CUCAMONGA VALLEY WATER DISTRICT

2020 URBAN WATER MANAGEMENT PLAN

JUNE 2021

Cucamonga Valley® Water District

Service Beyond Expectation

Cucamonga Valley® Water District

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Cucamonga Valley Water District
2020 Urban Water Management Plan

JUNE 2021

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LIST OF ACRONYMS

1,2,3-TCP	1,2,3-Tricholropropane
AB	Assembly Bill
ABWTP	Arthur H. Bridge Water Treatment Plant
AF	Acre-feet
AFY	Acre-feet per year
AMI	Advanced metering infrastructure
Annual Assessment	Annual Water Supply and Demand Assessment
AWWA	American Water Works Association
CBWCD	Chino Basin Water Conservation District
CCWRF	Carbon Canyon Water Recycling Facility
CEQA	California Environmental Quality Act
CDA	Chino Basin Desalter Authority
CIMIS	California Irrigation Management Information System
CWC	California Water Code
DACs	Disadvantaged Communities
Decree	Cucamonga Basin Decree
District	Cucamonga Valley Water District
DOF	Department of Finance
DRA	Drought Risk Assessment
DRO	Desalter Replenishment Obligation
DWR	Department of Water Resources
DYYP	Dry-Year Yield Program
EIR	Environmental Impact Report
ERP	Emergency Response Plan
ETo	Evapotranspiration
FEMA	Federal Emergency Management Agency
FUWC	Fontana Union Water Company
FY	Fiscal Year
GCM	General Circulation Models
GIS	Geographical Information Systems
GPA	Government & Public Affairs
GPCD	Gallons per capita per day
GSP	Groundwater Sustainability Plan
IEUA	Inland Empire Utilities Agency
kWh	Kilowatt Hours
Lloyd Michael WTP	Lloyd Michael Water Treatment Plant
LSLS	Local Storage Limitation Solution
LUDs	Land use based unit demands
MAF	Million Acre-Feet
M&I	Municipal and Industrial
MGD	Million Gallons Per Day
MWD	Metropolitan Water District of Southern California
NAICS	North American Industry Classification System
NOAA	National Oceanic and Atmospheric Administration

NRWS	Non-Reclaimable Wastewater System
OBMP	Optimum Basin Management Program
Plan	Urban Water Management Plan
PCE	Perchloroethylene
RCP	Representative Concentration Pathway
RDM	Robust Decision Making
RDRO	Remaining Desalter Replenishment Obligation
Royer-Nesbit WTP	Royer-Nesbit Water Treatment Plant
RP-1	Regional Water Recycling Plant No. 1
RP-2	Regional Water Recycling Plant No. 2
RP-3	Regional Water Recycling Plant No. 3
RP-4	Regional Water Recycling Plant No. 4
RP-5	Regional Water Recycling Plant No. 5
RRA	Risk and Resilience Assessment
RWQCB	Regional Water Quality Control Board
SAWCo	San Antonio Water Company
SB	Senate Bill
SBCFCD	San Bernardino County Flood Control District
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act of 2014
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWRCB - DDW	State Water Resources Control Board – Drinking Water Division
TCE	Trichloroethylene
TDS	Total Dissolved Solids
USEPA	U.S. Environmental Protection Agency
UWMP	Urban Water Management Plan
VOCs	Volatile Organic Compounds
WECWC	West End Consolidated Water Company
WEWAC	Water Education/ Water Awareness Committee
WRCC	Western Regional Climate Center
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WUCA	Water Utility Climate Alliance
WUE	Water Use Efficiency

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Chapter 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

INTRODUCTION

An urban water supplier is defined (pursuant to Section 10617 of the California Water Code[1] or CWC) 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 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.*"

The Cucamonga Valley Water District (District) is classified as an urban water supplier because it serves more than 3,000 customers (i.e. individual metered accounts) and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes.

In accordance with the "Urban Water Management Planning Act", which was enacted by the California Legislature in 1983, every urban water supplier (including the District) is required to prepare and adopt an Urban Water Management Plan (UWMP), periodically review its UWMP, and incorporate updated and new information into an updated UWMP at least once every five years.

The District's most recent update was its 2015 UWMP (or 2015 Plan) which was submitted to and approved by the California Department of Water Resources (DWR). Urban water suppliers (including the District) are required to complete and submit their 2020 UWMPs to DWR by July 1st, 2021.

The current requirements for preparing the UWMP are included in California Water Code (CWC) Sections 10608 through 10657. The District's 2020 UWMP (or 2020 Plan) was prepared consistent with the CWC and the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021.

The UWMP provides urban water suppliers (including the District) with a planning document for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs. In addition, the 2020 UMWP incorporates water supply reliability determinations resulting from potential prolonged drought, regulatory revisions, and/or changing climatic conditions.

[1] References to CWC Sections in this 2020 UWMP were obtained from https://leginfo.legislature.ca.gov/

The District's 2020 Plan consists of the following Chapters:

Chapter 1 Urban Water Management Plan Introduction and Overview
Chapter 2 Plan Preparation
Chapter 3 System Description
Chapter 4 Water Use Characterization
Chapter 5 SB_X7-7 Baselines, Targets, and 2020 Compliance
Chapter 6 Water Supply Characterization
Chapter 7 Water Service Reliability and Drought Risk Assessment
Chapter 8 Water Shortage Contingency Plan
Chapter 9 Demand Management Measures
Chapter 10 Plan Adoption, Submittal, and Implementation

A lay description is presented at the beginning of each of these Chapters.

LAY DESCRIPTION – CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

Chapter 1 (Urban Water Management Plan Introduction and Overview) of the District's 2020 Plan discusses and provides the following:

- An analysis of the District's ability to provide sufficient water supplies to meet the projected water demands of its customers, including during a five year consecutive drought.
- An overall lay description of the 2020 Plan, including CWC and Urban Water Management Plan Act requirements, is provided. The District is required to prepare an Urban Water Management Plan.
- The District's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020", dated March 2021. A description regarding the organization of the 2020 Plan, including a summary of each Chapter, is provided. The District's Water Shortage Contingency Plan (discussed in Chapter 8) is also included in the 2020 Plan.
- The 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. These tables are included within the respective sections of the 2020 Plan and in Appendix A.
- The District's coordination efforts with other planning agencies are discussed, including coordination efforts with Inland Empire Utilities Agency and the Southern California Association of Governments.

- The District's eligibility to receive grants and loans administered by the State of California and/or DWR, as a result of preparing the 2020 Plan, is discussed.
- Information is provided which demonstrates the District's prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta (Delta). The District has reduced its reliance on the imported water supplies for Fiscal Year 2014-15 and Fiscal Year 2019-2020. In addition, the District is projected to continue reducing its reliance on the imported water supplies through Fiscal Year 2044-45.
- The checklist developed by DWR and used by the District to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix C.

1.1 RECOMMENDED UWMP ORGANIZATION

The District's 2020 Urban Water Management Plan (2020 Plan) was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020" (Final 2020 UWMP Guidebook), dated March 2021. The District's 2020 Plan consists of the following Chapters:

Chapter 1	Urban Water Management Plan Introduction and Overview
Chapter 2	Plan Preparation
Chapter 3	System Description
Chapter 4	Water Use Characterization
Chapter 5	SB X7-7 Baselines, Targets, and 2020 Compliance
Chapter 6	Water Supply Characterization
Chapter 7	Water Service Reliability and Drought Risk Assessment
Chapter 8	Water Shortage Contingency Plan
Chapter 9	Demand Management Measures
Chapter 10	Plan Adoption, Submittal, and Implementation

Pursuant to CWC requirements, the District's 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. DWR's standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. The District also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool.

The District's 2020 Plan also provides supporting documents (appendices) including notification letters of the Plan update, public notice of the Plan hearing, and adoption resolution from the District's governing body. Further discussions regarding these supporting documents are provided within the individual Chapters of the District's 2020 Plan.

1.2 UWMPS IN RELATION TO OTHER EFFORTS

The District's 2020 Plan was prepared using management documents including the District's "Hazard Mitigation Plan" and San Bernardino County's "2017 Multi-Jurisdictional Hazard Mitigation Plan".

The District is a member agency of Inland Empire Utilities Agency (IEUA). IEUA as a wholesale water agency provides the District's imported water supply from Metropolitan Water District of Southern California (MWD). IEUA prepared a 2020 Plan which is incorporated in the District's 2020 Plan by reference. In addition, the District provided its 2020 Plan to IEUA which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought over the next 20 years.

1.3 UWMPS AND GRANT OR LOAN ELIGIBILITY

Pursuant to DWR's Final 2020 UWMP Guidebook (and based on CWC Section 10608.56):

"*In order for a Supplier to be eligible for any water grant or loan administered by DWR, the Supplier must have a current UWMP on file that has been determined by DWR to address the requirements of the Water Code. A current UWMP must also be maintained by the Supplier throughout the term of any grant or loan administered by DWR. A UWMP may also be required in order to be eligible for other state funding, depending on the conditions that are specified in the funding guidelines. Suppliers are encouraged to seek guidance on the specifics of any state funding source from the respective funding agencies. The following sections of the Water Code are pertinent to Suppliers considering pursuit of grants or loans*."

The District's 2020 UWMP has been prepared in order to meet eligibility requirements for grants and loans administered by the State and/or DWR.

1.4 DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS

Pursuant to DWR, an urban water supplier that anticipates participating in or receiving water from a proposed project (or "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 Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 UWMPs for use in demonstrating consistency with Delta Plan Policy WR P1, "*Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance"*. In addition, pursuant to California Code of Regulations, Title 23, § 5003:

(c)(1) Water suppliers that have done all of 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 District has reduced its reliance on the imported water supplies for FY 2014-15 and FY 2019-20. In addition, the District is projected to continue reducing its reliance on the imported water supplies through FY 2044-45. The District also continues to participate in MWD's Dry-Year Yield Program (DYYP). The DYYP is a groundwater storage and recovery program where supplemental water is stored in the Chino Basin during surplus years and could be recovered in-lieu of imported water from MWD through IEUA. In FY 2019-2020, the District reduced its imported water production by 86 percent in comparison with the previous year by offsetting it with the groundwater as part of the DYYP. A further discussion which demonstrates the District's measurable reduction in imported water reliance and improvement in regional self-reliance is provided in Appendix B.

The District is a member agency of IEUA, who has prepared its own 2020 Wholesale UWMP and Water Shortage Contingency Plan. IEUA's 2020 UWMP also provides a demonstration of IEUA's reduced Delta reliance and improved regional self-reliance (also provided in Appendix B). IEUA's 2020 UWMP also indicates IEUA is measurably improving regional self-reliance and MWD and its member agencies are reducing reliance on Delta supplies, both as an amount of water used and as a percentage of water used.

1.5 TIPS FOR UWMP PREPARERS

The District's 2020 UWMP (which includes the District's 2020 Water Shortage Contingency Plan (WSCP)) is considered an update to the District's 2015 UWMP. However, the 2020 UWMP and the WSCP are considered stand-alone documents. As discussed in Section 1.1, the District's 2020 UWMP was prepared consistent with the recommended organization provided in DWR's Final 2020 UWMP Guidebook.

A checklist of specific UWMP requirements is included in Appendix C. The checklist includes the page number where the required elements are addressed to assist in DWR's review of the submitted Plan.

Chapter 2
PLAN PREPARATION

LAY DESCRIPTION – CHAPTER 2

PLAN PREPARATION

Chapter 2 (Plan Preparation) of the District's 2020 Plan discusses and provides the following:

- The basis for preparing an Urban Water Management Plan is provided. The District is required to prepare the 2020 Plan because it is an "urban water supplier" (the District serves more than 3,000 customers and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes).
- The District is a "Public Water System" and is regulated by the State Water Resources Control Board - Division of Drinking Water. The District's Public Water System number is provided in Table 2-1.
- The District's Plan has been prepared as an "individual" plan rather than a "regional" plan in an effort to provide information specific to the District to best inform its employees, management, and customers.
- Information presented in the District's 2020 Plan is provided on a "fiscal year" basis which is from July 1 through June 30 of the following year.
- Water quantities presented in the District's 2020 Plan are provided on an "acre-foot" basis.
- The District's coordination and outreach efforts with wholesale water agencies, other retail water agencies, and the community are described. The District coordinated the preparation of its 2020 Plan with the Chino Basin Watermaster, Fontana Water Company, Inland Empire Utilities Agency, San Antonio Water Company, and Santa Margarita Water District.
- The District's notification process to the cities and county within which the District provides water supplies to is discussed.

2.1 PLAN PREPARATION

As discussed in Section 1.1, the District's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final 2020 UWMP Guidebook. Pursuant to DWR's Final 2020 UWMP Guidebook:

"*The California Water Code (Water Code) specifies several requirements for preparing a UWMP, including who is required to prepare a UWMP; how to prepare a UWMP, depending on whether*

the Supplier choses to participate in a regional or individual planning effort; selection of reporting year-type; and coordination, notification, and outreach."

Pursuant to CWC requirements, the District's 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data.

2.2 BASIS FOR PREPARING A PLAN

CWC 10617.

"Urban water supplier" means 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 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CWC 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.

CWC 10621.

(a) Each urban water supplier shall update its plan at least once 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.

The District's 2020 Plan was prepared in accordance with the UWMP Act which was established in 1983. The UWMP Act requires every "urban water supplier" to prepare and adopt a Plan, to review its Plan 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 acre-feet (AF) of water annually." (CWC 10617.)

Section 10621(a) of the CWC states, "*[e]ach urban water supplier shall update its plan at least once 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".* As a result, DWR requires the 2020 Plans be submitted by July 1, 2021.

The District is an "urban water supplier" pursuant to Section 10617 of the CWC and directly serves potable water to more than 3,000 customers and supplies more than 3,000 acre-feet per year (AFY) at retail for municipal purposes. The District's 2020 Plan is an update to the District's 2015 Plan.

2.2.1 PUBLIC WATER SYSTEMS

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department ... shall include any standardized forms, tables, or displays specified by the department.

California Health and Safety Code 116275.

(h) "Public water system" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Pursuant to CWC requirements, the District's 2020 Plan incorporates DWR's standardized tables for the reporting and submittal of UWMP data. The standardized tables are provided within the body of the 2020 Plan text as well as in Appendix A. The District also submitted the UWMP data (from the standardized tables) electronically through DWR's Online Submittal Tool.

In addition, the District is a Public Water System and is regulated by the State Water Resources Control Board - Division of Drinking Water (SWRCB-DDW). The SWRCB-DDW requires water agencies provide the number of connections, water usage, and other information annually. The information provided to SWRCB-DDW indicates the District serves potable water to more than 3,000 customers and supplies more than 3,000 AFY. Table 2-1 provides the District's Public Water System name and number.

2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

The District serves only a single potable Public Water System. Table 2-1 provides the District's Public Water System name and number. The District's Public Water System number is CA3610018. The District also owns a recycled water system (Public Water System number is CA3690016) which is discussed separately in Section 6.2.5.

Table 2-1 Public Water Systems

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			
3610018	Cucamonga Valley Water District	48,293	47,059
	TOTAL	48,293	47,059
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: The "Volume of Water Supplied 2020" includes recycled water supplies of 1,038 AF for direct deliveries. Source for "Number of Municipal Connections 2020": https://sdwis.waterboards.ca.gov/PDWW/			

2.3 REGIONAL PLANNING

The District has developed its 2020 Plan reporting solely on its service area to address all requirements of the CWC. The District's 2020 Plan was not developed as a Regional Plan.

2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, the District's 2020 Plan is an "Individual UWMP". The District has developed its 2020 Plan reporting solely on its service area to address all requirements of the CWC, including water use targets and baselines pursuant to SB X7-7 Water Conservation Act of 2009 reporting (discussed further in Chapter 5). The District notified and coordinated with appropriate regional agencies and constituents (See Section 2.6).

Table 2-2 Plan Identification Type

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	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

2.4.1 REGIONAL UWMP

CWC 10620.

(d)(1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

As indicated in Table 2-2, the District's 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Plan.

2.4.2 REGIONAL ALLIANCE

CWC 10608.20.

(a)(1) …Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28…

CWC 10608.28.

(a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

(b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

As indicated in Table 2-2, the District's 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Alliance.

2.5 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

CWC 10608.20.

(a)(1) Urban retail water suppliers…may determine the targets on a fiscal or calendar year basis.

2.5.1 FISCAL OR CALENDAR YEAR

The data provided in the District's 2020 Plan is reported on a fiscal year (FY) basis, unless noted otherwise, as shown in Table 2-3. A fiscal year begins on July 1st of every year.

Table 2-3 Supplier Identification

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)	
07/01	
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:	

2.5.2 REPORTING COMPLETE 2020 DATA

The data provided in the District's 2020 Plan is provided on a fiscal year basis through June 30, 2020.

2.5.3 UNITS OF MEASURE

As shown in Table 2-3, the data provided in the District's 2020 Plan is reported in units of acre-feet, unless noted otherwise.

2.6 COORDINATION AND OUTREACH

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

2.6.1 WHOLESALE AND RETAIL COORDINATION

The District is a member agency of Inland Empire Utilities Agency, a wholesale water agency that provides the District's imported water from MWD. As indicated in Table 2-4, the District has provided its 2020 Plan to IEUA which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought conditions over the next 25 years.

Table 2-4 Water Supplier Information Exchange

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
Inland Empire Utilities Agency (IEUA)
NOTES:

2.6.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY

CWC 10620.

(d)(3) Each urban water supplier shall 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.

CWC 10642.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan…

The District is a retail water supplier that serves customers in the City of Rancho Cucamonga and portions of the Cities of Fontana, Ontario, and Upland, as well as some unincorporated portions of San Bernardino County. The District is required to coordinate the preparation of the Plan with appropriate agencies in the area, including appropriate water suppliers that share a common source. Therefore, the District coordinated the preparation of its 2020 UWMP with the Chino Basin Watermaster, Inland Empire Utilities Agency, City of Rancho Cucamonga, City of Fontana, City of Ontario, City of Upland, Fontana Water Company, San Antonio Water Company, and Santa Margarita Water District. As discussed in Section 10.2, the District notified these agencies, as well as the cities and county within which the District provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the 2020 Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

2.6.3 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

As discussed in Section 10.2, notification that the District was reviewing and considering amendments (updates) to the previous 2015 Plan, and preparing the 2020 Plan was provided to the cities and counties for which the District provides water supplies. Notification was provided at least 60 days prior to the public hearing (see Appendix D).

Chapter 3
SYSTEM DESCRIPTION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

LAY DESCRIPTION – CHAPTER 3

SYSTEM DESCRIPTION

Chapter 3 (System Description) of the District's 2020 Plan discusses and provides the following:

- A description of the District's service area is provided. The District provides potable water, recycled water, and sewer services to the City of Rancho Cucamonga, portions of the Cities of Upland, Ontario and Fontana, and some unincorporated areas of San Bernardino County. The District is bounded by the City of Fontana to the east, by Cities of Upland and Ontario to the west, by City of Ontario to the south and the San Gabriel mountain range to the north.
- The District's water service area encompasses an area of approximately 46 square miles. The location of the District's water service area is provided in Figure 1.
- A description regarding the District's water service area climate is provided. The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration (ETo) in the vicinity of the District's service area is summarized. The sources of the climate information are also discussed.
- The population within the District's water service area is discussed and projected. The sources of the population information are also discussed. The District provides water service to an area with a current population of 198,979. The District is projected to have a population of 236,573 by FY 2044-45.
- A discussion of land use information used by the District to develop the 2020 Plan is provided. The District reviewed the current and projected land uses within its service area. The District also reviewed data provided by the Southern California Association of Governments, the Department of Finance, and the United States Census Bureau and prepared for counties, cities, and unincorporated areas within Southern California.

3.1 GENERAL DESCRIPTION

Cucamonga Valley Water District was established in 1955 and serves a 46 square mile area. The District provides potable water, recycled water and sewer services to the City of Rancho Cucamonga, portions of the Cities of Upland, Ontario and Fontana, and some unincorporated areas of San Bernardino County.

The District is bounded by the City of Fontana to the east, by Cities of Upland and Ontario to the west, by the City of Ontario to the south and the San Gabriel mountain range to the north. The District currently serves a population of 198,979 people.

The District's service area overlies three watersheds. Approximately two-thirds of the District's service area is drained by the Upper and Lower Cucamonga Creek, with the remaining portion of the District's service area drained by Etiwanda Creek. All three creeks eventually confluence with the Santa Ana River, which in turn discharges to the Pacific Ocean.

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, the District's service area covers approximately 46 square miles encompassing the majority of the City of Rancho Cucamonga and portions of the Cities of Fontana, Ontario, Upland and some unincorporated portions of San Bernardino County. A service area boundary map is provided in Figure 1. The District's water service area boundary relative to vicinity municipal boundaries are also provided in Figure 2.

The District's service area map was submitted online through DWR's Population Tool in a "KML" file format (i.e. Google Earth format). The KML file was originally created in a Geographical Information Systems (GIS) shape file format and converted into a KML format. To the extent information was available, metadata was included in the KML file (including map projection, contact information, start and end dates for which the map is valid, constraints, attribute table definitions, and digitizing base).

Figure 1 Water Service Area

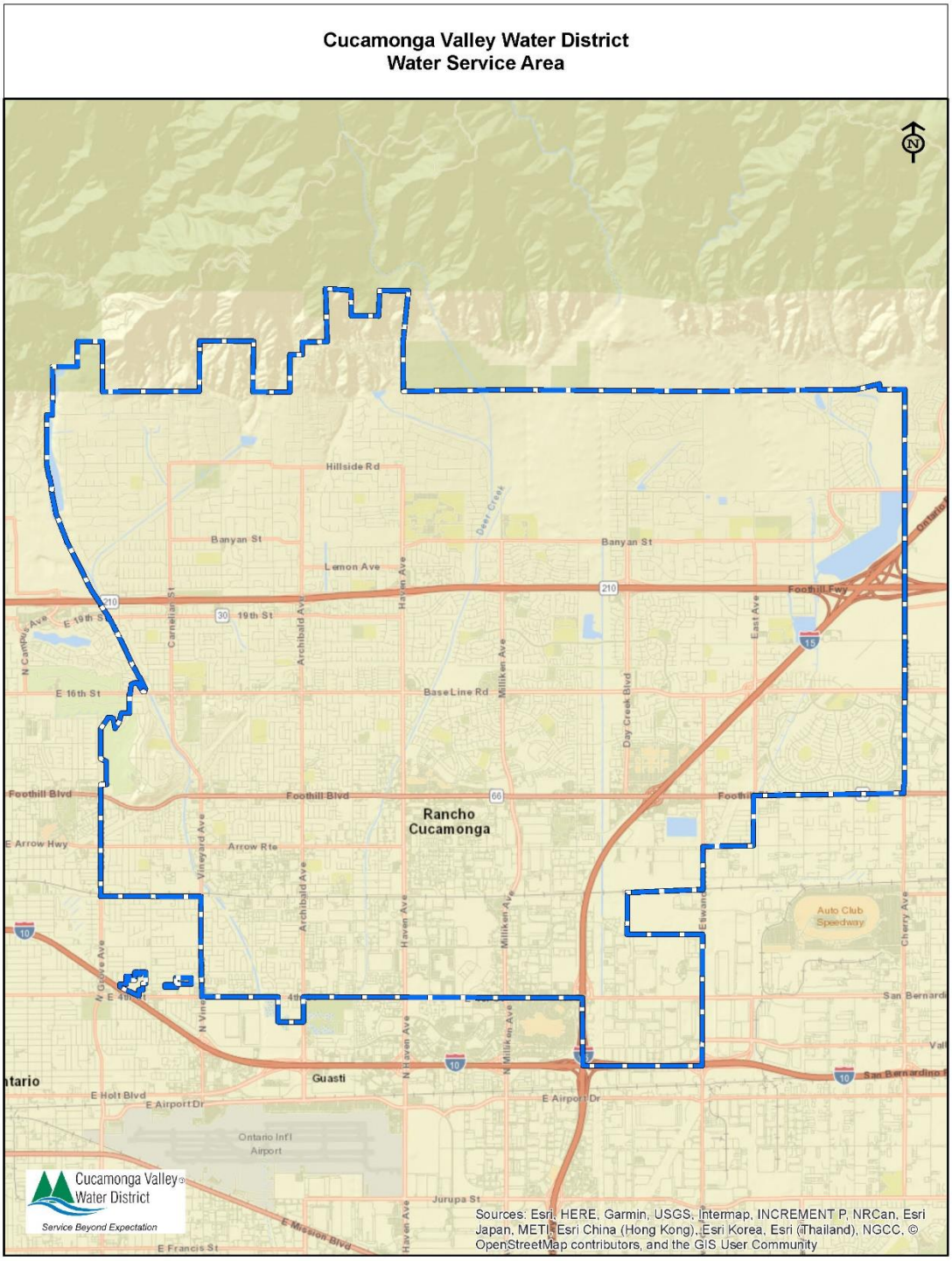
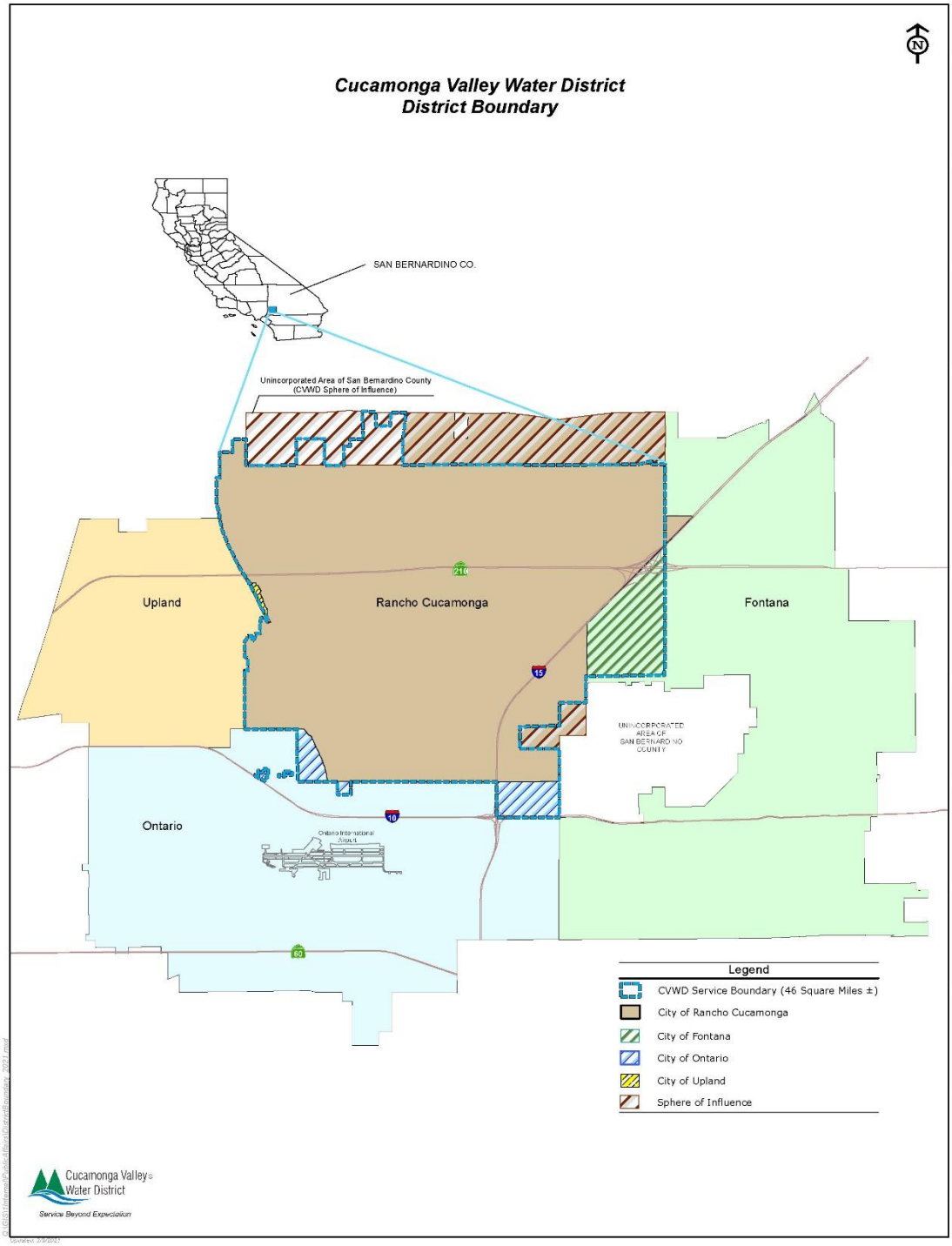


Figure 2 District Boundary



3.3 SERVICE AREA CLIMATE

CWC 10631.

(a) Describe the service area of the supplier, including … climate…

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of the District's service area is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC), the National Oceanic and Atmospheric Administration (NOAA), and from DWR's California Irrigation Management Information System (CIMIS).

Service Area Climate Information

Month	Average Temperature (F)	Average Min. Temperature (F)	Average Max. Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	55.5	44.1	67.6	2.2	1.95
February	55.1	44.9	67.4	2.7	2.41
March	58.8	48.2	58.8	1.3	3.75
April	60.9	51.0	74.8	0.9	4.55
May	67.9	55.6	79.6	0.3	5.19
June	71.2	59.8	86.2	0.0	5.97
July	77.8	64.7	93.1	0.1	6.60
August	78.9	65.2	94.2	0.0	6.41
September	75.4	62.9	90.7	0.1	4.88
October	67.8	56.6	82.0	0.5	3.46
November	58.9	48.6	73.9	0.8	2.31
December	54.7	43.2	66.2	1.9	1.72
Annual	65.2	53.7	77.9	10.7	49.20

Source:

Historical average monthly precipitation and temperature information was obtained from the National Oceanic and Atmospheric Administration (https://search.usa.gov/search?utf8=%E2%9C%93&affiliate=noaa.gov&query=ontario+ca) from 1998 through 2020 (for Ontario International Airport). Historical monthly average ETo information was obtained from the California Irrigation Management Information Systems (http://wwwcimis.water.ca.gov) and is based on data collected from Station 255 (Chino).

The historical average annual rainfall in the vicinity of the District's service area is 10.7 inches. The District's service area has a Mediterranean climate with mild winters, warm summers, and moderate rainfall. The District's water supplies and demands are projected during a normal year, a single dry year, and a five consecutive year drought (See Chapter 7), and are based on historical data and projected demands. Nonetheless, it is recognized changes in climatic conditions may have an impact on water supplies (as discussed in Section 4.5). Precipitation within the vicinity of the District's service area is discussed further in Chapter7.

A discussion of the District's sources of supply, how those sources may be impacted by climate change, and the proactive actions the District and other local/regional water managers may take to address the potential climate change on water supplies is provided in Section 4.5.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 SERVICE AREA POPULATION

CWC 10631.

(a) Describe the service area of the supplier, including current and projected population… The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The District provides water service to an area with a current population of approximately 198,979. Table 3-1 presents the current and projected population of the area encompassed by the District's service area from FY 2019-20 to FY 2044-45. The District is projected to have a population of 236,573 by FY 2044-45.

The District initially reviewed the available historical populations within its service area for population growth trends. The District reviewed historical U.S. Census populations within its service area using DWR's Population Tool (https://wuedata.water.ca.gov/). The District's service area boundary was uploaded to DWR's Population Tool in a "KML" file format (i.e. Google Earth format). The KML file was originally created in a GIS shapefile format and converted into a KML format. The uploaded KML file represents the District's service area boundary from 1990 to present (2020). DWR's Population Tool utilized U.S. Census data from 1990, 2000, and 2010, along with the District's service area boundary, to estimate the population served by the District in the years 1990, 2000, and 2010.

In addition to DWR's Population Tool, the District reviewed the available historical populations within its service area for population growth trends. The District determined historical populations within its service area using the Person-per-Connection Method. The number of dwelling units was calculated based on the number of single and multi-family connections within the District's service area. The homeowner and rental vacancy rates were obtained from US Census data. Historical populations were estimated by multiplying the number of dwelling units by the vacancy rates. The 2020 population within the District's service area was calculated based on growth rate projections obtained from data provided by the Southern California Association of Governments (SCAG). The data provided by SCAG was based on their "*The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG*", dated September 2020, and incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the Department of Finance (DOF) and the US Census Bureau for counties, cities and unincorporated areas within Southern California. The calculated FY 2019-20 population (discussed in Section 5.4) was used to determine compliance with the District's SB X7-7 water use target for 2020 (discussed in Section 5.5).

The District analyzed future growth and thus the projected population using a land use demand model which estimated potable water demand based on land use categories and acreage. Three significant future projects under consideration were analyzed and incorporated into the acreage inventory. Etiwanda Heights Neighborhood & Conservation Plan (EHNCP) is progressing through the approval process; development of this project, with approximately 600 acres or more of buildable area, will have a significant impact on water demands in the City of Rancho Cucamonga. This development is expected to be completed in phases by 2035 to 2040. The significant increase in the projected population in 2030 is attributed to this development. Although development has not yet been approved, the City of Rancho Cucamonga has annexed 4,085 acres of the Etiwanda Heights area from San Bernardino County to its boundary. The Central Park project in the City of Rancho Cucamonga was also reviewed for its development potential, and estimates of acres by land use were identified. The other significant project within the District's service area is the West Gate project in the City of Fontana. Based on the conversation with the City of Fontana staff, this project was reviewed and incorporated into the acreage inventory. Although these projects have not had final approvals by the Cities of Rancho Cucamonga and Fontana, the District is including these projects into the land use demand model and its updated forecast so it can anticipate the demand for water supplies.

The District utilized GIS to map out the District's existing land use and planned land use changes within the District's service area boundaries. These land use based unit demands (LUDs) reflect the District's water consumption patterns on a per-acre basis for each land use category. The calculated potable water demands through 2045 using the land use model are tabulated in Table 4-3. The District's potable water use within its service area is estimated to be 230 gallons per capita per day through 2045. Using a water use factor of 230 gallons per capita per day, and the projected water demands derived from the modeled LUDs, the population within the District's service area was projected.

Table 3-1 Population – Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	198,979	207,151	225,483	231,531	236,573	236,573
NOTES: The 2020 population was estimated based on SCAG population data (See Section 5.4.1). Populations from 2025 through 2045 were estimated based on the District's Land Use Development analysis (See Section 3.4.1). It is assumed that the service area will be build-out in 2040.						

3.4.2 OTHER SOCIAL, ECONOMIC, AND DEMOGRAPHIC FACTORS

CWC 10631.

(a) Describe the service area of the supplier, including… other social, economic, and demographic factors affecting the supplier's water management planning.

Pursuant to the California Census' "Census 2020 California Hard-to-Count Fact Sheet, Census 2020 California Hard-to-Count Fact Sheet" approximately 14.8 percent of the population within the City of Rancho Cucamonga has an income level below 150 percent of the poverty level. The City current has a vacancy rate of approximately 4.4 percent. In addition, approximately 38.7 percent of households are renter occupied. The District has considered these demographic factors which can affect the District's water management planning. Increased population will also have an impact on water demand.

3.5 LAND USES WITHIN SERVICE AREA

The District reviewed the current and projected land uses within its service area during the preparation of this 2020 Plan. Information regarding current and projected land uses is included in the City of Rancho Cucamonga General Plan. The existing land uses within the District's service area include residential (single-family and multi-family), commercial, industrial, public/institutional, landscape, agricultural, and open space. The projected land uses within the District's service area are expected to include land uses similar to the existing land uses. In addition, although mostly built-out, the projected population within the District's service area is anticipated to increase (as discussed in Section 3.4). A discussion of the existing and projected water uses for the individual water use sectors within the District's service area, which includes the different land uses, is provided in Section 4.2. As discussed in Section 2.6, the District coordinated the preparation of the 2020 Plan with the Cities of Rancho Cucamonga, Ontario, Fontana, Upland, the County of San Bernardino, and other agencies.

As discussed in Section 3.4, the 2020 population within the District's service area was calculated based on growth rate projections obtained from data provided by the Southern California Association of Governments. The District reviewed and incorporated data from the SCAG document entitled "*The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG*", dated September 2020. The District analyzed future growth and thus the projected population based on a land use demand model which estimated potable water demand based on land use categories and acreage. These LUDs reflect the District's water consumption patterns water consumption patterns on a per-acre basis for each land use category.

Chapter 4
WATER USE CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 4

WATER USE CHARACTERIZATION
Chapter 4 (Water Use Characterization) of the District's 2020 Plan discusses and provides the following:

- The District provides water service to individual "water use sectors". These water use sectors include single-family residential, multi-family residential, commercial, institutional (and governmental), landscape, industrial, and agriculture. Individual descriptions for these water use sectors are provided in Section 4.2.1.
- The District's total water demands (including potable and recycled water) over the past 10 years have ranged from 40,166 AFY to 55,726 AFY, with an average of 48,276 AFY. The District currently measures its water use through meter data and billing records.
- The District conducts an annual water loss audit to identify distribution system water losses. Water losses can result from pipeline leaks and inaccurate metering due to faulty meters. Water loss estimates are incorporated into the District's projected water demands.
- The District's current and projected water demands are provided in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 4-3.
- The District's water demand projections incorporate water savings which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water.
- The projected water demands for lower income households are identified and are included in the District's total projected water demands.
- The District's sources of water supply and how those sources may be impacted by climate change are discussed. The proactive actions the District and other local/regional water managers may take to address the potential climate change impacts on water supplies are also discussed.
- The District will be able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

The Water Code requires a description and quantification of water uses within the District's service area, including both non-potable and potable water. Recycled water (non-potable) uses are addressed in Section 6.5; however, a summary is provided in Table 4-3. Furthermore, Chapter 4 addresses the District's potable water demands.

4.2 PAST, CURRENT, AND PROJECTED WATER USES BY SECTOR

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.
(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

The District's current and projected water demands are provided in five-year increments over the next 25 years (through FY 2044-45) in Tables 4-1, 4-2, and 4-3. Ultimate build-out is projected to occur in 2040, so the water demand is also shown to plateau in 2040. The District's total water demands were projected based on a review of the SB X7-7 calculations which are discussed in Chapter 5 (including the SB X7-7 water use target for 2020), current water use factors based on recent water demands, and the total population projections based on land use trends within the District.

The District provides water service to individual "water use sectors" as identified by the CWC. The water use sectors supplied by the District are discussed in Section 4.2.1. The water use for each of these sectors during FY 2019-20 is provided in Table 4-1. The projected water use for each individual water use sector is provided in Table 4-2 and is based on the percentage breakdown of

water use from each individual water use sector in FY 2019-20 (the percentages were then applied to the projected total water use).

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

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] 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[2]
Add additional rows as needed			
Single Family		Drinking Water	24,267
Multi-Family		Drinking Water	4,064
Commercial		Drinking Water	1,978
Industrial		Drinking Water	2,097
Institutional/Governmental		Drinking Water	616
Landscape		Drinking Water	9,099
Sales/Transfers/Exchanges to other Suppliers		Drinking Water	0
Agricultural irrigation		Drinking Water	11
Losses		Drinking Water	3,806
Other		Drinking Water	83
		TOTAL	46,021

[1] Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.
[2] Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.

NOTES: Recycled water demands are provided separately in Table 4-3 and Table 6-4.

Table 4-2 Use for Potable and Non-Potable Water - Projected

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *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		29,462	32,046	32,935	33,679	33,679
Multi-Family		4,713	5,126	5,269	5,387	5,387
Commercial		2,294	2,495	2,565	2,622	2,622
Industrial		2,432	2,645	2,719	2,780	2,780
Institutional/Governmental		714	777	798	816	816
Landscape		8,751	9,519	9,783	10,003	10,003
Agricultural irrigation		13	14	15	15	15
Losses		3,094	3,366	3,459	3,537	3,537
Other		96	104	107	110	110
	TOTAL	51,569	56,092	57,650	58,949	58,949

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.* [2] *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*

NOTES:

Table 4-3 Total Gross Water Use (Potable and Non-Potable)

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*	46,021	51,569	56,092	57,650	58,949	58,949
Recycled Water Demand[1] *From Table 6-4*	5,496	5,800	6,000	6,000	6,000	6,000
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]	4,458	4,000	4,000	4,000	4,000	4,000
TOTAL WATER USE	47,059	53,369	58,092	59,650	60,949	60,949

[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: "Optional Deduction of Recycled Water Put Into Long-Term Storage" includes recycled water which IEUA recharges in the Chino Basin for the benefit of its member agencies (including the District). The amount of recycled water recharged is credited to the agency's Local Supplemental storage account, less the storage loss.

4.2.1 WATER USE SECTORS LISTED IN WATER CODE

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.
(J) Distribution system water loss.

As shown in Table 4-1, the District's service area includes the following water use sectors listed in the CWC:

- Single-family residential

(A single-family dwelling unit is a lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. Single-family residential water demands are included in retail demands.)

- Multi-family

(Multiple dwelling units are contained within one building or several buildings within one complex. Multi-family residential water demands are included in retail demands.)

- Commercial

(Commercial users are defined as water users that provide or distribute a product or service)

- Institutional (and governmental)

(Institutional users are defined as water user dedicated to public service. Institutional users include, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.)

- Landscape

(Landscape connections supply water solely for landscape irrigation. Landscapes users may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. Landscape water demands are included in retail demands.)

- Industrial

(Industrial users are defined as water users that are primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Industrial water demands are included in retail demands.)

- Sales to other agencies

(This includes water transfers to the neighboring agencies through interconnections)

- Distribution system losses

(Distribution system losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Additional information is discussed in Section 4.2.4)

- Agricultural

(Water used for commercial agricultural irrigation.)

4.2.2 WATER USE SECTORS IN ADDITION TO THOSE LISTED IN WATER CODE

The District's service area includes other water demand sectors which are not listed in the CWC including temporary construction meters.

4.2.3 PAST WATER USE

Chapter 6 provides a discussion of the sources of water supply the District uses to meet its water demands. Section 6.1 provides a tabulation of the District's historical annual water demands for each water supply source. Over the past ten years, the District's total water demands (including potable and recycled water) have ranged from 40,166 AFY to 55,726 AFY, with an average of 48,276 AFY. In addition, the District recently experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. The District also reviewed its historical water demands to determine the projected water demands and water supply reliability (discussed in Chapter 7). The District is able to provide sufficient water supplies to meet the projected water demands of its customers, including a five consecutive year drought.

4.2.4 DISTRIBUTION SYSTEM WATER LOSS

CWC 10631.

(d)(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(J) Distribution system water loss.

CWC 10631.

(3)(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Distribution system water losses represent the potable water losses from the pressurized water distribution system and water storage facilities, up to the point of delivery to the customers. Sources of distribution system water loss can include: inaccurate metering due to faulty meters; water use not metered such as firefighting, flushing of the water system; and pipeline leaks.

The CWC Section 10608.34 (b)(1) requires "On or before October 1 of each year until October 1, 2023, each urban retail water supplier reporting on a calendar year basis shall submit a completed and validated water loss audit report for the previous calendar year or the previous fiscal year..." The water loss audits must follow American Water Works Association (AWWA) guidance and be validated by a certified water audit validator. The District has completed the annual water loss audit process through October 1, 2020, as required by the CWC (i.e. the District has completed water loss audits representing calendar years 2016, 2017, 2018, and 2019). The District's water loss audits were prepared and validated pursuant to DWR requirements. The annual water loss audit reports submitted by retail water agencies in California, including the District (provided in Appendix E), are available on DWR's website (https://wuedata.water.ca.gov/awwa_plans).

The District's annual water loss audits identify real water losses (e.g. leaks and main failures) and apparent water losses (e.g. customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). The District's distribution system water losses are based on the sum of the real and apparent water losses and are summarized in Table 4-4 for the past five years. The District's water loss audits are reported in calendar years. As

presented in Table 4-4, the volume of water losses during a fiscal year were calculated to be an average of the two calendar years as part of that fiscal year. Over the past five years, the District's average distribution system water losses represent approximately 6.0 percent of its total water demands. This average water loss factor was incorporated into the District's total potable water demand projections (Tables 4-2 and 4-3).

Table 4-4 12 Month Water Loss Audit Report

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	2,598
07/2016	2,331
07/2017	2,534
07/2018	2,208
07/2019	3,806
[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: The "Volume of Water Loss" quantities for FY 2016-17 through FY 2018-19 were obtained from the annual AWWA Water Loss Audits (and based on the combination of apparent losses and real losses). Because the AWWA water loss audits were reported on a calendar year basis, half of the water loss during each calendar year was applied to the water losses for the corresponding fiscal year (to estimate the water losses for the entire fiscal year), pursuant to direction from DWR staff. The AWWA Water Loss Audit for calendar year 2020 will be prepared by October 2021. The "Volume of Water Loss" quantities for FY 2015-16 and for FY 2019-20 were estimated based on metered water production less metered water deliveries to customers.	

The CWC Section 10608.34(i) directs the SWRCB to "adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses." Pursuant to this law, and as discussed above, urban retail water suppliers (including the District) have been submitting water loss audits to DWR annually since October 2017. Pursuant to Senate Bill (SB) 606, urban retail water suppliers are required to calculate an "urban water use objective" that includes indoor, outdoor, commercial, industrial and institutional irrigation uses, and allowed system water loss by November 1, 2023. The District will continue to develop its water loss standard and urban water use objective pursuant to SWRCB requirements.

4.2.5 CURRENT WATER USE

The District currently measures its water use through meter data and billing records. The water use for the District's individual water use sectors during FY 2019-20 are provided in Table 4-1. Recycled water uses are addressed separately in Section 6.5; however, a summary of projected recycled water uses is provided in Table 4-3. The District's total water uses during FY 2019-20 have been reviewed for compliance with the SB X7-7 water use target for 2020 adopted in the District's 2015 Plan (discussed in Section 5.5).

DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. DWR has deemed the tool as optional and the District is not required by DWR to use the tool. Section 6.1 provides a tabulation of the District's historical annual water uses for each water supply source. During the past 10 years, the District experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. Historical records indicate the District's annual water demands had been greater prior to FY 2011-12. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the District has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of the District's water supply sources is provided in Chapter 7.

4.2.6 PROJECTED WATER USE

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

CWC 10631.

(d)(4)(A) Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(d)(4)(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.
(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

The District's projected water demands are provided in five-year increments over the next 25 years (through FY 2044-45) in Table 4-3. The District's projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought are provided in Chapter 7. The projected water demands for each of the District's water use sectors are provided in Table 4-2.

The District's water demands were projected based on a review of the SB X7-7 calculations discussed in Chapter 5 (including the SB X7-7 water use target for 2020), existing water use factors

based on recent water demands, and the total population projections based on land use trends within the District. The projected water demands for the water use sectors were based on the percentage breakdown of water demands from each individual water use sector in FY 2019-20 (the percentages were then applied to the projected total water demands). A discussion of the District's water supplies from Inland Empire Utilities Agency, a wholesaler, are discussed in Section 6.2. As discussed in Section 2.6, the District has coordinated its water demand projections with Inland Empire Utilities Agency for each water use sector.

The District's water demand projections incorporate water savings, or "passive savings", which are the result of the implementation of new plumbing codes along with consumer awareness of the need to conserve water. The District's Municipal Code 4.20 "Water Use Efficiency", which was created through Ordinance No. 47, which was adopted in May 2009 (discussed in Section 8.1), includes methods for current and ongoing reduction in water use and water waste. Prior to the adoption of Ordinance No. 47, the District's water use rate ranged from approximately 267 gallons per capita day to 307 gallons per capita day (from 1998 to 2007). As identified in Section 5.5, the District's actual water use rate during FY 2019-20 was 206 gallons per capita per day which is a decrease of up to 101 gallons per capita per day from the recent historical water use and includes passive savings. The District's projected water demands use GPCD water use rates which are less than the District's established SB X7-7 water use target for 2020 and incorporate ongoing water passive savings and reduced water use resulting from the District's existing Ordinance No. 3027. As indicated in Table 4-5, estimated future water savings have been considered as part of the District's water use projections.

Table 4-5 Inclusion in Water Use Projections

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.	Section 4.2.6 and Chapter 8
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

4.2.7 CHARACTERISTIC FIVE-YEAR WATER USE

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) 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.

The District's projected water demands are provided in five-year increments over the next 25 years (and through FY 2044-45) in Table 4-3. The District's projected water demands and water supplies during a normal year, a single dry year, and a five consecutive year drought over the next 25 years (and through FY 2044-45) are provided in Chapter 7.

The District's "Drought Risk Assessment" (DRA) for the next five years (from FY 2020-21 through FY 2024-25) is discussed in Section 7.3. The DRA includes the District's projected annual water demands and supplies for each of the next five years and was prepared based on the five driest consecutive years on record. The DRA provides an assessment of the District's water service reliability during a drought lasting five years. The DRA reflects anticipated water demands and supplies prior to any expected benefits associated with water supply shortage responses included in the District's Water Shortage Contingency Plan (provided in Chapter 8). In addition to historical drought hydrology, the District considered impacts to water supplies and demands based on climate change conditions (discussed in Section 4.5) and anticipated regulatory changes, including the urban water use objectives (discussed in Section 4.2.4)

4.3 WORKSHEETS AND REPORTING TABLES

The District's current and projected water demands, including the water demands for each of the District's water use sectors, are provided in five-year increments over the next 25 years (and through FY 2044-45) in Tables 4-1, 4-2, and 4-3.

4.3.1 OPTIONAL PLANNING TOOL USE ANALYSIS WORKSHEET

As discussed in Section 4.2.5, DWR has deemed the "Planning Tool Worksheet" as optional and the District is not required by DWR to use the tool. The District has provided sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. The District has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. For these reasons, the District chose not to use the optional worksheet. A further discussion regarding the reliability of the District's water supply sources is provided in Chapter 7.

4.3.2 DWR 2020 UWMP SUBMITTAL TABLES

The District's current water demands for each of the water use sectors during FY 2019-20 are provided in Table 4-1. The District's projected water demands for each of the water use sectors, in five-year increments over the next 25 years (and through FY 2044-45), are provided in Table 4-2. The District's total projected water demands, including potable and recycled water, in five-year increments over the next 25 years (and through FY 2044-45), are summarized in Table 4-3. The District's distribution system water losses over the past five years, based on the sum of the real and apparent water losses are summarized in Table 4-4. The District's annual AWWA water loss audits are provided in Appendix E.

4.4 WATER USE FOR LOWER INCOME HOUSEHOLDS

CWC 10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

California Health and Safety Code 50079.5.

(a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families… In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.

The District's water demands projections provided in Table 4-3 include projected water demands for lower income single-family and multi-family households. The total number of lower income households within the District's service area was estimated based the Disadvantage Communities (DAC) identified as part of Senate Bill 535 (SB 535). The legislation gave the Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA) responsibility for identifying those communities disproportionately

burdened by multiple sources of pollution, and with population characteristics that make them more sensitive to pollution. As per OEHHA screening tool "CalEnviroScreen 3.0" (https://oehha.ca.gov/calenviroscreen/sb535), the estimated number of lower income households located within the District's service area is 24 percent of the total number of households. As indicated in Table 4-2, the total projected residential (single family and multi-family) water demands within the District in 2045 is estimated at 39,570 AFY. Based on a 24 percent use factor of total residential water demands, the projected water demand for lower income households will be about 9,500 AFY by the FY 2044-2045. The projected water demands for lower income households were included in the District's total projected water demands, as indicated in Table 4-5.

4.5 CLIMATE CHANGE CONSIDERATIONS

CWC 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following…

(4) 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.

Climate is defined as "the average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind velocity and precipitation[2]". A change in the climate which produces a greater amount of precipitation (i.e. more runoff and/or snowpack) and lower temperatures is generally a benefit to water supplies. However, drought conditions which may result in decreased precipitation, decreased runoff, and increased temperature may adversely affect an urban water supplier's ability to meet demands by potentially impacting supplies. Consequently, the focus of the impacts of climate change is on these adverse consequences.

Section 6.2 of this Plan describes the District's sources of water supply, management practices associated with those sources, and the long-term reliability of those sources. Section 7.3 includes a Drought Risk Assessment which considers the potential impacts of climate change to the District's water supply sources. Chapter 8 provides a detailed discussion of the District's Water

[2] www.merriam-webster.com

Shortage Contingency Plan, including but not limited to, the six standard water shortage levels in the event climate change results in a reduction to water supplies associated with a periodic drought condition. The following is a discussion of the District's sources of supply, how those sources may be impacted by climate change, and the proactive actions the District and other local/regional water managers may take to address the potential climate change impacts on water supplies.

Imported Water Supplies

The District receives imported water (see Section 6.2.1 for a more in depth discussion). Consequently, the District directly and/or indirectly relies on the Metropolitan Water District of Southern California for those imported water supplies. MWD has prepared a Regional 2020 Urban Water Management Plan which includes a discussion (Section 2.6 in MWD's 2020 UWMP) of the reliability of its water supplies and the impacts of climate change and is incorporated by reference in this Plan. Furthermore, the District is a member agency of IEUA which has also provided a discussion of climate change considerations, and that discussion is included by reference. The following is a brief summary of MWD's efforts:

Resource Planning

- MWD has established the Robust Decision Making (RDM) approach to identify vulnerabilities to its water supplies. Climate change information was applied to MWD's simulated water supply scenarios to demonstrate the vulnerability of water supplies to climate change.

Knowledge Sharing and Research Support

- MWD is an active and founding member of the Water Utility Climate Alliance (WUCA) which includes 12 nationwide partners collaborating on climate change considerations. As such, MWD shares agency actions on climate change and adaptation. WUCA has also released numerous research papers on climate change.

Implementation of Programs and Policies

- MWD's programs include the use of solar energy, use of ride share programs, and reduction of greenhouse emissions. Collectively these actions are intended to mitigate the effects of climate change.

Groundwater Supplies – Chino Basin

The District relies on groundwater produced from the Chino Basin as discussed in Section 6.2.2. The Chino Basin (Basin Number 8-2.01 pursuant to DWR Bulletin 118) has been identified by

DWR as a very low-priority groundwater basin partially due to the fact it is adjudicated. The Chino Basin is actively managed by the Chino Basin Watermaster and those management activities are described in detail in Section 6.2.2.

Recognizing the potential impacts of climate change on the Chino Basin groundwater supplies, the District has used climate tools available on the California Energy Commission's Cal-Adapt website (https://cal-adapt.org/) to identify potential future climate change cycles for the Chino Basin. The Cal-Adapt website has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and California Strategic Growth Council.

To address the uncertainty in future greenhouse gas emissions, Cal-Adapt has developed a Representative Concentration Pathway 4.5 (RCP 4.5) scenario and a Representative Concentration Pathway 8.5 (RCP 8.5) scenario. RCP 4.5 represents a scenario in which greenhouse gas emissions peak around 2040, then decline and stabilize. RCP 8.5 represents a scenario in which emissions continue to strongly rise through 2050 and plateau around 2100. RCP 4.5 is a "medium" emissions scenario that models a future in which there is an effort made by societies to reduce greenhouse gas emissions, whereas RCP 8.5 is a "business-as-usual" scenario. For the District's climate change analysis, the RCP 4.5 scenario was selected.

The Cal-Adapt climate tools also incorporate several General Circulation Models (GCMs), which represent physical processes in the atmosphere, ocean, and land surface. These GCMs projected future climates under conditions such as warm/dry, cooler/wetter, and average simulations. For the District's climate change analysis, the average condition GCM (CanESM2) was selected.

The climate tools available on the Cal-Adapt website were to simulate projected annual precipitation and annual average maximum temperature in the Chino Basin. An electronic boundary of the Chino Basin was submitted online through the Cal-Adapt website in a "KML" file format (i.e. Google Earth format) and data using several of the available climate tools was generated.

Based on the data generated by the Cal-Adapt simulations (see Appendix F), the average annual rainfall in the Chino Basin is projected to be 16.00 inches over the next 25 years (through 2045), compared to a historical average of 14.82 inches (from 1950 through 2019). In addition, the average maximum temperature is projected to be 82.1 degrees Fahrenheit compared to a historical average of 78.5 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. The simulation does not denote the duration or intensity of the storms contributing to the annual precipitation. Notwithstanding, the Santa Ana River watershed (including the area of the Chino Bain) has a complex and interconnected series of dams, reservoirs and replenishment basins to capture stormwater runoff in the Santa Ana River watershed. Most if not all precipitation (whether it is rain or snowfall) likely will be captured

during normal and dry year conditions and will not be adversely impacted by a potentially higher average annual temperature.

The Chino Basin Watermaster recognizes the potential for impact to local hydrology resulting from climate change and has considered such impact in the development and implementation of its Basin management programs, thereby enabling the District to continue to regard the Chino Basin as a reliable source of supply.

Chino Basin – Storage Management Plan

The Chino Basin Judgment parties adopted as part of the 2000 Chino Basin Peace Agreement a storage management plan, which consists of three types of storage agreements that result in five types of storage accounts: 1) Excess Carryover, 2) Local Supplemental-Recycled, 3) Local Supplemental-Imported, 4) Pre-2000 Quantified Supplemental, and 5) Storage and Recovery. An Excess Carryover account includes a Party's unproduced rights in the Safe Yield and Basin Water purchased or transferred from other Parties. A Local Supplemental Water account includes any imported and/or recycled water that is recharged by a producer and similar water acquired from other Parties. A Storage and Recovery Account includes Supplemental Water and is intended to produce a broad and mutual benefit to the Judgment Parties. The Chino Basin Watermaster maintains records of the replenishment, production, losses, and end-of-year storage totals for all storage accounts and reports this accounting on an annual basis.

Individual Parties are involved in water transfers of annual unproduced rights in the Safe Yield and water in their storage accounts. Chino Basin Watermaster has an application and review process for these transfers. The Parties engage in conjunctive-use activities individually by storing Chino Basin and Supplemental Water that are in excess of their demands and may recover that water in the future as the need arises. These activities collectively cause temporary adjustment in the managed storage. The Parties' aggregate amount of water in managed storage was 541,845 AF during FY 2019-20.

MWD's DYYP is the only active storage and Recovery Program in Chino Basin. The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. During FY 2019-20, there was 45,961 AF within the DYYP account, resulting in a total managed storage volume of 587,806 AF (541,845 AF + 45,961 AF). The agreement that authorized the DYYP will expire in 2028.

Inland Empire Utilities Agency's "Addendum No. 2 to the Optimum Basin Management Plan", completed in February 2021, was prepared to address managed storage within the Chino Basin following the termination of the DYYP. Based on the Chino Basin Watermaster's findings, the Local Storage Limitation Solution (LSLS) was developed. From July 1, 2017 through June 30, 2021, the Safe Storage Capacity of the Chino Basin is 600,000 AF. The LSLS proposes a change in the Safe Storage Capacity to 700,000 AF through June 30, 2030, and to 620,000 AFY from July

1, 2030 through June 30, 2035. Full utilization of the allowable increased storage space is expected to occur gradually as additional water is stored and less groundwater is produced. The Safe Storage Capacity of the Chino Basin will revert to 500,000 AF after June 30, 2035.

Safe Yield

The Chino Basin Judgment set the initial Safe Yield for the Chino Basin at 140,000 AFY, but reserved to re-determine the Safe Yield after ten years. Pursuant to the most recent Safe Yield reset, effective July 2020, the Safe Yield in the Chino Basin is determined to be 131,000 AFY for the period of FY 2021 through FY 2030. The Safe Yield is recalculated every 10 years and is defined in the Chino Basin Judgment as "the long-term average annual quantity of ground water (excluding replenishment of stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Chino Basin under conditions of a particular year without causing an undesirable result".

Groundwater Supplies - Cucamonga Basin

The District uses on groundwater produced from the Cucamonga Basin as noted in Section 6.2.2 of this Plan. The Cucamonga Basin has been identified by DWR as a very low-priority groundwater basin partially due to the fact it is adjudicated. The Cucamonga Basin is actively managed by the District, San Antonio Water Company (SAWCo), and the West End Consolidated Water Company (WECWC) and those management activities are described in detail in Section 6.2.2.

Recognizing the potential impacts of climate change on the Cucamonga Basin groundwater supplies (decreased local runoff and replenishment, along with increased groundwater production which may lead to decreased groundwater levels), the District has used climate tools available on the California Energy Commission's Cal-Adapt website (https://cal-adapt.org/) to identify potential future climate change cycles for the Cucamonga Basin. The Cal-Adapt website has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and California Strategic Growth Council.

To address the uncertainty in future greenhouse gas emissions, Cal-Adapt has developed a RCP 4.5 scenario and a RCP 8.5 scenario. RCP 4.5 represents a scenario in which greenhouse gas emissions peak around 2040, then decline and stabilize. RCP 8.5 represents a scenario in which emissions continue to strongly rise through 2050 and plateau around 2100. RCP 4.5 is a "medium" emissions scenario that models a future in which there is an effort made by societies to reduce greenhouse gas emissions, whereas RCP 8.5 is a "business-as-usual" scenario. For the District's climate change analysis, the RCP 4.5 scenario was selected.
The Cal-Adapt climate tools also incorporate several GCMs, which represent physical processes in the atmosphere, ocean, and land surface. These GCMs projected future climates under

conditions such as warm/dry, cooler/wetter, and average simulations. For the District's climate change analysis, the average condition GCM (CanESM2) was selected.

The climate tools available on the Cal-Adapt website were to simulate projected annual precipitation and annual average maximum temperature in the Cucamonga Basin. An electronic boundary of the Cucamonga Basin was submitted online through the Cal-Adapt website in a "KML" file format (i.e. Google Earth format) and data using several of the available climate tools was generated.

Based on the data generated by the Cal-Adapt simulations (see Appendix F), the average annual rainfall in the Cucamonga Basin is projected to be 20.82 inches over the next 25 years (through 2045), compared to the historical average of 19.29 inches (from 1950 through 2019). In addition, the average maximum temperature is projected to be 80.0 degrees Fahrenheit compared to a historical average of 76.5 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. The simulation does not denote the duration or intensity of the storms contributing to the annual precipitation.

As discussed previously, the Cucamonga Basin is actively managed by the District, SAWCo, and WECWC. Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, the District, SAWCo, and WECWC are jointly taking action to conduct additional hydrologic investigations, establish an Operating Safe Yield for the Cucamonga Basin, develop additional management strategies, and update provisions of the Cucamonga Decree to anticipate and circumvent the potential impacts of climate change. These actions will enable the District to rely on Cucamonga Basin as a reliable source of groundwater.

Chapter 5
SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

LAY DESCRIPTION – CHAPTER 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

Chapter 5 (SB X7-7 Baselines, Targets, and 2020 Compliance) of the District's 2020 Plan discusses and provides the following:

- The Water Conservation Act of 2009 (or SB X7-7) required the State of California achieve a 20 percent reduction in urban water use by the year 2020.
- SB X7-7 required urban water suppliers, including the District, to develop a "2020 Water Use Target" to assist the State of California to achieve the 20 percent reduction. The 2020 Water Use Target represents the amount of water each person should use per day (i.e. gallons per capita per day or GPCD) by the year 2020.
- The District previously determined its 2020 Water Use Target during the preparation of its 2015 Plan by completing standardized tables (or the SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. The District's SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G. The District's 2020 Water Use Target is 232 GPCD.
- The District's 2020 Plan incorporates the 2020 Water Use Target and determines compliance based on actual water use.
- The population within the District's service area during Fiscal Year 2019-20 is estimated at 198,979. The District's population was estimated using data provided by the Southern California Association of Governments (SCAG). The data provided by SCAG was based on their "*The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG*", dated September 2020, and incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the DOF and the US Census Bureau for counties, cities and unincorporated areas within Southern California.
- The District's "gross water" use represents the total volume of water entering its distribution system from its water supply sources. The District's gross water use excludes recycled water deliveries or water conveyed to another supplier. The District's annual gross water during Fiscal Year 2019-20 was 46,021 AF.
- The District's per-capita water use is based on the gross water use divided by the population. The District's per-capita water use during Fiscal Year 2019-20 was 206 GPCD.

The District's confirmed 2020 Water Use Target is 232 GPCD. The District's per-capita water use during Fiscal Year 2019-20 meets the 2020 Water Use Target.

- The District has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.1 GUIDANCE FOR WHOLESALE SUPPLIERS

CWC 10608.12.

(I) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

The District is not a wholesale agency and is not required by DWR to complete Section 5.1.

5.2 SB X7-7 FORMS AND SUMMARY TABLES

The District previously calculated its "Baseline" water periods and a "2020 Water Use Target" in its 2015 Plan. There were two different Baseline periods identified (consisting of a "10-year Baseline" period and a "5-year Baseline" period). The average water use for each of these two Baseline periods, expressed in GPCD, represents the Baseline water use for each period. A 10-year Baseline period was identified by the District and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. The District determined its 2020 Water Use Target by calculating 80 percent of the 10-year Baseline water use.

According to Section 10608.22 of the CWC, if an urban retail water supplier's 5-year Baseline period water use is greater than 100 GPCD, the calculated 2020 Water Use Target may need to be reduced. A 5-year Baseline period was identified by the District and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. The average water use rate during the identified 5-year Baseline period was greater than 100 GPCD. As a result, the 5-year Baseline period was used to determine if the 2020 Water Use Target required any adjustments.

The District's calculated 2020 Water Use Target was compared with 95 percent of the average water use within the 5-year Baseline to determine if any adjustments were required. The District's 2020 Water Use Target represents the per capita water use target for 2020 pursuant to SB X7-7.

5.2.1 SB X7-7 VERIFICATION FORM (BASELINES AND TARGETS)

The District's service area has not changed (i.e. expansion or contraction) since the 2015 Plan was prepared. The District's 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. The District previously prepared standardized tables (SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009 in its 2015 Plan, including compliance with the District's 2015 Interim Water Use Target. The District's SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G.

5.2.2 SB X7-7 COMPLIANCE FORM

The District's compliance with its 2020 Water Use Target is summarized in the following sections. The District has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.2.3 SUBMITTAL TABLES 5-1 AND 5-2

Summary information from the SB X7-7 Verification Form and from the SB X7-7 2020 Compliance Form is provided in Tables 5-1 and 5-2 below.

Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form

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	*1995*	*2004*	*290*	*232*
5 Year	*2004*	*2008*	*283*	
**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:				

Table 5-2 2020 Compliance from SB X7-7 2020 Compliance Form

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
206	*0*	*206*	*232*	*Y*
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

5.2.4 REGIONAL UWMP/REGIONAL ALLIANCE

As discussed in Section 2.4, the District's 2020 Plan was not developed as part of a Regional Alliance. Information from the District's 2020 Plan is not required to be reported in a Regional Alliance report. However, the District is a member agency of IEUA, who has prepared its own 2020 Wholesale UWMP and WSCP. IEUA has also demonstrated regional compliance with the SB X7-7 2020 Water Use Target and reduced imported water reliance as a Regional Alliance between its retail member agencies. IEUA's regional 2020 Water Use is 168 GPCD, approximately 13 percent lower than the regional 2020 Target of 193 GPCD as shown in its 2020 Wholesale UWMP SB X7-7 2020 Compliance Forms (included in this Plan by reference). As a recipient of imported water from the State Water Project (SWP), IEUA has regionally reduced its reliance on the imported water supplies for FY 2014-15 and FY 2019-20 and is projected to continue reducing its reliance on the imported water supplies through FY 2044-45 (shown in Appendix B).

5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPS

5.3.1 SUPPLIER SUBMITTED 2015 UWMP, NO CHANGE TO SERVICE AREA

The general requirements associated with determining the Baseline periods, Baseline water uses, and 2020 Water Use Target were previously provided by DWR. Based on the requirements, the District calculated the Baseline water uses and 2020 Water Use Target in its 2015 Plan. The District's service area has not changed (i.e. expansion or contraction) since the 2015 Plan was prepared. The District's 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. The District's SB X7-7 Verification Form is included in Appendix G.

As discussed in Section 5.2.1, the District prepared standardized tables (SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. The District's SB X7-7 Verification Form is provided in Appendix G and includes Baseline water uses and the 2020 Water Use Target. A summary of the Baseline water uses and 2020 Water Use Target is provided below.

The CWC allows an urban water supplier to calculate up to a 15-year Baseline period if at least 10 percent of its 2008 retail water demands were met through recycled water deliveries within its service area, otherwise calculation of a 10-year Baseline period is required. The District's recycled water deliveries were less than 10 percent of its retail water demands during FY 2007-08. Consequently, a 10-year Baseline period was identified by the District and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. Water systems could potentially identify their 2020 Water Use Target by calculating 80 percent of the 10-year Baseline water use.

According to Section 10608.22 of the CWC, if an urban retail water supplier's 5-year Baseline period water use is greater than 100 GPCD, the calculated 2020 Water Use Target may need to be reduced. A 5-year Baseline period was identified by the District and information regarding the starting year, ending year, and average water use rate during this period is provided in Table 5-1. The average was use rate during the identified 5-year Baseline period was greater than 100 GPCD. As a result, the 5-year Baseline period was used to determine whether the 2020 Water Use Target required any adjustments.

The District's calculated 2020 Water Use Target was compared with the 95 percent of the average water use within the 5-year Baseline to determine whether any adjustments were required. The District's confirmed 2020 Water Use Target is 232 GPCD and is summarized in Table 5-1.

5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE

5.4.1 SERVICE AREA POPULATION

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the 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.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

CWC 10644.

(a)(2) The plan… shall include any standardized forms, tables, or displays specified by the department.

A discussion regarding the District's compliance with the 2020 Water Use Target is provided in Section 5.5. Compliance with the 2020 Water Use Target is based on the total estimated population within the District's water service during FY 2019-20. Because U.S. Census 2020 population data was not available during the preparation of the 2020 Plan, the District reviewed the methodologies recommended by DWR to estimate the FY 2019-20 population. The population methodology used by the District in the 2020 Plan is discussed below.

As discussed in Section 3.4, the District initially reviewed the available historical populations within its service area for population growth trends. The District reviewed the historical U.S. Census populations within its service area using DWR's Population Tool. In addition to DWR's Population Tool, the District reviewed the available historical populations within its service area for population growth trends which the District has chosen to represent the current 2020 population in this Plan. The District determined historical populations within its service area using the Person-per-Connection Method. The number of dwelling units was calculated based on the number of single and multi-family connections within the District's service area. The homeowner and rental vacancy rates were obtained from US Census data. Historical populations were estimated by multiplying the number of dwelling units by the vacancy rates. The 2020 population within the District's service area was calculated based on growth rate projections obtained from data provided by the Southern California Association of Governments. The data provided by SCAG was based on their "*The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG*", dated September 2020, and incorporates demographic trends, existing land use, general plan land use policies, and input and projections through the year 2045 from the Department of Finance and the US Census Bureau for counties, cities and unincorporated areas within Southern

California. The population within the District water service area during FY 2019-20 was estimated to be about 198,979.

5.4.2 GROSS WATER USE

CWC 10608.12.

(h) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
(2) The net volume of water that the urban retail water supplier places into long-term storage.
(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article 1, Section 596.

(a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

Gross water use represents the total volume of water entering a distribution system (but excludes recycled water deliveries, indirect potable use, water placed into long term storage, water conveyed to another supplier, water delivered for agricultural use, and process water if there is a substantial percentage used for industrial purposes) over a 12-month period. The District's annual gross water use amounts are based on the total amount of water entering the District's distribution system from its water supply sources (including groundwater production wells, surface water, and purchased imported water connections). The annual gross water use by the District during FY 2019-20 was 46,021 AF.

The annual gross water use amounts within the District for each year of the Baseline periods (discussed in Section 5.6) are provided in SB X7-7 Verification Form, Table 4 (Appendix G). A further discussion of the Baseline periods is provided in Section 5.6.

The District currently does not use indirect recycled water within its service area. The District is not required by DWR to complete SB X7-7 Verification Form, Table 4-B.

Industrial process water is not subtracted from the District's gross water use provided in SB X7-7 Verification Form, Table 4. The District is not required by DWR to complete SB X7-7 Verification Form, Table 4-C.1, Table 4-C.2, Table 4-C.3, Table 4-C.4, and Table 4-D.

5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

CWC 10608.12.

(f) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010… compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

As discussed in Section 5.4.2, the annual gross water use by the District during FY 2019-20 was 46,021 AF. As discussed in Section 5.4.1, the estimated population within the District's service area for FY 2019-20 is approximately 199,000. As a result, the District's per-capita water use during FY 2019-20 was 206 GPCD. As discussed in Section 5.3.1, the District's confirmed 2020 Water Use Target is 232 GPCD. The District's per-capita water use during FY 2019-20 meets the 2020 Water Use Target and is in compliance. The District has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.5.1 2020 ADJUSTMENTS FOR FACTORS OUTSIDE OF SUPPLIER'S CONTROL

CWC 10608.24.

(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4.

This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers, annexation, and other scenarios that occur between the baseline and compliance years.

The District has determined its compliance with the 2020 Water Use Target without adjusting its annual gross water use during FY 2019-20.

5.5.2 SPECIAL SITUATIONS

The District's 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. There were no special situations that required the District to recalculate the Baseline water uses and 2020 Water Use Target.

5.5.3 IF SUPPLIER DOES NOT MEET 2020 TARGET

The District's per-capita water use during FY 2019-20 meets the 2020 Water Use Target and is in compliance.

5.6 REGIONAL ALLIANCE

As discussed in Section 2.4, the District's 2020 Plan was not developed as part of a Regional Alliance. Information from the District's 2020 Plan is not required to be reported in a Regional Alliance report. However, the District is a member agency of IEUA, who has prepared a regional 2020 UWMP. IEUA's 2020 UWMP, which is incorporated by reference, shows regional compliance with the SB X7-7 and the 2020 Water Use Target. IEUA's regional 2020 Water Use was 168 GPCD, approximately 13 percent lower than the regional 2020 Water Use Target of 193 GPCD, indicating compliance and the success of the collective efforts to reduce water use in the region.

Chapter 6
WATER SUPPLY CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 6

WATER SUPPLY CHARACTERIZATION

Chapter 6 (Water Supply Characterization) of the District's 2020 Plan discusses and provides the following:

- The District's water supply sources include: groundwater pumped from the Chino Basin and Cucamonga Basin; untreated, imported surface water from Metropolitan Water District of Southern California purchased through Inland Empire Utilities Agency and treated at the District's treatment plant; local surface water from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon; and recycled water purchased from IEUA.
- The District's main sources of water supply are from groundwater pumped from the Chino Basin and imported surface water.
- A tabulation of the District's historical water supplies is provided in Section 6.1.
- A discussion regarding the District's imported water supplies from IEUA is provided. Information regarding imported water connections, capacities, reliability, and historical production is provided.
- A discussion regarding the District's groundwater supplies from the Chino Basin and Cucamonga Basin is provided. Information regarding basin location, adjudication, management, water levels, water quality, water rights, and historical production is provided.
- A discussion regarding the District's surface water supply from Cucamonga Canyon, Day/East Etiwanda Canyon, Deer Canyon, Lytle Creek, Smith Canyon Group, and the Golf Course Tunnel is provided. Information regarding diversion locations, water rights, and historical production is provided.
- A discussion regarding the District's recycled water supplies is provided. The District's recycled water supplies are produced by Inland Empire Utilities Agency. The District uses recycled water to irrigate landscapes, golf courses, and school athletic fields and to recharge the Chino Basin.
- The District's proposed projects to maximize its water supply resources are discussed.
- The District's "energy intensity" is discussed and represents the quantity of energy consumed, measured in kilowatt hours, divided by the volume of water, measured in acre-feet over a one-year period. The total energy intensity associated with the District's water management processes was estimated during FY 2019-20.

In this Chapter, the District will identify and describe each of its sources of water supply. In addition, the District will describe the following:

- Management of each water supply source;
- Current provisions of a basin adjudication or Groundwater Sustainability Plan (GSP), as applicable, pertaining to management of groundwater supplies;
- Measures the District is taking to develop potential new sources of water supply (as applicable); and
- Opportunities for exchanges and transfers on a long- or short-term basis.

The characterization of the District's water supply sources will account for the anticipated availability during a normal year, a single dry year, a five consecutive year drought, along with projections through FY 2044-45.

6.1 WATER SUPPLY ANALYSIS OVERVIEW

CWC 10631.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following:

(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies

CWC 10631.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

The District's water supply sources include: groundwater pumped from the Chino Basin and Cucamonga Basin; untreated, imported surface water from Metropolitan Water District of Southern California purchased through Inland Empire Utilities Agency treated at the District's

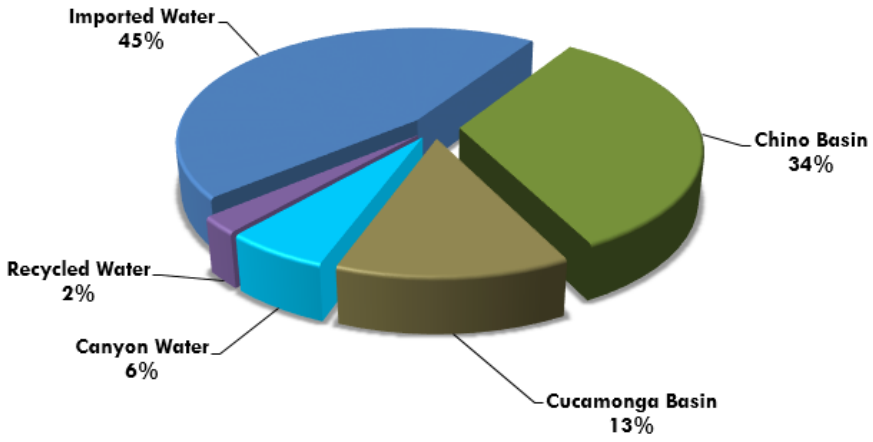
treatment plant; local surface water from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon; and recycled water purchased from IEUA. The District's main sources of water supply are from groundwater pumped from the Chino Basin and imported surface water. A tabulation of the District's historical water use is provided below.

Historical Water Use by Source

Fiscal Year	System Water Supply Sources (AF)									
	Potable Water								Recycled Water	Total
	Groundwater		Surface Water			MWD Imported Water	Net Water Transfers	Subtotal		
	Chino Basin	Cucamonga Basin	Cucamonga Canyon	Deer Canyon	Day/East Etiwanda Canyon					
2010-11	20,318	3,097	5	188	4,898	19,994	(13)	48,486	734	49,219
2011-12	14,949	5,775	0	158	4,070	26,144	0	51,096	1,018	52,114
2012-13	18,740	6,275	0	146	2,081	25,845	0	53,087	1,231	54,318
2013-14	16,122	8,108	0	216	1,388	28,825	(585)	54,074	1,652	55,726
2014-15	14,640	10,415	304	216	772	21,306	(103)	47,549	1,401	48,950
2015-16	20,524	7,627	399	156	603	9,712	0	39,021	1,145	40,166
2016-17	16,549	8,379	605	8	1,843	15,288	(32)	42,640	1,056	43,695
2017-18	6,829	6,707	890	30	1,772	30,559	(0)	46,787	1,262	48,048
2018-19	9,624	3,259	844	22	2,003	26,691	25	42,468	996	43,463
2019-20	23,315	3,618	931	0	3,813	14,343	0	46,021	1,038	47,059

Source: Data provided by the District

On average, from FY 2011 to FY 2020, imported water accounted for 45 percent, groundwater for 47 percent, canyon/surface water for 6 percent and recycled water accounted for 2 percent of District's total water supplied as illustrated below.



6.1.1 SPECIFIC ANALYSIS APPLICABLE TO ALL WATER SUPPLY SOURCES

The section below provides a discussion of the following information to the extent practical:

- The District's existing and planned sources of water supply are identified;
- Each source of supply is quantified in five-year increments through FY 2044-45;
- The anticipated supply availability under normal, single dry, and five consecutive dry years, and any other water year conditions included in the Drought Risk Assessment (see Chapter 7) are described;
- The management of each water supply in correlation with other identified supplies is described.
- Information pertinent to the reliability analysis, including climate change effects, is considered.

The District historically has relied on groundwater supplies from the Chino Basin and Cucamonga Basin, untreated imported water from MWD purchased through IEUA and treated at District's water treatment plant; local surface water from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon; and recycled water purchased from IEUA. The District is looking to reduce its reliance on imported water supplies by increasing its pumping capacity in the Chino and Cucamonga Basins and increasing the use of its recycled water. The following descriptions summarize the District's sources of supply (detailed descriptions are provided in Section 6.2).

Existing and Planned Sources of Supply

Purchased Imported Water

Imported water is the District's most significant water supply. The District has historically purchased imported water from the IEUA, as described in Section 6.2.1. In addition, Section 6.2.1 provides a detailed discussion of the existing and planned supply of the imported water, including a description of the management and reliability of those imported water supplies. Table 6-8 summarizes the actual imported water supply for FY 2019-20. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through FY 2044-45 under varying water supply conditions.

Groundwater

The District has historically pumped groundwater from the Chino Basin and Cucamonga Basins as described in Section 6.2.2. In addition, Section 6.2.2 provides a detailed discussion of the existing and planned supply of the groundwater, including a description of the management and reliability of those groundwater supplies. Table 6-8 summarizes the actual groundwater supplies

for FY 2019-20. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through FY 2044-45 under varying water supply conditions.

Surface Water

The District has historically diverted water from the Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon as described in Section 6.2.3. In addition, Section 6.2.3 provides a detailed discussion of the existing and planned use of the surface water, including a description of the management and reliability of those surface water supplies. Table 6-8 summarizes the actual surface water supplies for FY 2019-20. In addition, Table 6-9 summarizes the projected water supply, in five-year increments, through FY 2044-45 under varying water supply conditions.

Storm Water

The District has historically received groundwater from the Chino and Cucamonga groundwater basin and surface water from the Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon. Management and use of the stormwater runoff from the Chino and Cucamonga Basin watersheds, which is crucial to groundwater management and surface water supplies, is described in Section 6.2.4. However, the District currently does not have its own program to beneficially use stormwater runoff as a direct source of supply.

Wastewater and Recycled Water

The District has historically purchased recycled water supplies from Inland Empire Utilities Agency as described in Section 6.2.5. In addition, Section 6.2.5 provides a detailed discussion of the existing and planned use of the recycled water, including a description of the management and reliability of those recycled water supplies. Table 6-8 summarizes the actual recycled water supplies for FY 2019-20. In addition, Table 6-9 summarizes the projected recycled water supply, in five-year increments, through FY 2044-45 under varying water supply conditions.

6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS

A description of the District's water system along with a map of its service area is included in Chapter 3. In addition, the agencies which manage the water supplies used by the District are identified in Section 6.2.1 (imported water), 6.2.2 (groundwater), 6.2.3 (surface water), 6.2.4 (stormwater), and 6.2.5 (recycled water).

6.1.3 OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and the District is not required by DWR to use the tool. Section 6.1 provides a tabulation

of the District's historical annual water uses for each water supply source. During the past 10 years, the District experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. In addition, historical records indicate the District's annual water demands typically have been even greater prior to FY 2011-12. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the District has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of the District's water supply sources is provided in Chapter 7.

6.2 NARRATIVE SECTIONS FOR SUPPLIER'S UWMP WATER SUPPLY CHARACTERIZATION

6.2.1 PURCHASED OR IMPORTED WATER

The District purchases untreated imported water from MWD through IEUA. The untreated imported water is treated at the District's Lloyd W. Michael Water Treatment Plant, the largest conventional treatment plant in the region. Imported water is the District's most significant water supply and can range approximately 25 to 65 percent of the District's water. The District has two connections to untreated SWP water, an 18-inch connection (CB7) and a 60-inch connection (CB16). The District also has one 24-inch connection (CB5) to untreated Colorado River Aqueduct water, but due to the lack of treatment capabilities, this connection has been disconnected and the District currently only takes water from the SWP. Sufficient connection capacity exists to meet current and future imported water demands.

The District's imported water purchases over the past five years have been tabulated in Section 6.1. Over the past five years, the District purchased 9,712 AFY to 30,559 AFY, with an average of 19,319 AFY. The District's projected purchases of untreated imported water, over the next 25 years in five-year increments, is provided in Table 6-9. The projections assume that CVWD will utilize all of its maximum MWD Tier I allocation, which is 28,369 AF.

Imported water supplies may be impacted during a multi-year drought or other conditions which limits MWD from delivering sufficient water supplies to all of its member agencies, and consequently to the District. In anticipation of such a reduction in supplies, MWD developed a Water Supply Allocation Plan (WSAP) which is briefly described below. The WSAP provides a means of equitably providing reduced water supplies to each of MWD's member agencies for up to 10 levels of reduction representing up to a 50 percent reduction.

During calendar year 2007, critically dry conditions impacted MWD's water supply sources. In addition, a ruling in the Federal Courts in August 2007 provided protective measures for the Delta Smelt (and subsequently other aquatic species) in the Sacramento-San Joaquin River Delta resulting in restrictions on the availability of State Water Project water. As a result, MWD adopted

a WSAP in February 2008 to allocate available water supplies to its member agencies. MWD revised the WSAP in December 2014.

The WSAP establishes ten different shortage levels and a corresponding Allocation to each member agency, including IEUA. Based on the shortage levels established by MWD, the WSAP provides a separate reduced Allocation to a member agency for its 1) Municipal and Industrial (M&I) retail demand and 2) replenishment demand. The WSAP formula considers historical local water production, full service treated water deliveries, agricultural deliveries and water conservation efforts when calculating each member agency's Allocation.

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from MWD. When a member agency reduces its local demand through conservation or other means, the Allocation of imported water will increase. Depending on MWD's available supply, MWD can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. Additional information about MWD's WSAP is provided in MWD's Regional 2020 UWMP, which is incorporated by reference. The following is a summary of MWD's water shortage levels:

Level 1 – Regional Percent Reduction of 5%
Level 2 – Regional Percent Reduction of 10%
Level 3 – Regional Percent Reduction of 15%
Level 4 – Regional Percent Reduction of 20%
Level 5 – Regional Percent Reduction of 25%
Level 6 – Regional Percent Reduction of 30%
Level 7 – Regional Percent Reduction of 35%
Level 8 – Regional Percent Reduction of 40%
Level 9 – Regional Percent Reduction of 45%
Level 10 – Regional Percent Reduction of 50%

In response to a fourth consecutive year of below average rainfall and critically dry conditions, MWD declared a WSAP Allocation Level 3 for fiscal year 2015-16, which represented a regional reduction of 15 percent. MWD rescinded the WSAP for fiscal year 2016-17 and has not reinstated the WSAP since that time.

6.2.2 GROUNDWATER

CWC 10631.

(b)(4) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

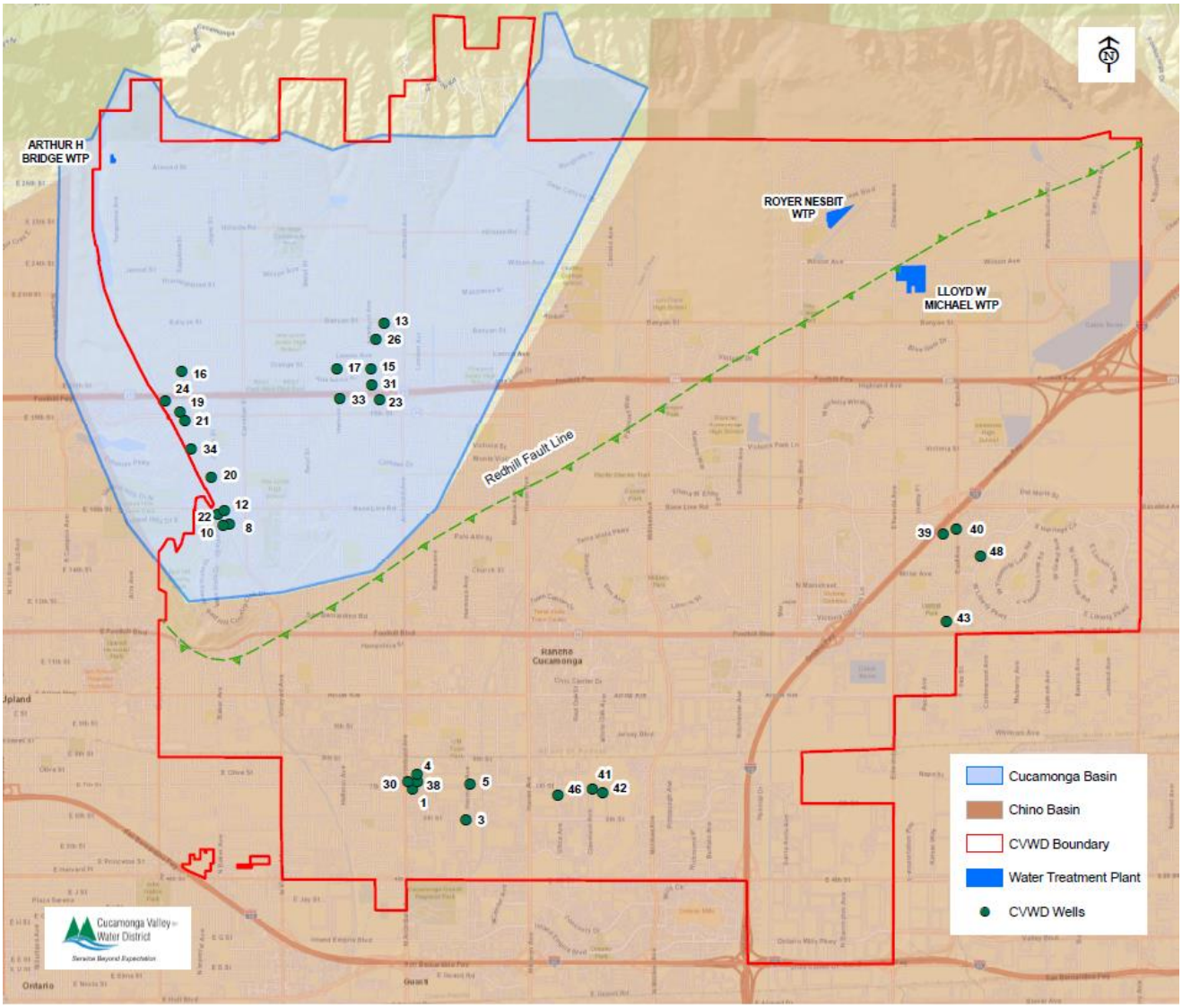
(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

(C) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(D) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

There are two groundwater basins that underlie the District service area: Chino Basin and Cucamonga Basin. A map showing the locations of the two basins relative to the District's service area are shown below.

Cucamonga Basin and Chino Basin Locations in Relation to District



CHINO BASIN

Chino Basin - Description

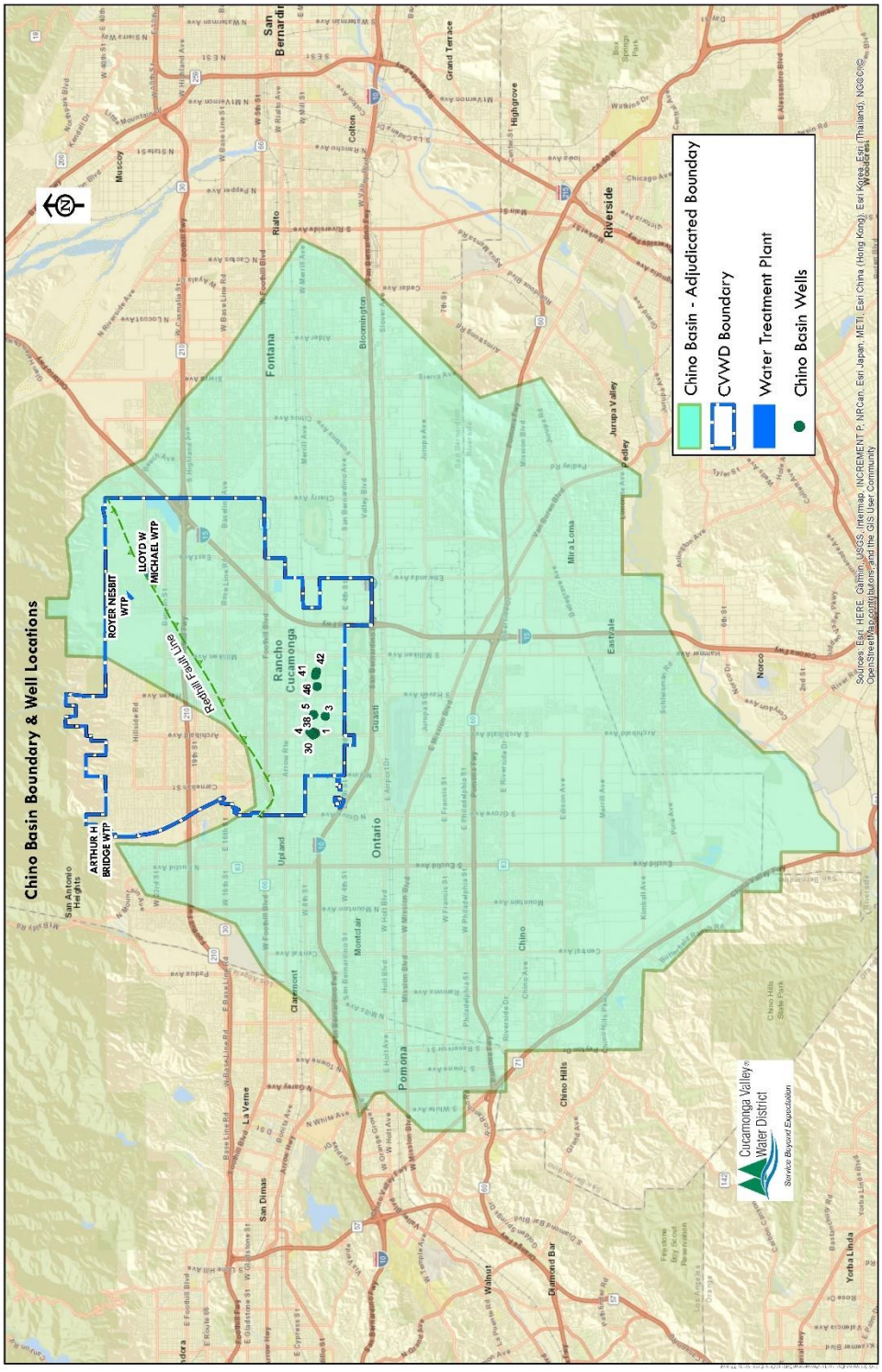
The Chino Basin is one of the largest groundwater basins in Southern California and contains several million acre-feet (MAF) of water and has an unused storage capacity exceeding 1,000,000 acre-feet. The basin covers about 230 square miles of the upper Santa Ana River Watershed. The location of the Chino Basin is provided in Figure 3. The basin is bounded by the Cucamonga Basin and the San Gabriel Mountains to the north; the Rialto-Colton Basin to the northeast; the chain of Jurupa, Pedley, and La Sierra Hills to the southeast and south; the Temescal Basin to the south; the Chino and Puente Hills to the southwest; and the Spadra Basin, San Jose Hills and the Six Basins to the northwest. The San Antonio Creek and Cucamonga Creek drain the Chino Basin area southward and flow into the Santa Ana River. The Chino Basin lies within the Counties of Los Angeles, Riverside and San Bernardino and it includes the Cities of Chino, Chino Hills, Eastvale, Fontana, Montclair, Ontario, Pomona, Rancho Cucamonga and Upland.

Pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA), the Chino Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a GSP and subsequently was designated a very-low-priority basin in DWR's 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Chino Basin Watermaster submits its Annual Report to DWR.

Chino Basin – Safe Yield and Rights

The Chino Basin was adjudicated under the Chino Basin Judgment, entered on January 27, 1978 by the Superior Court for the County of San Bernardino. A copy of the Chino Basin Judgment is provided in Appendix I. The provisions of the Judgment are administered and managed by the court-ordered Chino Basin Watermaster.

Figure 3 Chino Basin Boundary



The Chino Basin Judgment originally established a Safe Yield for the Chino Basin of 140,000 AFY. Pursuant to the most recent Safe Yield reset effective in 2020, the Safe Yield in the Chino Basin is currently 131,000 AFY (July 1 to June 30). The Safe Yield is recalculated every 10 years and is defined in the Chino Basin Judgment as "the long-term average annual quantity of ground water (excluding replenishment of stored water but including return flow to the Basin from use of replenishment or stored water) which can be produced from the Chino Basin under conditions of a particular year without causing an undesirable result". The Chino Basin Judgment's allocation of the Safe Yield includes three separate Pools: (1) the "Overlying Agricultural Pool"; (2) the "Overlying Non-Agricultural Pool"; and (3) the "Appropriative Pool". Each Pool is represented by separate Pool Committees:

Overlying Agricultural Pool Committee (representing dairymen, farmers, and the State of California)	82,800 AFY
Overlying Non-Agricultural Pool Committee (representing area industries)	7,366 AFY
Appropriative Pool Committee (representing local cities, public water districts, and private water companies)	40,834 AFY

The District is a member of the Appropriative Pool and owns appropriative rights to produce groundwater from the Chino Basin. The District has an appropriative right of 4,431 AFY. The District has acquired the appropriative rights of two other appropriators. In 1986, the District acquired the Etiwanda Water Company and rights in the Chino Basin to 768 AFY. In addition, through a series of Agreements, the District has acquired a majority interest in the Fontana Union Water Company (FUWC), which give the District the rights to 57.6% of total water from FUWC, including the Chino Basin rights, which is approximately 9,188 AFY, and the remainder as Lytle Creek surface water and wells in the Lytle Creek Groundwater Basin.

Under the Judgment, the annual pumping rights of Appropriative parties are not administered according to their specific rights. Instead, their specific rights are used to determine what percentage of the "Operating Safe Yield" each Appropriative Party can produce without a paying a replenishment obligation. Pursuant to the most recent Safe Yield reset, effective July 2020, the Safe Yield in the Chino Basin is determined to be 131,000 AFY for the period of FY 2021 through FY 2030. As a result of this reset the Appropriative Pool operating safe yield is 40,834 AFY. The District's and Fontana Union Water Company's safe yield rights percentages are 6.6 percent and 11.7 percent, respectively. Thus, the District's total rights equate to 18.3 percent of total Chino Basin rights. Based on the established Operating Safe Yield and the District's safe yield rights, the District's total Operating Safe Yield is 7,455.47 AFY as shown below:

Chino Basin Water Rights	Safe Yield Right (%)	Operating Safe Yield (AFY)
CVWD	6.6 %	2,695.45
Fontana Union Water Company	11.7 %	4,760.02
Total CVWD	18.3 %	7,455.47

The Chino Basin Watermaster can reallocate the unused portion of the Chino Basin Safe Yield from the Overlying Agricultural Pool to the Appropriative Pool members as a supplement to the Appropriative Pool share of Operating Safe Yield rights in any year. These transfers are permanent if agricultural land has been converted to non-agricultural use, or temporary if agricultural pool extractions are less than their share of the Safe Yield. From FY 2000-01 to FY 2019-20, the annual quantity of the Agricultural Pool share available for reallocation to Appropriative Pool members[3] ranged from 40,822 AF to 61,014 AF, with an annual average of approximately 50,457 AF. As Agricultural Pool production declines within the Chino Basin, the reallocation of water to the Appropriative Pool will increase.

Appropriators who are Parties to the Chino Basin Judgment, are authorized to produce groundwater in excess of their rights. Appropriators pay assessments for such production to the Chino Basin Watermaster. The assessments are used to purchase water to replenish the Chino Basin. The Chino Basin Watermaster purchases water from Metropolitan Water District of Southern California through Inland Empire Utilities Agency and Three Valleys Municipal Water District, on behalf of the Parties, to replenish the Chino Basin. Occasionally, Watermaster has purchased water from storage accounts from parties within the Chino Basin.

Chino Basin - Management

Basin Production

Over the past 20 years, total groundwater production from the Chino Basin has ranged from approximately 133,275 AFY to 188,910 AFY. A majority of production currently is pumped for municipal and agricultural purposes and the remaining production is pumped by non-agricultural Parties.

Groundwater Level Monitoring

Groundwater elevation contours in the Chino Basin Watermaster's 2018 State of the Basin Report show a regional depression of groundwater surrounding the Chino-II Desalter well field and the eastern half of the Chino-I Desalter well field. Hydraulic Control of the Chino Basin is achieved east of Chino Desalter Well I-20. The contours also indicate groundwater flowing past the desalter wells west of Chino Desalter Well I-20, indicating only partial Hydraulic Control.

[3] Pursuant to the Chino Basin Watermaster "*Fiscal Year 2019-20, 43rd Annual Report*", Appendix G

Desalter Replenishment Obligation

The Chino Desalter Authority (CDA) has constructed two desalters and several wells in the southern part of the Chino Basin. CDA can produce approximately 40,000 AF from the Chino Basin every year for the purpose of groundwater cleanup and control of contaminant migration. The CDA is not a party to the Judgment and has no water rights in the Chino Basin. All CDA production of groundwater is replenished by members of the Appropriative and overlying Non-agricultural Pools, in accordance with the 2007 Peace II Agreement, as amended. Collectively, the overlying non-agricultural parties have a relatively small replenishment obligation for the CDA.
As per stated in the March 2019 court order, Exhibit A in Appendix J; the members of the Appropriative Pool will contribute a total of 10,000 AFY toward Desalter replenishment, allocated among Appropriative Pool members as follows:

(1) 85% of the total (8,500 AFY) will be allocated according to the Operating Safe Yield percentage of each Appropriative Pool member; and
(2) 15% of the total (1,500 AFY) will be allocated according to each land use conversion agency's percentage of the total land use conversion claims, based on the actual land use conversion allocations of the year.

Pursuant to section 7.2 of the Peace II Agreement, Appendix K, the initial schedule for the Peace II Desalter Expansion controlled overdraft of 175,000 AF had been amended to be allocated to Desalter replenishment over a 17-year period, beginning Production Year 2013-14 and ending Production Year 2029-30.

The annual Desalter Replenishment Obligation (DRO) of the Appropriative Pool that is remaining (RDRO) after accounting for DRO contribution for 10,000 AFY and the Re-operation allocation are allocated pro-rata to each Appropriative Pool member according to the combined total of the member's share of Operating Safe Yield and the member's Adjusted Physical Production (also discussed in Exhibit A of Appendix J)).

In conjunction with the 2019 Court Order, effective Assessment Year 2014-2015 (Production Year 2013-2014), the DRO contribution were retroactively accessed for Appropriators. To meet the obligation, District transfers its DRO contribution along with Fontana Union Water Company's, from District's Excess Carry Over (ECO) storage account. District's and FUWC's DRO contributions from Production Year 2014 through 2020 are shown below:

	PY 2013-14	PY 2014-15	PY 2015-16	PY 2016-17	PY 2017-18	PY 2018-19	PY 2019-20
CVWD	1,423.5	1,557.4	1,531.7	1,322.1	1,119.7	1,405.6	1,522.1
FUWC	1,259.0	1,302.8	1,219.5	1,204.2	1,272.6	1,329.2	1,539.4
Total DRO Contribution	2,682.5	2,860.2	2,751.2	2,526.3	2,392.3	2,734.8	3,061.5

Chino Basin Optimum Basin Management Program

In 2000, the Chino Basin Watermaster developed the Chino Basin Optimum Basin Management Program (OBMP). The OBMP was developed in a collaborative process that identified the needs of the stakeholders, described the physical state of the basin, defined a set of management goals, identified impediments to these goals, and established a series of actions that would remove these impediments and achieve the management goals. The goals identified in the 2000 OBMP included: (1) Enhance Basin Water Supplied; (2) Protect and Enhance Water Quality; (3) Enhance Management of the Basin; and (4) Equitably Finance the OBMP.

In September 2018, the Chino Basin Watermaster initiated the process to update the OBMP and its Implementation Plan. After an assessment of the basin, the stakeholders concluded that the four (4) goals defined in the 2000 OBMP are unchanged and still relevant for the 2020 OBMP Update.

The nine Program Elements defined in the 2000 OBMP were retained for the 2020 OBMP Update. The Program Elements defined in the 2020 OBMP Update include:

- Program Element 1 - Develop and Implement Comprehensive Monitoring Program
- Program Element 2 - Develop and Implement Comprehensive Recharge Program
- Program Element 3 - Develop and Implement a Water Supply Plan for Impaired Areas
- Program Element 4 - Develop and Implement Comprehensive Groundwater Management Plan for Management Zone 1
- Program Element 5 - Develop and Implement Regional Supplemental Water Program
- Program Element 6 - Develop and Implement Cooperative Programs with the Regional Board and Other Agencies to Improve Basin
- Program Element 7 - Develop and Implement Salt Management Plan
- Program Element 8 - Develop and Implement Groundwater Storage Management Program
- Program Element 9 - Develop and Implement Storage and Recovery Programs

Chino Basin Storage Management Plan

The Chino Basin Storage Management Plan identifies technical storage management issues within the Chino Basin, establishes storage management activities for producers, and outlines key measures for the Storage and Recovery Programs.

Since the Chino Basin Judgment came into effect in 1978, the Chino Basin Watermaster developed rules and regulations, standard storage agreements, and related forms. Since 2000, Chino Basin Watermaster administered groundwater storage in the Chino Basin pursuant to the storage management plan described in Program 8 of the 2000 OBMP and evaluated in the Programmatic Environmental Impact Report (EIR). Since then, Parties have indicated that they will likely exceed the storage space initially estimated in the OBMP Implementation Plan. Thus, Chino Basin

Watermaster has found it necessary to develop a new storage management plan and associated EIR documentation.

The three types of storage agreements resulted in five types of storage accounts: Excess Carryover, Local Supplemental-Recycled, Local Supplemental-Imported, Pre-2000 Quantified Supplemental, and Storage and Recovery. An Excess Carryover account includes a Party's unproduced rights in the Safe Yield and Basin Water purchased or transferred from other Parties. A Local Supplemental Water account includes any imported and/or recycled water that is recharged by a producer and similar water acquired from other Parties. A Storage and Recovery Account includes Supplemental Water and is intended to produce a broad and mutual benefit to the Parties of the Judgement. The Chino Basin Watermaster tracks the puts, takes, losses, and end-of-year storage totals for all storage accounts and reports on this accounting on an annual basis.

The individual Parties are involved in water transfers of annual unproduced rights in the Safe Yield and water in their storage accounts. Chino Basin Watermaster has an application and review process for these transfers. The Parties engage in conjunctive-use activities individually by storing Chino Basin and Supplemental Water that are in excess of their demands and recover that water as necessary. These activities collectively cause a temporary increase in the managed storage. The Parties' aggregate amount of water in managed storage was 541,845 AF as of June 30, 2020.

The storage and recovery program is where supplemental water is stored in the Chino Basin during surplus years and extracted during years when the availability of supplemental water is limited. The Metropolitan Water District of Southern California's Dry-Year Yield Program is the only active storage and recovery program in Chino Basin. The Chino Basin DYYP was developed jointly by the Chino Basin Watermaster, the IEUA, and the MWD. MWD provided funds to 8 participating agencies, including the District, to assist in constructing new groundwater wells and ion exchange facilities. The participating agencies agreed to shift water supply sources from MWD deliveries to Chino Basin groundwater accounts when called upon. The District received $8.4 million from MWD for its participation to construct five groundwater wells with a production capacity of 15,720 AFY.

During FY 2019-20 the District participated in the DYYP and produced groundwater from the Chino Basin storage account that belongs to MWD instead of the storage account of the District. The District produced approximately 17,395 acre feet in the DYYP during FY 2019-20. Prior to this, District has participated in this program during FY 2007-08, 2008-09, 2009-10, and 2010-11. The District has decided to participate in this program for FY 2020-21 and is expected to produce approximately 20,000 AF out of Chino Basin, offsetting the imported water supply. The District purchases this water from MWD and receives a credit to offset the operational costs associated with producing the water using the District's Chino Basin wells.

The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. As of June 30, 2020, there was 45,961 AF within the DYYP

account, resulting in a total managed storage volume of 587,806 AF (541,845 AF + 45,961 AF). The agreement that authorized the DYYP will expire in 2028. The combined volume of managed storage by Metropolitan's DYYP and the Parties is projected to have a maximum of 790,000 AF in 2028, assuming DYYP has 100,000 AF in storage and that MWD removes the contract rate of 33,000 AFY starting in 2029.

As of FY 2019-20, District's total storage volume, in Carry Over, Excess Carry Over, and Local Supplemental storage accounts is 60,079 AF.

The Parties and IEUA, through the OBMP, have substantially increased the amount of storm and supplemental water recharge capacity in the Chino Basin. The increase in supplemental water recharge capacity was done to ensure that the Chino Basin Watermaster is able to meet replenishment requirements pursuant to Regional Board and Court orders. The Chino Basin Watermaster indicates that it will prioritize the use spreading basins to satisfy replenishment obligations over the use of spreading basins for other uses.

Chino Basin Watermaster will periodically review the Storage Management Plan on no less than a five-year frequency, when the Safe Yield is recalculated, or when the Chino Basin Watermaster determines an update is warranted based on new information or needs of the Parties or the Chino Basin.

The Storage Management Plan was prepared in parallel with the 2020 OBMP Update. Chino Basin Watermaster published the final Storage Management Plan report and it was incorporated into Program Elements 8 and 9 (Storage and Recovery Programs) of the OBMP update process and was approved in June 2020.

Chino Basin Subsidence Management Plan

The Chino Basin Subsidence Management Plan was developed in 2015 and its purpose was to: minimize subsidence and fissuring; collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring; and establish a management plan to reduce tolerable levels or abate future subsidence and fissuring.
From 2001 to 2005, Chino Basin Watermaster developed, coordinated, and conducted the MZ-1 Interim Monitoring Program and the main conclusions derived were:

- Groundwater production from the deep, confined aquifer system in the southwestern region of MZ-1 causes the greatest stress to the aquifer system.
- Groundwater-level decline due to pumping of the deep aquifer and cause irreversible compaction of the aquifer-system sediments, resulting in land subsidence.

Chino Basin Watermaster's investigations led to the establishment of recommendations for managing groundwater production in the affected area and continued monitoring indicates conformity to the recommendations has been effective to control area subsidence.

At the beginning of each calendar year, Chino Basin Watermaster staff and engineers analyze the data generated during the prior calendar year. Results and interpretations generated from the analysis are documented in an annual report and used to prepare recommendations for future planning.

Groundwater Clean-up

Groundwater in areas of the Chino Basin is currently contaminated with Perchlorate and VOCs, including 1,2,3-Tricholropropane (1,2,3-TCP), trichloroethylene (TCE), and perchloroethylene (PCE). In addition, nitrates and TDS concentrations in areas of the Chino Basin exceed drinking water quality standards. Wellhead treatment is necessary in these areas to address these water quality concerns and allow delivery of the groundwater for potable purposes.

Recycled Water Groundwater Recharge

IEUA recharges recycled water in the Chino Basin for the benefit of its member agencies pursuant to the Regional Sewage Contract. The District's share of this recharge is based on the District's relative sewage contribution to the total sewage treated by IEUA. The IEUA informs Chino Basin Watermaster as to the volume of recycled water recharged annually and the allocation of this recharge to its member agencies. The amount of recycled water recharged is credited to the agency's Local Supplemental storage account, less the storage loss. The current and projected recycled water recharge quantities are discussed in Section 6.2.5 and presented in Table 6-4.

Chino Basin - Historical and Projected Basin Production

The District currently produces groundwater from the Chino Basin. As mentioned previously in the Chino Basin – Safe Yield and Rights section, the District's share of the Operating Safe Yield is 6.601 percent and 11.657 percent of Fontana Union Water Company. Over the past five years, the District has produced 6,829 AFY to 23,315 AFY, with an average of 15,368 AFY from the Chino Basin. The District's projected production from the Chino Basin, over the next 25 years in five-year increments, is provided in Table 6-9.

CUCAMONGA BASIN

Cucamonga Basin - Description

The Cucamonga Basin is located in the northern part of the Upper Santa Ana Valley and is drained by the Cucamonga and the Deer Creeks to the Santa Ana River. The location of the Cucamonga Basin is provided in Figure 4. The Cucamonga Basin is bounded on the north by alluvium from the San Gabriel Mountains and on the west, east, and south by the Red Hill Fault. The total area of the Cucamonga Basin is approximately 9,530 acres or about 15 square miles.

Pursuant to DWR Bulletin 118 (for Basin Number 8-2.02), groundwater in the Cucamonga Basin is found in alluvial deposits. The quaternary age alluvium consists of unconsolidated to loosely consolidated sand, gravel, and silt with a few beds of compacted clay deposit resulting from streams draining the San Gabriel Mountains. The gravels throughout the Cucamonga Basin are relatively coarse. The Cucamonga Fault is a major, active fault zone, and is partly responsible for the uplift of the San Gabriel Mountains, which are comprised of metamorphic and igneous rocks. The fault results in impermeable bedrock meeting water-bearing alluvium. The Red Hill Fault acts as a barrier to groundwater flow in the southern part of the basin.

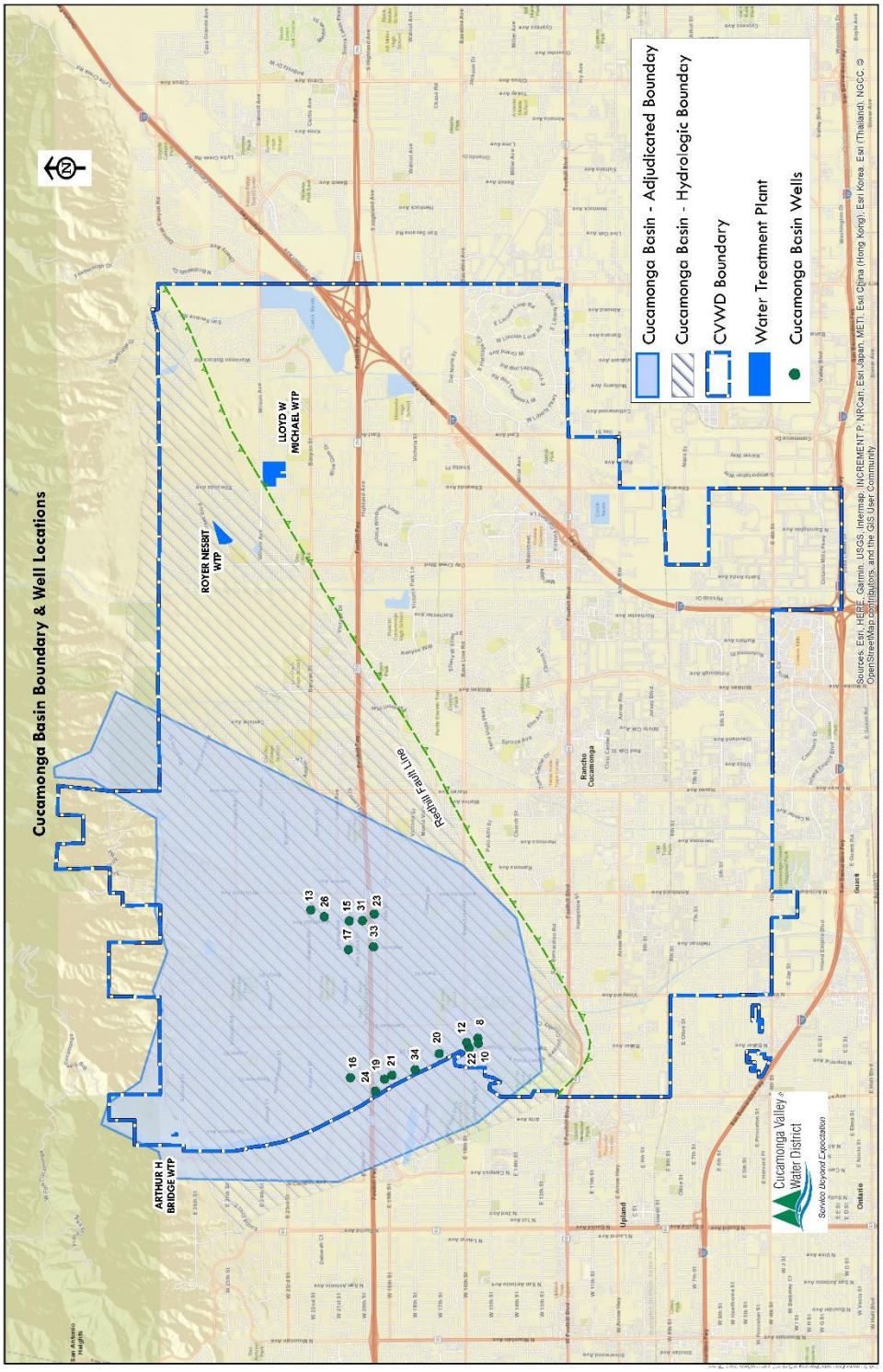
The Cucamonga Basin is a sub-basin of the Upper Santa Ana Valley Groundwater Basin, Basin Number 8-2.02, pursuant to DWR Bulletin 118. The Sustainable Groundwater Management Act of 2014, identifies the Cucamonga Basin as an adjudicated groundwater basin, is exempt from the requirements of developing a GSP and subsequently was designated a very –low priority basin in DWR's 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Annual Report regarding the Cucamonga Basin are submitted to DWR.

Cucamonga Basin - Adjudication

The Cucamonga Basin was adjudicated in 1958 and a copy of the Cucamonga Basin Decree (Decree) is provided in Appendix L. There were 24 original parties to the Decree; however, the provisions of the Decree are currently administered and jointly managed by Cucamonga Valley Water District, San Antonio Water Company, and the West End Consolidated Water Company. The Decree did not establish or designate a Watermaster and does not require the preparation or submittal of annual reports for the Cucamonga Basin. Groundwater production, groundwater levels, water quality, and other water use information is collected and maintained by the District, SAWCo, and WECWC. This information is shared and exchanged between the parties so that water production and use is managed under terms of the Decree.

Recharge to the Cucamonga Basin can occur from infiltration of stream flow, percolation of rainfall on the valley floor, irrigation, and underflow from the San Gabriel Mountains. Pursuant to DWR Bulletin 118 (for Basin Number 8-2.02), the total storage capacity of the Cucamonga Basin is estimated at approximately 53,600 AF.

Figure 4 Cucamonga Basin Boundary



Cucamonga Basin - Rights

The Decree allocates groundwater rights from the Cucamonga Basin and water diversion rights from the Cucamonga Creek. The District currently has the right to produce 15,471 AFY (approximately 75 percent of total rights) from the Cucamonga Basin with additional right to divert 3,620 AFY from the Cucamonga Creek. SAWCo currently has the right to produce approximately 22 percent of total rights from the Cucamonga Basin subject to a minimum recharge obligation (an average of 2,000 AFY from San Antonio Creek). WECWC currently has the right to produce approximately 4 percent of total rights from the Cucamonga Basin which is currently pumped by the City of Upland.

The District has historically pumped the Cucamonga Basin from three different pumping groups in the west part of the Basin: the Alta Loma Cluster (Wellfield 3), Upper Cucamonga Creek Cluster (Wellfield 3A) and Lower Cucamonga Creek Cluster (Wellfield 2A). To address the high nitrate and/or 1,2-Dibromo-3-chloropropane (DBCP) concentration, District has invested in various treatment improvements in the Basin.

Joint efforts by the District, SAWCo, and the City of Upland, who owns the major shareholder interest in the WECWC, are currently underway to perform additional hydrologic investigations, update the safe yield of the Basin, develop additional management strategies, and modernize the provisions of the 1958 Decree.

Cucamonga Basin - Historical and Projected Basin Production

Groundwater from the Cucamonga Basin is used for potable purposes. The District's production over the past five years is tabulated in Section 6.1. Over the past five years, the District has produced 3,259 AFY to 8,379 AFY from the Cucamonga Basin, with an average of 5,918 AF. Over the past five years, groundwater pumped from the Cucamonga Basin represented approximately 14 percent of the District's total water usage.

Historical production data from the Cucamonga Basin indicates the total annual water production in the Cucamonga Basin has been significantly below the total Decreed rights. The District, SAWCo, and WECWC are jointly taking action to conduct additional hydrologic investigations, establish an Operating Safe Yield for the Cucamonga Basin, develop additional management strategies, and update provisions of the Decree. The District's projected production from the Cucamonga Basin, over the next 25 years in five-year increments, is provided in Table 6-9 and is based on its historical production from the basin.

Table 6-1 Groundwater Volume Pumped

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						
Alluvial Basin	Chino Basin	20,524	16,549	6,829	9,624	23,315
Alluvial Basin	Cucamonga Basin	7,627	8,379	6,707	3,259	3,618
TOTAL		28,151	24,928	13,536	12,883	26,933
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

6.2.3 SURFACE WATER

CUCAMONGA SURFACE WATER

The District has several tunnel water sources (considered to be surface water sources) which originate in the canyons of the San Gabriel Mountains. Water supplies from tunnel sources are influenced by the magnitude of precipitation. These tunnel water sources come from streams, springs and tunnels in the Cucamonga Canyon, Deer Canyon and Day/East Canyon of the San Gabriel Mountains. Water from these tunnel sources is treated before distribution to customers. The District also has water rights to three (3) additional tunnel water sources including Smith Canyon, Lytle Creek, and Golf Course Tunnel. However, these tunnel water sources are not currently utilized by the District due to age and distance of the facilities from the District's service area.

The District's production from its tunnel water sources has been tabulated in Section 6.1. Over the past five years, the District has produced 1,002 AFY to 4,900 AFY, with an average of 2,784 AFY

from its tunnel sources. The District's projected production from its tunnel sources, over the next 25 years in five-year increments, is provided in Table 6-9. Further descriptions regarding the District's tunnel sources are provided below.

Cucamonga Canyon

The District acquired the Ioamosa Water Company in the 1970s along with the Ioamosa Tunnel. The District's Cucamonga Canyon facilities are located in an unincorporated area of western San Bernardino County, north of the City of Rancho Cucamonga and include two diversion ponds and a 24-inch diameter 3,300-foot transmission pipeline which conveys the surface water from the Cucamonga Canyon to the Arthur H. Bridge Water Treatment Plant (ABWTP). The District has rights to 250 miner's inches of runoff in Cucamonga Creek, or approximately 3.24 MGD.

Day/East Etiwanda Canyon

The District acquired the Etiwanda Water Company in 1979 along with the surface water rights to the Day and East Canyon. Day Canyon is located northwest of Etiwanda Avenue and East Canyon is located northeast of Etiwanda Avenue. The District's Day/East Etiwanda Canyon facilities include the Day Basin, East Basin, Smith Tunnel, "Bee" Tunnel, and transmission pipelines which convey surface water from the Day/East Etiwanda Canyons to either the Royer-Nesbit Water Treatment Plant (Royer-Nesbit WTP) or the Lloyd Michael Water Treatment Plant (Lloyd Michael WTP). The District's rights to the Day/East Etiwanda Canyon are appropriative and include all subsurface and surface flows through the canyon.

Deer Canyon

The District acquired the Hermosa Water Company in 1970 along with the water rights to Deer Canyon. When the District acquired the Hermosa Water Company, their major assets were the tunnels in Deer Canyon, which were known as Hermosa Tunnel, Thayer Tunnel, and "A" Tunnel, plus falls and a collection point in a side canyon known as Fan Canyon, and the transmission mains connecting these various sources to a small reservoir located on the south side of Lemon Avenue, east of Archibald Avenue, in the Alta Loma area of the District. In 2002, the District signed an agreement to sell the natural spring water production from Deer Canyon including production from Thayer Tunnel, "A" Tunnel, East Calamity Canyon Diversion and Fan Canyon Diversion to the Nestle Company, and in 2005, Nestle completed the construction of a pipeline that takes water from Deer Canyon to their plant in the City of Ontario. As a result, the District currently captures flows from only the Hermosa Tunnel in Deer Canyon. The Hermosa Tunnel funnels water into 6-inch diameter, 1,300-foot long transmission pipeline which conveys surface water to a reservoir for distribution. Water produced from the Hermosa Tunnel does not require treatment, however, the District does chlorinate the water. Since chlorination is the only treatment of the Deer Canyon water, this is the lowest cost water within the District. The District's rights to Deer Canyon are appropriative and include all subsurface and surface flows through the canyon.

Lytle Creek

As part of the 2000 acquisition of the Fontana Union common stock from Kaiser, the District acquired the right to the surface water of Lytle Creek and a well in the Lytle Creek Groundwater Basin. As a result of the great distance of Lytle Creek to the District, it is cost prohibitive to construct the infrastructure required to deliver water to the District from these sources. In order to benefit from these sources, the District has an agreement to sell this water to the Fontana Water Company.

Smith Canyon Group

In 1972, the District acquired all of the rights and property of the Rochester Water Company. Included in the acquisition was the Smith Group of canyons, located along the frontal portion of the San Gabriel Mountain Range. The group consists of Smith Canyon, Big Worley Canyon, Little Worley Canyon, Marble Canyon, Indian Spring Canyon and a number of smaller unnamed drainages. Water rights in these canyons were vested in the Rochester Water Company, which was founded by C. W. Smith in the late 1880s.

Golf Course Tunnel

The completion time of the Golf Course Tunnel is uncertain, but records of the Cucamonga Water Company indicate that construction began in the 1880s by the Cucamonga Land and Irrigation Company and that the Cucamonga Water Company purchased the tunnel and water rights from the Cucamonga Land and Irrigation Company in 1902. Both the Cucamonga Water Company and the San Antonio Water Company ceased taking water from the golf course tunnel in 1954 or 1955. The San Antonio Water Company sealed their outlet or delivery point, probably in 1954 or 1955. The District does not use the water for distribution.

Water Quality

Water quality varies by the source, tunnel water or surface water captured in intake basins. Water quality from tunnels that is not under influenced by surface water is groundwater quality and does not require treatment. All other water requires treatment at one of the District's three treatment plants before it can be introduced into the potable water supply.

Intake basins have two main water quality issues, sediment and algae. The basins are designed to be large enough to slow the water and settle out the debris during normal conditions, but during heavy rain events, sediment within the canyon is stirred up and enters the basins. The canyon water velocity is too fast and turbulent to allow settling, causing high turbidity. Since high turbidity is more than the treatment process can efficiently handle, the water is typically turned away from the treatment plants. In addition, the sediment fills the basins overtime requiring periodic dredging.

Algae growth issues occur in the intake basins during the summer months. The open-air basins are designed to reduce influent water velocity and promote settling of sediment and debris. The longer daylight hours, increased intensity of summer sunlight, and slow water velocity all contribute to the warming of the basin temperatures creating optimal conditions for algae growth and algae blooms. Improvements to the intakes at Cucamonga Canyon and redirecting of Day/East Canyon water from the Royer-Nesbit WTP to the Lloyd Michael WTP helped to alleviate the algae issue and the turbidity issue.

6.2.4 STORMWATER

The District does not directly use stormwater to meet its water demands.

6.2.5 WASTEWATER AND RECYCLED WATER

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) 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 pursuant to this subdivision.

(f) A description of actions, including financial incentives, 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.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate

the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

As a local water purveyor, the District delivers water to its customers from its potable and recycled water supplies. Table 6-4 summarizes current and projected recycled water use within the District from FY 2019-20 to FY 2044-45. The following sections provide a description of the District's current recycled water use and its plans to expand the use of recycled water as a source of water supply over the next 25 years.

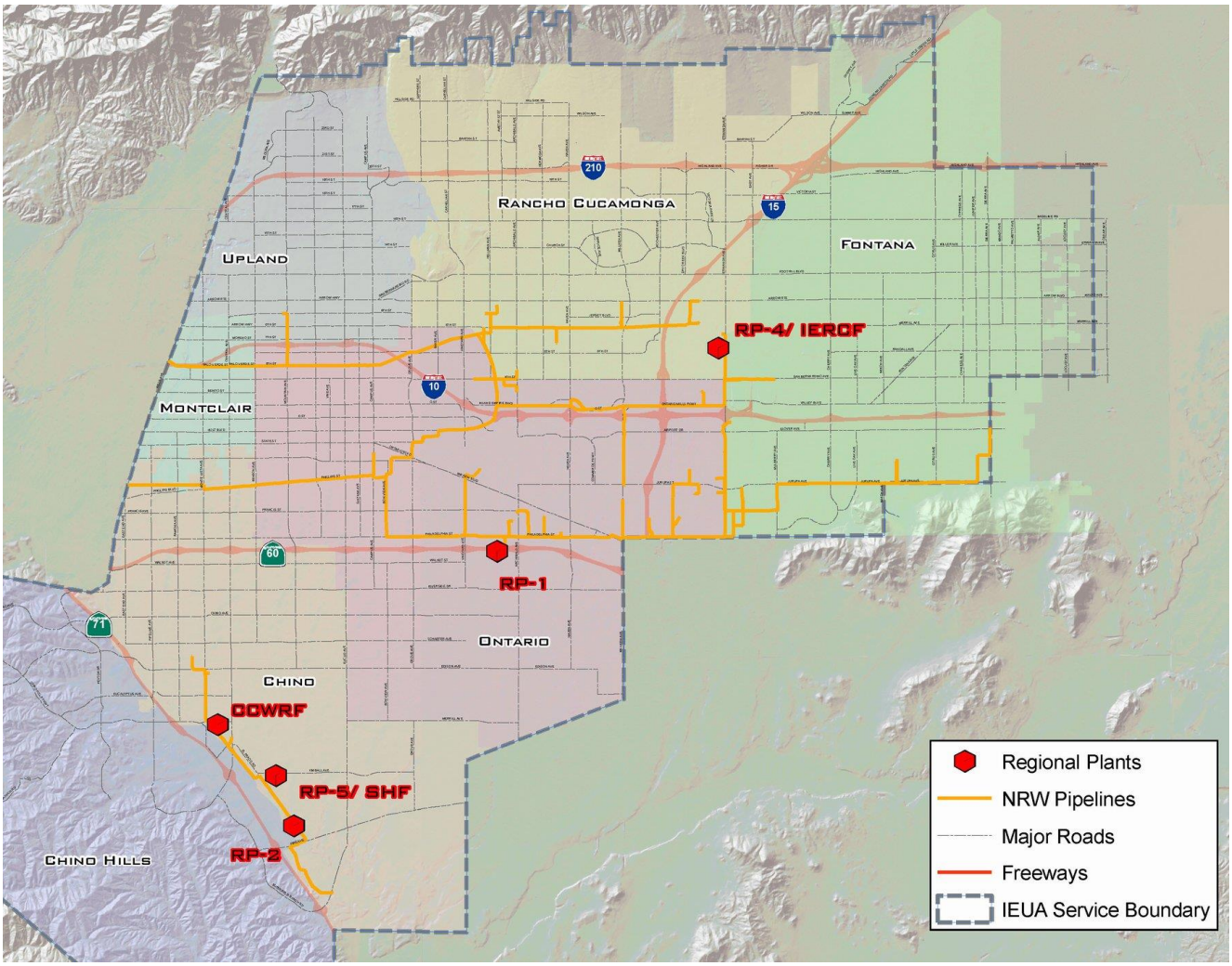
6.2.5.1 RECYCLED WATER COORDINATION

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area…

The District's recycled water supplies are produced by IEUA. IEUA owns and operates five regional wastewater treatment plants including the Regional Water Recycling Plant No. 1 (RP-1), Regional Water Recycling Plant No. 2 (RP-2), Regional Water Recycling Plant No. 4 (RP-4), Regional Water Recycling Plant No. 5 (RP-5), and Carbon Canyon Water Recycling Facility (CCWRF). RP-1 has a wastewater treatment capacity of 44 MGD; RP-2 does not have any liquid treatment processes and does not produce any recycled water; RP-4 has a wastewater treatment capacity of 14 MGD; RP-5 has a wastewater treatment capacity of 15 MGD; and CCWRF has a wastewater treatment capacity of approximately 9.5 MGD. IEUA is currently planning an expansion of RP-5 which will increase its hydraulic capacity up to 22.5 MGD. The locations of IEUA's regional plants is provided in the figure below.

Location of IEUA Regional Plants



Source: IEUA (https://www.ieua.org/everything-water/recycled-water/)

IEUA's regional plants (with the exception of RP-2) can produce tertiary-treated, Title 22-quality recycled water. Information regarding recycled water effluent monitoring data and compliance data is provided in IEUA's annual "*Recycled Water Quality Reports*" and "*Recycled Water Annual Reports*[4]".

Table 6-4 summarizes current and projected recycled water use within the District from FY 2019-20 to FY 2044-45. The District works closely with IEUA regarding the development of recycled water infrastructure in its service area and the identification of new recycled water users. As discussed in Section 2.6, the District has coordinated the preparation of its 2020 Plan with IEUA.

[4] https://www.ieua.org/read-our-reports/recycled-water-reports/

6.2.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CWC 10633.

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

Wastewater generated by the District is treated by IEUA. IEUA provides sewage utility services to seven contracting agencies including the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, and Cucamonga Valley Water District. Wastewater is collected within the District's local sewer collection system. The District's local sewers tie into IEUA's regional trunk sewers, including 90 miles of regional sewage interceptors. The regional sewer lines deliver wastewater to IEUA's regional plants, RP-1 and RP-4 for treatment. Wastewater is treated through various processes including preliminary screening, grit removal, primary clarification, secondary treatment, tertiary treatment, dechlorinating, solids thickening, anaerobic digestion, and dewatering. With the exception of RP-2, the regional plants can produce tertiary-treated, Title 22-quality recycled water.

IEUA owns and operates five regional wastewater treatment plants consisting of RP-1, RP-2, RP-4, RP-5, and CCWRF. RP-2 does not have any liquid treatment processes and does not produce any recycled water. Those regional wastewater treatment plant capacities are:

- RP-1 has a wastewater treatment capacity of 44 MGD.
- RP-2 does not have any liquid treatment processes and does not produce any recycled water.
- RP-4 has a wastewater treatment capacity of 14 MGD.
- RP-5 has a wastewater treatment capacity of 15 MGD.
- CCWRF has a wastewater treatment capacity of approximately 9.5 MGD.

IEUA operates a Non-Reclaimable Wastewater System (NRWS), which conveys high strength wastewater to treatment facilities in Los Angeles and Orange counties for eventual discharge to the Pacific Ocean. The NRWS consists of two trunk lines which convey wastewater to the Los Angeles County Sanitation Districts' sewer system, and one trunk line which conveys wastewater to the Orange County Sanitation District's sewer system. Treated wastewater is ultimately disinfected prior to being discharged to the Pacific Ocean. All recycled water discharged to the ocean is monitored to ensure compliance with applicable local, state, and federal standards for discharge water.

According to IEUA's "*Fiscal Year 2019-20 Recycled Water Annual Report*", it is estimated the regional plants currently serve over 875,000 people and treat approximately 50 MGD, or approximately 60 gallons of wastewater per person per day. Based on a FY 2019-20 population of

198,979 within the District, the total estimated amount of wastewater collected within the District's service area is approximately 11.9 million gallons per day (about 13,300 AFY), as shown in Table 6-2. As indicated in Table 6-2 and Table 6-3, the District's wastewater is treated at RP-1 and RP-4.

Table 6-2 Wastewater Collected Within Area in 2020

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *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*
CVWD	Estimated	8,800	IEUA	RP-4	Yes	No
CVWD	Estimated	4,500	IEUA	RP-1	No	No
Total Wastewater Collected from Service Area in 2020:		13,300				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES: CVWD's collected sewerage is sent to Inland Empire Utilities Agency for treatment. The total wastewater from CVWD is estimated based on the 2020 population and a wastewater generation rate of approximately 60 gallons of wastewater per person per day. The breakdown of the volumes of wastewater collected by RP-4 and RP-1 is estimated based on their geographical locations to CVWD.						

Table 6-3 Wastewater Treatment and Discharge within Service Area in 2020

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	Recycled Outside of Service Area	Instream Flow Permit Requirement
RP-4	Santa Ana River	Santa Ana River		River or creek outfall	Yes	Tertiary	11,700	5,400	1,038	5,262	
						Total	11,700	5,400	1,038	5,262	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: RP-4 is located within the District's service area; however; the water reclamation plant is wholly owned and operated by IEUA. Information regarding "2020 volumes" is estimated based IEUA's Recycled Water Annual Report FY 2019-20. Recycled water volume (within the serviced area) is for fiscal year 2019-20. Because the District does not own the water reclamation plant, information regarding "Instream Flow Permit Requirement" is not available and is not applicable.

6.2.5.3 RECYCLED WATER SYSTEM DESCRIPTION

CWC 10633.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

The District has rights to the recycled water produced from the estimated 14,000 AF of sewerage that is treated by IEUA annually. The District estimates that 2,000 AFY of recycled water will be direct use and 4,000 AFY will be for groundwater recharge at time of build out. The District currently has 135 recycled water customers and actively promotes the benefits of using recycled water. Recycled water accounts for 2 to 3 percent of the District's overall water supply. It is the District's goal to utilize all of the remaining recycled water rights which includes indirect reuse when infrastructure and regulations allow it.

Identification of Agencies Involved in the Recycled Water System

As part of the Chino Basin Watermaster's development of the Optimum Basin Management Program (OBMP), recycled water use was identified as a critical component in drought-proofing and maintaining the region's economic growth. The OBMP established the path for the development of IEUA's regional recycled water distribution system and a Recycled Water

Implementation Plan. IEUA in partnership with its member agencies and the Chino Basin Watermaster have invested approximately $625 million since 2000 to increase the availability of local water supplies through water recycling, conservation, recharge improvements, the MWD groundwater storage and recovery project, the Chino Desalter, and other water management programs.

Information on Recycled Water System History and Operation

IEUA began providing recycled water services in the 1970s at the Whispering Lakes Golf Course adjacent to RP-1 in the City Ontario and at the El Prado Park and Golf Course in the City of Chino. In the 1980s, IEUA continued the implementation of its recycled water system with the construction of the CCWRF and RP-4 recycling plants. IEUA installed a backbone recycled water distribution system into the Cities of Chino and Chino Hills from the CCWRF in 1997. IEUA began groundwater recharge with recycled water at Ely Basin in 1999. In 2002, IEUA Board of Directors adopted Ordinance No. 75, the Mandatory Use Ordinance, to establish incentives and encourage recycled water use from the regional distributions system. A brief summary of recycled water projects is provided below:

- In 2002, the Chino Basin Watermaster, Chino Basin Water Conservation District (CBWCD), San Bernardino County Flood Control District (SBCFCD) and IEUA combined efforts to greatly expand groundwater recharge capacity through the Chino Basin Facilities Improvement Program.
- In 2005, IEUA was permitted by the Regional Water Quality Control Board (RWQCB) to operate its recycled water groundwater recharge programs at six additional recharge sites (Banana, Hickory, Etiwanda Conservation Ponds, Declez, RP3, and Turner Basins).
- In 2007, IEUA was permitted to operate its recycled water groundwater recharge program at seven more recharge sites (Brooks, 8th Street, Victoria, Lower Day, San Sevaine, Etiwanda Spreading Grounds (later reconfigured as the Etiwanda Debris Basin) and Ely Basins).
- November 2007, IEUA and its member agencies unanimously adopted the Three-Year Recycled Water Business Plan. IEUA and its member agencies committed to implementing the plan, which laid out a focused and cost-effective approach to rapidly increase the availability and use of recycled water within IEUA's service area.
- Recycled water use within the IEUA service area increased from approximately 5,396 AF in FY 2004-05 up to 38,251 AF in FY 2013-14. However, with the conversion of land use from agricultural to urban recycled water demand has decreased in recent years due to a reduction in irrigation demands.

6.2.5.4 POTENTIAL, CURRENT, AND PROJECTED RECYCLED WATER USES

CWC 10633.

(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use. A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) 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 pursuant to this subdivision.

The District uses recycled water to irrigate landscapes, golf courses, and school athletic fields. The District plans to increase recycled water use within its service area by expanding the recycled water system to additional parks, schools, and commercial landscaping areas not currently using recycled water.

The District continues to retrofit landscape irrigation systems to use recycled water where available. Future recycled water use projections are based on current recycled water use and planned recycled water projects. As shown in Table 6-4, the current and projected deliveries reflect the volume of municipal recycled water from IEUA to customers through the District's recycled water distribution system.

The District's recycled water supplies are produced by IEUA. A tabulation of the District's recycled water demands over the past five years is provided in Section 6.1. Over the past five years, the District recycled water demands have ranged from 996 AFY to 1,262 AFY, with an average of 1,099 AFY. The District's actual use of recycled water in FY 2019-20 was 1,038 acre-feet and the 2015 Plan projected a recycled water use of 1,600 acre-feet for FY 2019-20, as shown in Table 6-5. The District is proposing constructing recycled lateral line in the Village of Heritage community, and thus connecting to the newly constructed IEUA regional recycled waterline on the Baseline Road in City of Fontana. The construction is expected to complete by FY 2021-22.

As discussed in Section 6.2.2, IEUA recharges recycled water in the Chino Basin for the benefit of its member agencies pursuant to the Regional Sewage Contract. The District's share of this recharge is based on the District's relative sewage contribution to the total sewage treated by IEUA.

The District's projected recycled water demands, for both direct and recharge purposes over the next 25 years in five-year increments, are provided in Table 6-4 and Table 6-9. The District's projected recycled water demands by FY 2044-45 are estimated to be 6,000 AFY.

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

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:	Inland Empire Utilities Agency
Name of Supplier Operating the Recycled Water Distribution System:	Cucamonga Valley Water District
Supplemental Water Added in 2020 (volume) *Include units*	0
Source of 2020 Supplemental Water	N/A

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)	Schools, Parks, City Landscape	2,000	Schools, Parks, City Landscape	Tertiary	1,038	1,800	2,000	2,000	2,000	2,000
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)				Tertiary	4,458	4,000	4,000	4,000	4,000	4,000
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	5,496	5,800	6,000	6,000	6,000	6,000
				2020 Internal Reuse						

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

NOTES: Golf course irrigation has reduced compared to the 2015 usage due to the conversion of the Empire Lakes Golf Course to mixed use development in 2016. The use of recycled water as groundwater recharge is permitted by the State Water Resources Control Board. Groundwater recharge includes recycled water which IEUA recharges in the Chino Basin for the benefit of its member agencies (including the District). The amount of recycled water recharged is credited to the agency's Local Supplemental storage account, less the storage loss.

Table 6-5 2015 Recycled Water Use Projection Compared to 2020 Actual

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)	1,600	1,038
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)	4,200	4,458
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	5,800	5,496
[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.		
NOTE: Groundwater recharge includes recycled water which IEUA recharges in the Chino Basin for the benefit of its member agencies (including the District). The amount of recycled water recharged is credited to the agency's Local Supplemental storage account, less the storage loss.		

6.2.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

CWC 10633.

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Table 6-6 Methods to Expand Future 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 6.2.5	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			
Retrofits	Retrofit landscape irrigation systems	Ongoing	300
New Connections	New connections at various sites	2030	300
		Total	600
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

The District plans to continue to increase delivery capacity and expand the recycled water system to serve additional customers. Because the District is reliant on imported water supplies from IEUA, the economic value of a recycled water system continues to increase. Any additional water supplies that can offset imported water purchases will make these projects more viable. The District is evaluating the following potential methods to expand future recycled water use. These potential methods are tabulated in Table 6-6.

- As a retail water supplier, the District will offer its customers (with non-potable water demands) an economic incentive to convert its use to recycled water. For example, a commodity rate schedule for recycled water with unit rates below a potable water supply encourages customers with non-potable water demands to use recycled water.
- As a member agency of IEUA, the District will investigate the availability of financial assistance for plumbing retrofits necessary to receive recycled water.
- The District will evaluate the viability of making conversion to recycled water mandatory for those customers with non-potable supplies that are in proximity to an existing or planned recycled water pipeline.
- The District is also exploring funding opportunities to expand the use of recycled water to the communities which uses potable water to irrigate larger landscape areas.

6.2.6 DESALINATED WATER OPPORTUNITIES

CWC 10631.

(g) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Chino Basin

As discussed in Section 6.2.2, the Chino Basin Desalter Authority removes salts from brackish groundwater extracted from the lower Chino Basin through the Chino I and II Desalter facilities. The Chino I Desalter is located in the City of Chino and commenced operation in 2001 and was expanded in 2005 to have a total capacity of 14.2 MGD. The Chino II Desalter is located in Jurupa Valley and began operation in 2006 and was expanded in 2010 to have a total capacity of 15 MGD. The treatment processes at the Chino I and II Desalter facilities include reverse osmosis, ion exchange for removal of nitrates and TDS. Additionally, the Chino I Desalter includes air stripping for the removal of VOCs.

Treated water is distributed to CDA's member agencies which include the City of Chino, City of Chino Hills, City of Norco, City of Ontario, Inland Empire Utilities Agency, Jurupa Community Services District, Santa Ana River Water Company, and Western Municipal Water District. The member agencies have contract entitlements to receive a total of 35,200 AFY of treated water from CDA. A portion of the production is in-lieu of those CDA member agencies producing an equal amount of groundwater from their own groundwater wells from the Chino Basin using their individual water rights.

6.2.7 WATER EXCHANGES AND TRANSFERS

CWC 10631.

(c) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

6.2.7.1 EXCHANGES

Pursuant to DWR's 2020 Final UWMP Guidebook, "*Water exchanges are typically water delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or it can include payment and the return of water.*"

As discussed in Section 4.5, the District participates in MWD's Dry-Year Yield Program. The DYYP is a groundwater storage and recovery program where supplemental water is stored in the Chino Basin during surplus years and could be recovered in-lieu of imported water from MWD through IEUA. The DYYP allows maximum use of imported water supplies available during wet years and stored groundwater in the Chino Basin during dry years. The DYYP can store up to 100,000 AF with maximum replenishment of 25,000 AFY and maximum extraction of 33,000 AFY. During FY 2019-20, there was 45,961 AF within the DYYP account. The agreement that authorized the DYYP will expire in 2028. The District participated in the DYYP in FY 2019-20, and accounted for 17,395 AF out of total Chino Basin production as part of this storage and recovery program.

6.2.7.2 TRANSFERS

Pursuant to DWR's 2020 Final UWMP Guidebook, "*The Water Code defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.*"

Pursuant to the Chino Basin Peace Agreement (discussed in Section 4.5), transfers include the assignment, lease, or sale of a right to produce water to another producer within the Chino Basin or to another person or entity for use outside the basin whether the transfer is temporary or permanent. The leasing of water rights is also permissible. In addition, the Chino Basin Watermaster accounts for transfers of stored water between producers. The District is able to utilize the transfer opportunities available for Chino Basin water when necessary. The District currently has lease agreements with Fontana Water Company, City of Pomona and West Valley Water District.

6.2.7.3 EMERGENCY INTERTIES

The District has emergency interties with other water agencies that service short-term emergency water supplies. Emergency interconnections are distribution system interconnections between water agencies for use during critical situations where one system or the other is temporarily unable to provide sufficient potable water to meet its water demands and/or fire protection needs. An emergency interconnection will allow a water system to continue serving water during critical situations such as local water supply shortages as a result of earthquakes, fires, prolonged power outages, and droughts.

The District has five interconnections with three of its neighboring agencies. The District has two connections with Fontana Water Company, two connections with the City of Ontario, and one connection with the City of Upland. The District is able to deliver and receive water through the connections with Fontana Water Company and the City of Upland. The District is only able to deliver water at the interconnections with the City of Ontario. The District has only actively transferred water to the Cities of Fontana and Upland. These past transfers have not had a significant impact on the District's water supplies.

6.2.8 FUTURE WATER PROJECTS

CWC 10631.

(f) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single-dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The District will construct new groundwater wells in the Chino Basin, estimated to provide 7,500 AF per year. The proposed Chino Basin wells, Well 48 and Well 50, are expected to be online by 2021 and 2024 respectively. The proposed Cucamonga Basin Well 49 is a replacement for an inactive well in the basin, and is expected to be online by 2023.

Table 6-7 Expected Future Water Supply Projects or Programs

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 6.2.8	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						
Construct Well 48	No		Construct new Well 48 in the Chino Basin	2021	All Year Types	3,500
Construct Well 49	No		Construct replacement Well 49 in the Chino Basin	2023	All Year Types	2,000
Construct Well 50	No		Construct new Well 50 in the Chino Basin	2025	All Year Types	2,000
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

6.2.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

CWC 10631.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following…

(b)(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

(h) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

6.2.9.1 DESCRIPTION OF SUPPLIES

As discussed in Section 6.2, the District's water supply sources consist of imported water purchased from MWD through IEUA (see Section 6.2.1); groundwater from the Chino Basin and Cucamonga Basin (see Section 6.2.2); local surface water mainly from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon (see Section 6.2.3); and recycled water (see Section 6.2.5). The actual quantities of the water supply sources available to the District during FY 2019-20 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to the District in five-year increments through FY 2044-45 during normal or average years are summarized in Table 6-9. The reliability of these sources of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

The order of use of the District's projected reliable water supplies from FY 2019-20 through FY 2044-45 in five-year increments is based on historical practices, water supply availability, and the cost of water. It is anticipated the District will initially use groundwater produced from the Chino Basin and Cucamonga Basin. At the same time the District will continue to use recycled water for non-potable demands. The District will then use treated local surface water, to the extent it is available. The District will also use imported water. It is important to note that the Chino Basin is adjudicated (as discussed in Section 6.2.2) and that there is no limit to the amount of groundwater which can be produced annually. Consequently, in the event local surface water and/or imported water may be limited, the District has the flexibility to increase groundwater production from the Chino Basin.

6.2.9.2 QUANTIFICATION OF SUPPLIES

The actual quantities of the water supply sources available to the District during FY 2019-20 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to the District in five-year increments through FY 2044-45 during average years are summarized in Table 6-9. The reliability of these sources of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

The District's projected quantities of imported water supplies and/or local surface water supplies are based on historical long-term averages and available supplies during previous dry year conditions. The District's projected quantities of recycled water supplies to meet non-potable demands are based on historical long-term averages. The District will purchase additional imported water supplies and produce additional groundwater from Chino Basin to meet its total water demands. As noted above, in the event local surface water and/or imported water may be limited, the District has the flexibility to increase groundwater production from the Chino Basin. Consequently, it is anticipated the District will have sufficient water supplies available to meet projected demands.

Table 6-8 Water Supplies – Actual

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				
Groundwater (not desalinated)	Chino Basin	23,315	Drinking Water	
Groundwater (not desalinated)	Cucamonga Basin	3,618	Drinking Water	
Surface water (not desalinated)	Cucamonga Canyon Tunnel Water	931	Drinking Water	
Surface water (not desalinated)	Deer Canyon	0	Drinking Water	
Surface water (not desalinated)	Day/East Etiwanda Canyon Tunnel Water	3,813	Recycled Water	
Purchased or Imported Water	Inland Empire Utilities Agency	14,343	Drinking Water	
Recycled Water	Inland Empire Utilities Agency	1,038	Recycled Water	
Recycled Water	Inland Empire Utilities Agency (Groundwater Recharge)	4,458	Recycled Water	
	Total	51,516		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Table 6-9 Water Supplies - Projected

Submittal Table 6-9 Retail: Water Supplies — Projected											
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	Additional Detail on Water Supply	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											
Groundwater (not desalinated)	Chino Basin	10,250		14,773		16,331		17,630		17,630	
Groundwater (not desalinated)	Cucamonga Basin	10,000		10,000		10,000		10,000		10,000	
Surface water (not desalinated)	Cucamonga Canyon Tunnel Water	800		800		800		800		800	
Surface water (not desalinated)	Deer Canyon	50		50		50		50		50	
Surface water (not desalinated)	Day/East Etiwanda Canyon Tunnel Water	2,100		2,100		2,100		2,100		2,100	
Purchased or Imported Water	Inland Empire Utilities Agency	28,369		28,369		28,369		28,369		28,369	
Recycled Water	Inland Empire Utilities Agency (Direct Use)	1,800		2,000		2,000		2,000		2,000	
Recycled Water	Inland Empire Utilities Agency (Groundwater Recharge)	4,000		4,000		4,000		4,000		4,000	
	Total	57,369	0	62,092	0	63,650	0	64,949	0	64,949	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES: Groundwater recharge includes recycled water which IEUA recharges in the Chino Basin for the benefit of its member agencies (including the District). The amount of recycled water recharged is credited to the agency's Local Supplemental storage account, less the storage loss.											

6.2.10 SPECIAL CONDITIONS

The District considered the issues described below when developing its planned sources of water supply.

6.2.10.1 CLIMATE CHANGE EFFECTS

Climate change has the possibility of impacting the availability of planned water supplies, particularly during a drought period. Section 4.5 of this Plan provides a discussion regarding climate change effects on the District's various sources of supply.

6.2.10.2 REGULATORY CONDITIONS AND PROJECT DEVELOPMENT

The District has considered the implications of changing regulatory conditions and project development on the availability of planned water supplies. Section 1.4 provides a discussion the reduced reliance on Delta water supplies.

6.2.10.3 OTHER LOCALLY APPLICABLE CRITERIA

There are no locally applicable criteria which applies to the District.

6.3 SUBMITTAL TABLES COMPLETION USING THE OPTIONAL PLANNING TOOL

As discussed in Section 4.2.5, DWR has created an optional "Planning Tool Worksheet" for water suppliers to review and assess monthly water use trends. However, DWR has deemed the tool as optional and the District is not required by DWR to use the tool. Section 6.1 provides a tabulation of the District's historical annual water uses for each water supply source. During the past 10 years, the District experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. In addition, historical records indicate the District's annual water demands typically have been even greater prior to FY 2011-12. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the District has been able to provide water service to meet maximum day water demands for these years, including during the summer months. A further discussion regarding the reliability of the District's water supply sources is provided in Chapter 7.

6.4 ENERGY USE

CWC 10631.2.

(a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

Pursuant to DWR's Final 2020 UWMP Guidebook "Energy intensity" is defined as the quantity of energy consumed or generated divided by volume of water entering a water management process. The energy intensity can be calculated based on the quantity of energy consumed, measured in kilowatt hours (kWh), divided by the volume of water, measured in AF for a water management process over a one-year period. The information used to calculate the estimated energy intensity associated with the District's water system is provided below. The energy intensity information is based on readily obtainable energy and water use data for the following water management processes: 1) extraction or diversion of water supplies; 2) placement into storage; 3) conveyance to distribution; 4) treatment; and 5) water system distribution.

The District has tabulated its energy intensity using readily obtainable energy consumption data obtained from monthly electricity bills from Southern California Edison (SCE) for the whole water system and the corresponding water use data obtained from available water meter readings. The District has reported the energy intensity associated with the water management processes which occur within its operational control. Because the District does not track individual energy usage for each water management process identified above, the District has estimated the energy intensity using the "total utility approach" (i.e. sum of all water management processes). The total energy consumed was approximately 54,124,072 kWh during FY 2019-20. Although the total energy consumption reported includes electricity usage for general administration (e.g. at the District's headquarters) which is not associated with any water management processes, the general administration energy usage is considered negligible compared to overall water system use and has not been netted out.

The total volume of water entering the potable water system was approximately 46,021 AF during FY 2019-20 and is consistent with the total volume of water provided in Table 4-1 (less recycled water supplies).

The total energy intensity associated with the District's water management processes is estimated at 1,176 kWh/AF. The energy intensity data and calculations based on the "total utility approach" are provided in Table O-1B below.

The District's water management processes do not include "consequential hydropower generation" where the energy generation is a direct consequence of water delivery (i.e. all water passing through the energy generation devices is delivered to users). The District's water management processes do not include "non-consequential hydropower generation" where the energy generation is not a direct consequence of water delivery (i.e. energy could be generated even if no water was being delivered to water users). In addition, the District's water management processes do not include any substantial "self-generated energy sources" including solar, wind, geothermal, biomass, co-generation, and diesel generator sources.

Table O-1B. Recommended Energy Reporting — Total Utility Approach

Urban Water Supplier: *Cucamonga Valley Water District*

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

Table O-1B: Recommended Energy Reporting - Total Utility Approach				
Enter Start Date for Reporting Period	7/1/2019	Urban Water Supplier Operational Control		
End Date	6/30/2020			
☐ Is upstream embedded in the values reported?		Sum of All Water Management Processes	Non-Consequential Hydropower	
Water Volume Units Used	*AF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*46021*	*0*	*46021*
Energy Consumed (kWh)		*54124072*	*0*	*54124072*
Energy Intensity (kWh/volume)		*1176.1*	*0.0*	*1176.1*

Quantity of Self-Generated Renewable Energy
0 kWh

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

Data Quality Narrative:

The total energy consumed was identified based on Southern California Edison (SCE) billing records. Although the total energy consumed includes electricity usage for general administration (which is not an identified water management process), general administration energy use is considered to be negligible compared to overall water system use and has not been netted out.

Narrative:

The total energy consumption includes energy associated with operating groundwater production wells and booster pumps to deliver water in the distribution system. Energy consumption is associated with operating groundwater and surface water treatment. Energy consumption is also associated with plant lighting and air conditioning, and operating the Supervisory Control and Data Acquisition (SCADA) system and chlorination injection pumps.

Chapter 7
WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

LAY DESCRIPTION – CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Chapter 7 (Water Service Reliability and Drought Risk Assessment) of the District's 2020 Plan discusses and provides the following:

- FY 2010-11 represents an "average" or "normal" water year for the District in which the total amount of rainfall was similar to the historical average rainfall.
- A "single dry" year for the District was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall.
- A "five consecutive year drought" period for the District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall.
- The District's current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-2.
- The District's current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-3.
- The District's current and projected water supplies available during each year of a five consecutive year drought in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-4.
- The reliability of the District's water supply sources, including a review of water supply constraints, is provided. A single dry year or a five consecutive year drought period will not compromise the District's ability to provide a reliable supply of water to its customers.
- A Drought Risk Assessment (or DRA) is provided which includes an assessment of the District's water supply reliability over a five consecutive year drought period. The District's DRA assumes a five consecutive year drought from FY 2020-21 through FY 2024-25 and includes a review of water supplies, water uses, and water supply reliability for each water supply source during this period. The District's water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. However, the cost of those water supplies may have increased based on the mix of water supplies which are used. Consequently, the District has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.1 INTRODUCTION

This section of the District's UWMP describes the District's ability to meet retail customer water demands by analyzing a variety of factors which affect the District's water supply. This section assesses the District's water service reliability during average years, single dry years, and during a five consecutive year drought period to meet the water needs of its customers. This section also includes the discussion of a Drought Risk Assessment which provides a mechanism for the District to evaluate the risk to its water supply under a drought lasting for the next five consecutive years.

7.2 WATER SERVICE RELIABILITY ASSESSMENT

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Information regarding the reliability of the District water supplies is based on the historical precipitation data in the Chino Basin area. Historical annual precipitation in the Chino Basin area is discussed in Section 3.3 and is based on historical data collected from the National Oceanic and Atmospheric Administration. Furthermore, Section 4.5 of this Plan notes that potential future climate change impacts may result in an increase in the average annual precipitation within the District's service area, thus indicating use of historical data is a reasonable and conservative approach. As indicated in Section 3.3, the historical average rainfall in the vicinity of the District's service area is 10.7 inches. FY 2010-11 represents an average or normal water year for the District in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the District was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall. A five consecutive year drought period for the District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for average, single dry, and five consecutive year drought and provides the total amount of water supplies available to the District during those base years. The following discussion assesses the water service reliability of the District's water supply sources.

Water Service Reliability - Imported Water

The District's imported water supplies from MWD, through IEUA, may be impacted during a multi-year drought or other conditions which limits MWD from delivering sufficient water supplies to all of its member agencies, and consequently to the District. In anticipation of such a

reduction in supplies, MWD developed a WSAP which is briefly described below. The WSAP provides a means of equitably providing reduced water supplies to each of MWD's member agencies for up to 10 levels of reduction representing up to a 50 percent reduction.

During calendar year 2007, critically dry conditions impacted MWD's water supply sources. In addition, a ruling in the Federal Courts in August 2007 provided protective measures for the Delta Smelt (and subsequently other aquatic species) in the Sacramento-San Joaquin River Delta resulting in restrictions on the availability of State Water Project water. As a result, MWD adopted a WSAP in February 2008 to allocate available water supplies to its member agencies. MWD revised the WSAP in December 2014.

The WSAP establishes ten different shortage levels and a corresponding Allocation to each member agency. Based on the shortage levels established by MWD, the WSAP provides a separate reduced Allocation to a member agency for its 1) Municipal and Industrial (M&I) retail demand and 2) replenishment demand. The WSAP formula considers historical local water production, full service treated water deliveries, agricultural deliveries and water conservation efforts when calculating each member agency's Allocation.

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from MWD. When a member agency reduces its local demand through conservation or other means, the Allocation of imported water will increase. Depending on MWD's available supply, MWD can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. Additional information about MWD's WSAP is provided in MWD's Regional 2020 UWMP which is incorporated by reference. The following is a summary of MWD's water shortage levels:

Level 1 – Regional Percent Reduction of 5%
Level 2 – Regional Percent Reduction of 10%
Level 3 – Regional Percent Reduction of 15%
Level 4 – Regional Percent Reduction of 20%
Level 5 – Regional Percent Reduction of 25%
Level 6 – Regional Percent Reduction of 30%
Level 7 – Regional Percent Reduction of 35%
Level 8 – Regional Percent Reduction of 40%
Level 9 – Regional Percent Reduction of 45%
Level 10 – Regional Percent Reduction of 50%

In response to a fourth consecutive year of below average rainfall and critically dry conditions, MWD declared a WSAP Allocation Level 3 for fiscal year 2015-16, which represented a regional

reduction of 15 percent. MWD rescinded the WSAP for fiscal year 2016-17 and has not reinstated the WSAP since that time.

Water Service Reliability - Groundwater

Chino Basin

The Chino Basin groundwater supplies are managed by the Chino Basin Watermaster, as discussed in Section 6.2.2. During a normal year (FY 2010-11), the District met about 41 percent of its total demands with supplies from the Chino Basin. During a single dry year (FY 2017-18), the District met about 14 percent of its total demands with supplies from the Chino Basin. During a five consecutive year drought multiple dry year period (FY 2011-12 to FY 2015-16), the District met between 29 and 51 percent of its total demands with supplies from the Chino Basin.

Cucamonga Basin

The Cucamonga Basin groundwater supplies are managed by the District, SAWCo, and WECWC under terms of the Decree, as discussed in Section 6.2.2. During a normal year (FY 2010-11), the District met about 6 percent of its total demands with supplies from the Cucamonga Basin. During a single dry year (FY 2017-18), the District met about 14 percent of its total demands with supplies from the Cucamonga Basin. During a five consecutive year drought multiple dry year period (FY 2011-12 to FY 2015-16), the District met between 12 and 21 percent of its total demands with supplies from the Cucamonga Basin.

Water Service Reliability - Surface Water

Section 6.2.3 describes the District's surface water supplies from Cucamonga Canyon, Day/East Canyon, and Deer Canyon. These water supplies are dependent on runoff and may be impacted by climate change induced changes to local hydrology. In those cases, the District has created the operational to shift to groundwater and/or imported water supplies to augment its sources of supply in addition to implementing actions under the Water Shortage Contingency Plan (see Chapter 8) to reduce customer demand. During a normal year (FY 2010-11), the District met about 10 percent of its total demands with supplies from the Cucamonga Canyon, Day/East Canyon, and Deer Canyon. During a single dry year (FY 2017-18), the District met about 6 percent of its total demands with supplies from the Cucamonga Canyon, Day/East Canyon, and Deer Canyon. During a five consecutive year drought period (FY 2011-12 to FY 2015-16), the District met between 3 and 8 percent of its total demands with supplies from the Cucamonga Canyon, Day/East Canyon, and Deer Canyon.

Water Service Reliability Summary

Table 7-1 shows the water supplies during the base years (for average year, single dry year and a five consecutive year drought). As a result of the District's diverse water supply portfolio, water supplies may be re-apportioned during a five consecutive year drought to meet the District's water demands.

7.2.1 SERVICE RELIABILITY - CONSTRAINTS ON WATER SOURCES

CWC 10631.

(b)(1) A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

The District's sources of supplies consist of groundwater pumped from the Chino Basin and Cucamonga Basin; untreated, imported surface water from Metropolitan Water District of Southern California purchased through Inland Empire Utilities Agency and treated at the District's treatment plant; local treated surface water from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon; and recycled water purchased from IEUA, as described in Section 6.2. Although all of these supplies are managed, the following constraints may occur which the District has considered in this reliability analysis.

Chino and Cucamonga Basins

The District produces groundwater from the Chino Basin and Cucamonga Basin. The groundwater quality has been impacted by contamination. However, the District has developed and/or in the process of implementing appropriate treatment (blending and/or treatment facilities) as necessary which have been approved by SWRCB-DDW. These groundwater supplies are considered reliable both from a water quality and quantity standpoint.

Imported Water

The District also receives imported water from MWD through IEUA. Constraints to water supplies from MWD relating to supply reliability is addressed in MWD's 2020 Regional Urban Water Management Plan. The relevant MWD discussion relating to supply reliability is provided in Appendix M.

7.2.2 SERVICE RELIABILITY - YEAR TYPE CHARACTERIZATION

7.2.2.1 TYPES OF YEARS

The District's base years for an average year, a single dry year, and a five consecutive year drought are discussed in Section 7.2 and are summarized in Table 7-1. As indicated in Chapter 6, the District's water supplies sources have been sufficient in meeting the District's historical water demands during an average year, a single dry year, and a five consecutive year drought. An average year was based on a historical year during the past 10 years with a total precipitation similar to the historical average precipitation in the vicinity of the District's service area. Because a single dry year or a five consecutive year drought period will not compromise the District's ability to provide a reliable supply of water to its customers, a single dry year in this Plan was selected based one of the driest years during the past 10 years. The five consecutive year drought period was based on a period of five consecutive dry years during the past 10 years.

As indicated in Section 3.3, the historical average rainfall in the vicinity of the District's service area is 10.7 inches. FY 2010-11 represents an average or normal water year for the District in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the District was represented in FY 2017-18, in which the total amount of rainfall was less than the historical average rainfall. A five consecutive year drought period for the District's is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for an average year, a single dry year and a five consecutive year drought period and provides the total amount of water supplies available to the District during those base years.

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

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	2011	49,219	100%
Single-Dry Year	2018	48,048	97.6%
Consecutive Dry Years 1st Year	2012	52,114	105.9%
Consecutive Dry Years 2nd Year	2013	56,306	114.4%
Consecutive Dry Years 3rd Year	2014	55,726	113.2%
Consecutive Dry Years 4th Year	2015	48,950	99.5%
Consecutive Dry Years 5th Year	2016	40,166	81.6%
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:			

7.2.2.2 SOURCES FOR WATER DATA

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly ETo in the vicinity of the District's service area are discussed in Section 3.3 Historical climate information was obtained from the WRCC, the National Oceanic and Atmospheric Administration, and from DWR's CIMIS.

7.2.3 SERVICE RELIABILITY – SUPPLY AND DEMAND COMPARISON

CWC 10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

The District primarily obtains its water supplies from groundwater pumped from the Chino Basin and from untreated, imported surface water. As discussed in Section 7.3 and shown in Table 7-2, Table 7-3, and Table 7-4, each of the District's water supply sources share the same base years. As previously discussed in Section 7.2.1, a single dry year or a five consecutive year drought period will not compromise the District's ability to provide a reliable supply of water to its customers.

As previously discussed in Section 4.2.6, the District's projected normal year water demands over the next 25 years, in five-year increments, were based on the District's 2020 Water Use Target of 232 GPCD for potable water demands. The ratio of total water supplies (including potable and recycled water supplies) available to the District during a historical normal year in FY 2010-11 (or 49,219 AF) and during a historical single dry year in FY 2017-18 (or 48,048 AF) was used to estimate the District's projected water demands during single dry years. The ratio of total water supplies available to the District during a historical normal year in FY 2010-11 (or 49,219 AF) and a historical a five consecutive year drought period from FY 2011-12 to FY 2015-16 (or 52,114 AF, 56,306 AF, 55,726 AF, 48,950 AF, and 40,166 AF, respectively) was used to estimate the District's projected water demands during a five consecutive year drought period. The District's projected dry year water supplies over the next 25 years were based on the minimum supplies needed by the District to meet projected single-dry year demands. Table 7-2, Table 7-3, and Table 7-4 summarize the District's projected water demands and supplies over the next 25 years in five-year increments, including during normal years, single dry years, and a five consecutive year drought periods. These tables indicate the District can meet water demands during normal years, single dry years, and five consecutive year drought periods over the next 25 years.

7.2.3.1 WATER SERVICE RELIABILITY – NORMAL YEAR

Table 7-2 summarizes the District's projected water demands and supplies over the next 25 years in five-year increments during normal years. Table 7-2 indicates the District can meet water demands during normal years over the next 25 years.

Table 7-2 Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	57,369	62,092	63,650	64,949	64,949
Demand totals *(autofill from Table 4-3)*	53,369	58,092	59,650	60,949	60,949
Difference	4,000	4,000	4,000	4,000	4,000
NOTES:					

7.2.3.2 WATER SERVICE RELIABILITY – SINGLE DRY YEAR

Table 7-3 summarizes the District's projected water demands and supplies over the next 25 years in five-year increments during single dry years. Table 7-3 indicates the District can meet water demands during single dry years over the next 25 years.

Table 7-3 Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	55,999	60,610	62,131	63,399	63,399
Demand totals*	52,099	56,710	58,231	59,499	59,499
Difference	3,900	3,900	3,900	3,900	3,900
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

7.2.3.3 WATER SERVICE RELIABILITY – FIVE CONSECUTIVE DRY YEARS

Table 7-4 summarizes the District's projected water demands and supplies over the next 25 years in five-year increments during five consecutive year drought periods. Table 7-4 indicates the District can meet water demands during five consecutive year drought periods over the next 25 years.

Table 7-4 Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	60,708	65,708	67,358	68,733	68,733
	Demand totals	56,508	61,508	63,158	64,533	64,533
	Difference	4,200	4,200	4,200	4,200	4,200
Second year	Supply totals	63,297	68,509	70,229	71,662	71,662
	Demand totals	58,897	64,109	65,829	67,262	67,262
	Difference	4,400	4,400	4,400	4,400	4,400
Third year	Supply totals	64,924	70,271	72,035	73,506	73,506
	Demand totals	60,424	65,771	67,535	69,006	69,006
	Difference	4,500	4,500	4,500	4,500	4,500
Fourth year	Supply totals	57,077	61,774	63,323	64,615	64,615
	Demand totals	53,077	57,774	59,323	60,615	60,615
	Difference	4,000	4,000	4,000	4,000	4,000
Fifth year	Supply totals	46,852	50,707	51,978	53,038	53,038
	Demand totals	43,552	47,407	48,678	49,738	49,738
	Difference	3,300	3,300	3,300	3,300	3,300
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:						

7.2.4 DESCRIPTION OF MANAGEMENT TOOLS AND OPTIONS

CWC 10620.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

Chino Basin

As noted in Section 6.2.2, the Chino Basin is managed by the Chino Basin Watermaster. During the period of management under the Judgment, significant drought events have occurred. In each drought cycle the Chino Basin has been managed to maintain water levels. Therefore, based on historical and on-going management practices, the District will be able to rely on the Chino Basin for adequate supply over the next 25 years under single dry years and a five consecutive year drought periods.

Section 6.2.2 provides a description of the management of groundwater resources in the Chino Basin, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Chino Basin provides a reliable source of groundwater supply for the District during a normal year, a single-dry year and a five consecutive year drought. Historical data indicates the Chino Basin has been well managed for the full period of the adjudication, resulting in a stable and reliable water supply. Basin management changes are discussed in Section 6.2.2, and include increased direct use of recycled water (see Section 6.5) and the continued use of recycled water for groundwater replenishment in the Chino Basin to reduce the need to import water from other regions. Therefore, the groundwater supplies in the Chino Basin are deemed reliable.

Cucamonga Basin

As noted in Section 6.2.2, the provisions of the Cucamonga Basin Decree are currently administered and jointly managed by Cucamonga Valley Water District, San Antonio Water Company, and the West End Consolidated Water Company. During the period of management under the Decree, significant drought events have occurred. In each drought cycle the Cucamonga Basin has been managed to maintain water levels. Therefore, based on historical and on-going management practices, the District will be able to rely on the Cucamonga Basin for adequate supply over the next 25 years under single dry years and a five consecutive year drought periods.

Section 6.2.2 provides a description of the management of groundwater resources in the Cucamonga Basin, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Cucamonga Basin provides a reliable source of groundwater supply for the District during a normal year, a single-dry year and a five consecutive year drought. Historical data indicates the Cucamonga Basin has been well managed for the full period of the

adjudication, resulting in a stable and reliable water supply. Basin management changes are discussed in Section 6.2.2, and include increased direct use of recycled water (see Section 6.5) to reduce the need to import water from other regions. Therefore, the groundwater supplies in the Cucamonga Basin are deemed reliable.

7.3 DROUGHT RISK ASSESSMENT

CWC 10635.

(b) Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) A description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) 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.

The District's sources of supplies consist of groundwater pumped from the Chino Basin and Cucamonga Basin, untreated, imported surface water from Metropolitan Water District of Southern California purchased through Inland Empire Utilities Agency for use at their respective treatment plants, recycled water from IEUA, and local treated surface water from Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon. The following discussion provides a Drought Risk Assessment which assesses the District's water supply reliability over a five consecutive drought year period. The District's DRA incorporates a five consecutive year drought from FY 2020-21 through FY 2024-25 and includes a review of water supplies, water uses, and water supply reliability.

7.3.1 DRA DATA, METHODS, AND BASIS FOR WATER SHORTAGE CONDITIONS

The District's DRA was prepared using historical production data from the District's water supply sources. The following assumptions were considered during the preparation of the District's DRA for each year of the five consecutive year drought:

- The five consecutive year drought period associated with the 2020 UWMP is based on five consecutive dry years from FY 2020-21 through FY 2024-25.
- The projected water supplies available during each year of this five consecutive year drought are assumed to be identical to the water supplies produced during each year between FY 2011-12 and FY 2015-16 (which represents the most recent and historical five consecutive year drought).
- The projected demands during this five consecutive year drought are based on water demands from FY 2010-11 (a normal year) which were adjusted based on projected population over the next five years along with the ratio of the normal year demands to actual demands over each year of the most recent and historical five consecutive year drought period (from FY 2011-12 and FY 2015-16).
- The projected demands were compared to the projected supplies to identify potential water supply deficits which may require implementation of the Water Shortage Contingency Plan (discussed further in Chapter 8).

The following hypothetical methodologies were considered during the preparation of the District's DRA during for each year of the five consecutive year drought:

- Drought Year 1: The region had experienced an average to above average year of precipitation in the prior year. Water use in the prior year had been below average due to a reduced need for outdoor water use, the groundwater basin had been replenished from above average local stormwater runoff, and imported water supplies were not restricted.
- Drought Year 2: The region experienced a second year of below average precipitation and runoff. Retail customers increased water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted. Local surface water supplies have not been impacted.
- Drought Year 3: The region experienced a third year of below average precipitation and runoff. Retail customers increased water use for outdoor irrigation to compensate for lack of precipitation. Groundwater and imported water supplies have not been impacted. However, there is an increased demand on both groundwater and treated imported water because local surface water supplies have been significantly impacted.
- Drought Year 4: The region experienced a fourth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased

demand on groundwater because local surface water supplies continue to be significantly impacted.

- Drought Year 5: Fifth year of below average precipitation and runoff. Groundwater supplies have not been impacted. However, there is an increased demand on groundwater because local surface water supplies continue to be significantly impacted.

7.3.2 DRA INDIVIDUAL WATER SOURCE RELIABILITY

The District's DRA incorporates a five consecutive year drought based on five consecutive dry years commencing in FY 2021-22. The quantity of water supplies available for each year during this five consecutive year drought period included in the District's DRA is assumed to be the same as the quantity of water supplies produced by the District (i.e. demands) during the most recent and historical five consecutive year drought which occurred from FY 2011-12 through FY 2015-16. Production data for those years have been tabulated in Section 6.1. The following describes the anticipated reliability of each water source for each year of the five consecutive year drought based on recent experience.

Groundwater – Chino Basin

The District receives water supplies from the Chino Basin which is actively managed by the Chino Basin Watermaster, as described in Section 6.2.2. Each year the Chino Basin Watermaster reviews water supply conditions including local rainfall, groundwater levels, local stormwater runoff available for replenishment, imported water availability and the amount of water stored in the groundwater basin for future demands to ensure the Basin is responsibly managed. Regardless of the annual safe yield adopted there is never a restriction on the amount of water which may be pumped from the Chino Basin, subject to replenishment requirements under the Chino Basin Watermaster's oversight. The quantity of groundwater used (and reliably available) during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. During this period, the District was able to increase its production of its groundwater supplies from an adjudicated and managed groundwater basin. The District also had the ability to systematically implement aspects of its Water Shortage Contingency Plan (see Chapter 8). As a result of these collective actions (and experience during prior five consecutive year droughts), the District does not anticipate a water supply shortage from the Chino Basin.

Groundwater – Cucamonga Basin

The District receives water supplies from the Cucamonga Basin, which is actively managed by the Cucamonga Basin Watermaster, as described in Section 6.2.2. The Cucamonga Basin is adjudicated; however, the District's water rights are fixed each year. Consequently, the District cannot produce in excess of its own water rights or rights it may have leased from others. The District also has access to water supplies from the Chino Basin, untreated imported water, and surface water. The quantity of groundwater used (and reliably available) during the most recent

and historical five consecutive year drought period have been tabulated in Section 6.1. The District manages its water supply portfolio to optimize the water supplies available each year and to avoid a water supply shortage. The District also had the ability to systematically implement aspects of its Water Shortage Contingency Plan (see Chapter 8). As a result of these collective actions (and experience during prior consecutive five-year droughts), the District does not anticipate a water supply shortage.

Imported Water

The District obtains imported water from the Metropolitan Water District of Southern California through IEUA. Section 6.2.1 describes the planning conducted by the Metropolitan Water District of Southern California regarding untreated imported water supplies available to the District. The reliability of MWD's supplies is also discussed in its 2020 Regional UWMP. The relevant MWD discussion relating to supply reliability is provided in Appendix M. The District purchases treated imported water which is delivered directly within its distribution system. The District's purchases of treated, imported water over the past ten years have been tabulated in Section 6.1. In the event of a drought which limits imported water supplies, the District will rely on its groundwater production and will pay the applicable assessments to purchase untreated imported water to be delivered in the future when supplies are available.

The imported water purchases by the District during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. Because the District's DRA assumes the most recent and historical five consecutive year drought scenario will be repeated over the next five years, it is assumed the quantity of treated imported water supplies purchased during the most recent and historical five consecutive year drought scenario will be available. Furthermore, this constitutes the minimum amount of treated imported water which may be available in a future five consecutive year drought absent MWD's programs which it has since implemented.

Local Surface Water

The District uses treated surface water from the Cucamonga Canyon, Day/East Etiwanda Canyon, and Deer Canyon as described in Section 6.2.3. Similar to untreated imported water, available treated surface water supplies are managed and supplemented as needed with groundwater supplies. In the event of a drought which limits local surface water supplies, the District will rely on its groundwater production and will pay the applicable assessments to purchase untreated imported water to be delivered in the future when supplies are available.

The treated surface water used during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. Although the amount of local surface water supplies decreased, those water supplies were supplemented by additional groundwater production as noted above. Consequently, the quantities tabulated in Section 6.1 constitute the minimum amount of local surface water which may be available in a five consecutive year drought.

Recycled Water

The District has a recycled water distribution system which it has developed over the years to reduced demands on its potable water supplies as described in Section 6.2.5. The availability of recycled water supplies is not adversely impacted by drought conditions and are locally available.

The quantity of recycled water used during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. The quantity of recycled water available during each year of the most recent and historical five consecutive year drought is expected to be available during a future five consecutive year drought.

Summary

The District's water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. However, the cost of those water supplies may have increased based on the mix of supplies which are used. Consequently, the District has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.3.3 DRA TOTAL WATER SUPPLY AND USE COMPARISON

Gross water use for the projected five consecutive year drought is shown on Table 7-5. Section 7.3.2 describes the water source reliability for each source of supply the District will rely on during a five consecutive year drought. The annual quantities are the summed and are also provided on Table 7-5. The most important aspect of the District's water supplies is the groundwater which can be produced from a managed groundwater basin without restriction on the amount the District is allowed to produce. However, for the purposes of the District's DRA, as a worst-case scenario, the District has considered no water supply augmentation (as indicated in Table 7-5) from its groundwater supplies. When necessary, the District can implement various water shortage levels of its Water Shortage Contingency Plan (as discussed in Chapter 8) in order to reduce its water demands. The total water supplies available to the District shown in Table 7-5 are based on the quantity of supplies produced by the District (i.e. demands) during the most recent historical five consecutive drought period (from FY 2011-12 through FY 2015-16) as provided in Table 7-1. As shown in Table 7-5, assuming no additional water supply benefits will be available from groundwater supplies, the District will implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during years 2, 3, 4, and 5 of the projected five consecutive year drought.

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

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	51,163
Total Supplies	52,114
Surplus/Shortfall w/o WSCP Action	951
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	951
Resulting % Use Reduction from WSCP action	0%
2022	**Total**
Total Water Use	54,719
Total Supplies	54,318
Surplus/Shortfall w/o WSCP Action	(401)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	401
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	1%
2023	**Total**
Total Water Use	57,566
Total Supplies	55,726
Surplus/Shortfall w/o WSCP Action	(1,840)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	1,840
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	3%
2024	**Total**
Total Water Use	51,822
Total Supplies	48,950
Surplus/Shortfall w/o WSCP Action	(2,872)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	2,872
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	6%
2025	**Total**
Total Water Use	43,552
Total Supplies	40,166
Surplus/Shortfall w/o WSCP Action	(3,386)
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	3,386
Revised Surplus/(shortfall)	0
Resulting % Use Reduction from WSCP action	8%

7.3.4 OPTIONAL PLANNING TOOL WORKBOOK

DWR has deemed the "Planning Tool Worksheet" as optional and the District is not required by DWR to use the tool. The District has provided sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. The District has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. The District obtains the majority of its water supplies from managed groundwater basins which are not subject to seasonal fluctuation. Consequently, an evaluation regarding water supplies on a monthly basis was not considered.

Chapter 8
WATER SHORTAGE CONTINGENCY PLAN

LAY DESCRIPTION – CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

Chapter 8 (Water Shortage Contingency Plan) of the District's 2020 Plan discusses and provides the following:

- The District's Water Shortage Contingency Plan is a detailed approach which presents how the District intends to act, or respond, in the case of an actual water shortage contingency.
- Preparation of the District's "Annual Water Supply and Demand Assessment" (or Annual Assessment) is discussed. Commencing July 1, 2022, the District is required to submit the Annual Assessment. The Annual Assessment will include a review of the District's "unconstrained" water demands for the current year and for a potential upcoming single dry year. Unconstrained water demands represent the District's water demands prior to any "response actions" the District may invoke pursuant to the District's Water Shortage Contingency Plan.
- The District's Water Shortage Contingency Plan was prepared in accordance with the CWC in which urban water suppliers are required to define six standard water shortage levels. The District previously adopted a Water Shortage Contingency Plan in 2019 which includes nine standard water shortage levels. The District, in coordination with the Department of Water Resources, has developed a crosswalk that illustrates how the District's existing adopted water shortage levels translate to the six standard water shortage levels which meets the requirements of the CWC. The District will manage water supplies to minimize the adverse impacts of water shortages. The District's plan for water usage during periods of shortage is designed to incorporate at least six standard water shortage levels corresponding to progressive ranges from up to a 10, 20, 30, 40, and 50 percent shortage, and greater than a 50 percent shortage.
- For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level.
- For each declared water supply shortage level, the District has established response actions to reduce demand on water supplies and to reduce any shortage gaps in water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions.
- The operational changes the District will consider in addressing water shortages on a short-term basis are discussed and include improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- The District's Emergency Response Plan is summarized. The Emergency Response Plan provides the management, procedures, and designated actions the District and its employees will implement during emergency situations (including catastrophic water

shortages) resulting from natural disasters, system failures, and other unforeseen circumstances.

- The preparation of the District's seismic risk assessment and mitigation plan is discussed. The locations of earthquake faults in the vicinity of the District's water service area are provided.
- The effectiveness of the shortage response actions for each of the District's standard water shortage levels is presented. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands.
- The communication protocols implemented by the District when it declares any water shortage level are presented.
- The compliance and enforcement procedures associated with the District's standard water shortage levels are presented.
- The legal authorities associated with the District's standard water shortage levels are presented.
- The financial consequences associated with the District's standard water shortage levels are presented.
- The District will evaluate the need for revising the Water Shortage Contingency Plan in order to resolve any water shortage gaps, as necessary. The steps necessary for the District to adopt and amend its Water Shortage Contingency Plan are presented.

The following Water Shortage Contingency Plan includes references to Chapters and Sections from the Cucamonga Valley Water District's 2020 Urban Water Management Plan:

8.1 WATER SUPPLY RELIABILITY ANALYSIS

CWC 10632.

(a)(1) The analysis of water supply reliability conducted pursuant to Section 10635.

The District's sources of supply were discussed in Section 6.2 of the 2020 UWMP and consist of groundwater from Chino and Cucamonga Basins, treated local surface water, and imported water purchased from IEUA. In addition, the District uses recycled water. The Cucamonga and Chino Basins are adjudicated and groundwater supplies are managed. The reliability of the various sources of supply are discussed in Chapter 7 of the UWMP. Based on the adjudication provisions in the Chino Basin, the District is able to produce groundwater without limitation, provided any amount produced in excess of the production rights is replenished. Imported water supplies may be impacted in the event MWD implements its WSAP due to a water supply shortage. Section 7.2.3 summarizes the City's projected water demands and supplies over the next 25 years in five-year increments, including during normal years, single dry years, and a five consecutive year drought periods. These tables indicate the City can meet water demands during normal years,

single dry years, and a five consecutive year drought periods over the next 25 years. Consequently, it is anticipated the City will have sufficient water supplies available to meet projected demands.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

CWC 10632.

(a)(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(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) A description and quantification of each source of water supply.

CWC 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

Commencing July 1, 2022, the District is required to submit an "Annual Water Supply and Demand Assessment" (Annual Assessment) in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of the District's unconstrained water demands (i.e. water demands prior to any projected response actions the District may trigger under

this Water Shortage Contingency Plan) for the current year and the upcoming (potential single dry) year. The District will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the District's Water Shortage Contingency Plan.

For each Annual Assessment, the District plans to prepare a preliminary assessment which evaluates the adequacy of its water supplies for the current and upcoming years by April of each year. The preliminary assessment will include a review of water supplies for at least a single dry year.

The components of Annual Assessment consist of the following:

- A written decision-making process
- Key data inputs and assessment methodology

8.2.1 DECISION MAKING PROCESS

The District relies on imported water and produces groundwater from the Chino Basin as its primary sources of water supply and that basin is managed on a fiscal year basis. Consequently, during the third quarter of each fiscal year the District will review its water demands from the initial six months along with the current groundwater basin conditions and local hydrology. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be circulated internally within the District for peer review and comment. Based on comments received, a redraft will be prepared and provided to District managers during the Spring of each year. The draft will subsequently be provided to the General Manager for final review. Subsequently, a final draft of the Annual Assessment will be provided to the District's Board of Directors for review and included in the agenda as part of a Board meeting such that it can be approved and any recommended specific shortage response actions may be enacted. The final Annual Assessment will be provided to DWR no later than July 1 of each year.

The Annual Assessments will be instrumental in providing guidance to the District for decisions regarding potential declarations of a water supply shortage and implementation of water reduction stages, instituting mandatory water restrictions, promoting water use efficiency and conservation programs, water rates and drought rate surcharges, and the necessity of pursuing alternative water supplies. This process will help ensure adequate water supply resources are available to the District.

8.2.2 DATA AND METHODOLOGIES

The key data inputs and methodologies which will be evaluated by the District during the preparation of the preliminary assessment will include the following:

1) Evaluation Criteria: The locally applicable evaluation criteria used to prepare the Annual Assessment will be identified. The evaluation criteria will include, but is not limited to, an analysis of current local hydrology (including rainfall and groundwater levels), current water demands, a review of water system improvement plans which may impact infrastructure availability, and water quality regulations which may impact groundwater availability.

2) Water Supply: A description of each available water supply source will be provided. The descriptions will include a quantification of each available water supply source and will be based on review of current production capacities, historical production, Urban Water Management Plans, and prior water supply studies (including Water Supply Assessments and/or Master Plans).

3) Unconstrained Water Demand: The potential unconstrained water demands during the current year and the upcoming (potential single dry) year will be reviewed. The review will include factors such as weather, existing and projected land uses and populations, actual customer consumption and water use factors, monthly Urban Water Supplier Monthly Reports, existing water shortage levels (see Section 8.3), and existing water conservation ordinances (see Section 9.2.1).

4) Planned Water Use for Current Year Considering Dry Subsequent Year: The water supplies available to meet the demands during the current year and the upcoming (potential single dry) year will be considered and identified by each type of supply. The evaluation will include factors such as estimated water demands, weather, groundwater basin operating safe yields, water quality results, existing available pumping capacities, imported water allocations, contractual obligations, regulatory issues, use of emergency interconnections, and the costs associated with producing each water supply source.

5) Infrastructure Considerations: The capabilities of the water distribution system infrastructure to meet the water demands during the current year and the upcoming (potential single dry) year will be considered. Available production capacities (e.g. groundwater well capacities) and distribution system water losses (see Section 4.2.4) will be reviewed. In addition, capital improvement and replacement projects, as well as potential projects which may increase water system and production capacities (see Section 6.2.8), will be considered.

6) Other Factors: Additional local considerations, if any, which can affect the availability of water supplies will be described.

8.3 SIX STANDARD WATER SHORTAGE LEVELS

CWC 10632.

(a)(3)(A) 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. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

The District will manage water supplies prudently to minimize the adverse impacts of water shortage. The District's plan for water usage during periods of shortage is designed to incorporate at least six standard water shortage levels corresponding to progressive ranges from up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Water shortage trigger mechanisms have been established to ensure that this policy is implemented. For each declared water supply shortage level, customers will be required to reduce their water consumption by the percentage specified in the corresponding water supply shortage level.

The District adopted Ordinance No. 48 ("Establishing a Water Supply Shortage Contingency Plan") in June 2009. The District's Ordinance No. 2019-5-1 ("Revising the Water Supply Shortage Contingency Plan to comply with State Water Code"), adopted in 2019, previously established nine (9) shortage levels. In accordance with the CWC in which urban water suppliers are required to define six standard water shortage level, the District has developed the crosswalk illustrated below that translates the District's previously established shortage levels to the mandated standard shortage levels.

Corresponding Relationships Between CVWD's 2019 Adopted Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Established Level	Supply Condition/ Shortage
1	10%
2	15%
3	20%
4	25%
5	30%
6	35%
7	40%
8	50%
9	Greater than 50%

2020 Standard Level	Shortage Level
1	≤10%
2	10 to 20%
3	20 to 30%
4	30 to 40%
5	40 to 50%
6	> 50%

Table 8-1 provides a description of the stages of action which may be triggered by a shortage in one or more of the District's water supply sources, depending on the severity of the shortage and its anticipated duration.

Table 8-1 Water Shortage Contingency Planning Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description)*
1	Up to 10%	The following prohibitions are in effect: 1. Hosing paved areas for health and safety purposes only using a water broom or water-efficient pressure washer using not more than five gallons per minute. 2. Wash vehicles using a hose equipped with a shutoff nozzle so that water does not flow to waste. 3. All decorative fountains shall be equipped with re-circulating systems. 4. Upon notification by the District, repair all leaks. 5. Adjust sprinklers so there is no runoff, overspray, or excessive irrigation from the property. 6. Restaurants will only serve water on request. 7. Hotels will offer guests the option to not launder linen daily. 8. Industrial customers will review their water-using processes to evaluate ways to increase water conservation. 9. Prohibition of watering outdoor landscapes during and within 48 hours after a measurable rainfall.
2	Up to 20%	In addition to Stage 1 measures, limits may be applied to the number of days, frequency and duration of outdoor watering as determined by the District and enacted by Board resolution.
3	Up to 30%	In addition to Stage 2 measures, limits may be applied to the number of days, frequency and duration of outdoor watering as determined by the District and enacted by Board resolution.
4	Up to 40%	In addition to Stage 3 measures, the following end-user prohibitions are also in effect: 1. The irrigation with potable water on ornamental turf areas on public street medians. 2. The irrigation with potable water of landscapes outside newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission.
5	Up to 50%	In addition to Stage 4 measures, the following end-user prohibitions are also in effect: 1. All non-essial outdoor water may be prohibited as determined bythe District and enacted by resolution. 2. The use of water for construction purposes shall be curtailed during a water emergency crisis with the exception that recycled water may be used for such purposes.
6	> 50%	In addition to Stage 5 measures, additional restrictions may be implemented as determined by the District.
NOTES:		

8.4 SHORTAGE RESPONSE ACTIONS

CWC 10632.

(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

8.4.1 DEMAND REDUCTION

Upon adoption of a water supply shortage stage, as described in the mandatory restrictions, water reduction demands will be effective immediately. A listing of the restrictions/prohibitions associated with each shortage level is provided below.

Water use efficiency practices

Customers are required to practice the following activities:

1. Hosing paved areas for health and safety purposes only with the use of a water broom or water-efficient pressure washer using not more than five gallons per minute.
2. Wash vehicles using a hose equipped with a shutoff nozzle so that water does not flow to waste.
3. All decorative fountains shall be equipped with recirculating systems.
4. Upon notification by the District, repair all leaks.
5. Adjust sprinklers so there is no run-off, over-spray or excessive irrigation from the property.
6. Restaurants will only serve water on request.
7. Hotels will offer guests the option to not launder linen daily.
8. Industrial customers will review their water-using processes to evaluate ways to increase water conservation.
9. Prohibition of watering outdoor landscapes during and within forty-eight (48) hours after a measurable rainfall.

District Stage 1 (10%) or Standard Shortage Level 1 (10%):

A District Stage 1 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by ten (10) percent from a time period determined by the District. In addition to the water use efficiency practices listed in above, hours of watering are limited to 4:00 p.m. through 9:00 a.m., and are enacted by Resolution of the Board. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 2 (15%) or Standard Shortage Level 2 (20%):

A District Stage 2 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by fifteen (15) percent from a time period determined by the District. In addition to the water use efficiency practices listed in above, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and are enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 3 (20%) or Standard Shortage Level 3 (30%):

A District Stage 3 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by twenty (20) percent from a time period determined by the District. In addition to the water use efficiency practices listed in above, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and limits may be applied to the number of days, frequency, and duration of outdoor potable watering as determined by the District and enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 4 (25%) or Standard Shortage Level 3 (30%):

A District Stage 4 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by twenty-five (25) percent from a time period determined by the District. In addition to the water use efficiency practices listed above, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and limits may be applied to the number of days, frequency, and duration of outdoor potable watering as determined by the District and enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 5 (30%) or Standard Shortage Level 4 (40%):

A District Stage 5 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by thirty (30) percent from a time period determined by the District. In addition to Stage 4 measures, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and limits may be applied to the number of days, frequency, and duration of outdoor potable watering as determined by the District and enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 6 (35%) or Standard Shortage Level 4 (40%):

A District Stage 6 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by thirty-five (35)percent from a time period determined by the District. In addition to the water use efficiency practices listed in Chapter 4.20, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and limits may be applied to the number of days, frequency, and duration of outdoor potable watering as determined by the District and enacted by Board Resolution. In addition, the following end-user prohibitions are also in effect: (a) irrigation with potable water on ornamental turf areas on public street medians, and (b) irrigation with potable water of landscapes outside newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission. These limits must be enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 7 (40%) or Standard Shortage Level 5 (50%):

A District Stage 7 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by forty (40) percent from a time period determined by the District. In addition to the water use efficiency practices listed above, hours of watering are limited to 4:00 p.m. through 9:00 a.m. and limits may be applied to the number of days, frequency, and duration of outdoor potable watering as determined by the District. In addition, the following end-user prohibitions are also in effect: (a) irrigation with potable water on ornamental turf areas on public street medians, and (b) irrigation with potable water of landscapes outside newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission. These limits must be enacted by Board Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 8 (50%) or Standard Shortage Level 5 (50%)

A District Stage 8 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by fifty (50) percent from a time period determined by the District. In addition to Stage 7 measures, all non-essential outdoor watering may be prohibited as determined by the District and enacted by Resolution. Additionally, the use of potable water for construction and grading purposes shall be curtailed during this stage with the exception that recycled water may be used for such purposes. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

District Stage 9 (>50%) or Standard Shortage Level 6 (>50%)

A District Stage 9 shortage may be declared when the Board of Directors determines that it is likely that the District will require customers to reduce their water usage by greater than fifty (>50) percent from a time period determined by the District. Stage 8 measures remain in effect and will be enacted by Resolution. Penalties for violating any of the above provisions will be assessed according to Section 4.24.050 of the District's Municipal Code.

Table 8-2 Demand Reduction Actions

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	Other - Prohibit use of potable water for washing hard surfaces	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Hosing paved areas for health and safety purposes only using a water broom or water-efficient pressure washer using not more than five gallons per minute.	Yes
1	Other	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Wash vehicles using a hose equipped with a shutoff nozzle so that water does not flow to waste.	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	All decorative fountains shall be equipped with re-circulating systems.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Upon notification by the District, repair all leaks.	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Adjust sprinklers so there is no runoff, overspray, or excessive irrigation from the property.	Yes
1	CII - Restaurants may only serve water upon request	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Restaurants will only serve water on request.	Yes
1	CII - Lodging establishment must offer opt out of linen service	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Hotels will offer guests the option to not launder linen daily.	Yes
1	Other	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Industrial customers will review their water-using processes to evaluate ways to increase water conservation.	Yes
1	Landscape - Other landscape restriction or prohibition	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Prohibition of watering outdoor landscapes during and within 48 hours after a measurable rainfall.	Yes
1	Landscape - Limit landscape irrigation to specific times	Collective reduction from all Shortage Level 1 actions is up to 6,162 AF	Hours of watering are limited to 4:00 p.m. through 9:00 a.m.	Yes
2	Other	Collective reduction from all Shortage Level 2 actions is up to 12,324 AF	All actions under Shortage Level 1	Yes
2	Landscape - Limit landscape irrigation to specific days	Collective reduction from all Shortage Level 2 actions is up to 12,324 AF	Limits may be applied to the number of days, frequency and duration of outdoor watering as determined by the District and enacted by Board resolution.	Yes
3	Other	Collective reduction from all Shortage Level 3 actions is up to 18,485 AF	All actions under Shortage Level 2	Yes

4	Other	Collective reduction from all Shortage Level 4 actions is up to 24,647 AF	All actions under Shortage Level 3	Yes
4	Landscape - Prohibit certain types of landscape irrigation	Collective reduction from all Shortage Level 4 actions is up to 24,647 AF	Irrigation with potable water on ornamental turf areas on public street medians.	Yes
4	Landscape - Prohibit certain types of landscape irrigation	Collective reduction from all Shortage Level 4 actions is up to 24,647 AF	Irrigation with potable water of landscapes outside newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission.	Yes
5	Other	Collective reduction from all Shortage Level 5 actions is up to 30,809 AF	All actions under Shortage Level 4	Yes
5	Landscape - Prohibit all landscape irrigation	Collective reduction from all Shortage Level 5 actions is up to 30,809 AF	All non-essential outdoor water may be prohibited as determined by the District and enacted by resolution.	Yes
5	Other - Prohibit use of potable water for construction and dust control	Collective reduction from all Shortage Level 5 actions is up to 30,809 AF	The use of water for construction purposes shall be curtailed during this stage with the exception that recycled water may be used for such purposes.	Yes
6	Other	Collective reduction from all Shortage Level 6 actions is greater than 30,809 AF	All actions under Shortage Level 5	Yes
NOTES:				

Table 8-3 Supply Augmentation and Other Actions

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	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	
NOTES: The District will consider increased production from the Chino and Cucamonga Basins using existing facilities to address increased demands. As noted on Table 8-2, the District plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.			

8.4.2 SUPPLY AUGMENTATION

As discussed in Chapter 6, the District's sources of water supply include groundwater produced from the Chino Basin and Cucamonga Basin, imported water purchased from MWD through IEUA, local treated surface water, and recycled water supplies provided by IEUA. As noted in Section 8.2, beginning July 1, 2022, the District will prepare and submit an Annual Assessment which will include a review of water supplies available to meet water demands for the current and upcoming years. If the District is currently in, or considers entering into, one of the standard water shortage levels identified in Section 8.3, the District will consider the water supply augmentation actions described below.

For each water shortage level discussed in Section 8.3, the District will consider supplementing its existing imported water supplies through increased production of groundwater supplies, to the extent possible. Due to previous critically dry conditions, MWD developed the "Water Supply Allocation Plan" whereby available supplies are equitably allocated to its member agencies, including IEUA. The WSAP establishes ten different shortage levels and a corresponding drought allocation to each member agency. Based on the shortage level established by MWD, the WSAP provides a reduced drought allocation to a member agency for its Municipal and Industrial retail demand. The ratio of MWD water supply drought allocation to local water supply will change based on the WSAP stage. The MWD drought allocation can be used to make Full Service water deliveries at the Tier 1 rate up to a Tier 1 allocation. Any Full Service water delivered in excess of a drought allocation is subject to a penalty rate in addition to the normal rate paid for the water.

MWD's primary first response to any gap between core supplies (from the State Water Project and Colorado River) and demand is to make optimal use of its supply augmentation options, consisting of drawing from flexible supply programs and storage reserves. MWD has developed and actively manages a portfolio of water supply programs including water transfer, storage, and exchange agreements. MWD pursues voluntary water transfer and exchange programs to help mitigate supply/demand imbalances and provide additional dry-year supply sources. In addition, MWD has developed significant storage capacity in reservoirs, conjunctive use, and other groundwater storage programs totaling approximately 6.0 million AF. Pursuant to MWD's "Emergency Storage Objective", updated in 2019, approximately 750,000 AF of total stored water is emergency storage reserved by MWD for use in the event of supply interruptions. Based on MWD's historical and on-going water supply and storage programs and management practices, the District can potentially continue relying on purchased imported water supplies from MWD through IEUA for adequate supply augmentation in response to each of the standard water shortage levels identified in Section 8.3.

The District will consider supplementing its existing water supplies through production of additional groundwater from the Chino Basin. As noted in Section 6.2.2, the Chino Basin is managed by the Chino Basin Watermaster. During the period of management under the Chino Basin Judgment, significant drought events have occurred. In each drought cycle the Chino Basin

has been managed to maintain water levels. Parties to the Chino Basin Judgment, including the District, are authorized to produce groundwater in excess of their rights subject to replenishment requirements. The District, along with Fontana Union Water Company has sufficient water production rights and does not anticipate or project that it will need to replenish due to production in excess of its production rights. Groundwater quality is carefully monitored and managed by the Chino Basin Watermaster. Treatment facilities and/or blend plans have been developed by water agencies to meet potable water standards and to prevent the spread of any groundwater contamination. Groundwater quality in the Chino Basin is not expected to impact potable supplies or constrain supply reliability. Based on historical and on-going management practices, the District will be able to continue relying on the Chino Basin for adequate supplies in response to each of the standard water shortage levels identified in Section 8.3.

8.4.3 OPERATIONAL CHANGES

During a water supply shortage situation, the District will manage its water supply resources to provide sufficient water supplies capable of meeting the demands of its customers. Section 8.4.1 describes the District's water supply sources and water supply augmentation actions available. Section 8.4.2 describes the District's standard water shortage levels and associated demand reduction measures. The supply augmentation actions and demand reduction measures, when implemented, may potentially result in short-term operational changes which are necessary to allow the District to utilize all available water supply sources in response to water shortage situations.

As noted in Section 8.2, beginning July 1, 2022, the District will prepare and submit an Annual Assessment which will include a review of the water supplies available to meet water demands for the current and upcoming years. Preparation of the Annual Assessment will assist the District in determining any potential operational changes. In addition, the District's standard water shortage levels and the associated demand reduction measures, in conjunction with the District's existing Demand Management Measures (discussed in Chapter 9), will be essential to the District in reducing water demands during any water shortage period. The operational changes the District will consider in addressing non-catastrophic water shortages on a short-term basis include the following:

- Improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures
- Optimized production from existing available water supply sources
- Potential use of emergency supply sources, including emergency interconnections
- Potential blending of water supply resources
- Improved monitoring, maintenance, and repairs to reduce water distribution system losses

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

The mandatory restrictions which are implemented by the District to reduce customer demands are discussed in Section 8.4.2. There are no additional mandatory restrictions planned at this time.

8.4.5 EMERGENCY RESPONSE PLAN

Catastrophic water shortages are incorporated in the District's standard water shortage levels (identified in Section 8.3) and the associated demand reduction measures (described in Section 8.4.1). In addition to the water supply augmentation actions (Section 8.4.2) and potential operational changes (Section 8.4.3) which the District may consider in order to continue providing sufficient water supplies, the District will review and implement any necessary steps included in its "Emergency Response Plan".

As part of the "America's Water Infrastructure Act of 2018", community water systems serving a population greater than 3,300 people, including the District, are required to review and update their "Risk and Resilience Assessment" (RRA) and the associated "Emergency Response Plan" (ERP) every five (5) years. However, due to security concerns regarding the submitting of these reports, water systems are required to submit certifications to the United States Environment Protection Agency (USEPA), from March 31, 2020 and December 30, 2021, confirming the current RRA and ERP have been reviewed and updated.

The District's RRA, prepared in 2021, evaluates the vulnerabilities, threats, and consequences from potential hazards to the District's water system. The District prepared its RRA (which is incorporated by reference) by evaluating the following items:

- Natural hazards and malevolent acts (i.e., all hazards);
- Resilience of water facility infrastructure (including pipes, physical barriers, water sources and collection, treatment, storage and distribution facilities, and electronic, computer and other automated systems);
- Monitoring practices;
- Financial systems (e.g., billing systems);
- Chemical storage and handling; and
- Operation and maintenance.

The District's RRA evaluated a series of potential malevolent acts, natural hazards, and other threats in order to estimate the potential "monetized risks" (i.e. associated economic consequences to both the water system and surrounding region, and the likelihood of occurrence) associated with the District's water facility assets. The cost-effectiveness of implementing potential countermeasures to reduce risks was also reviewed.

The District's ERP, prepared in 2021, provides the management, procedures, and designated actions the District and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures and other unforeseen circumstances. The District's ERP (which is incorporated by reference) provides the guidelines for evaluating an emergency situation, procedures for activating an emergency response, and details of the different response phases in order to ensure that customers receive a reliable and adequate supply of potable water. The scope of the ERP includes emergencies which directly affect the water system and the ability to maintain safe operations (such as a chlorine release, and earthquake or a threat of contamination). The ERP also incorporates the results of District's RRA and includes the following:

- Strategies and resources to improve resilience, including physical and cybersecurity
- Plans and procedures for responding to a natural hazard or malevolent act
- Actions and equipment to lessen the impact of a natural hazard or malevolent act
- Strategies to detect natural hazards or malevolent act

The District will review the ERP for procedures regarding the utilization of alternative water supply sources in response to water supply shortages, including during the standard water shortage levels. The District will also review applicable procedures described in the ERP regarding any necessary temporary shutdown of water supply facilities, including appropriate regulatory and public notifications.

8.4.6 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC 10632.5.

(a) In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

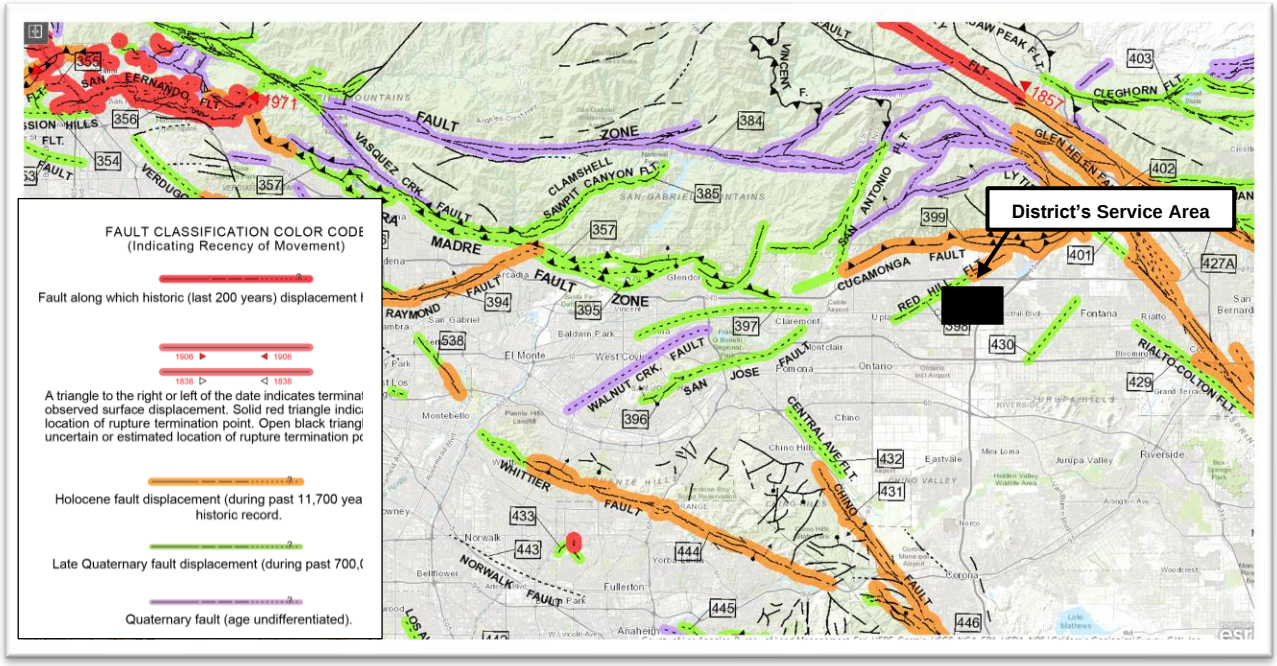
(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

The District prepared a local "Hazard Mitigation Plan" which was approved by the Federal Emergency Management Agency (FEMA) in 2019. The Hazard Mitigation Plan identifies effective ways to assess the significant natural hazards (including earthquakes) that may affect the District and its residents. The Hazard Mitigation Plan provides resources, information, and strategies to reduce the District's vulnerability to these hazards, while providing guidance for the coordination of mitigation activities throughout the District. The Hazard Mitigation Plan includes mitigation projects necessary to reduce seismic risk to the District's water distribution system facilities (including its distribution system pipelines, groundwater wells, booster pumps, and storage reservoirs) and potential disruptions in providing water service. The District's Hazard Mitigation Plan is provided in Appendix N.

The County of San Bernardino prepared a "Multi-Jurisdictional Hazard Mitigation Plan" which was approved by the Federal Emergency Management Agency in June 2017. The County's Multi-Jurisdictional Hazard Mitigation Plan identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout San Bernardino County, and the mitigation strategies necessary to reduce risks, including seismic risk. The County's Multi-Jurisdictional Hazard Mitigation Plan is provided in Appendix O.

The California Geological Survey has published the locations of numerous faults which have been mapped in the Southern California region. Although the San Andreas fault is the most recognized and is capable of producing an earthquake with a magnitude greater than 8 on the Richter scale, some of the lesser-known faults have the potential to cause significant damage. The locations of these earthquake faults in the vicinity of the District's water service area are provided in the figure below. The faults that are located in close proximity to and could potentially cause significant shaking in the District's water service area include the San Andreas fault, the Walnut Creek fault, the San Jose fault, the Red Hill fault, the Cucamonga fault, and the Chino fault.

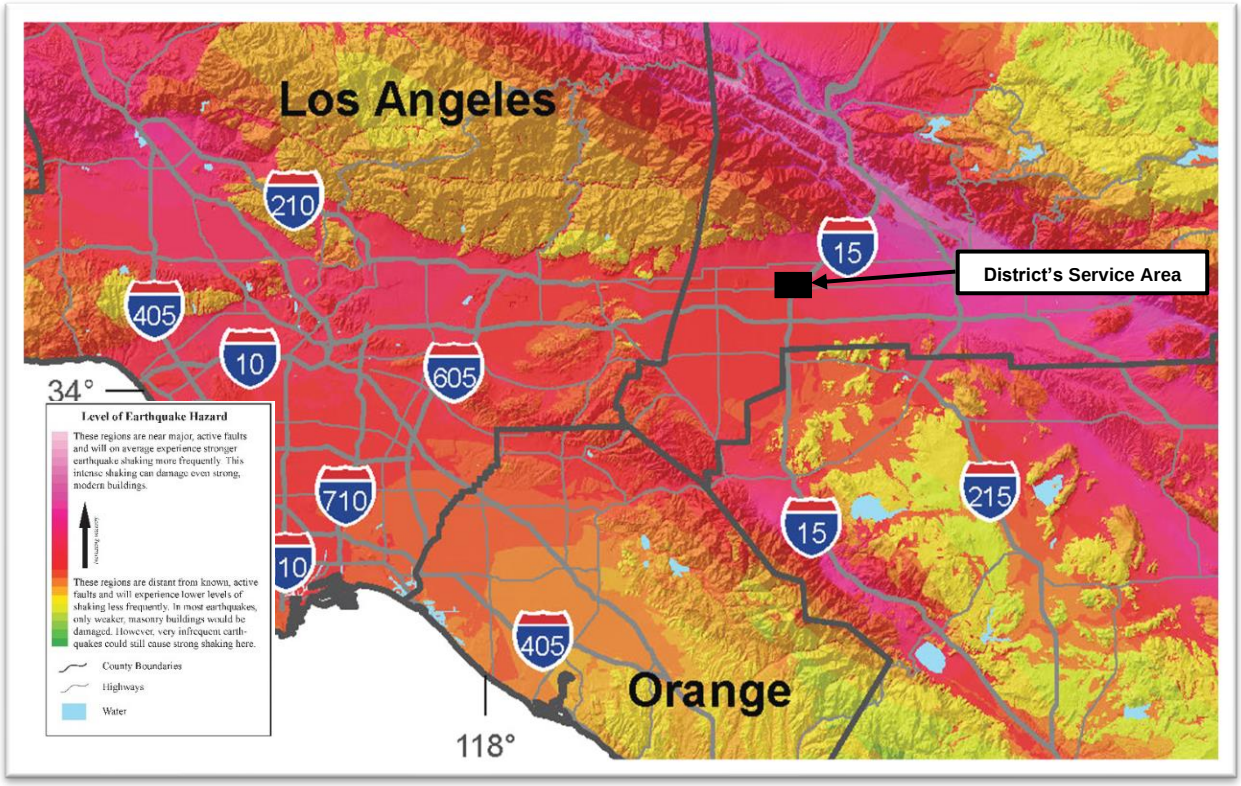
Location of Earthquake Faults



Source: https://maps.conservation.ca.gov/cgs/fam/App/

The following figure provides the relative intensity of ground shaking in the vicinity of the District's service area from anticipated future earthquakes. The locations of relatively long-period (1.0 second) earthquake shaking, including the District's service area, are provided. Long-period shaking affects tall, relatively flexible buildings, but also correlates with earthquake damage. The shaking potential is calculated based on the level of ground motion that has a 2 percent chance of being exceeded in 50 years (or the level of ground-shaking with an approximate 2,500-year average repeat time). As discussed in Section 8.4.5, the District has prepared an Emergency Response Plan which provides the management, procedures, and designated actions the District and its employees will implement during emergency situations resulting from natural disasters, including during earthquakes, to ensure that customers receive a reliable and adequate supply of potable water. The District's ERP is incorporated by reference.

Earthquake Shaking Potential



Source: "Earthquake Shaking Potential for California", 2016, California Geological Survey and United States Geological Survey

8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS

The effectiveness of the shortage response actions for each of the standard water shortage levels identified in Section 8.3 is evident in the District's historical ability to meet its customer's water demands in response to a water supply shortage. In addition, the District imposes water consumption regulations and restrictions, and supports local agencies in efforts to enforce regulations and prohibitions on water use. The effectiveness of each of the District's shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction provided in Table 8-2 and Table 8-3.

Section 6.1 provides a tabulation of the District's historical annual water demands for each water supply source. During the past 10 years, the District experienced a five-year consecutive drought within its service area from FY 2011-12 to FY 2015-16. Throughout this extended dry year period, the District's annual water production ranged from 40,166 AF to 55,726 AF, with an average of approximately 50,255 AF. In addition, historical records indicate the District previously produced a maximum of up to 55,726 AF during FY 2013-14. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically

high water demands. In addition, the District has been able to provide water service to meet maximum day water demands for these years, including during the summer months.

The District's water demands during the most recent five years (from FY 2015-16 to FY 2019-20) averaged approximately 44,486 AFY. Due to conservation efforts and demand management measures (discussed in Chapter 9), the District's recent water demands have been significantly less than its historical water demands, including during long-term droughts. The District's projected water demands (during normal, single dry, and five consecutive year drought periods) are provided in Section 7.2.3 and are anticipated to incorporate similar reductions in water use rates as a result of the shortage response actions, ongoing conservation efforts, and demand management measures. Because the District's projected water rates are similar to its historical water use rates, it is anticipated the District will be able to continue providing sufficient water supplies to its customers to meet projected water demands, including during long-term droughts. In addition, as discussed in Section 8.4.1, based on historical and on-going management practices, the District will be able to continue relying on its water supply sources from the Chino Basin and Cucamonga Basin for adequate supply augmentation in response to each of the standard water shortage levels identified in Section 8.3.

The District previously adopted Resolution No. 2015-5-3 in May 2014 which declared a water supply shortage and established water-use restrictions and regulations equivalent to its water shortage level 6 identified in Section 8.3. During this Level 6 water shortage period, the District was able to achieve a total conservation savings of 27 percent and provide sufficient water supplies to its customers. The District later adopted Resolution No. 2016-6-4 in June 2016 which rescinded the Level 6 water supply shortage and declared a water supply shortage equivalent to its water shortage level 1. During this Level 1 water shortage period, the District was able to reduce water demands and provide sufficient water supplies to its customers. Copies of these resolutions are provided in Appendix P.

Based on the District's ability in meeting water demands during past water supply shortages, adopted water shortage levels, adjusted operating safe yields, and long-term droughts, it is anticipated that the District will be able to continue providing sufficient water supplies to its customers during any of its standard water shortage levels. Although adequate supplies are anticipated, the cost of those water supplies may become incrementally more expensive. The District will enact varying levels of its water shortage contingency plan to encourage retail customers to reduce water consumption and at the same time reduce the need to use the more expensive water supplies. Notwithstanding, the effectiveness of each of the District's shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction provided in Table 8-2 and Table 8-3. The effectiveness of the District's shortage response actions is based on the District's water demands prior to 2015 (unconstrained demands). The District reduced its water demands in 2015 in response to the Governor's April 1, 2015 Executive Order B-29-15 which mandated statewide reduction in water use of 25 percent. During this period, the District was able to reduce its water demands by

approximately 28 percent. This historical water demand reduction was used to estimate the extent of water use reductions for the District's Water Shortage Stages. The District's Water Shortage Levels 1, 2, 3, 4, 5, and 6 are expected to reduce water demands by up to 10%, 20%, 30%, 40%, 50%, and greater than 50%, respectively.

8.5 COMMUNICATION PROTOCOLS

CWC 10632.

(a)(5) Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications.

Pursuant to CWC 10632.1, the District's Annual Assessment will be submitted to DWR by July 1 of each year or within 14 days of receiving its final allocation, whichever is later. The Annual Assessment will provide information on the District's anticipated shortage, triggered response actions, compliance and enforcement actions, and communication actions, as discussed in Section 8.2. The District may use the Annual Assessment as a method of declaring the appropriate water shortage level.

Within 10 calendar days of adoption of any water shortage level, the District will issue its determination of shortage and corrective measures by public proclamation published in a daily newspaper of general circulation. Upon such declaration and publication of such notice, due and proper notice shall be deemed to have been given to each and every person supplied water within the District's service area.

8.6 COMPLIANCE AND ENFORCEMENT

CWC 10632.

(a)(6) For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

Under the District's Ordinance No. 48, financial penalties will be assessed to any customer violating the regulations and restrictions in Section 4 of Ordinance No.48 Reduce Water Usage. The penalties are as follows:

1. First Violation: The District shall issue a written notice of a first violation to the water customer.
2. Second Violation: For a second violation, the District shall impose a penalty in the amount of fifty dollars ($50.00) which will be added to the water customer's water bill.
3. Third Violation: For a third violation, the District shall impose a penalty in the amount of one hundred dollars ($100.00) which will be added to the water customer's water bill.
4. Fourth Violation: After a fourth and any subsequent violation, the District shall impose a penalty in the amount of one hundred fifty dollars ($150.00) which will be added to the water customer's water bill.

The District will give violation notices of Ordinance No. 48 to the water customer as follows:

a) The first notice of violation shall be a warning given to the customer by using a door hanger.
b) The second violation shall be in writing by regular mail to the address at which the water customer is normally billed.
c) Notice of subsequent violations shall be given in writing in the following manner:
    i. By giving the notice to the customer at the property where the violation occurred; or
    ii. If the water customer is absent from or unavailable at the premises at which the violation occurred, by leaving a copy with some person of suitable age and discretion at the premises and sending a copy through the regular mail to the address at which the water customer is normally billed; or
    iii. If a person of suitable age or discretion cannot be found, then by affixing a copy in a conspicuous place at the premises at which the violation occurred, and also sending a copy through the regular mail to the address at which the customer is normally billed.

8.7 LEGAL AUTHORITIES

CWC 10632.

(a)(7)(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1.

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Division 1, Section 350

The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

The District has the legal authority to implement and enforce its water shortage contingency plan. 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 to the reasonable and beneficial use thereof in the interest of the people and the public welfare. In addition, CWC Section 375 provides the District with the statutory authority to adopt and enforce water conservation restrictions, and CWC Section 350 et seq. authorizes the District to declare a water shortage emergency and impose water conservation measures when it determines that the District may not be able to satisfy ordinary demands without depleting supplies to an insufficient level.

If necessary, the District shall declare a water shortage emergency in according with CWC Chapter 3 (commencing with Section 350) 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.

In the event that the demand of water consumers cannot be satisfied without depleting a substantial amount of water supply needed for human consumption, sanitation, and fire protection, the District shall declare a water shortage emergency. The District shall coordinate with any city or county within its service area for possible declaration of a local emergency including the Cities of Rancho Cucamonga, Ontario, Fontana, Upland, and the County of San Bernardino.

The District adopted Ordinance No. 48 ("Establishing a Water Supply Shortage Contingency Plan") in June 2009. The ordinance implements measures to ensure sufficient water supplies are available for sanitation, fire suppression, and domestic use. In addition, the District must reduce its demand for imported water to avoid penalties for excessive use and ensure sufficient water supply remain for the health, safety, and welfare of the public. In May 2019, the District adopted Ordinance No. 2019-5-1 which amended the Water Supply Shortage Contingency Plan. The amendment added three new water shortage levels, exceeding the State's requirement. The District incorporated more shortage levels to provide additional flexibility and prevent over-mandated water conservation by its customers. A copy of this ordinance is provided in Appendix Q.

Upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the state will defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

The District will coordinate with the County and any other entities as necessary for possible proclamation of a local emergency as necessary under California Government Code, California Emergency Services Act (Article 2, Section 8558).

8.8 FINANCIAL CONSEQUENCES OF WSCP

CWC 10632.

(a)(8) A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

With water shortage contingency actions being implemented, reductions in water consumption may result in reduced revenues and an increase of the operation costs.

During a water shortage, the District minimizes its expenses by reducing its use of imported water. Additionally, the District has previously established a reserve policy to allow the District to continue operations, if water use is reduced, by setting aside reserves in the following funds: Operating Reserve, Capital and Equipment Replacement Reserve, Rate Stabilization Reserve and Debt Service Reserve.

The District has the ability to institute Drought Rates which can only be enacted by a vote of the Board of Directors in concurrence with the declaration of drought stages. Drought Rates allow the District to address budgetary shortfalls as a result of water shortage effects, while actively promoting continued water conservation.

An Operating Reserve fund is maintained at a minimum level of 20 percent of the District's budgeted total operating expenses. These reserves are used to fund unexpected variable cost increases during any fiscal year.

A Capital and Equipment Replacement Reserve Fund is maintained at a minimum level of 75 percent of annual capital asset depreciation expense. This reserve is used to fund the replacement of capital assets and equipment.

A Rate Stabilization Reserve Fund is maintained at a minimum level equal to $2.2 million. This reserve is used to fund any increases in the cost of water supplies in excess of annual budget allocations.

A Debt Service Reserve equal to one year's annual debt service obligation.

8.9 MONITORING AND REPORTING

CWC 10632.

(a)(9) For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

During times of drought, the District monitors customer water consumption to ensure its efforts are effective in reducing demand throughout its service area. The District uses several methods to monitor for water use such as meter reads, historical billing cycle usage and graphs, fixed network monitors and production volumes. The District's water system currently has water meters on all connections. These meters record the amount of water consumed at each location which can be compared to prior metered usage to determine if water use reduction measures are achieving the desired water usage. System level usage and production data allows staff and the Board to determine if the current water shortage contingency stage needs to be adjusted.

8.10 WSCP REFINEMENT PROCEDURES

CWC 10632.

(a)(10) Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

The District's Water Shortage Contingency Plan has been prepared as an adaptive management plan. As discussed in Section 8.9, the District will monitor and report on the implementation of the Water Shortage Contingency Plan. The District will review the implementation results for any current or potential shortage gaps between water supplies and demands. The District will evaluate the need for revising the Water Shortage Contingency Plan in order to resolve any shortage gaps, as necessary. The District will consider the following potential revisions in the event of a potential shortage gap:

- Implementation of additional public outreach, education, and communication programs (in addition to the programs discussed in Chapter 9).
- Implementation of more stringent water use restrictions under the standard water shortage levels (discussed in Section 8.4.2).
- Implementation of stricter enforcement actions and penalties (discussed in Section 8.6).
- Improvements to the water supply augmentation responses (discussed in Section 8.4.1), as well as any associated operational changes (discussed in Section 8.4.3) which may be required.
- Incorporation of additional actions recommended by District staff or other interested parties.

The District will use the monitoring and reporting data to evaluate the ability for these potential revisions to resolve any shortage gaps which may occur within the standard water shortage levels.

This Water Shortage Contingency Plan is adopted as part of the District's 2020 Urban Water Management Plan adoption process discussed in Section 10.3. It is anticipated the District will review, revise, and adopt an updated Water Shortage Contingency Plan as part of preparing its 2025 Urban Water Management Plan as necessary. However, the District will continue to review the monitoring and reporting data, and if needed, update the Water Shortage Contingency Plan more frequently. Any updates to the District's Water Shortage Contingency Plan will include a public hearing and adoption process by the District's Board (see Section 8.12).

8.11 SPECIAL WATER FEATURE DISTINCTION

CWC 10632.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall 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.

The District's Water Shortage Contingency Plan defines "decorative water features" as water features which are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, but excluding pools and spas. In general, there are additional health and safety considerations in the water supplied to pools and spas compared to decorative water features. As a result, the District's Water Shortage Contingency Plan has reviewed the response actions, enforcement actions, and monitoring and reporting programs separately for decorative water features and for pools and spas, as applicable.

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

CWC 10632.

(c) The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

The District's Water Shortage Contingency Plan is adopted as part of the District's 2020 Urban Water Management Plan adoption process discussed in Chapter 10. The process for adopting the District's Water Shortage Contingency Plan includes the following:

- The District will conduct a public hearing and make the Water Shortage Contingency Plan available for public inspection.
- The District will provide notification of the time and place of the public hearing to any city or county in which water is provided.
- The District will publish notice of public hearing in a newspaper once a week, for two successive weeks (with at least five days between publication dates).
- The District's Board will adopt the 2020 Urban Water Management Plan and the Water Shortage Contingency Plan
- As part of submitting the 2020 Urban Water Management Plan to DWR, the District will also submit the Water Shortage Contingency Plan (electronically through DWR's online submittal tool) within 30 days of adoption and by July 1, 2021. The District will submit a copy of the Water Shortage Contingency Plan to the California State Library and to any city or county in which water is provided within 30 days of adoption. In addition, the

District will make the Water Shortage Contingency Plan available for public review within 30 days of adoption.

If there are any subsequent amendments required, the process for adopting an amended Water Shortage Contingency Plan includes the following:

- The District will conduct a public hearing and make the amended Water Shortage Contingency Plan available for public inspection.
- The District's Board will adopt the amended Water Shortage Contingency Plan.
- The District will submit the amended Water Shortage Contingency Plan to DWR (electronically through DWR's online submittal tool) within 30 days of adoption.

Additional information regarding the adoption, submittal, and availability of the District's Water Shortage Contingency Plan (and 2020 Urban Water Management Plan) is provided in Chapter 10.

Chapter 9
DEMAND MANAGEMENT MEASURES

LAY DESCRIPTION – CHAPTER 9

DEMAND MANAGEMENT MEASURES

Chapter 9 (Demand Management Measures) of the District's 2020 Plan discusses and provides the following:

- The District has implemented "Demand Management Measures" to reduce its water demands and achieve its water use targets (discussed in Chapter 5).
- The District's Demand Management Measures include adoption of an ordinance to prevent water waste.
- The District's Demand Management Measures include metering of all customer connections, including separate metering for single-family residential, commercial, industrial, large landscape and institutional/governmental facilities.
- The District's Demand Management Measures include conservation pricing. The District's current water rate structure is tiered to promote water conservation by customers.
- The District's Demand Management Measures include public education and outreach programs regarding water conservation.
- The District's Demand Management Measures include various actions to assess and manage water distribution system losses.
- Additional Demand Management Measures including rebate, conservation, and educational programs are discussed.
- A summary of the Demand Management Measures the District has implemented over the past five (5) years is provided. The District met the 2020 Water Use Target (discussed in Chapter 5) through the implementation of these Demand Management Measures.

9.1 DEMAND MANAGEMENT MEASURES FOR WHOLESALE SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(ii) Metering.

(iv) Public education and outreach.
(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

(2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.

The District is not a wholesale agency and is not required by DWR to complete Section 9.1.

9.2 EXISTING DEMAND MANAGEMENT MEASURES FOR RETAIL SUPPLIERS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

9.2.1 WATER WASTE PREVENTION ORDINANCES

In May 2015, the District adopted Ordinance No. 2015-5-1, to update its water use efficiency requirements and to include drought stages with reduction targets ranging from 10 to 50 percent. The District adopted Ordinance No. 2019-5-1 in May 2019 and included three new water shortage levels. Copies of these ordinances are provided in Appendix Q.

The District's Ordinances include the following practices to prevent water waste:

- Limits on watering hours from 4 pm to 9 am
- Limits to the number of days, frequency, and duration of outdoor potable watering
- Prohibitions on irrigation with potable water on ornamental turf areas on public street medians
- Prohibitions on irrigation with potable water of landscapes outside newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission
- Prohibitions on all non-essential outdoor watering
- Curtailing of potable water for construction and grading purposes
- Penalties for violating any of the provisions

9.2.2 METERING

CWC 526.

(a) Notwithstanding any other provision of law, an urban water supplier that, on or after January 1, 2004, receives water from the federal Central Valley Project under a water service contract or subcontract… shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings… located within its service area.

CWC 527.

(a) An urban water supplier that is not subject to Section 526 shall do both of the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

The District meters all customer connections, including separate metering for single-family residential, commercial, industrial, large landscape and institutional/governmental facilities. Furthermore, if there is new development within the District, each facility is individually metered. Service charges for the District are based on customer meter size. Further information regarding the District's service fees and conservation pricing is provided in Section 9.2.3.

9.2.3 CONSERVATION PRICING

The District has a water service charge comprised of two components: a variable commodity charge and a fixed meter service charge. The water rates have been developed to fund the cost of water and are related to the overall cost of water service. The commodity charge consists of 4 tiers which impose higher rates as the level of water consumption increases. The Meter Service Charge rates are established based on customer meter size and are calculated to recover the District's fixed costs of water facilities repairs and replacements, as well as the cost of meter reading, billing and customer service.

In June 2015, the District adopted Ordinance No. 2015-6-1 "Establishing Rates and Charges for Water Service" (Appendix R) which established commodity charges consisting of up to 4 tiers each for seven drought stages. The inclining drought rate structure also encourages additional water conservation.
The District prepared a "Water Rate Study FY 2016-2019" in 2015. The rate study projected water consumption, expenditures, capital improvement projects, debt service, and unrestricted revenues. The rate study developed a multi-year rate structure that met the net revenue requirements and incorporated conservation pricing.

9.2.4 PUBLIC EDUCATION AND OUTREACH

The District conducts extensive public outreach/information programs for its customers to educate and encourage them on the benefits of water conservation. The District implements outreach campaigns regularly to strategically reach customers to provide critical messages like the importance of water use efficiency. Campaigns include drought messaging, the Value of Water campaign, Investment in Infrastructure, and more. The District also provides water conservation information and updates through monthly billing inserts, newspaper and community ads, social media, participation in several community events, posts banners, signs, among others.

The District's education and outreach programs, events, and workshops include the following:

- Environmental Learning Center and Garden: The District educates approximately 1,500 students every year about efficiency through water-related activities at its Environmental Learning Center.
- Fifth Grade Poster Contest: The Fifth Grade Poster Contest attracts hundreds of participants from 80 schools annually. Student artists depict the theme of "Water is Life" through their artwork while learning about the importance of water.
- School Programs and Presentations: The District offers teachers within its service area water education materials including teachers' guides, books, posters, maps, and classroom supplies.
- Landscape Workshops: The District hosts approximately four to six water efficient landscape workshops every year to promote outdoor water use efficiency through landscaping.
- Water Savvy Garden Tour: Every spring, the District hosts a Water Savvy Garden Tour to educate its residents about the beauty and benefits of water saving landscapes.
- Water Savvy Landscape Contest: The District holds an annual Water Savvy Landscape Contest to promote model residents who have beautiful, water saving landscapes. Recognition of these types of landscape educates the community and encourages others to make water saving improvements to their own landscapes.
- Earth Day Event & Open House: The District hosts an annual Earth Day and Open House to promote District activities and to educate and encourage natural resource conservation, especially water. Water use efficient devices, programs, and best practices are highlighted throughout the event.
- Treatment Plant Tours: The District hosts public tours of its Lloyd W. Michael Water Treatment Plant annually.

Along with IEUA, the District co-sponsors one local high school each year in the Solar Cup, a seven-month program, sponsored by the MWD. Solar Cup is a "STEAM-focused" program in which high school teams learn about water conservation and renewable energy by building and racing solar-powered boats. During the past 18 years over 15,000 students have participated in this program.

As a member of WEWAC (Water Education / Water Awareness Committee), the District provides grants to local teachers for creative water conservation classroom projects, conducts an annual Project WET (Water Education for Teachers) Workshop for teachers, and provides scholarships to high school seniors who write an essay regarding the importance of water conservation (two to four scholarships up to $ 1,500 are awarded annually). WEWAC also awards funding to schools that participate in its Water Media Campaign Contest with students creating public service announcements or digital art on water conservation.

9.2.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

The District has a Water Watch Program to enable customers to identify and fix leaks in and around their homes following a few basic steps. The District provides Home Water Audits to customers who have not been able to find the water waste source even after completing the basic steps.

The District conducts system water audits by comparing the total volume of billed water use to the total supply entering the system. Differences of over ten percent indicate the need for repairs.

The District has installed Pressure Regulating Valve data recorders to monitor both pressure and flow at each pressure regulating station. This will reduce leakage, provide additional system monitoring, and minimize real losses.

In 2019, the District completed the conversion of all customer meters to advanced metering infrastructure (AMI). The District continues to work on improving the AMI communication since it has been implemented. The volumetric testing for meters 3 inches and larger has been established and staff is exploring various options to expand this program.

The District is working to improve production meter calibration. This multi-year project includes the replacement of all existing production meters with meters capable of transmitting both instantaneous and accumulated volumes over Supervisory Control and Data Acquisition (SCADA) using raw data communication protocols. Transmitting data in this manner eliminates potential unit conversion and scaling errors on electronic signals.

9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

Water conservation is shared amongst several departments and staff. Water Resources, within Engineering, Government & Public Affairs (GPA), and the Field Service Departments all play a part in the District's conservation efforts.

Water Resources focuses on the planning, reporting, and water loss portions or conservation. Field Service implements audits and landscape surveys, leak detection, and the District's Water Watch Program which uses AMI to detect and notify on large, continuous leaks. GPA promotes water use efficiency messaging and monitors and engages in legislative and regulatory issues related to water use and demand management. Additionally, GPA oversees and promotes the water use efficiency programs administered on a regional level through IEUA and rebates through MWD.

9.2.7 OTHER DEMAND MANAGEMENT MEASURES

The District's main water use efficiency programs are administered by IEUA. The District participates in a regional rebate program available for residential, commercial, and industrial customers.

Conservation Programs

The District routinely hosts workshops in the community to promote landscape conservation. The District continues to offer water efficient programs including pressure regulating valve program, landscape audits, direct install programs for high efficiency nozzles and weather-based irrigation controllers, and water wise landscape design to promote water conservation.

During the last drought, funding temporarily ran out for the regional turf rebate. The District began its own cash for grass program when it offered residents a $300 rebate for removing grass within their parkways. This program lasted approximately three years and ended in 2018.

Rebate Programs

The District continues to offer a rebate program for the purchase of high-efficiency washing machines, high-efficiency toilets, weather-based irrigation controllers, turf removal, and rain barrels, and water cisterns to residential customers to promote water conservation. The District's commercial customers are offered plumbing, landscaping, food, HVAC, and medical and dental equipment rebates. The rebate application, along with a list of qualifying appliances, are listed on the District's website. The District also offer an automatic water softener removal rebate with free disconnection through IEUA.

The District plans to continue implementation of the programs described above to promote water conservation.

9.3 REPORTING IMPLEMENTATION

9.3.1 IMPLEMENTATION OVER THE PAST FIVE YEARS

CWC 10631.

(e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) (A) …a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

The District is committed to implementing water conservation programs and works collaboratively with IEUA to provide water conservation programs for its residents. As a member agency of IEUA, the District's residents have the benefit of participating in IEUA's conservation efforts. The highlights of DMM implementation over the past five years are described below.

As discussed in Section 9.2.1, in May 2015, the District adopted Ordinance No. 2015-5-1 which updated its water use efficiency requirements and included drought stages with reduction targets ranging from 10 to 50 percent. The District adopted Ordinance No. 2019-5-1 in May 2019 which included three new water shortage levels to further prevent water waste.

The District adopted Resolution No. 2015-5-3 in 2015, declaring a Stage 6 Severe Water Emergency. The District later rescinded the resolution in June 2016 by passing Resolution No. 2016-6-4 which returned the District to a Stage 1. Copies of these ordinances are provided in Appendix P.

As discussed in Section 9.2.2, the District meters all customer connections, including separate metering for single-family residential, commercial, industrial, large landscape and institutional/governmental facilities. Furthermore, if there is new development within the District, each facility is individually metered. Service charges for the District are based on customer connection size.

As discussed in Section 9.2.3, in June 2015, the District adopted Ordinance No. 2015-6-1 "Establishing Rates and Charges for Water Service" (Appendix R) which established commodity charges consisting of up to 4 tiers each for seven declared drought stages. The inclining drought rate structure also encourages additional water conservation.

As discussed in Section 9.2.4, the District, in coordination with MWD and IEUA, offer a variety of water conservation public information programs available to the public. The District provides monthly billing inserts, newspaper and community ads, participates in numerous community events, posts banners and signs, and utilizes social media, among others. Campaigns since 2015 include drought messaging, the Value of Water campaign, Investment in Infrastructure, and more. In addition, as part of WEWAC, the District provides resources to educators and students promoting WEWAC's goals.

As discussed in Section 9.2.5, the District has completed the conversion of all customer meters to AMI in 2019. The District continues to improve on the AMI communication and the production meter calibration. This multi-year project includes the replacement of all existing production meters with meters capable of transmitting both instantaneous and accumulated volumes over SCADA using raw data communication protocols.

As described in Section 9.2.6, water conservation is shared amongst several departments and staff. Water Resources, within Engineering, GPA, and the Field Service Departments all play a part in the District's conservation efforts.

As described in Section 9.2.7, the District participates in a regional rebate program, which is available to the District's residential and commercial customers. There are rebates available for the purchase of high-efficiency washing machines, high-efficiency toilets, weather-based irrigation controllers, turf removal, and rain barrels, and water cisterns to promote water conservation. The District continues to offer water efficient programs to assist with water conservation. The District's commercial customers are offered plumbing, landscaping, food, HVAC, and medical and dental equipment rebates. In addition, the District also offers its customers an automatic water softener removal rebate with free disconnection and removal through IEUA.

The District provided its customers with its own turf rebate program, offering residents a $300 rebate for removing grass within their parkways. The program lasted approximately three years and ended in December 2018 due to the renewal of MWD's turf rebate.

9.3.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

(e)(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

The Demand Management Measures implemented by the District are discussed in Section 9.2. Descriptions regarding the nature and extent of these Demand Management Measures implemented by the District over the past five years are discussed in Section 9.3. The District will continue to implement these Demand Management Measures and other water conservation programs and work collaboratively with IEUA to provide water conservation programs for its residents.

As discussed in Section 5.5, the District's per-capita water use during FY 2019-20 was 206 GPCD. The District's confirmed 2020 Water Use Target is 232 GPCD. The District's per-capita water use during FY 2019-20 meets the 2020 Water Use Target and is in compliance. The District met the 2020 Water Use Target through the implementation of the Demand Management Measures discussed in Section 9.2. Continued implementation of these Demand Management Measures will assist the District in meeting water use targets and objectives.

9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

The District is currently working with DWR to develop Water Use Objectives pursuant to AB 1668 and SB 606. Beginning in 2024, water agencies, including the District, are required to begin reporting compliance of their Water Use Objectives consisting of indoor residential water use, outdoor residential water use, commercial, industrial and institutional, irrigation with dedicated meters, water loss, and other unique local uses. The District plans to meet its Water Use Objectives through continued implementation of the Demand Management Measures discussed in Section 9.2.

Chapter 10
PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

LAY DESCRIPTION – CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Chapter 10 (Plan Adoption, Submittal, and Implementation) of the District's 2020 Plan discusses and provides the following:

- The steps the District has performed to adopt and submit its 2020 Plan are detailed.
- The steps the District has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- The District coordinated the preparation of its 2020 Plan with the Chino Basin Watermaster, Fontana Water Company, Inland Empire Utilities Agency, San Antonio Water Company, and Santa Margarita Water District. The District notified these agencies at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited these agencies to participate in the development of the 2020 Plan.
- The District provided a notice of the public hearing to the same agencies regarding the time, date, and place of the public hearing.
- The District published a newspaper notification of the public hearing, once a week for two successive weeks.
- The District conducted a public hearing to discuss and adopt the District's 2020 Plan and District's Water Shortage Contingency Plan.
- Within 30 days of adoption, the District submitted the 2020 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.
- Within 30 days of adoption, the District submitted all data tables associated with the 2020 Plan to the California Department of Water Resources.
- Within 30 days of adoption, the District submitted a copy of the 2020 Plan to the State of California Library.
- Within 30 days of adoption, the District submitted a copy of the 2020 Plan (and Water Shortage Contingency Plan) to the County of San Bernardino Assessor- Recorder office and the District's Office.

- Within 30 days after submittal of the 2020 Plan to the California Department of Water Resources, the District made the 2020 Plan (including the Water Shortage Contingency Plan) available at the District's offices and on the District's website.
- The steps the District will perform to amend the 2020 Plan and/or the Water Shortage Contingency Plan, if necessary, are provided.

10.1 INCLUSION OF ALL 2020 DATA

The data provided in the District's 2020 Plan and the Water Shortage Contingency Plan is provided on a FY basis through June 30, 2020 (as discussed in Section 2.5).

10.2 NOTICE OF PUBLIC HEARING

The District's public hearing notification process for its 2020 Plan and the Water Shortage Contingency Plan is discussed below.

10.2.1 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642.

…The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies. Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area…

10.2.1.1 60 DAY NOTIFICATION

As discussed in Section 2.6.1 and Section 2.6.2., the District coordinated the preparation of the 2020 Plan with the Chino Basin Watermaster, Inland Empire Utilities Agency, City of Rancho Cucamonga, City of Fontana, City of Ontario, City of Upland, Fontana Water Company, San Antonio Water Company, and Santa Margarita Water District. The District notified these agencies, as well as to the cities and county within which the District provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

10.2.1.2 NOTICE OF PUBLIC HEARING

The District provided a notice of the public hearing to the County of San Bernardino, the Chino Basin Watermaster, Inland Empire Utilities Agency, City of Rancho Cucamonga, City of Fontana, City of Ontario, City of Upland, Fontana Water Company, San Antonio Water Company, and Santa Margarita Water District. The notice includes the time and place of the public hearing. In accordance with Government Code Section 7291, if the District's audience for the public hearing includes a substantial number that are not able to speak or understand English, the District will provide interpreters. To ensure that the Plan and the Water Shortage Contingency Plan were available for review, the District placed a copy of the draft 2020 Plan and the draft Water Shortage Contingency Plan at each of its office locations and made a copy available for review on its website. Copies of the notice of the public hearing are provided in Appendix D.

10.2.1.3 SUBMITTAL TABLES

Table 10-1 summarizes the agencies which were provided notifications by the District.

Table 10-1 Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Fontana	Yes	Yes
Ontario	Yes	Yes
Rancho Cucamonga	Yes	Yes
Upland	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Bernardino County	Yes	Yes
NOTES:		

10.2.2 NOTICE TO THE PUBLIC

CWC 10642.

...Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of a hearing to any city or county within which the supplier provides water supplies.

Government Code 6066.

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Pursuant to Section 6066 of the Government Code, the District published a notice of public hearing in the newspaper during the weeks of May 25, 2021 and June 1, 2021. A notice of public hearing was also provided to the District's office and was posted throughout the District's service area and on the District's website. A copy of the published notice is provided in Appendix D. To ensure the draft 2020 Plan and the draft Water Shortage Contingency Plan were available for review, the District placed a copy at each of its office locations and made a copy available for review on its website.

10.3 PUBLIC HEARING AND ADOPTION

CWC 10642.

...Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon.

CWC 10608.26.

(a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

10.3.1 PUBLIC HEARING

Prior to adopting the draft 2020 Plan and the draft Water Shortage Contingency Plan, the District held a public hearing on June 8, 2021 which included input from the community regarding the District's draft 2020 Plan and the draft Water Shortage Contingency Plan. As part of the public hearing, the District adopted a method to determine of its water use targets through selection of Target Method 1 (see Section 5.2.1 and Appendix G). In addition, the District considered the economic impacts of meeting these water use targets; including measures described in Section 8.8.

10.3.2 ADOPTION

CWC 10642.

… After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

Following the public hearing, the District adopted both the draft 2020 Plan and the draft Water Shortage Contingency Plan (included in Chapter 8). A copy of the resolution adopting the 2020 Plan and the Water Shortage Contingency Plan is provided in Appendix S.

10.4 PLAN SUBMITTAL

CWC 10621.

(e) Each urban water supplier shall update and submit its 2020 plan to the department by July 1, 2021.

CWC 10644.

(a) (1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

CWC 10635.

(c) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The District's submittal process for its 2020 Plan and the Water Shortage Contingency Plan is discussed below.

10.4.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR

Within 30 days of adoption of the 2020 Plan and before July 1, 2021, the District's Board of Directors adopted the 2020 Plan on June 8, 2021 and submitted the adopted 2020 Plan (including the Water Shortage Contingency Plan) to DWR. The 2020 Plan and Water Shortage Contingency Plan were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

DWR developed a checklist which was used by the District to assist DWR with its determination that the District's 2020 Plan has addressed the requirements of the CWC. The District has completed the DWR checklist by indicating where the required CWC elements can be found within the District's 2020 Plan (See Appendix C).

10.4.2 ELECTRONIC DATA SUBMITTAL

CWC 10644.

(a)(2) The plan, or amendments to the plan, submitted to the department …shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

Within 30 days of adoption of the 2020 Plan and before July 1, 2021, the District submitted all data tables associated with the 2020 Plan through DWR's "Water Use Efficiency Data Portal" website.

10.4.3 SUBMITTING A UWMP, INCLUDING WSCP, TO THE CALIFORNIA STATE LIBRARY

Within 30 days of adoption of the 2020 Plan by the District's Board of Directors, a copy (CD or hardcopy) of the 2020 Plan was submitted to the State of California Library. A copy of the letter to the State Library will be maintained in the District's file. The 2020 Plan will be mailed to the following address if sent by regular mail:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
P.O. Box 942837
Sacramento, CA 94237-0001

The 2020 Plan will be mailed to the following address if sent by courier or overnight carrier:

California State Library
Government Publications Section
Attention: Coordinator, Urban Water Management Plans
900 N Street
Sacramento, CA 95814

10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2020 Plan (including the Water Shortage Contingency Plan) by the District's Board of Directors, a copy of the 2020 Plan was submitted to the County of San Bernardino Assessor - Recorder's office and the Cities within its service area. A copy of the letter to the County of San Bernardino will be maintained in the District's file.

10.5 PUBLIC AVAILABILITY

CWC 10645.

(a) Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

(b) Not later than 30 days after filing a copy of its water shortage contingency plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

Within 30 days after submittal of the 2020 Plan to DWR, the District made the 2020 Plan (including the Water Shortage Contingency Plan) available at the District's Office during normal business hours and on the District's website.

10.6 NOTIFICATION TO PUBLIC UTILITIES COMMISSION

CWC 10621.

(c) An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

The District is not regulated by the California Public Utilities Commission.

10.7 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN

CWC 10621.

(d)The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

CWC 10644.

(a)(1) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

The District's amendment process for its 2020 Plan is discussed below.

10.7.1 AMENDING A UWMP

If the District amends the adopted 2020 Plan, the amended Plan will undergo adoption by the District's governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the County of San Bernardino Assessor - Recorder's office, and the Cities of Rancho Cucamonga, Fontana, Ontario and Upland Clerk's Offices.

10.7.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN

CWC 10644.

(b) If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared pursuant to subdivision (a) of Section 10632 no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

If the District amends the adopted 2020 Plan (including the Water Shortage Contingency Plan), the amended Plan (and Water Shortage Contingency Plan) will undergo adoption by the District's governing board. Within 30 days of adoption, the amended Plan (and Water Shortage Contingency Plan) will then be submitted to DWR, the State of California Library, the County of San Bernardino Assessor - Recorder's office, and the Cities of Rancho Cucamonga, Fontana, Ontario and Upland Clerk's Offices.