUTION NO. 21-14

RESOLUTION OF THE BOARD OF DIRECTORS OF THE MOULTON NIGUEL WATER DISTRICT ADOPTING THE 2020 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act (Water Code, Part 2.6, Section 10610 et seq.) mandates that every urban water supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan and update its Urban Water Management Plan at least once every five years on or before July 1 in years ending in one and six; and

WHEREAS, pursuant to recent amendments to the Urban Water Management Planning Act, urban water suppliers are required to update and electronically submit their 2020 Urban Water Management Plans to the California Department of Water Resources by July 1, 2021; and

WHEREAS, the Water Conservation Act of 2009 (Water Code, Part 2.55, Section 10608 et seq.) established, among other things, requirements for urban retail water suppliers to achieve a 20 percent reduction in water use by year 2020 in accordance with the goal of reducing per capita water use statewide; and

WHEREAS, the Moulton Niguel Water District (District) is an urban retail water supplier for purposes of the requirements of the Urban Water Management Planning Act and the Water Conservation Act of 2009; and

WHEREAS, in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, the District has prepared its 2020 Urban Water Management Plan (2020 UWMP) and has undertaken certain coordination, notice, public involvement, public comment, and other procedures in relation to its 2020 UWMP; and

WHEREAS, as authorized by Section 10620(e) of the Urban Water Management Planning Act, the District has prepared its 2020 UWMP with its own staff, with the assistance of consulting professionals, and in cooperation with other governmental agencies, and has utilized and relied upon industry standards and the expertise of industry professionals in preparing its 2020 UWMP, and has also utilized and relied upon the California Department of Water Resources Urban Water Management Plan Guidebook 2020 (March 2021), including its related appendices; and

WHEREAS, in accordance with applicable law, including Water Code sections 10608.26 and 10642, and Government Code section 6066, a properly noticed public hearing regarding the District's 2020 UWMP was conducted by the District's Board of Directors on June 10, 2021 in order to provide members of the public and other interested entities with the opportunity to be heard in connection with the 2020 UWMP and the proposed adoption thereof; and

WHEREAS, pursuant to said public hearing on the 2020 UWMP, the District, among other things, encouraged the active involvement of diverse social, cultural, and economic members of the community within the District's service area with regard to the preparation of the 2020 UWMP; and

WHEREAS, the Board of Directors of the District has reviewed and considered the purposes and requirements and of the Urban Water Management Planning Act and the Water Conservation Act of 2009, the contents of the 2020 UWMP, and the documentation contained in the administrative record in support of the 2020 UWMP and has determined that the factual analyses and conclusions set forth in the 2020 UWMP are supported by substantial evidence; and

WHEREAS, this activity is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262, as this activity involves planning studies for possible future action, which has not been approved, adopted or funded; and where the exceptions listed in CEQA Guidelines Section 15003.2 would not apply.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Moulton Niguel Water District as follows:

SECTION 1. The Board of Directors approves and adopts the District's 2020 UWMP, a final copy of which is attached hereto as Exhibit "A";

SECTION 2. The General Manager is hereby authorized and directed to include a copy of this Resolution in the 2020 Urban Water Management Plan and, in accordance with Water Code sections 10621(d) 10644(a), to electronically submit a copy of the 2020 UWMP to the California Department of Water Resources no later than July 1, 2021;

SECTION 3. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a) to submit a copy of the 2020 UWMP to the California State Library within thirty (30) days after this adoption date;

SECTION 4. The General Manager is hereby authorized and directed, in accordance with Water Code section 10644(a) to submit a copy of the 2020 UWMP to any city or county within which the District provides water supplies within thirty (30) days after this adoption date;

SECTION 5. The General Manager is hereby authorized and directed, in accordance with Water Code section 10645, to make the 2020 UWMP available for public review at the District's offices during normal business hours not later than thirty (30) days after filing a copy thereof with the California Department of Water Resources;

SECTION 6. The General Manager is hereby authorized and directed to recommend to the Board of Directors additional steps necessary or appropriate to effectively carry out the implementation of the 2020 UWMP in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009.

SECTION 7. The Board of Directors finds and determines that this resolution is not subject to CEQA pursuant to Water Code Section 10652 because CEQA does not apply to the preparation and adoption of an UWMP or to the implementation of the actions taken pursuant to such plans.

SECTION 8. Pursuant to CEQA, the Board of Directors directs staff to file a Notice of Exemption with the Orange County Clerk's office within five (5) working days of adoption of this resolution.

SECTION 9. The document and materials that constitute the record of proceedings on which this resolution and the above findings have been based are located at Orange County Clerk's office at Laguna Hills Civic Center, 24031 El Toro Road, Suite 150, Laguna Hills, CA 92653. The custodian for these records is the Board Secretary.

APPROVED, SIGNED AND ADOPTED this 10th day of June, 2021

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Moulton Niguel Water District held on June 10, 2021 by the following vote:

Duane Cave:	AYE
Richard Fiore:	AYE
Donald Froelich:	AYE
William Moorhead:	AYE
Brian Probolsky:	AYE
Diane Rifkin:	AYE
Sherry Wanninger:	AYE

President
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

Secretary
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof