UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

JUNE 2021

FINAL

2020 URBAN WATER MANAGEMENT PLAN

Northern California • Southern California • Arizona • Colorado • Oregon

Contents

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LIST OF ACRONYMS

AB	Assembly Bill
AF	Acre-feet
AFY	Acre-feet per year
Annual Assessment	Annual Water Supply and Demand Assessment
AWE	Alliance for Water Efficiency
AWWA	American Water Works Association
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
BPOU	Baldwin Park Operable Unit
CalWEP	California Water Efficiency Partnership
CAR	Conservation Action Roundtable
Carson Plant	LACSD Joint Water Pollution Control Plan, Carson
CEC	Constituent of Emerging Concern
Central District	Central Basin Municipal Water District
CIC	Covina Irrigating Company
CII	Commercial Industrial Institutional
CIMIS	California Irrigation Management Information System
Corps of Engineers	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
CWEA	Cooperative Water Exchange Agreement
DDW	State Water Resource Control Board Division of Drinking Water
Delta	Sacramento-San Joaquin Delta
Department	Department of Water Resources
DMM	Demand Management Measures
DOF	Department of Finance
DPW	Los Angeles County Department of Public Works
DRA	Drought Risk Assessment
DWR	Department of Water Resources
ERAP	Emergency Response Action Plan
ERP	Emergency Response Plan
ETo	Evapotranspiration
FY	Fiscal Year
GCMs	General Circulation Models
GIS	Geographical Information Systems
GPCD	Gallons per capita per day
GSP	Groundwater Sustainability Plan

GSWC	Golden State Water Company
HECW	High Efficiency Clothes Washer
IRP	Integrated Resources Plan
IRRP	Indirect Reuse Replenishment Project
JWPCP	Joint Water Pollution Control Plant
Key Well	Baldwin Park Key Well
kWh	Kilowatt Hours
LACSD	Los Angeles County Sanitation District
LARWQCB	Los Angeles Regional Water Quality Control Board
lbs	pounds
M&I	Municipal and Industrial
MAAP	Member Agency Allocation Program
Main Basin	Main San Gabriel Basin
Metropolitan	Metropolitan Water District of Southern California
mg/L	Milligrams per liter
MGD	Million gallons per day
MSL	Mean Sea Level
MWD	Metropolitan Water District of Southern California
MWELO	Model Water Efficient Landscape Ordinance
NCP	National Contingency Plan
NDMA	N-nitrosodimethylamine
NMFS	National Marine Fisheries Service
OSY	Operating Safe Yield
PHET	Premium High Efficiency Toilet
Plan	Urban Water Management Plan
PWS	Public Water System
RCP 4.5	Representative Concentration Pathway 4.5
RDA	Resource Development Assessment
RDM	Robust Decision Making
River Watermaster	San Gabriel River Watermaster
ROD	Record of Decision
RRA	Risk and Resilience Assessment
RRWP	Regional Recycled Water Program
SB	Senate Bill
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act of 2014
SGVMWD	San Gabriel Valley Municipal Water District
SGVWC	San Gabriel Valley Water Company
SJCWRP	San Jose Creek Water Reclamation Plant
SMS	Soil Moisture Sensor

SNMP	Salt and Nutrient Management Plan
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWS	Suburban Water System
TDS	Total Dissolved Solids
TVWMD	Three Valleys Municipal Water District
U.S. Census	United States Census
Upper District	Upper San Gabriel Valley Municipal Water District
USEPA	United States Environment Protection Agency
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
VHWC	Valencia Heights Water Company
VOC	Volatile Organic Compounds
Watermaster	Main San Gabriel Basin Watermaster
WBIC	Weather Based Irrigation Controller
WEWAC	Water Education/Water Awareness Committee
WNWRP	Whittier Narrows Water Reclamation Plant
WRCC	Western Regional Climate Center
WRD	Water Replenishment District of Southern California
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WSDM	Water Surplus and Drought Management Plan
WSIP	Water Savings Incentive Program
WUCA	Water Utility Climate Alliance

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1.0 INTRODUCTION AND OVERVIEW

Lay Description

An urban water supplier is defined (pursuant to Section 10617 of the California Water Code) 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 Upper San Gabriel Valley Municipal Water District (Upper District) is an "urban water supplier" and is required to prepare an Urban Water Management Plan (UWMP or Plan) in accordance with the Urban Water Management Planning Act (UWMP Act) which was enacted by the California Legislature in 1983. The UWMP Act requires every "urban water supplier" to prepare and adopt an UWMP, periodically review its UWMP at least once every five years, and make any amendments or changes which are indicated by the review. The primary objective of the UWMP Act is to direct urban water suppliers to evaluate their existing water conservation efforts and, to the extent practicable, review and implement alternative and supplemental water conservation measures. The UWMP Act requires water agencies develop UWMPs to provide a framework for long-term water planning as well as information regarding long-term resource planning to ensure sufficient water supplies are available to meet existing and future demands. Urban water suppliers are required to report, describe, and evaluate water deliveries and uses, water supply sources, efficient water uses, demand management measures, and water shortage contingency planning. The UWMP Act is directed primarily at retail water purveyors where programs can be immediately affected upon the consumer.

The UWMP provides urban water suppliers with a reliable management action plan for long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. In compliance with the UWMP Act, Upper District last updated its Plan in 2015. There have been revisions and some reorganization of the CWC sections since the Upper District's last update. The current requirements for preparing the 2020 Plan are included in CWC Sections 10608 through 10657 and incorporate water supply reliability determinations resulting from prolonged drought, groundwater overdraft, regulatory revisions, and/or changing climatic conditions.

Pursuant to Section 10621(a) of the CWC, "*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.*" Each water supplier must update and submit its 2020 UWMP to the California Department of Water Resources (DWR) by July 1, 2021.

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

- An overall lay description of the 2020 Plan, including California Water Code and Urban Water Management Plan Act requirements, is provided. Upper District is required to prepare an Urban Water Management Plan.
- Upper District's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020", dated April March 2021. A description regarding the organization of the 2020 Plan, including a summary of each Chapter, is provided. Upper 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 in Appendix A.

- Upper District's coordination efforts with other planning agencies are discussed, including coordination efforts with the Metropolitan Water District of Southern California and the Southern California Association of Governments.
- Upper 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 Upper District's prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta (Delta). Upper District has reduced its reliance on the imported water supplies for fiscal year (FY) 2014-15. In addition, Upper District is projected to continue reducing its reliance on the imported water supplies through FY 2044-45.
- The checklist developed by DWR and used by Upper District to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix C.

1.1 UWMP ORGANIZATION

Upper 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 April, 2021. Upper 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	SBX7-7 Baseline and Targets
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 summarizing the contents of each chapter is provided at the beginning of each chapter.

Pursuant to CWC requirements, Upper 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 in Appendix A. Upper District also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool.

Upper 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 Upper District's governing body. Further discussions regarding these supporting documents are provided within the individual Chapters of Upper District's 2020 Plan.

1.2 UWMP IN RELATION TO OTHER EFFORTS

Upper District is a wholesale water agency and a member agency of the Metropolitan Water District of Southern California (Metropolitan). As a member agency, Upper District has coordinated with Metropolitan for the preparation of Metropolitan's Integrated Resources Plan (IRP) and UWMP. In addition, Upper District's 2020 Plan has been made available for use by its member agencies.

1.3 UWMP AND GRANT OR LOAN ELIGIBILITY

Pursuant to DWR's Final 2020 UWMP Guidebook:

"*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*."

Upper District's 2020 Plan 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).

Upper District has reduced its reliance on imported water in 2015 and 2020. In addition, Upper District is involved in a regional program to deliver recycled water to the San Gabriel Valley to replenish the Main San Gabriel Basin which will contribute to regional self-reliance of water supplies. A further discussion which demonstrates Upper District's measurable reduction in imported water reliance and improvement in regional self-reliance is provided in Appendix B.

1.5 TIPS FOR UWMP PREPARERS

Upper District's 2020 Plan is considered an update to Upper District's 2015 Plan. However, the 2020 Plan is also considered a stand-alone document. As discussed in Section 1.1, Upper District's 2020 Plan 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.

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2.0 PLAN PREPARATION

Lay Description

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

- The basis for preparing an Urban Water Management Plan is provided. Upper District is required to prepare the 2020 Plan because it is an "urban water supplier" (Upper District indirectly serves more than 3,000 retail customers and it directly or indirectly supplies more than 3,000 acre-feet of water annually to its member agencies for municipal purposes).
- Upper District's Plan has been prepared as an "individual" plan rather than a "regional" plan in an effort to provide information specific to Upper District to best inform its member agencies.
- Information presented in Upper District's 2020 Plan is provided on "Fiscal Year" basis which is from July 1 through June 30 of the following year.
- Water quantities presented in Upper District's 2020 Plan are provided on an "acre-foot" basis.
- Upper District's coordination and outreach efforts with Metropolitan, its member agencies, and the community are described.
- Upper District's notification process to the cities and county within which Upper District provides water supplies to is discussed.

2.1 PLAN PREPERATION

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

"*The 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 California Water Code requirements, Upper 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.

Upper 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 periodically 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.

Section 10621(a) of the CWC states, "*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".* As a result, DWR requires the 2020 Plans be submitted by July 1, 2021.

Upper District is an "urban water supplier" pursuant to Section 10617 of the CWC and indirectly 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. Upper District's 2020 Plan is an update to Upper 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.

As a wholesale water agency, Upper District is not defined as a Public Water System (PWS) and is not required by DWR to provide PWS information.

2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

Based upon their FY 2019-20 water production and imported water deliveries, the following urban water suppliers within or partially within Upper District's boundaries may be required to prepare a Plan:

- California American Water Company (Duarte System and San Marino)
- California Domestic Water Company
- City of Arcadia
- City of Azusa
- City of Covina
- City of El Monte
- City of Glendora
- City of Monrovia
- City of South Pasadena
- City of Whittier
- Covina Irrigating Company
- Golden State Water Company (San Gabriel District)
- San Gabriel County Water District
- San Gabriel Valley Water Company
- Suburban Water Systems
- Sunny Slope Water Company
- Valley County Water District

2.3 REGIONAL PLANNING

Upper District has developed its 2020 Plan reporting solely on its service area to address all requirements of the California Water Code. Upper District's 2020 Plan was not developed as a Regional Plan. However, Upper District's UWMP draft is available for use and reference by its member agencies.

Metropolitan coordinates with its member agencies regarding the development of their UWMP. Likewise, Metropolitan's 2020 UWMP draft is available for use and reference by its member agencies and urban water suppliers within those member agencies.

2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, Upper District's 2020 Plan is an "Individual UWMP". Upper District has developed its 2020 Plan reporting solely on its service area to address all requirements of the California Water Code. Upper District notified and coordinated with appropriate regional agencies and constituents (See Section 2.6).

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, Upper District's 2020 Plan was developed as an "Individual UWMP" and not part of a Regional Plan. However, Upper District's UWMP draft is available for use and reference by its member agencies.

Metropolitan has prepared a prepared a draft UWMP, dated March 2021. Metropolitan's 2020 UWMP draft is available for use and reference by its member agencies and urban water suppliers within those member agencies.

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, Upper 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 Upper District's 2020 Plan is reported on a fiscal year basis, unless noted otherwise, as shown in Table 2-3. A fiscal year begins on July 1 of every year. Data is provided through June 30, 2020.

2.5.2 REPORTING COMPLETE 2020 DATA

The data provided in Upper 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 Upper 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

Upper District is a wholesale agency serving 26 member agencies in its service area. The following is a list of Upper District's member agencies:

- Amarillo Mutual Water Company
- California American Water Company (Duarte System and San Marino)
- California Domestic Water Company
- City of Arcadia
- City of Azusa
- City of Covina
- City of El Monte
- City of Glendora
- City of Industry Public Works
- City of Monrovia
- City of South Pasadena
- City of Whittier
- Covina Irrigating Company
- Del Rio Mutual Water Company
- East Pasadena Water Co., Ltd.
- Golden State Water Company (San Gabriel District)
- Hemlock Mutual Water Company
- La Puente Valley County Water District
- San Gabriel County Water District
- San Gabriel Valley Water Company
- Sterling Mutual Water Company
- Suburban Water Systems
- Sunny Slope Water Company
- Valencia Heights Water Company
- Valley County Water District
- Valley View Mutual Water Company

As indicated in Table 2-4, Upper District has provided its 2020 Plan to its member agencies which includes water use projections in five-year increments for normal, single dry, and five consecutive year drought conditions over the next 20 years.

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…

Upper District is a wholesale water supplier that provides treated imported water to its member agencies and untreated imported water to replenish groundwater supplies of the Main San Gabriel Basin (Main Basin). Main San Gabriel Basin Watermaster (Watermaster) is a Court appointed agency which has the authority to manage Main Basin surface and groundwater supplies. Upper District notified its member agencies (including Cities within its service area) and public agencies that share a common source of supply of the preparation of Upper District's 2020 Urban Water Management Plan. As discussed in Section 10.2, Upper District notified these agencies 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 letter 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 was provided to the cities and county within which Upper District provides water supplies that Upper District was reviewing and considering amendments (updates) to the previous 2015 Plan, and as a result prepare the 2020 Plan. Notification was provided at least 60 days prior to the public hearing (see Appendix D).

3.0 SYSTEM DESCRIPTION

Lay Description

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

- A description of Upper District's service area is provided. Upper District provides wholesale water service to its 26 member agencies. Upper District's service area covers approximately 144 square miles in the San Gabriel Valley, overlying the Main San Gabriel Basin. Figure 1 shows Upper District's service area boundaries.
- Upper District's water service area encompasses an area of approximately 144 square miles. The location of Upper District's service area is provided in Figure 1.
- A description regarding Upper 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 Upper District's service area is summarized. The sources of the climate information are also discussed.
- The population within Upper District's water service area is discussed and projected. The sources of the population information are also discussed. Upper District provides wholesale water service to an area with a current population of 876,069. Upper District is projected to have a population of 949,791 by FY 2045.
- A discussion of land use information used by Upper District to develop the 2020 Plan is provided. Upper District reviewed the current and projected land uses within its service area. Upper District also reviewed data provided by the Southern California of Association Governments, the Department of Finance, and the United States Census Bureau and prepared for counties, cities, and unincorporated areas within Southern California Association 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

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.

Upper District is a wholesale water agency and was incorporated on January 7, 1960 under the Municipal Water District Act. The Municipal Water District Act provides for, "The people of any county or counties, or of any portions thereof, whether such portions include unincorporated territory only or incorporated territory of any city or cities, or both such incorporated and unincorporated territories…" to organize municipal water districts. With respect to water supply, the Municipal Water District Act allows such a district to "…acquire, control, distribute, store, spread, sink, treat, purify, reclaim, recapture, and salvage any water, including sewage and storm waters, for the beneficial use or users of the District, its inhabitants, or the owners of rights to water in the District." Upper District is located within San Gabriel Valley in Los Angeles County and overlies the Main Basin. The boundaries of Upper District are shown on Figure 1. Upper District is governed by a five-member Board of Directors and is broken down into five divisions, which are shown on Figure 2. Upper District employs a general manager and office staff and retains an attorney and consulting engineer. As a wholesaler, Upper District supplies supplemental imported water, from Metropolitan, and recycled water to its member agencies.

Metropolitan is comprised of 26 member agencies that receive imported water from the State Water Project and/or the Colorado River. Upper District is a member agency of Metropolitan.

While Upper District is a water wholesaler with no retail customers of its own, Upper District's member agencies provide water to retail customers. Upper District's member agencies include several urban water suppliers that are required to prepare Management Plans. As a wholesaler, Upper District provides imported water service to member agencies through Metropolitan's distribution system and recycled water service through a local distribution system. Upper District does not have its own imported water distribution system and relies on Metropolitan's distribution system for delivery of treated and untreated imported water to Upper District's member agencies. The majority of the imported water delivered from Upper District to its member agencies is used for groundwater replenishment and delivered through service connection USG-3. Imported water can also be delivered, as necessary, through service connections CENB-48 and USG - SGP, although the majority of untreated imported water is delivered through USG-3.

Upper District supplies treated imported water from Metropolitan through the following service connections:

- USG-1: Golden State Water Company
- USG-2: City of South Pasadena
- USG-4: Suburban Water Systems
- USG-5: City of Alhambra
- USG-6: City of Arcadia
- USG-7: City of Monrovia
- USG-8: Azusa Light and Water
- USG-9: Valley County Water District

Upper District's service area is about 144 square miles and includes all or portions of the Cities of Arcadia, Azusa, Baldwin Park, Bradbury, Covina, Duarte, El Monte, Glendora, Industry, Irwindale, La Puente, Monrovia, Rosemead, San Gabriel, South El Monte, South Pasadena, Temple City, and West Covina. The service area of Upper District is largely urbanized consisting of mainly residential, light industrial and commercial uses.

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, Upper District's current service area covers approximately 144 square miles and overlies the Main San Gabriel Basin. A service area boundary map is provided in Figure 1.

Upper 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).

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 (ETo) in the vicinity of Upper District's service area is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC) and from DWR's California Irrigation Management Information System (CIMIS).

Month	Average Temperature	Average Min. Temperature	Average Max. Temperature	Average Total Precipitation	ETo
	(F)	**(F)**	**(F)**	**(Inches)**	**(Inches)**
January	55.6	41.9	69.1	3.69	2.20
February	57.0	43.7	70.2	3.92	2.41
March	58.9	45.9	71.7	2.99	3.71
April	62.1	49.1	75.2	1.21	4.36
May	65.7	53.5	77.7	0.27	5.29
June	69.9	57.2	82.5	0.09	5.78
July	74.9	61.1	88.7	0.02	6.55
August	75.6	61.6	89.7	0.13	6.02
September	73.9	59.5	88.1	0.34	4.87
October	68.2	53.8	82.2	0.57	3.40
November	61.0	46.4	75.3	1.65	2.38
December	55.9	41.9	69.8	2.33	1.90
Annual	64.7	51.3	78.4	17.20	48.87

Source Historical average monthly precipitation and temperature information was obtained from the Western Regional Climate Center (http://www.wrcc.dri.edu/) and is based on data collected from Station 047785 (San Gabriel Fire Department) from 1939 through 2015. 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 159 (Monrovia).

The service area and location of Upper District in the San Gabriel Valley has a dry climate and summers can reach average monthly temperatures in the high 80s. The average monthly precipitation taken from Station 047785 at the San Gabriel Fire Department is approximately 17.20 inches. Although changes in climatic conditions will have an impact, the projected water supply demands will be based on average year, single dry year and a five consecutive year drought, based on historical data and projected demands.

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.

Upper District provides water service to an area with a current population of about 876,069. Table 3-1 presents the current and projected population of the area encompassed by Upper District from FY 2019-20 to FY 2044-45. Upper District's service area is projected to have a population of approximately 949,791 by 2045. Projected populations in Upper District's service area were based on projections obtained from Metropolitan. Metropolitan determined its growth projects based in Southern California Association of Governments (SCAG). Projected populations in Upper District's service

area were 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.

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.

No other demographic factors affect Upper District's water management planning. However, increased population will have an impact on water demand.

3.5 LAND USES

Upper District is a wholesale water agency which provides both treated and untreated imported water and recycled water to its retail member agencies. However, Upper District does not provide water directly to retail customers. Upper District obtains a five-year projection of both treated and imported water demands from its customers which is updated annually. As discussed in Section 3.4, Upper District also obtained data from the Southern California Association of Governments document entitled "*The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy of the SCAG*", dated September 2020. Projected populations in Upper District's service area were based on growth rate projections developed by SCAG. The data provided by SCAG 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 projected population was used to project future demand through the year 2045, As discussed in Section 2.6, Upper District coordinated the preparation of the 2020 Plan with its member agencies.

4.0 WATER USE CHARACTERIZATION

Lay Description

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

- Upper District provides water service to one water use sector: sales to other agencies, discussed in Section 4.2.1.
- Upper District's total water demands (excluding recycled water) over the past 10 years have ranged from approximately 15,563 AF to 52,410 AF, with an average of 35,170 AF. Upper District currently measures its water use through metered data.
- Upper District's current and projected water demands are provided in five-year increments over the next 25 years are provided (through FY 2044-45) as shown on Table 4-3.
- Upper District's sources of water supply and how those sources may be impacted by climate change are discussed. The proactive actions Upper District and other local/regional water managers may take to address the potential climate change impacts on water supplies are also discussed.
- Upper 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 Upper 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.

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.

Upper District is a wholesale water provider which provides water to retail urban water suppliers, but does not directly use water. Consequently, Upper District cannot segregate sales by type of sectors. Upper District has in its records total sales of treated imported

water for direct use, total sales of untreated imported water for groundwater replenishment and total sales of recycled water to its member agencies.

Upper District's current and projected water demands from its member agencies are provided in five-year increments over the next 25 years (through FY 2044-45) in Tables 4-1, 4-2, and 4-3. Upper District's total water demands were projected based on current water use factors incorporating recent water demands from its member agencies and the total population projections based on land use trends within Upper District's service area. Upper District has in its records total sales of treated imported water for direct use, total sales of untreated imported water for groundwater replenishment and total sales of recycled water to its member agencies.

Upper District's current and projected water demands are provided in five-year increments through 2045 in Tables 4-1 and 4-2. Water demand sectors are also identified (see Section 4.2.1). Upper District's total water demand projections are based on Metropolitan's estimated demands for Upper District's service area. The development of Metropolitan's demand forecast is discussed in detail in Section 2.2. of Metropolitan's 2020 UWMP.

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, Upper District's service area includes the following water demand sectors listed in the California Water Code:

- Sales to other agencies (treated imported water for direct use, untreated imported water for groundwater replenishment)

Within Upper District's service area, there are eight treated imported water service connections with eight of its member agencies for direct use. The member agencies with treated imported water service connections for direct use rely on both the water supply from Upper District and the water produced from the Main Basin and Raymond Basin as their total supply for direct use. The total treated imported water sales for direct use for FY 2019-20 was 6,026 acre-feet. However, much of the treated imported water deliveries reflect a shift away from groundwater productions in excess of water rights. In effect, treated imported water deliveries are made instead of untreated imported water.

As discussed in Section 6.2.2, Upper District is one of the Responsible Agencies from which the Watermaster purchases Supplemental Water, which is used for groundwater replenishment purposes. Upper District delivers untreated imported water for groundwater replenishment primarily through its service connection, USG-3, but also through service connections CEN B-48 and USG-SGP. The untreated imported water sales as replenishment water for FY 2019-20 was 28,616 acre-feet.

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

Upper District's service area does not include other water demand sectors which are not listed in the California Water Code (including exchanges, surface water augmentation, transfers, and wetlands or wildlife habitat).

4.2.3 PAST WATER USE

Chapter 6 provides a discussion of the sources of water supply Upper District's uses to meet its water demands. Section 6.1 provides a tabulation of the Upper District's historical annual water demands for each water supply source. Over the past ten years, Upper District's annual imported water demands have ranged from 15,563 AF to 52,410 AF, with an average of 35,170 AF. In addition, Upper District recently experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. Upper District also reviewed its historical water demands from its member agencies to determine the projected water demands and water supply reliability (discussed in Chapter 7). Upper District is able to provide sufficient water supplies to meet the projected water demands of its member agencies, including during long-term drought periods.

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.

As a wholesale supplier, Upper District is not required by DWR to perform water loss audits and report distribution system water loss.

Each treated imported water connection has only one meter reported by Metropolitan to Upper District. Therefore, from an accounting standpoint for Upper District, there are no unaccounted-for system losses. However, Metropolitan and Upper District's member agencies may experience unaccounted-for system losses and would be discussed in their own UWMPs. Likewise, USG-3 has only one reading reported by Metropolitan to Upper District. Therefore, from an accounting standpoint for Upper District, there are no unaccounted-for system losses.

4.2.5 CURRENT WATER USE

Upper District currently measures its water use through meter data and billing records. The water use for Upper 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.

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 Upper District is not required by DWR to use the tool. However, Section 6.1 provides

a tabulation of Upper District's historical annual water uses for each water supply source. During the past 10 years, Upper District experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. Upper 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, Upper 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 Upper 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.

Upper District's projected water demands are provided in five-year increments over the next 20 years (through FY 2044-45) in Table 4-3. Upper 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 Upper District's water use sectors are provided in Table 4-2.

As a wholesaler, Upper District's water demand projections are not required by DWR to incorporate water savings, or "passive savings", which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water.

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.

Upper District's projected water demands are provided in five-year increments over the next 20 years (and through FY 2044-45) in Table 4-3. Upper 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 20 years (and through FY 2044-45) are provided in Chapter 7.

Upper 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 Upper 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 Upper District's water service reliability during a drought lasting five years. The DRA reflects anticipated water demands from its member agencies and supplies prior to any expected benefits associated with water supply shortage responses included in Upper District's Water Shortage Contingency Plan (provided in Chapter 8). In addition to historical drought hydrology, Upper District considered impacts to water supplies and demands based on climate change conditions (discussed in Section 4.5)

4.3 WORKSHEETS AND REPORTING TABLES

Upper District's current and projected water demands, including the water demands for each of Upper 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 Upper District is not required by DWR to use the tool. Upper District has been able to provide sufficient water supplies to its customers, including during a five consecutive year drought and years with historically high-water demands. A further

discussion regarding the reliability of Upper District's water supply sources is provided in Chapter 7.

4.3.2 DWR 2020 UWMP SUBMITTAL TABLES

Upper District's current water demands for each of the water use sectors during FY 2019-20 are provided in Table 4-1. Upper 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. Upper District's total projected water demands, including potable water, in five-year increments over the next 25 years (and through FY 2044-45), are summarized in Table 4-3. As a wholesale supplier, Upper District is not required by DWR to perform water loss audits and report distribution system water loss.

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.

As a wholesale supplier, Upper District is not required by DWR to report projected water demands from its member agencies for lower income single-family and multi-family households.

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[1]". 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 impacts of climate change is on these adverse consequences.

Section 6.2 of this Plan describes Upper 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 Upper District's water supply sources. Chapter 8 provides a detailed discussion of Upper District's Water Shortage Contingency Plan, including but not limited

[1] www.merriam-webster.com

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 Upper District's sources of supply, how those sources may be impacted by climate change, and the proactive actions Upper District and other local/regional water managers may take to address the potential climate change impacts on water supplies.

4.5.1 IMPORTED WATER SUPPLIES

Upper District receives treated imported water as discussed in Section 6.2.1 and relies on the Watermaster to manage the groundwater supplies of the Main Basin through the replenishment of untreated imported water. Consequently, Upper District directly and/or indirectly relies on the Metropolitan for those imported water supplies. Metropolitan has prepared a Regional 2020 Urban Water Management Plan which includes a discussion (Section 2.6 in Metropolitan 's 2020 UWMP) of the reliability of its water supplies and the impacts of climate change and is incorporated by reference in this Plan. The following is a brief summary of Metropolitan 's efforts:

Resource Planning

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

- Metropolitan altered the inflow hydrology scenarios on the Colorado River simulation model to reflect modified inflow to Metropolitan 's Colorado River aqueduct.

Knowledge Sharing and Research Support

- Metropolitan 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, Metropolitan shares agency actions on climate change and adaptation. WUCA has also released numerous research papers on climate change.

Quantification of Current Research

- Metropolitan incorporates current climate change science into its planning efforts and attempts to explicitly reflect uncertainty.

Implementation of Programs and Policies

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

4.5.2 GROUNDWATER SUPPLIES

Although Upper District does not produce groundwater, its member agencies rely on groundwater produced from the Main San Gabriel Basin (Main Basin) to meet their demands. The Main Basin (which is included as a subbasin of the San Gabriel Valley Basin, Basin Number 4-13 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. In that regard, the Main Basin is actively managed by the Main Basin Watermaster and those management activities are described in detail in Section 6.2.2.

Recognizing the potential impacts of climate change on the Main Basin groundwater supplies (decreased local runoff and replenishment, along with increased groundwater production, may lead to decreased groundwater levels), Upper 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 Main 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 Upper 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 Upper District's climate change analysis, the average condition GCM (CanESM2) was selected.

The climate tools available on the Cal-Adapt website were used to simulate projected annual precipitation and annual average maximum temperature in the Main Basin. An electronic boundary of the Main 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 E), the average annual rainfall in the Main Basin is projected to be 20.06 inches over the next 25 years (through 2045), compared to historical average of 18.53 inches (from 1950 through 2019). In addition, the average maximum temperature is projected to be 82.0 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 simulations do not denote the duration or intensity of storms contributing to the annual precipitation. Notwithstanding, the San Gabriel River watershed includes a complex and interconnected series of dams, reservoirs and replenishment basins to capture stormwater runoff. In an average to below average year of precipitation, over 95 percent of the precipitation in the watershed is retained within the watershed and is not lost to the ocean. Consequently, most if not all precipitation (whether it is rain or snowfall) likely will be captured for use in the Main Basin area and not adversely impacted by a potentially higher average annual temperature.

Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, the Watermaster has taken (and may reinstate as needed) the following proactive actions to anticipate and circumvent the potential impacts of climate change.

Judgment Amendments

Since FY 2011-12 the Watermaster has become more pro-active by implementing provisions of the Judgment, and developing and instituting new studies, programs and plans to address the drought conditions as they progressively worsened. As a direct result of a multiple-year drought (from 2006 to 2009), the 2012 Judgment Amendments provided Watermaster with increased management flexibility and adaptability; and provided more discretion in making Basin management decisions. A key component of the Judgment Amendments was the new Water Resource Development Assessment

(RDA) to be levied on all production. The RDA was designed to help address the potential future unavailability of imported replenishment water supplies, by allowing the Watermaster to collect RDA funds and purchase replenishment water for storage in the Basin to offset a future Replacement Water obligation (discussed in Section 6.2.2).

Storm Water Capture

During FY 2011-12, the Watermaster convened an Ad Hoc Committee on storm water capture to help address the local drought conditions that resulted in the historic low Key Well (representing groundwater elevation in the Main Basin) elevation in 2009. The Ad Hoc Committee performed extensive research and coordinated closely with the Los Angeles County, Department of Public Works (DPW) to identify and prioritize several potential new and enhanced storm water capture projects.

Reduce Operating Safe Yield

The adjudicated water rights in the Main Basin are approximately 200,000 AF. Through adoption of an annual Operating Safe Yield the Main Basin Watermaster has the ability to reduce the amount of water rights available to Producers before they must pay an assessment for expensive imported water. The Operating Safe Yield has previously been set at 150,000 AF which has been about 75 percent of the adjudicated total. This action provides producers with an economic incentive to reduce demands.

Cyclic Storage

Cyclic Storage allows a producer who anticipates a Replacement Water obligation to also pre-purchase imported water and store it in the Main Basin to meet its future Replacement Water obligation. The use of Cyclic Storage helps increase groundwater levels, however, wet Replacement Water deliveries are deferred. Consequently, Cyclic Storage water will be applied to Replacement Water obligations for the short-term (one to three years),

significantly reducing actual deliveries of Replacement Water. Therefore, with significant amounts of water stored in Cyclic Storage, setting "lower" Operating Safe Yields will have almost no short-term impacts on Basin water levels/supplies.

Conservation

Watermaster passed Resolution No. 03-14-260 declaring "drought conditions" and encouraged all Basin water producers to adopt reduced pumping and water conservation activities at the retail level. Due to conservation efforts in the Main Basin, production decreased from 242,900 AF in FY 2012-13 to 182,800 AF in FY 2015-16, a total of 60,100 AF. Groundwater production was 192,600 AF in FY 2019-20. With less water being pumped from the Main Basin, this has helped maintain groundwater levels in the Main Basin.

Recycled Water for Replenishment

The Main Basin Watermaster has declared its support for a new recycled water supply project for Main Basin replenishment. When completed, the project could supply up to 100 percent of the overall imported replenishment water requirements.

Basinwide Low Water Vulnerability Assessment

During FY 2013-14, the Main Basin Watermaster initiated an evaluation of the potential impacts to groundwater production wells and local potable water supplies. The Watermaster also updated the basinwide information on water purveyor inter-connections in the event water supply from groundwater wells are reduced.

In-Lieu Program

During FY 2014-15, the Main Basin Watermaster re-instated the In-Lieu Program, where Watermaster funded a Producer's cost difference to take direct delivery of Metropolitan imported water "in-lieu" of pumping from its groundwater wells. The In-Lieu Program provided imported water to the Basin, and preserved groundwater supply in the Basin.

Stormwater Augmentation Program

During FY 2015-16, the Main Basin Watermaster evaluated other ways to help manage the Main Basin water supplies. While Southern California remained in extreme drought, northern California received above-average precipitation. As a result, replenishment water was made available. The Watermaster determined that during the previous five consecutive year drought from FY 2011-12 through 2015-16, nearly 400,000 acre-feet had been pumped from the Basin and not replaced by local rainfall and local runoff replenishment.

The Water Resource Development Assessment for Stormwater Augmentation Program was developed by the Main Basin Watermaster to help manage Main Basin water supplies under the perceived "worst case" hydrologic conditions, which was assumed to be two additional consecutive five-year droughts, using the same hydrologic conditions as the recent FY 2011-12 through 2015-16 severe drought. Based upon ten (10) additional consecutive years of drought, the new Program is intended to purchase imported replenishment water (when available), for stormwater augmentation, to maintain the Baldwin Park Key Well (Key Well) elevation above 180 feet by the end of the tenth year. This Key Well elevation essentially ensures continued Main Basin water supply to the Main Basin Producers under a worst case, 15-year sustained drought. The Program has an assessment of $140 per AF on all FY 2019-20 production and is planned to increase to $175 per AF on all FY 2020-21 production. Main Basin Watermaster will use the funds to purchase untreated imported water to replenish the Basin for the "general benefit" of all Producers within the Main Basin. The untreated imported water will

supplement local stormwater replenishment, enhance overall Main Basin conditions, and have “no right of recovery” using a water right, by any Main Basin producer.

Funding for the Program is based on the current year’s production. For example, assessments on FY 2019-20 production were levied in August 2020 and received by Watermaster by September 20, 2020. Main Basin Watermaster has adopted a plan to purchase a minimum of 31,000 acre-feet in December 2020; 33,551 acre-feet in December 2021; 27,800 acre-feet in December 2022; and 30,000 acre-feet in December 2023, under a Metropolitan Letter Agreement which includes Upper District and Three Valleys District. This pre-delivered Metropolitan water is purchased out of Metropolitan’s Cyclic Storage account, and will be paid for by the Main Basin Watermaster, primarily using funds from the Resource Development Assessments from Upper District and Three Valleys District producers.

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5.0 SB X7-7 BASELINE, TARGETS, AND 2020 COMPLIANCE

Lay Description

As a wholesale water agency, Upper District is not required to achieve SB X&-7 water use reduction targets or achieve a 20 percent reduction in urban water use by 2020. Consequently, most of the requirements for this Chapter are not applicable to Upper District.

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

- The Water Conservation Act of 2009 (or SB X7-7) required the State of California to achieve a 20 percent reduction in urban water use by the year 2020.
- As a wholesale water agency, Upper District is not required to calculate a 2020 Water Use Target or show compliance with the 2020 Water Use Target. However, an assessment regarding Upper District's present and proposed future measures, programs, and policies to assist Upper District's member agencies achieve their individual 2020 Water Use Targets is provided (in Chapter 9).

5.1 GUIDANCE FOR WHOLESALE AGENCIES

CWC 10608.12.

(l) "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.

As a wholesale water agency, Upper District is not required to "establish and meet baseline and targets for daily per capita water use", nor is Upper District required to submit the SB X7-7 Verification Form (Department of Water Resources' Final "Guidebook for Urban Water Suppliers"). Nevertheless, according to the DWR's UWMP guidebook, wholesale agencies, such as Upper District, are required to "provide an assessment of their present and proposed future measures, programs, and policies that will help the retails water suppliers in their wholesale service area achieve their SB X7-7 water use reduction targets".

Upper District participates in wholesale agency programs, which provide financial incentives for water conservation, technical support through workshops, and available staff for conservation projects. Upper District provides financial incentives for water conservation through its many retrofit and rebate programs that replace high water-use fixtures with efficient water-use fixtures. Some of the successful measures include, water conservation programs funded by Metropolitan (via pass through funding by Upper District) and supported by Upper District and made available to its member agencies. In addition, Upper District has supported and/or adopted various policies to encourage demand reduction (conservation) in its service area. Regional programs are also in place that local agencies can participate in to encourage water conservation. Information regarding Upper District's wholesale agency programs are discussed under Section 9.

Upper District also has a robust education and outreach program intended to promote water conservation and public education on water issues. Upper District has also assisted its member agencies with outreach and public relations. These programs and messaging campaigns have been very successful in educating the public about the importance of water conservation. These conservation programs have changed the public's behavior and attitudes about water conservation as reflected in significantly reduced water use within Upper District's service area.

5.2 SB X7-7 FORMS AND SUMMARY TABLES

As a wholesale agency, Upper District is not required by DWR to complete Section 5.2 and subsections.

5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPS

As a wholesale agency, Upper District is not required by DWR to complete Section 5.3.

5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE

As a wholesale agency, Upper District is not required by DWR to complete Section 5.4 and subsections.

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 a wholesale agency, Upper District is not required by DWR to complete Section 5.5 and subsections.

5.6 REGIONAL ALLIANCE

As discussed in Section 2.4, Upper District's 2020 Plan was not developed as part of a Regional Alliance. Information from Upper District's 2020 Plan is not required to be reported in a Regional Alliance Report.

6.0 WATER SUPPLY CHARACTERIZATION

Lay Description

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

- Upper District's water supply sources include: untreated and treated imported surface water purchased from Metropolitan and recycled water. Upper District's member agencies rely on groundwater from the Main Basin.
- Upper District's main source of water supply is imported water from MWD.
- A tabulation of Upper District's historical water supplies is provided in Section 6.1.
- A discussion regarding Upper District's imported water supplies from Metropolitan is provided.
- A discussion regarding groundwater supplies from the Main Basin is provided. Information regarding basin location, adjudication, management, water levels, water quality, water rights, and historical production is provided.
- Upper District's proposed future projects to maximum maximize its water supply resources are discussed.
- Upper District's "energy intensity" is discussed. Upper District does not have its own imported water distribution system and relies on Metropolitan's distribution system for delivery of treated and untreated imported water to Upper District's member agencies. Consequently, Upper District has no additional or direct energy use.

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

- Characterization and management of each water supply source;

- 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 Upper 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 Upper 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

(3) For any planned sources of water supply, a description of the measures that are being undertaken to acquire and develop those water 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).

Upper District's water supply sources include treated imported water, untreated imported water, and recycled water. Upper District's member agencies also rely on groundwater to meet their demands. The reliability of future supplies of imported water historically has been impacted by the sources of supply available to Metropolitan. The reliability of these imported water supplies is discussed further in Section 7.1.2. A tabulation of Upper District's historical imported water supplies is provided below.

Fiscal Year	Treated Imported Water (AF)	Untreated Imported Water (AF)	Total Imported Water Supplies (AF)
2010-11	3,429	35,384	38,814
2011-12	3,975	21,426	25,401
2012-13	3,529	12,035	15,563
2013-14	3,490	36,289	39,779
2014-15	9,069	43,341	52,410
2015-16	2,495	24,239	26,734
2016-17	3,197	45,500	48,696
2017-18	4,204	19,266	23,469
2018-19	5,420	40,776	46,195
2019-20	6,026	28,616	34,641

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:

- Upper 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.

Upper District historically has relied untreated and treated imported surface water purchased from Metropolitan and recycled water to meet its demands. The following descriptions summarize Upper District's sources of supply (detailed descriptions are provided in Section 6.2).

6.1.1.1 Purchased Treated Imported Water

Upper District relies upon Metropolitan for its current and future treated imported water supplies. Metropolitan supplies treated imported water to Upper District, which in turn supplies that imported water to its member agencies. Treated imported water is delivered by Upper District to its member agencies for direct use from Upper District service connections on the Metropolitan distribution system. Section 6.2.1 provides a detailed discussion of the existing and planned supply of the untreated imported water, including a description of the management and reliability of those untreated imported water supplies. Table 6-8 summarizes the actual untreated 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.

6.1.1.2 Purchased Untreated Imported Water

Untreated imported water is delivered to the Main Basin to satisfy its Replacement Water obligations required under the Main Basin Judgment (see Section 6.2.2). Section 6.2.1

provides a detailed discussion of the existing and planned supply of the untreated imported water, including a description of the management and reliability of those untreated imported water supplies. Table 6-8 summarizes the actual untreated 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.

6.1.1.3 Recycled Water

Upper District works with local water agencies to use recycled water for direct uses, which is obtained from the Sanitation Districts of Los Angeles County (LACSD). Direct use of recycled water reduces groundwater production, and consequently, the need for an equivalent amount of imported water in many cases. Section 6.2.5 provides a detailed discussion of the recycled water supply. Table 6-5 summarizes the actual untreated 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.

6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS

A description of Upper 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 Upper 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 Upper District is not required by DWR to use the tool. Section 6.1 provides a tabulation of Upper District's historical annual water uses for each water supply source. During the past 10 years, Upper District experienced a fiv consecutive year drought within its service area from FY 2011-12 to FY 2015-16. Upper 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, Upper 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 Upper District's water supply sources is provided in Chapter 7.

6.2 NARRATIVE WATER SUPPLY ANALYSIS CHARACTERIZATION

The sections below provided detailed descriptions of Upper District's supply sources, in addition to groundwater which is a significant supply source for Upper District's member agencies.

6.2.1 PURCHASED OR IMPORTED WATER

Metropolitan discusses the current available sources of water supply in Section 1.4 of its 2020 UWMP, which is incorporated by reference. Appendix F provides tables from Metropolitan's draft 2020 UWMP summarizing the historical sources of water supply available to Metropolitan, its supply capability and projected demands for an average year, single dry year, and five consecutive year drought period years, and its projections for Upper District. As shown in Appendix F, Metropolitan has sufficient water supplies to meet all of its member agencies projected supplemental demand for the next twenty years, even during five consecutive year drought periods. Metropolitan's greatest water

demands, which occur during a five consecutive year drought period, are anticipated to be approximately 1,629,000 AFY, in 2025, to 1,591,000 AFY, in 2045.

Upper District's current and projected volumes of purchased water are provided in Tables 6-8 and 6-9 (see Section 6.9). Upper District's imported water supply sources, supplied by Metropolitan, are discussed below. The reliability of these imported water supplies is discussed further in Section 7.1.2.

6.2.1.1 Colorado River

Metropolitan owns and operates the Colorado River Aqueduct which conveys water from Lake Havasu on the Colorado River to water transmission pipelines and to Lake Skinner and Lake Matthews for storage. Metropolitan's Colorado River water right historically included a fourth and fifth priority under the 1931 Seven Party Agreement relating to California's share in the Colorado River water supply. Metropolitan is currently allotted an amount of 550,000 acre-feet under the fourth priority right and an amount of 662,000 AFY under the fifth priority right, but may receive additional supplies depending on water supply conditions for any given year. Metropolitan can receive water under the fifth priority right when the United States Secretary of the Interior determines that there is a surplus of water or if Arizona or Nevada does not use all of their allocated water. Metropolitan is allowed to store water in Lake Mead, which allows stored supplies to be used as additional water supply to ensure that Metropolitan can deliver up to the Colorado River Aqueduct's capacity of 1,250,000 acre-feet annually.

6.2.1.2 State Water Project

Metropolitan contracts with the State of California, through the State Water Project, for the delivery of northern California water through the California Aqueduct. The State Water Project is a statewide water conveyance system that captures, stores and conveys water to 29 water agencies. The State Water Project's original total contractual

commitment called for a capacity of 4.2 million acre-feet per year. Metropolitan has a maximum annual entitlement of 2,011,500 acre-feet. In order for the SWP to increases deliveries to the maximum amount of contractual commitments to water, the SWP must expand its water conveyance facilities to divert greater flows from north of the San Francisco Bay -Sacramento River Delta area (Bay-Delta) area into the California Aqueduct.

6.2.1.3 Water Supply Allocation Plan (WSAP)

During calendar year 2007, critically dry conditions impacted Metropolitan's main 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, Metropolitan adopted a Water Supply Allocation Plan (WSAP) in February 2008 to allocate available water supplies to its member agencies. Metropolitan revised the WSAP in December 2014. The WSAP establishes ten different shortage levels and a corresponding Allocation to each member agency (discussed further in Chapter 8.1). Based on the shortage level established by Metropolitan, the WSAP provides a reduced Allocation to a member agency for its Municipal and Industrial (M&I) retail demand and replenishment demand. The WSAP 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 Metropolitan, less an Allocation reduction factor, is the member agency's "Water Supply Allocation". When a member agency reduces its local demand through conservation or other means, the Allocation will increase. Because the demand has been eliminated, the Allocation can be used to purchase Full Service untreated water for replenishment deliveries.

Metropolitan did not declare any WSAP Allocations for FYs 2011-12, 2012-13, 2013-14 and 2014-15. However, due to the fourth consecutive year of below average rainfall and critically dry conditions, Metropolitan declared a WSAP Allocation Level 3 for FY 2015-16, which represents a regional reduction of 15 percent. Metropolitan rescinded the WSAP for FY 2016-17 and has not reinstated the WSAP since that time. The WSAP is discussed in Section 2.4 of Metropolitan's 2020 UWMP.

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.

Upper District's legal boundaries are within the San Gabriel Valley, as noted in Chapter 2, and overlie the Main Basin. Upper District has never produced groundwater from the Main Basin and currently does not have facilities to do so. However, Upper District's member agencies produce water from the Main Basin. The following provides a description of the sources of supply available to retail groundwater producers within Upper District and the multi-layer management structure that is in place to ensure long-term adequacy of the local water supply. The Main Basin has been adjudicated and management of the local water resources within the Main Basin is based on its adjudication. Upper District is one of the Responsible Agencies from which Watermaster purchases imported water to be used for groundwater replenishment. DWR Bulletin 118 does not identify the Main Basin as being in overdraft.

6.2.2.1 Basin Description

The Main San Gabriel Basin is located within the San Gabriel Valley, which is located in southeastern Los Angeles County and is bounded on the north by the San Gabriel Mountains; on the west by the San Rafael and Merced Hills, on the south by the Puente Hills and the San Jose Hills, and on the east by a low divide between the San Gabriel River system and the Upper Santa Ana River system, as shown on Figure 3.

The San Gabriel River and its distributary, the Rio Hondo, drain an area of about 490 square miles upstream of Whittier Narrows. Whittier Narrows is a low gap between the Merced and Puente Hills, just northwest of the City of Whittier, through which the San Gabriel River and the Rio Hondo flow to the coastal plain of Los Angeles County. Whittier Narrows is a natural topographic divide and a subsurface restriction to the movement of groundwater between the Main Basin and the Coastal Plain. The approximately 490 square miles of drainage area upstream of Whittier Narrows consists of about 167 square miles of valley lands and about 323 square miles of mountains and foothills.

The Main Basin includes essentially the entire valley floor of the San Gabriel Valley with the exception of the Raymond Basin and Puente Basin. The boundaries of the Main Basin are the Raymond Basin on the northwest, the base of the San Gabriel Mountains on the north, the groundwater divide between San Dimas and La Verne and the lower boundary of the Puente Basin on the east, and the common boundaries between Upper District and Central District through Whittier Narrows on the southwest. The common water supply of the Main Basin does not include the Raymond Basin, the area northerly of Raymond Hill Fault, which was adjudicated in the Pasadena v. Alhambra case (Superior Court of the County of Los Angeles, 1944). The Puente Basin, although tributary to the Main Basin, is not included in the Main Basin administered by the Main Basin Watermaster.

The Main Basin (administered by the Main Basin Watermaster) is a large groundwater basin replenished by stream runoff from the adjacent mountains and hills, by rainfall directly on the surface of the valley floor, subsurface inflow from Raymond Basin and Puente Basin, and by return flow from water applied for overlying uses. Additionally, the Main Basin is replenished with imported water. The Main Basin serves as a natural storage reservoir, transmission system and filtering medium for wells constructed therein.

There are three municipal wholesale water districts overlying and/or partially overlying the Main Basin. The three districts are Upper District, San Gabriel Valley Municipal Water District (SGVMWD), and Three Valleys Municipal Water District (TVMWD).

Urbanization of the San Gabriel Valley began in the early part of the twentieth century, but until the 1940s, agricultural land use occupied more area than residential and commercial land use. After World War II, agricultural areas reduced rapidly and tend to be located in the easterly portion of the Main Basin and along power transmission rights of way adjacent to the San Gabriel River. Agricultural plots are discontinuous and relatively small. There are several major industrial areas adjacent to the San Gabriel River and within other portions of the valley. The greatest area of land use in the valley

is for residential and commercial purposes. DWR Bulletin 118 does not identify the Main Basin as being in overdraft.

Main Basin - Geology

The Main Basin consists of a roughly bowl-shaped depression of bedrock, filled over millions of years with alluvial deposits. This bowl-shaped depression is relatively deep; the elevation at the base of the groundwater reservoir declines from about 800 feet above mean sea level (MSL) in the vicinity of San Dimas, at the northeast corner of the Main Basin, to about 2,200 feet below MSL in the vicinity of South El Monte (DWR, 1966, Plate II).

Most of the alluvium deposited within this depression is debris from the San Gabriel Mountains, washed and blown down from the side of the mountains over time. This process has also resulted in the materials of the Main Basin varying in size from relatively coarse gravel nearer the mountains to fine and medium-grained sand containing silt and clay as the distance from the mountains increases. The principal water-bearing formations of the Main Basin are unconsolidated and semi-consolidated sediments, which vary in size from coarse gravel to fine-grained sands. The interstices between these alluvial particles throughout the Main Basin fill with water and transmit water readily to wells. The thickness of the water-bearing materials in the Main Basin ranges from 200 to 300 feet in the northeastern portion of the Main Basin near the mountains (DPW, 1934, page 141) to nearly 4,000 feet in the South El Monte area (DWR, 1966, page 31).

The soils overlying the Main Basin average about six feet in depth. Soil depths are generally greater at the perimeter of the valley and decrease toward the center along the San Gabriel River. These soils are residual, formed in place through chemical, mechanical and plant weathering processes. The infiltration rates of these soils are greater along the natural channels and their adjacent flood plains. Lower infiltration rates are found in the perimeter areas of the valley. Since the valley is mostly urbanized, a

significant portion of the area has been paved and many miles of stream channel have been lined for flood control purposes, thus decreasing infiltration of water through streambeds. Detailed basin geology is discussed in the report entitled "Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geo-hydrology" (DWR, 1966).

Main Basin - Hydrology

The total fresh water storage capacity of the Main Basin is estimated to be about 9.5 million acre-feet. Of that, about 1,100,000 acre-feet have been used historically in Main Basin operations. The change in groundwater elevation at the Baldwin Park Key Well[2] Key Well (Key Well) is representative of changes in groundwater in the Main Basin. One foot of elevation change at the Key Well is roughly the equivalent of about 8,000 acre-feet of water storage. The historical high groundwater elevation was recorded at over 329.1 feet in April 1916, at which time Main Basin storage was estimated to be about 8,700,000 acre-feet. The historical low was recorded in November 2018 at 169.4 feet, at which time Main Basin storage was estimated to be about 7,400,000 acre-feet. The Key Well hydrograph illustrates the cyclic nature of basin recharge and depletion. The hydrograph also illustrates the dramatic recharge capability of the Main Basin during wet periods.

Generally, water movement in the Main Basin is from the San Gabriel Mountains on the north to Whittier Narrows to the southwest. Groundwater movement in the northern and northeastern regions of the Main Basin is affected by faulting. For example, the Raymond Fault located in the northwesterly portion of the Main Basin separates the Raymond Basin from the Main Basin.

2 The Baldwin Key Well is a water-level monitoring well located in the City of Baldwin Park used to determine when imported water may or may not be spread in the Basin.

The Main Basin is an unconfined aquifer. Although clay deposits appear mixed with the soils in several locations in the Main Basin and there are various clay lenses throughout the Main Basin, they do not coalesce to form a single impermeable barrier for the movement of subsurface water. The Main Basin therefore operates as a single, unconfined aquifer. As previously mentioned, a thorough discussion of basin hydrogeology is contained in the report "Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geo-hydrology" (DWR, 1966).

Within the Main Basin there are a number of identified sub-basins. These include the Upper San Gabriel Canyon Basin, Lower San Gabriel Canyon Basin, Glendora Basin, Foothill Basin, Way Hill Basin and San Dimas Basin. In addition, the Puente Basin is tributary to the Main Basin from the southeast, between the San Jose and Puente Hills, but is not included in the Main Basin adjudication.

Groundwater Replenishment

The major sources of recharge to the Main Basin are direct penetration of rainfall on the valley floor, percolation of runoff from the mountains, percolation of imported water and return flow from applied water. Rainfall occurs predominantly in the winter months and is more intense at higher elevations and closer to the San Gabriel Mountains.

The magnitude of annual recharge from direct penetration of local rainfall and return flow from applied water is not easily quantifiable. Percolation of runoff from the mountains and valley floor along with percolation of imported water has only been estimated. The DPW maintains records on the amount of local and imported water conserved in water spreading facilities and stream channels.

The San Gabriel River bisects the Main Basin. The San Gabriel River originates at the confluence of its west and east forks in the San Gabriel Mountains. It flows through the San Gabriel Canyon and enters the Main Basin at the mouth of the canyon north of the

City of Azusa. The San Gabriel River flows southwesterly across the valley to Whittier Narrows, a distance of about 15 miles. It exits San Gabriel Valley at Whittier Narrows, and transverses the Coastal Plain in a southerly direction to reach the Pacific Ocean at Alamitos Bay near the City of Long Beach.

The San Gabriel River is joined and fed by tributary creeks and washes. In the Main Basin these include: Big Dalton Wash, which originates in the San Gabriel Mountains; Walnut Creek, which originates at the northeast end of the San Jose Hills; and San Jose Creek, which originates in the San Gabriel Mountains, but which travels around the southerly side of the San Jose Hills through the Puente Narrows before joining the San Gabriel River just above Whittier Narrows.

The channel of the San Gabriel River bifurcates in the upper middle portion of the Main Basin, forming a channel to the west of and parallel to the San Gabriel River, known as the Rio Hondo. Tributaries draining the westerly portion of the Main Basin, including Sawpit Wash, Santa Anita Wash, Eaton Canyon Wash, Rubio Wash and Alhambra Wash, all of which originate in the San Gabriel Mountains or the foothills, feed the Rio Hondo. The Santa Anita Wash, Eaton Canyon Wash, Rubio Wash and Alhambra Wash all cross the Raymond Basin area before entering the Main Basin. The channel of the Rio Hondo passes through Whittier Narrows westerly of the San Gabriel River, and then flows southwesterly to join the Los Angeles River on the Coastal Plain.

To protect residents of the San Gabriel Valley from flooding that can result during periods of intensive rainfall, the Los Angeles County Department of Public Works (DPW) and the U.S. Army Corps of Engineers (Corps of Engineers) have constructed an extensive system of dams, debris basins, reservoirs and flood control channels. The dams and reservoirs also operate as water conservation facilities. The dams and reservoirs that control the flow of the San Gabriel River and the Rio Hondo include: Cogswell Reservoir on the west fork of the San Gabriel River, San Gabriel Reservoir at the confluence of the west and east forks of the San Gabriel River, Morris Reservoir near the mouth of the San

Gabriel Canyon, Santa Fe Reservoir in the northerly portion of the Main Basin and Whittier Narrows Reservoir at the southwestern end of the San Gabriel Valley.

Many of the stream channels tributary to the San Gabriel River have been improved with concrete banks (walls) and concrete-lined bottoms. These stream channel improvements have significantly reduced the area of previous stream channels and reduce Main Basin recharge. A number of off-stream groundwater replenishment facilities have been established along these stream channels to offset such reductions in recharge. Some of these facilities are accessible to imported water supplies, while some facilities receive only local runoff.

The paths of the surface streams are mirrored in the soils and in the direction of groundwater movement in the Main Basin. The tributary creeks and washes, carrying smaller amounts of water, generally flow toward the center of the San Gabriel Valley, while the direction of flow of the major streams, the San Gabriel River and the Rio Hondo, is from the mountains in the north to Whittier Narrows in the southwest. In similar fashion, the primary direction of groundwater movement in the Main Basin is from the north to the southwest, with contributing movement generally from the east and west toward the center of the Main Basin. The greatest infiltration and transmissivity rates of soils in the Main Basin are from north to south, with the maximum rates found in the center of the valley along the stream channels. Generally, the Main Basin directs groundwater to the southwest through Whittier Narrows.

The Main San Gabriel Basin has a freshwater storage capacity of about 8.7 million acre-feet when the Key Well groundwater elevation is at 329.1 feet, of which about 125 feet of elevation change, or about 1,000,000 acre-feet, has been used for historical Basin operations. Local runoff is stored in a series of reservoirs operated by DPW and diverted into spreading grounds to replenish the groundwater supply. Groundwater recharge occurs every year and is exhibited as increasing water levels. High rainfall years can be identified as increases in the groundwater level of 30 feet or more in one year.

In addition to groundwater replenishment with local storm runoff, the Watermaster maintains records of each producer's water rights and annual production. Although there is no limit on the quantity of water that may be produced, production in excess of a water right is subject to a Replacement Water assessment. Watermaster uses funds collected from producers' overproduction to purchase imported water from municipal water districts. Upper District and TVMWD obtain their water from Metropolitan. San Gabriel District has its own contract for SWP water. Watermaster coordinates purchase and delivery of imported water to replenish the ground water basin, thus offsetting the producers' overproduction and making the Basin whole.

6.2.2.2 Groundwater Management

The Main Basin has been adjudicated and management of the local water resources within the Main Basin is based on that adjudication. Management of the water resources in the Main Basin is based upon Watermaster services under two Court Judgments: San Gabriel River Watermaster (River Watermaster)[3] and (Main Basin Watermaster)[4].

The following sections provide a description of the following management measures and plans:

- Main Basin – Long Beach Judgment
- Main Basin – Main Basin Judgment
- Five-Year Water Quality and Supply Plan
- Water Quality Authority 406 Plan
- Salt and Nutrient Management Plan
- In-Lieu Program

3 Board of Water Commissioners of the City of Long Beach, et al., v. San Gabriel Valley Water Company, et al., Los Angeles County Case No. 722647, Judgment entered September 24, 1965.
4 Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., Los Angeles County Case No. 924128, Judgment entered January 4, 1973.

- Supplemental Water Reliability Storage Program
- Supplemental Water Stormwater Augmentation Program
- Metropolitan Letter Agreement
- Three year Purchased Water Plan
- Sustainable Groundwater Management Act

Main Basin – Long Beach Judgment

On May 12, 1959, the Board of Water Commissioners of the City of Long Beach, the Central Basin Municipal Water District (Central District), and the City of Compton, as plaintiffs, filed an action against San Gabriel and 24 other producers of groundwater from the San Gabriel Valley as defendants. This action sought a determination of the rights of the defendants in and to the waters of the San Gabriel River system and to restrain the defendants from an alleged interference with the rights of plaintiffs and persons represented by the Central District in such waters. After six years of study and negotiation a Stipulation for Judgment was filed on February 10, 1965, and the Judgment (Long Beach Judgment) was entered on September 24, 1965. Under the terms of the Long Beach Judgment, the water supply of the San Gabriel River system was divided at Whittier Narrows between San Gabriel Valley upstream and the coastal plain of Los Angeles County downstream. A copy of the Long Beach Judgment can be found in Appendix G. During water year 2018-19, the Water Replenishment District of Southern California (WRD) intervened in the Long Beach Judgment for the purpose of assuming all of the requirements of the Plaintiffs and the City of Long Beach, Central District, and the City of Compton were dismissed from their collective responsibilities by the Court.

Under the terms of the Long Beach Judgment, the area downstream from Whittier Narrows (Lower Area), the plaintiffs and those they represent, are to receive a quantity of usable water annually from the San Gabriel River system comprised of usable surface flow, subsurface flow at Whittier Narrows and water exported to the Lower Area. This annual entitlement is guaranteed by the area upstream of Whittier Narrows (Upper Area),

the defendants, and provision is made for the supply of Make-up Water by the Upper Area for years in which the guaranteed entitlement is not received by the Lower Area.

Make-up Water is imported water purchased by the Main Basin Watermaster and delivered to agencies in Central District to satisfy obligations under the Long Beach Judgment. The entitlement of the Lower Area varies annually, dependent upon the 10-year average annual rainfall in the San Gabriel Valley for the 10 years ending with the year for which entitlement is calculated.

The detailed operations described in the Long Beach Judgment are complex and requires continuous compilation of data so that annual determinations can be made to assure compliance with the Long Beach Judgment. In order to do this, a three-member Watermaster was appointed by the Court, one representing the Upper Area parties nominated by and through Upper District, one representing the Lower Area parties nominated by and through WRD, and one jointly nominated by Upper District and WRD. This three-member board is known as the San Gabriel River Watermaster (River Watermaster).

The River Watermaster meets periodically during the year to adopt a budget, to review activities affecting water supply in the San Gabriel River system area, to compile and review data, to make determinations of usable water received by the Lower Area, and to prepare its annual report to the Court. The River Watermaster has rendered annual reports for the water years 1963-64 through 2019-20 and operations of the river system under that Court Judgment and through the administration by the River Watermaster have been satisfactory since its inception.

One major result of the Long Beach Judgment was to leave the Main Basin free to manage its water resources so long as it meets its downstream obligation to the Lower Area under the terms of the Long Beach Judgment. Upper District intervened in the Long Beach case as a defendant to enforce the provisions of a Reimbursement Contract, which

was incorporated into the Long Beach Judgment to assure that any Make-up Water obligations under the terms of the Long Beach Judgment would be satisfied.

Main Basin – Main Basin Judgment

The Upper Area then turned to the task of developing a water resources management plan to optimize the conservation of the natural water supplies of the area. Studies were made of various methods of management of the Main Basin as an adjudicated area and a report thereon was prepared for the Upper San Gabriel Valley Water Association, an association of water producers in the Main Basin. After due consideration by the Association, Upper District was requested to file as plaintiff, and did file, an action on January 2, 1968, seeking an adjudication of the water rights of the Main Basin and its Relevant Watershed. After several years of study (including verification of annual water production) and negotiations, a stipulation for entry of Judgment was approved by a majority of the parties, by both the number of parties and the quantity of rights to be adjudicated. Trial was held in late 1972 and the Judgment (Main Basin Judgment) was entered on January 4, 1973. The Main Basin Judgment was most recently amended on June 21, 2012. A copy of the Main Basin Judgment can be found in Appendix H.

Under the terms of the Main Basin Judgment, all rights to the diversion of surface water and production of groundwater within the Main Basin and its Relevant Watershed were adjudicated. The Main Basin Judgment provides for the administration of the provisions of the Main Basin Judgment by a nine-member Main Basin Watermaster. Six of those members are nominated by water producers (producer members) and three members (public members) are nominated by the Upper District and the San Gabriel District, which overlie most of the Basin. The nine-member board employs a staff, an attorney and a consulting engineer. The Main Basin Watermaster holds public meetings on a regular monthly basis throughout the year.

The Main Basin Judgment does not restrict the quantity of water, which parties may extract from the Main Basin. Rather, it provides a means for replacing all annual extractions in excess of a Party's annual right to extract water with Supplemental Water. The Main Basin Watermaster annually establishes an Operating Safe Yield for the Main Basin which is then used to allocate to each Party its portion of the Operating Safe Yield which can be produced free of a Replacement Water Assessment. If a producer extracts water in excess of its right under the annual Operating Safe Yield, it must pay an assessment for Replacement Water, which is sufficient to purchase one acre-foot of Supplemental Water to be spread in the Main Basin for each acre-foot of excess production. All water production is metered and is reported quarterly to the Main Basin Watermaster.

In addition to Replacement Water Assessments, the Main Basin Watermaster levies an Administration Assessment to fund the administration of the Main Basin management program under the Court Judgment and a Makeup Obligation Assessment in order to fulfill the requirements for any makeup Obligation under the Long Beach Judgment and to supply fifty percent of the administration costs of the River Watermaster service. The Main Basin Watermaster levies an In-lieu Assessment and may levy special Administration Assessments.

Water rights under the Main Basin Judgment are transferable by lease or purchase so long as such transfers meet the requirements of the Judgment. There is also provision for Cyclic Storage Agreements by which Parties and non-parties may store imported supplemental water in the Main Basin under such agreements with the Main Basin Watermaster pursuant to uniform rules and conditions and Court approval.

The Main Basin Judgment provides that the Main Basin Watermaster will, insofar as practicable, spread imported water in the Main Basin to maintain the groundwater elevation at the Key Well above 200 feet. Under the terms of the Long Beach Judgment, any excess surface flows that pass through the Main Basin at Whittier Narrows to the

Lower Area (which is then conserved in the Lower Area through percolation to groundwater storage) is credited to the Upper Area as Usable Surface Flow.

Five-Year Water Quality and Supply Plan

The Main Basin Watermaster was created in 1973 to resolve water issues that had arisen among water users in the San Gabriel Valley. Main Basin Watermaster's mission was to generally manage the water supply of the Main Basin. During the late 1970s and early 1980s, significant groundwater contamination was discovered in the Main Basin. The contamination was caused in part by past practices of local industries that had carelessly disposed of industrial solvents referred to as Volatile Organic Compounds (VOCs) as well as by agricultural operations that infiltrated nitrates into the groundwater. Cleanup efforts were undertaken at the local, state, and federal level.

Local water agencies adopted a joint resolution in 1989 regarding water quality issues that stated Main Basin Watermaster should coordinate local activities aimed at preserving and restoring the quality of groundwater in the Main Basin. The joint resolution also called for a cleanup plan. In 1991, the Court granted Main Basin Watermaster the authority to control pumping for water quality purposes. Accordingly, Main Basin Watermaster added Section 28 to its Rules and Regulations regarding water quality management. The new responsibilities included development of a Five-Year Water Quality and Supply Plan[5], updating it annually, submitting it to the California Regional Water Quality Control Board, Los Angeles Region, and making it available for public review by November 1 of each year.

Main Basin Watermaster prepares and annually updates the Five-Year Water Quality and Supply Plan in accordance with the requirements of the Section 28 Rules and Regulations. The objective is to coordinate groundwater-related activities so that both

[5] https://www.watermaster.org/reports

water supply and water quality in the Main Basin are protected and improved. Many important issues are detailed in the Five-Year Plan, including how Main Basin Watermaster plans to:

1. Monitor groundwater supply and quality;
2. Develop projections of future groundwater supply and quality;
3. Ensure adequate supplemental water is available for groundwater replenishment;
4. Review and cooperate on cleanup projects, and provide technical assistance to other agencies;
5. Assure that pumping does not lead to further degradation of water quality in the Basin;
6. Address Perchlorate, N-nitrosodimethylamine (NDMA), and other emerging contaminants in the Basin;
7. Develop a cleanup and water supply program consistent with the U.S. Environmental Protection Agency (USEPA) plans for its San Gabriel Basin Superfund sites; and
8. Coordinate and manage the design, permitting, construction, and performance evaluation of the Baldwin Park Operable Unit (BPOU) cleanup and water supply plan.

The Main Basin Watermaster, in coordination with Upper District, has worked with state and federal regulators, along with local water companies to clean up water supplies. Section 28 of the Main Basin Watermaster's Rules and Regulations require all producers to submit an application to 1) construct a new well, 2) modify an existing well, 3) destroy a well, or 4) construct a treatment facility. The Main Basin Watermaster prepares a report on the implications of the proposed activity. Upper District reviews a copy of these reports and is provided the opportunity to submit comments on the proposed activity before the Main Basin Watermaster Board takes final action.

Water Quality Authority 406 Plan

The WQA was established by the State Legislature on February 11, 1993 to develop, finance and implement groundwater treatment programs in the Main Basin. Section 406 of the WQA Act requires the WQA "to develop and adopt a basinwide groundwater quality management and remediation plan" that is required to be consistent with the EPA's National Contingency Plan ("NCP") and Records of Decision ("ROD") and all requirement of the Los Angeles Regional Water Quality Control Board ("LARWQCB"). According to the WQA Act, the Section 406 Plan, which is incorporated in this Plan by reference, must include:

1) Characterization of Basin contamination;
2) A comprehensive cleanup plan;
3) Strategies for financing the design, construction, operation and maintenance of groundwater cleanup facilities;
4) Provision for a public information program; and
5) Coordination of activities with federal, state, and local entities.

WQA reviews and adopts the Section 406 Plan on an annual basis and as necessary, makes revisions according to changing regulatory, political and/or funding environments. In support of the Section 406 Plan, WQA also adopts an annual FY budget (July 1 through June 30) which includes all projects (actual or planned) WQA is facilitating through its participation during that time period. The budget identifies the various funding sources, and combinations thereof, to ensure full funding for each project (capital and/or O&M) can be achieved.

Salt and Nutrient Management Plan

On February 9, 2009, the State Water Board adopted Resolution 2009-0011 that created the "Recycled Water Policy". The Recycled Water Policy recognized that "…collapse of

the Bay Delta ecosystem, climate change, and continuing population growth have combined with a severe drought on the Colorado River, and failing levees in the Delta, to create a new reality that challenges California's ability to provide the clean water need for a healthy environment, a healthy population and a healthy economy, both now and in the future." The Recycled Water Policy encourages appropriate water recycling, water conservation and use of stormwater to increase water supplies within California.

The primary goal of the San Gabriel Valley Salt and Nutrient Management Plan (SNMP) is to assist the Main Basin Watermaster and participating/potential stakeholders to comply with the Recycled Water Policy regarding the use of the recycled water from municipal wastewater treatment facilities as a safe source of water supply, while maintaining the water quality objectives for salt and nutrients in the Basin Plan established by the LARWQCB. The primary objective of the SNMP is to comply with the specific requirements described in the Recycled Water Policy. They include:

1) Characterization of the Main Basin,
2) Identification of sources of salt, nutrients, and constituents of emerging concern (CECs) (when deemed necessary by the Recycled Water Policy) and their fate and transport,
3) Estimation of salt, nutrients, and CECs (if necessary) loadings and assimilative capacities,
4) Identification of water recycling and stormwater recharge/use goals and objectives,
5) Verification of compliance with Resolution No. 68-16 through antidegradation analyses, and
6) Development of a monitoring plan to verify compliance with the Basin water quality objectives.

The SNMP reviewed the geology, hydrology and hydrogeology of the San Gabriel Basin, along with the institutional and management structure for the San Gabriel Basin. TDS, Nitrate, Sulfate, and Chloride were identified as the primary constituents of concern.

Sources of loading (precipitation, subsurface inflow, infiltration of applied water, storm runoff and untreated imported water replenishment) and unloading (groundwater pumping and subsurface outflow) were included in a spreadsheet computer model, along with average water quality data for TDS, Nitrate, Sulfate, and Chloride, on an annual basis.

The SNMP proposed to use the Main Basin Watermaster's existing Title 22 water quality monitoring program for groundwater and San Gabriel River water, with increased frequencies of monitoring for Total Dissolved Solids and nitrate, to satisfy the monitoring plan requirement of the SNMP. The following are recommendations for on-going salt and nutrient management in the San Gabriel Basin:

- Regularly update the SNMP spreadsheet data so that impacts of potential future projects on salt and nutrient loading may be evaluated.
- Continue to collect water quality data throughout the San Gabriel Basin.
- Continue to meet with stakeholders on a regular basis to coordinate San Gabriel Basin management activities with an emphasis on stormwater runoff replenishment and continued use of SWP water for groundwater replenishment

In-Lieu Program

During calendar year 2014, the ability to deliver Supplemental Water (State Water Project (SWP) water and Colorado River water) to replenish the Basin was severely limited. Consequently, during FY 2014-15, Watermaster developed and implemented a program to have Producers purchase additional treated imported water for direct delivery in-lieu of pumping groundwater (In-Lieu Program), in an effort to reduce the amount of groundwater pumped from the Basin. The Watermaster uses the In-Lieu Assessment on all production to fund the additional direct cost incurred by a producer participating in the In-Lieu Program. Watermaster has implemented this program during FY 2014-15 and 2015-16.

Supplemental Water Reliability Storage Program (RDA)

The 2012 Main Basin Judgment Amendments provided the Main Basin Watermaster with increased management flexibility and adaptability; and provided more discretion in making Basin management decisions. A key component of the Judgment Amendments was the new Water Resource Development Assessment (RDA) to be levied on all production. The Supplemental Water Reliability Storage Program (RDA) provides a process for the Main Basin Watermaster to generate funds to purchase and store Supplemental Water in the Basin to be used (applied) when there are limitations on the availability of Supplemental Water from the Responsible Agencies. As a result of the severe long-term drought conditions resulting in significant reductions on the quantity of local water replenishment to the Basin, the Main Basin Watermaster expanded RDA into the Supplemental Water Stormwater Augmentation Program described below.

Supplemental Water Stormwater Augmentation Program

The Water Resource Development Assessment for Stormwater Augmentation Program was developed by the Main Basin Watermaster to help manage Basin water supplies under the perceived “worst case” hydrologic conditions, which was assumed to be two additional consecutive 5-year droughts, using the same hydrologic conditions as the recent FY 2011-12 through 2015-16 severe drought. Based upon ten (10) additional consecutive years of drought, the new Program is intended to purchase imported replenishment water (when available), for stormwater augmentation, to maintain the Baldwin Park Key Well (Key Well) elevation above 180 feet by the end of the tenth year. This Key Well elevation essentially ensures continued Basin water supply to the Basin Producers under a worst case, 15-year sustained drought. The Program has an assessment of $140/AF on all FY 2019-20 production and is planned to increase to $175/AF on all FY 2020-21 production. The Main Basin Watermaster will use the funds to purchase untreated imported water to replenish the Main Basin for the “general benefit” of all Producers within the Main Basin. Unlike the original RDA (Supplemental Water

Replenishment Storage Program), which is a Watermaster pre-purchase of Replacement Water, the untreated imported water will supplement local stormwater replenishment, enhance overall Basin conditions, and have "no right of recovery" using a water right, by any Main Basin producer.

Metropolitan Letter Agreement

In 2017, Main Basin Watermaster and Upper District negotiated the pre-delivery of 80,000 acre-feet of imported replenishment water from Metropolitan (Letter Agreement). All 80,000 acre-feet was to be stored in Metropolitan's cyclic storage account. This pre-delivered Metropolitan water would be paid for over a 5-year payment schedule (starting in December of FY 2017-18), by the Watermaster, using annual Replacement Water assessments, RDA funds within the Upper District and Three Valley's District (Responsible Agency) area and revenue from transfers into producer cyclic storage, and applying those funds to purchase the pre-delivered water on an annual basis.

In 2019, an extension to the Metropolitan Letter Agreement was developed. Under the extension, Metropolitan planned a new delivery of about 110,000 acre-feet to its Cyclic Storage account during calendar year 2019. The 110,000 acre-feet would be paid for over a similar 5-year payment schedule starting in December 2019. These cyclic storage deliveries and payments will be made by Main Basin Watermaster to Metropolitan, through Upper District and Three Valleys Municipal Water District.

Three Year Purchased Water Plan

On June 21, 2012, the Superior Court of the State of California for the County of Los Angeles (Court) approved certain proposed Judgment amendments. Some of these Judgment amendments help Watermaster address Supplemental Water supply concerns. One of the amendments, Exhibit H(3)(d), requires that "…on or before November 1 of each year, Watermaster shall prepare and distribute to the Responsible

Agencies a three-year projection of its Supplemental Water purchases from each agency. Watermaster shall, to the extent feasible, coordinate the tentative schedule for delivery and payment of those purchases with each agency."

Judgment Amendment, Section 45(b)(7), allows Watermaster to "…levy an Assessment on all Pumping, as determined through Rules and Regulations … to support the purchase, financing, and/or development of new or additional Supplemental Water sources, in cooperation with one or more Responsible Agencies as appropriate." Section 45(b)(7) established the "Water Resource Development Assessment" for the purchase or development of additional Supplemental Water supplies. Based on these Judgment amendments, Main Basin Watermaster also amended its Rules and Regulations to include a policy/criteria to develop the "Three-Year Purchased Water Plan" (Three-Year Plan). Under Section 26(d)(5) of the Rules and Regulations, the first priority for spreading of Supplemental Water is "…Supplemental Water ordered by Watermaster from Responsible Agencies for direct delivery to the Basin as Replacement Water…". Recognizing many Producers currently pre-purchase Supplemental Water for delivery into their Cyclic Storage accounts, those pre-purchases are considered to have the same priority as Replacement Water.

Exhibit M of Watermaster's amended Rules and Regulations[6] -provides the policy/criteria for the "Three-year Purchased Water Plan," and requires Main Basin Watermaster to estimate Supplemental Water purchases from the Responsible Agencies for each of the three subsequent years. The policy/criteria indicate estimated Supplemental Water purchases may be based on the following:

1) *The first year shall be, at a minimum, the total Replacement Water requirement for the three Responsible Agencies (Upper District, San Gabriel District, and Three Valleys.*
2) *The second and third years may be estimated as follows:*

[6] https://www.watermaster.org/about-us (Rules and Regulations)

a) *Operating Safe Yield (OSY) established by Watermaster for the current fiscal year and next succeeding years;*
b) *Alternative projections of the OSY;*
c) *Evaluation of potential wet, average, and dry hydrologic conditions;*
d) *Future groundwater production provided by or estimated for each producer; and*
e) *Depending on Basin conditions, Watermaster may consider additional factors as necessary.*

As a result of the negotiated pre-delivery of significant Metropolitan imported replenishment water by Watermaster, and subsequently transferred by Metropolitan to Upper District and Three Valleys District, the above policy/criteria has been superseded by this delivery of imported water to supplement local rainfall and runoff replenishment.

Sustainable Groundwater Management Act

The Main San Gabriel Basin (Main Basin) is a sub-basin of the San Gabriel Valley Basin pursuant to DWR Bulletin 118, Basin Number 4-013. Pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA), the Main Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a Groundwater Sustainability Plan (GSP) and subsequently was designated a very-low-priority basin in DWR's 2019 SGMA Basin Prioritization report. In compliance with SGMA, the Main Basin Watermaster submits its Annual Report to DWR.

Upper District Policy No. 9-00-8

Upper District adopted Policy No. 9-00-8 which established criteria and conditions under which the Upper District Board of Directors will consider providing funding, exclusively or in cooperation with WQA, Watermaster and other interested parties, for the construction of water treatment facilities and/or groundwater remediation projects in the Main Basin. This policy also establishes the general manner and methodology by which such funding

can be distributed by Upper District for approved projects and programs. A copy of this policy is in Appendix I.

Within its statutory authority, budgetary limitations and policy objectives, Upper District will provide financial assistance for the procurement and/or construction of water treatment facilities at sites in the San Gabriel Valley. The principle objectives are:

1. Optimize utilization of local water resources.
2. Reduce or eliminate local reliance on treated, non-interruptible imported water supplies.
3. Maximize local water supply reliability
4. Provide for wholesale water supply price efficiency.
5. Protect public health and safety.

Projects to be considered for approval by the Board must meet the guidelines of this program and satisfy certain criteria to qualify for funding under this program. That criterion is listed as follows:

1. The project must be located within the boundaries of Upper District.
2. The project must be considered in a manner so as to reactivate, or maintain operation of, an existing local water source that otherwise could not continue operation because of excessive contamination.
3. The project must be designed such that its operation presents a significant water supply benefit to the public served.
4. The project must be designed such that its operation provides a significant groundwater remediation benefit if applicable.
5. The project must employ proven or CDHS certified treatment technology to allow for a high probability of success.
6. The project must be structured such that either Upper District has a reasonable probability of substantial cost recovery from parties responsible for groundwater contamination, or it addresses an urgent and immediate public

health and safety crisis that cannot be resolved in a more efficient and effective manner.

7. The project must be reviewed by Upper District's Engineer.

Funding can be provided in several forms depending upon the circumstances surrounding the project. When structuring the distribution of funds, factors such as the likelihood of cost recovery, the future availability of other sources of funding and the preliminary goals of the project will be considered. To maximize the potential for cost recovery and securing funding from other sources, Upper District project funds will be distributed through the WQA's project accounts where possible.

6.2.2.3 Operations of the Groundwater Basin

Through the Long Beach Judgment and the Main Basin Judgment, operations of the Main Basin are optimized to conserve local water to meet the needs of the parties of the Main Basin Judgment.

Typically, water producers within Upper District rely upon groundwater from Main Basin for their water supply. The City of Alhambra has agreed to receive treated, imported water as part of the Cooperative Water Exchange Agreement (CWEA) to reduce the groundwater extractions from the western portion of the Main Basin and the associated drawdown concerns.

Imported water for groundwater replenishment is delivered through the flood control channels and diverted and spread at spreading grounds through Main Basin Watermaster's agreement with DPW. Groundwater replenishment utilizes imported water and is considered Replacement Water under the terms of the Main Basin Judgment. In addition, it can be stored in the Main Basin through Cyclic Storage agreements, authorized by terms of the Main Basin Judgment, but such stored water may be used only to supply Supplemental Water to the Main Basin Watermaster.

The Main Basin Watermaster has entered into a Cyclic Storage Agreement with each of the three municipal water districts. One is with Metropolitan and Upper District, which permits Metropolitan to deliver and store imported water in the Main Basin in an amount not to exceed 200,000 acre-feet for future Replacement Water use. The second Cyclic Storage Agreement is with Three Valleys District and permits Three Valleys District to deliver and store up to 50,000 acre-feet for future Replacement Water use. The third is with San Gabriel District and permits San Gabriel District to deliver and store up to 50,000 acre-feet for future Replacement Water use.

Imported Make-up Water has been delivered to lined stream channels and conveyed to the Lower Area. Make-up Water is required to be delivered to the Lower Area by the Upper Area when the Lower Area entitlement under the Long Beach Judgment exceeds the usable water received by the Lower Area. Imported water is used to fulfill the Make-up Water Obligation when the amount of Make-up Water cannot be fulfilled by reimbursing the Lower Area interests for their purchase of recycled water. The amount of recycled water for which reimbursement may be made as a delivery of Make-up Water is limited by the terms of the Long Beach Judgment to the annual deficiency in Lower Area Entitlement water or to 14,735 acre-feet, whichever is the lesser quantity.

6.2.2.4 Overdraft Conditions

The Main Basin is an adjudicated basin; therefore, it is not required to complete this section.

6.2.2.5 Historical Groundwater Pumping

As discussed in Section 6.2, Upper District has never produced groundwater from the Main Basin and currently does not have facilities to do so (see Table 6-1). However, Upper District's member agencies produce water from the Main Basin.

As discussed above, the Main Basin is managed by the Main Basin Watermaster. The most recent amendments to the Main Basin Judgment were made in June 2012. Historical fluctuation of the Key Well elevation illustrates that since the Main Basin was adjudicated in 1973, it generally operated between an elevation 250 feet and 200 feet above MSL. Furthermore, at an elevation of 169 feet above MSL at the Key Well, which represents the historical low, the Main Basin has about 7,400,000 acre-feet of available storage. During the period of management under the Judgment, significant drought events have occurred from 1969 to 1977, 1983 to 1991, 1998 to 2004, 2006 to 2009, and 2011 to 2015. In each drought cycle the Main Basin has been managed to maintain water levels.

6.2.3 SURFACE WATER

Upper District does not use surface water supplies to meet its water demands. However, surface water is captured and conserved by the Los Angeles County Department of Public Works for groundwater replenishment within Upper District's service area.

6.2.4 STORMWATER

Upper District does not use stormwater to meet its water demands. However, stormwater is captured and conserved by the Los Angeles County Department of Public Works for groundwater replenishment within Upper District's service area.

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.

Upper District currently delivers recycled water to its member agencies for direct (irrigation) use only. Upper District continuously pursues opportunities to expand recycled water use in its service area to reduce reliance on imported water supplies.

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…

Reclamation of wastewater in the Main Basin has been extensively reviewed in both local and regional studies. In 1976 Upper District and San Gabriel District completed a study entitled "Potential Use of Reclaimed Water for Groundwater Replenishment in the Basin." This study was updated at the request of the Watermaster in 1980 and again in March 1987. In 1979, a cooperative study was completed by Metropolitan and others entitled "Orange and Los Angeles Counties Water Reuse Study." During calendar year 1994, Upper District participated in a study to identify potential direct non-potable users of recycled water. In October 1994, a draft report of the study entitled, "Direct Reuse Study" was released, which identified the potential for recycled water use within the Main San Gabriel Basin. The Direct Reuse Study identified over 600 potential recycled water users within the San Gabriel Valley consisting of schools, parks, golf courses, nurseries, sand and gravel companies and cemeteries.

These potential direct users of recycled water would be serviced by their retail water agencies. These studies concluded that water reuse in the Basin could be feasible; however, the cost of utilizing recycled water varies widely with the quantity to be used and the distance required to transport the water from the treatment plant to the point of use.

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.

There are two water reclamation plants located within Upper District's service area; the Whittier Narrows Water Reclamation Plan (WNWRP) and the San Jose Creek Water Reclamation Plant (SJCWRP). LACSD operates both of these facilities. The location of these reclamation plants are shown on Figure 4. The method of disposal when treated recycled water is not used (non-recycled) is discharge to the San Gabriel River/Rio Hondo and eventually flows to the ocean.

The WNWRP began operations in 1962 and has a treatment capacity of about 15 million MGD. The WNWRP provides coagulated, filtered and disinfected tertiary effluent. All wastewater treated at the WNWRP meets recycled water standards. The WNWRP serves a population of approximately 150,000 people. During FY 2018-19, the total recycled water production from this plant was about 7,974 acre-feet.

The SJCWRP began operations in 1973 and currently has a treatment capacity of about 100 MGD. The SJCWRP provides coagulated, filtered and disinfected tertiary effluent. The SJCWRP has room for an expansion of an additional 25 MGD, although there is no schedule for such an expansion. The SJCWRP plant serves a population of approximately 1 million people, largely a residential population. During FY 2018-19, the total recycled water production from this plant was about 49,045 acre-feet.

Upper District does not provide supplemental treatment to recycled water produced from the WNWRP or the SJCWRP before delivery for direct use.

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.

Upper District's direct non-potable use recycled water program is part of Upper District's effort to reduce reliance on imported water supplies, provide an economic benefit as well as enhance local water supply reliability. Upper District's existing recycled water program includes pipelines and a recycled water reservoir to provide tertiary treated recycled water to customers in Upper District's service area. Upper District's existing recycled water program is divided into the following systems: Phase I, Phase IIA, and Phase IIB. The locations of Upper District's recycled water users are provided in Figure 5.

In addition to the recycled water supplied by Upper District through its direct use recycled water system, other purveyors within Upper District's service area supply recycled water for irrigation use as well.

Phase I

Upper District's Phase I recycled water system provides service to various landscape irrigation customers in the City of Whittier. Recycled water from the SJCWRP is currently supplied to San Gabriel Valley Water Company (SGVWC) at a discounted recycled water rate. During FY 2019-20, the Phase I system delivered approximately 42 acre-feet of recycled water from the SJCWRP to Mills Elementary School, Rio Hondo College, and Gateway Pointe Industrial Park. Previously, part of the Rose Hills Memorial Park was serviced from the Phase I recycled water system and there were plans for Upper District to expand the system at Rose Hills Memorial Park. In 2016, Rose Hills Memorial Park recycled water distribution system was reconnected to another purveyor's recycled water system. Consequently, Phase I recycled water use has reduced since reported in the

2015 UWMP; however, overall recycled water use in Upper District's service area has increased.

Phase IIA – Whittier Narrows Project and Rosemead Extension

Upper District's Phase IIA recycled water system is divided into the Whittier Narrows Project and Rosemead Extension. Recycled Water from the WNWRP is currently supplied to SGVWC and Golden State Water Company to serve recycled water to various customers for landscape irrigation. During FY 2019-20, the Phase IIA recycled water system delivered approximately 1,239 acre-feet of recycled water from the WNWRP to parks, schools, medians, and commercial complexes. Upper District's Phase IIA was extended in 2019 to include the South El Monte Extension project.

Phase IIB – Industry

Upper District's Phase IIB - Industry recycled water system provides service to customers in the City of West Covina. Recycled Water from the SJCWRP is currently supplied to Suburban Water System and Valencia Heights Water Company to serve recycled water to various customers for landscape irrigation. During FY 2019-20, the Phase IIB-Industry system delivered approximately 647 acre feet of recycled water from the SJCWRP to parks, schools, and medians.

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.

Recycled water users within Upper District's service area include several schools, parks, and commercial areas. Recycled water is produced by LACSD's SJCWRP and WNWRP treatment plants. Use of recycled water allows Upper District's member agencies to reduce the amount of imported water purchases required and groundwater production required from the Main San Gabriel. The amount of recycled water supplied by Upper District in 2020, along with projected recycled water demands through 2045, are provided in Table 6-4.

Current Uses

As discussed in Section 6.5.3, Upper District's existing recycled water program is divided into the following systems: Phase I, Phase IIA – Whittier Narrows Project and Rosemead Extension, and Phase IIB – Industry Project.

In the Phase I system, SGVWC serves the recycled water to various customers for landscape irrigation. During FY 2019-20, the Phase I system delivered approximately 42 acre-feet of recycled water from the SJCWRP to Mills Elementary School, Rio Hondo College, and Gateway Pointe Industrial Park.

Upper District's Phase IIA recycled water system supplies recycled water from the WNWRP to SGVWC and Golden State Water Company to serve recycled water to various customers for landscape irrigation. During FY 2019-20, the Phase recycled water system delivered approximately 1,239 acre-feet of recycled water from the WNWRP to parks, schools, medians, and commercial complexes.

Upper District's Phase IIB - Industry recycled water system supplies recycled water to Suburban Water System and Valencia Heights Water Company to serve recycled water to various customers for landscape irrigation. During FY 2019-20, the Phase IIB-Industry system delivered approximately 647 acre-feet of recycled water from the SJCWRP to parks, schools, and medians.

The total projected FY 2020 recycled water demand in Upper District's service area was estimated in Upper District's 2015 Plan to be approximately 13,385 AFY. The projection was based on planning documents prepared by Upper District. The actual recycled water demand in 2020 was approximately 1,927 acre-feet. A comparison of the actual and projected recycled water use for 2020 is shown in Table 6-5.

Planned Uses

Upper District is currently expanding its direct use recycled water system with the addition of the La Puente Valley County Water District Recycled Water Project. Depending on the available supply of recycled water, the South El Monte expansion project may also be furthered expanded with additional phases for an ultimate yield of 660 AFY. SGVWC is a project partner and system operator of the South El Monte Recycled Water Expansion Project.

The proposed La Puente Valley County Water District Recycled Water Project is estimated to supply 360 AFY of recycled water to approximately 27 customers in the Cities of Industry and La Puente. The first phase of the La Puente Valley County Water District Recycled Water Project has been delayed and is now expected to come online by 2025 with an approximate yield of 55 AFY. La Puente Valley County Water District will be a project partner and eventual system operator of the project.

The expansions of both the La Puente Valley Count Water District Recycled Water Project and the South El Monte Expansion are subject to recycled water availability and regulatory compliance.

Upper District has suspended development of the Indirect Reuse Replenishment Project (IRRP) due to various physical and institutional constraints. The IRRP was intended provide up to 10,000 AFY of treated recycled water from the SJCWRP for groundwater replenishment at the Santa Fe Spreading Grounds to be used for indirect potable use. As a similar project, Metropolitan (and Upper District as a member agency) is currently developing the Regional Recycled Water Program (RRWP) in partnership with LACSD. The RRWP would deliver advanced treated wastewater from LACSD's Joint Water Pollution Control Plant located in Carson, California (Carson Plant) through up to 60 miles of transmission pipelines to groundwater basins within MWD's service area, including the Main Basin. The advanced treated water would be used in various locations within MWD's service area for groundwater recharge, groundwater storage, and industrial facilities. For planning purposes in this Plan, it is estimated that the RRWP will provide 35,000 AFY of advanced treated recycled water for replenishment beginning in in year 2035. There is a potential for even greater recycled water deliveries between 60,000 and 80,000 AFY.

The total projected 2020 recycled water demand in Upper District's service area was estimated in Upper District's 2015 Plan to be approximately 13,385 AFY. The projection was based on planning documents prepared by Upper District. The actual recycled water demand in 2020 was approximately 1,927 AF. As discussed above, the discrepancy is based on Upper District suspending development of the IRRP and the Rose Hills Memorial Park being connected to another recycled water system. A comparison of the actual and projected recycled water use for 2020 is shown in Table 6-5.

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.

Upper District's current recycled water rates vary depending upon Upper District's actual cost of delivery to the end user. The recycled water rates are established through long-term contracts with the participating retail agency. The rates are set to create an economic incentive to maximize the use of recycled water for irrigation applications, while reducing demand on potable supplies, for irrigation applications.

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.

As previously discussed, Upper District's member agencies produce groundwater from the Main Basin. Groundwater produced from the Main Basin has acceptable Total Dissolved Solids (TDS) concentrations (less than secondary Maximum Contaminant Level (MCL) of 1,000 milligrams per liter or mg/l) and does not require desalination. The annual average TDS value is for San Gabriel's Main Basin Wells is approximately 338mg/L, according to the Main Basin Salt and Nutrient Management Plan, which is below its secondary MCL. The State Water Resources Control Board Division of Drinking

Water (DDW)[7] recommended level is 500 mg/l and water can be provided for long-term domestic use with TDS concentrations of up to 1,000 mg/l. Due to the high quality (low TDS concentration) of the groundwater, Upper District and its member agencies have not been required to investigate the use of desalination to develop or reestablish a new long-term supply for the Main Basin. However, Upper District is looking for new sources of water supply and is receptive in coordinating with other agencies that have ocean water desalination programs.

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.

Upper District's current exchanges and transfers are discussed in the sections below.

6.2.7.1 Exchanges

Upper District participates in a long-term Cooperative Water Exchange Agreement (CWEA) with the City of Alhambra, Metropolitan, San Gabriel District and the Watermaster. Upper District is the representative member agency for Metropolitan in that exchange. The CWEA was negotiated to solve a local problem near the City of Alhambra, referred to as the Alhambra Pumping Hole. The Alhambra Pumping Hole is located in an area of the Main Basin that gets little replenishment due to its location and hydrogeologic characteristics. Seven producers extract water from the Alhambra Pumping Hole and this resulted in declining water level elevations. Six of the producers are member agencies

7 The Division of Drinking Water was formerly under the California Department of Public Health Drinking Water Program.

of Upper District. The seventh producer, the City of Alhambra, is a member agency of San Gabriel District. This exchange is cooperatively financed by the City of Alhambra, San Gabriel District and Upper District. It was agreed the City of Alhambra would receive direct delivery of water from Metropolitan and in exchange would reduce its extractions from the Alhambra Pumping Hole by an equivalent quantity. Currently, the Watermaster levies an In-lieu Assessment to provide reimbursement to the City of Alhambra for increased incremental costs. The City of Alhambra receives about 3,000 acre-feet per year of direct deliveries from Metropolitan.

6.2.7.2 Transfers

Upper District, through Metropolitan, is active in the long-term cyclic storage of water in the Main Basin. Metropolitan is able to deliver water for groundwater replenishment purposes in advance of Upper District's specific requirement for such water. Water delivered to the Main Basin in advance of its requirement is credited to the Cyclic Storage Account and the credited deliveries are accrued from year to year. When the Watermaster requires Replacement Water from Upper District, a transfer can then be made from the Cyclic Storage Account to Watermaster in-lieu of actual delivery of imported water for that purpose, at the discretion of Metropolitan. Because water is often in Cyclic Storage for many years before being required as Replacement Water, the Cyclic Storage program, although technically a conjunctive use operation, may be considered an exchange or transfer program in that it takes advantage of surplus water, when available, and stores it in the Main Basin for future use.

6.2.7.3 Emergency Interties

Upper District does not own any treated or untreated imported water distribution systems. All water facilities for treated imported water belong to Metropolitan and Upper District's member agencies. Appropriately, Metropolitan and the member agencies have

developed actions to be taken during an emergency interruption and are discussed in Metropolitan's 2020 UWMP and in the member agencies' 2020 UWMPs.

The agencies that now rely on recycled water for irrigation historically produced groundwater. Therefore, in the event of an emergency that interrupts recycled water deliveries, those agencies can produce the needed water from the Main Basin for irrigation purposes until the recycled water facility has been repaired. Chapter 6.2.2 discusses the management and reliability of the Main Basin, which Upper District's member agencies can rely on for their primary water supply in case of a supply interruption.

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.

Upper District receives imported supplemental water from Metropolitan and supplies such water to its member agencies. Upper District's member agencies also have rights to water supplies of the Main Basin. The management structure of the Main Basin ensures a reliable future water supply. Section 6.2 provides an extensive description of the Main Basin and provides information on its management. The management structure of the Basin provides a reliability of supply in average, single-dry and five consecutive year drought water years. Although Upper District overlies a well-managed groundwater basin, it participates in a variety of programs intended to enhance regional water supply.

In 2012, Upper District, in collaboration with stakeholders, prepared an Integrated Resources Plan (IRP) to address projected water supply and demand issues. As a result of changes to projected population, water supply and hydrology (drought) conditions, the IRP was updated in 2016. Since the 2016 IRP Update, there have been substantive changes regarding planning for water supplies including efforts regarding the Delta Conveyance Project, further development of the RRWP, and updating a Basin management planning tool (RDA). Consequently, Upper District is currently preparing a 2021 IRP Update to address both demand-side and supply-side options, address multiple goals, and incorporate risk and uncertainty. The IRP evaluates projects and alternatives to determine the most beneficial strategy for reducing demands and imported water through an adaptive management approach. Alternatives and projects are evaluated based on the following performance criteria: cost, yield, reliability, drought resiliency, and water quality.

Upper District's direct use recycled water program has been developed as part of Upper District's continuing effort to augment Metropolitan's imported water supply. As discussed in Section 6.2.5, Upper District's direct use recycled water program was recently expanded to include the South El Monte Recycled Water Expansion Project and is currently in progress to include the La Puente Valley County Water District Recycled Water Project. This project will reduce local demands on groundwater produced from the Main Basin.

Upper District, through Metropolitan, is also pursuing a groundwater replenishment project utilizing advanced treated recycled water. These recycled water supplies used for groundwater replenishment will augment imported water supplies currently used for groundwater replenishment in the Main Basin.

These above mentioned projects are shown on Tables 6-4 and 6-7. The current direct use recycled water project and the RRWP are aligned with the strategies proposed in the

IRP and ultimately reduce the reliance of both imported water and local groundwater. In the future, Upper District may develop additional projects and programs aligned with the overall adaptive management strategy proposed in the IRP. These projects and programs may include the following:

- Expand and develop recycled water projects
- Enhance existing stormwater capture facilities
- Construct new stormwater capture facilities
- Encourage and develop decentralized stormwater capture programs (cisterns, bioretention areas, etc.)
- Develop storage and transfer agreements with other agencies

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).

Upper District depends upon Metropolitan for its current and future imported water supplies. Metropolitan supplies imported water to Upper District, which in turn supplies

that imported water to its member agencies. Treated imported water is delivered by Upper District to its member agencies for direct use from Upper District service connections on the Metropolitan distribution system. Untreated imported water is delivered to the Main Basin to satisfy its Replacement Water obligations required under the Main Basin Judgment (see Section 6.2.2). The reliability of future supplies of imported water historical has been impacted by the sources of supply available to Metropolitan. The reliability of these imported water supplies is discussed further in Section 7.2.

In addition, Upper District works with local water agencies to use recycled water for direct uses, which is obtained from the LACSD. Direct use of recycled water reduces groundwater production, and consequently, the need for an equivalent amount of imported water in many cases. Furthermore, Upper District is currently expanding its direct use recycled water system and is developing a groundwater replenishment project that would utilize recycled water. These projects will offset imported water demands.

6.2.9.1 Description of Supplies

As discussed in Section 6.2, Upper District's water supply sources consist of untreated imported water purchased from Metropolitan (see Section 6.2.1), treated imported water purchased from Metropolitan (see Section 6.2.1), and recycled water (see Section 6.2.5), The actual quantities of the water supply sources available to Upper District during FY 2019-20 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to Upper 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 Upper 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 Upper District will use purchased untreated and treated imported water and then recycled water.

Colorado River

Metropolitan owns and operates the Colorado River Aqueduct which conveys water from Lake Havasu on the Colorado River to water transmission pipelines and to Lake Skinner and Lake Matthews for storage. Metropolitan's Colorado River water right historical included a fourth and fifth priority under the 1931 Seven Party Agreement relating to California's share in the Colorado River water supply. Metropolitan is currently allotted an amount of 550,000 acre-feet, but may receive additional supplies depending on water supply conditions for any given year.

State Water Project

Metropolitan contracts with the State of California, through the State Water Project, for the delivery of northern California water through the California Aqueduct. The State Water Project is a statewide water conveyance system that captures, stores and conveys water to 29 water agencies. The State Water Project's original total contractual commitment called for a capacity of 4.2 million acre-feet per year. Metropolitan has a maximum annual entitlement of 2,011,500 acre-feet. In order for the SWP to increases deliveries to the maximum amount of contractual commitments to water, the SWP must expand its water conveyance facilities to divert greater flows from north of the Bay-Delta area into the California Aqueduct.

Metropolitan discusses the sources of water supply in Section 1.4 of its 2020 UWMP, which is incorporated by reference. Appendix F summarizes the historical sources of water supply available to Metropolitan.

Water Supply Allocation Plan

Metropolitan adopted a WSAP in February 2008 to allocate available water supplies to its member agencies. Metropolitan 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 level established by Metropolitan, the WSAP provides a reduced Allocation to a member agency for its Municipal and Industrial (M&I) retail demand and replenishment demand. The WSAP considers historical local water production, full service treated water deliveries, agricultural deliveries and water conservation efforts when calculating each member agency's Allocation.

Metropolitan did not declare any WSAP Allocations for FYs 2011-12, 2012-13, 2013-14 and 2014-15. However, due to the fourth consecutive year of below average rainfall and critically dry conditions, Metropolitan declared a WSAP Allocation for FY 2015-16. Metropolitan rescinded the WSAP for FY 2016-17 and has not reinstated the WSAP since that time.

6.2.9.2 Quantification of Supplies

The actual quantities of the water supply sources available to Upper District during FY 2019 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to Upper District in five-year increments through FY 2045 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.

6.2.10 SPECIAL CONSIDERATIONS

Upper 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 Upper District's various sources of supply.

Metropolitan's 2020 UWMP states that "as a major steward of the region's water supply resources, Metropolitan is committed to performing its due diligence with respect to climate change". The impacts of climate change to Metropolitan's supplies are uncertain and pose challenges for long-term planning. However, Metropolitan benefits from having historic hydrological data dating back almost one hundred to use in supply and demand forecasting. Additional information regarding impacts of climate change and Metropolitan's related activities can be found in Metropolitan's 2020 UWMP Section 2.6.

6.2.10.2 Regulatory Conditions and Project Development

Upper 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. In addition, Section 6.2.5 discusses the proposed RRWP water project.

6.2.10.3 Other Locally Applicable Criteria

There are no locally applicable criteria which applies to Upper 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 Upper District is not required by DWR to use the tool. Section 6.1 provides a tabulation of the Upper District's historical annual water uses for each water supply source. During the past 10 years, Upper District experienced a five-consecutive-year-drought within its service area from FY 2011-12 to FY 2015-16. Upper 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, Upper 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 Upper 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.

"Energy intensity" is defined as 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. Upper District does not have its own imported water

distribution system and relies on Metropolitan's distribution system for delivery of treated and untreated imported water to Upper District's member agencies. Consequently, Upper District has no additional or direct energy use. Metropolitan's energy use for importing, treating, and distributing water supplies to member agencies, such as Upper District, are discussed in its UWMP in Appendix 10, and incorporated here by reference.

7.0 WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Lay Description

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

- FY 2019-20 represents an "average" or "normal" water year for Upper District in which the total amount of rainfall was similar to the historical average rainfall.
- A "single dry" year for Upper 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 Upper 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.
- Upper District's current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through FY 2044-45) as shown on Table 7-2.
- Upper District's current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through FY 2045) as shown on Table 7-3.
- Upper 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 WY 2045) as shown on Table 7-4.
- The reliability of Upper 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 Upper 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 Upper District's water supply reliability over a five consecutive year drought period. Upper District's DRA assumes a five consecutive year drought from FY 2021 through FY 2025 and includes a review of water supplies, water uses, and water supply reliability for each water supply source during this period. Upper District's water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. Consequently, Upper 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 Upper District's UWMP describes Upper District's ability to meet wholesale customer water demands by analyzing a variety of factors which affect Upper District's water supply. Recycled water supplies are not included in this assessment. Upper District's member agencies have historically used groundwater to meet non-potable irrigation demands. Therefore, those agencies can produce the needed water from the Main Basin for irrigation purposes if recycled water supplies are impaired.

This section assesses Upper 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 DRA which provides a mechanism for Upper District to evaluate the risk to its water supply under a drought lasting for the next five consecutive years.

7.2 WATER SERIVCE 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 Upper District's supplies is based on the historical precipitation data in the vicinity of Upper District's service area. 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 Upper 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 Upper District's service area is about 17.20 inches. Rainfall at the Puddingstone Dam Station 96C also is presentative of rainfall in the San Gabriel Valley. FY 2019-20 represents an average or normal water year for Upper District in which the total amount of rainfall at the Puddingstone Dam Station was about 16.5 inches. A single dry year for Upper District was represented in FY 2017-18 in which the total amount of rainfall at the Puddingstone Dam Station was about 7.0 inches. A five consecutive year drought period for Upper District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall at the Puddingstone Dam Station was about 11.6 inches, 7.8 inches, 4.8 inches, 7.9 inches, and 12.1 inches, respectively. Table 7-1 summarizes these "base years" for average, single dry, and five consecutive year drought and provides the total amount of imported water supplies available to Upper District during those base years. The following discussion assesses the water service reliability of Upper District's water supply sources.

Tables 7-2, 7-3, and 7-4 show that during these base years (for average year, single dry year and five consecutive year drought), supplies remained stable. A single dry year or a five consecutive year drought period will not compromise Upper District's ability to provide a reliable supply of water to its customers.

Water Service Reliability - Imported Water

Upper District's treated imported water supplies from Metropolitan may be impacted during a multi-year drought or other conditions which limits Metropolitan from delivering sufficient water supplies to all of its member agencies. In anticipation of such a reduction in supplies, Metropolitan developed a WSAP which is briefly described below. The WSAP provides a means of equitably providing reduced water supplies to each of Metropolitan's member agencies for up to 10 levels of reduction representing up to a 50 percent reduction.

In 2007, critically dry conditions impacted Metropolitan'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, Metropolitan adopted a WSAP in February 2008 to allocate available water supplies to its member agencies. Metropolitan 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 Metropolitan, the WSAP provides a separate reduced Allocation to a member agency for its 1) 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 Metropolitan, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from Metropolitan. When a member agency reduces its local demand through conservation or other means, the Allocation of imported water will increase. Depending on Metropolitan's available supply, Metropolitan can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agencies. Additional information about Metropolitan's WSAP is provided in Metropolitan's Regional 2020 UWMP which is incorporated by reference. The following is a summary of Metropolitan'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, Metropolitan declared a WSAP Allocation Level 3 for FY 2015-16, which represented a regional reduction of 15 percent. In FY 2015-16 allocation was 27,913 acre feet. Metropolitan rescinded the WSAP for FY 2016-17 and has not reinstated the WSAP since that time.

Water Service Reliability - Groundwater

Upper District's member agencies produce water from the Main Basin. The amount of basin replenishment affects the elevation of the Key Well, which represents changes in the groundwater basin. As shown on Figure 6, the Main Basin historically goes through phases of drafting, which are followed by filling. As noted in Section 6.2, the Main Basin is a well-managed groundwater basin and can ensure long-term reliability of water supply. Additional information on the reliability of the groundwater basin and the elevation of the Key Well is discussed in Section 6.2.

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). Through imported water from Metropolitan, Upper District has sufficient supplies to meet its demands during a single dry year and a five-year consecutive drought (See Tables 7-2, 7-3, and 7-4).

7.2.1 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 water supply to Upper District's member agencies meets all state and federal water quality standards. The potable water supply within Upper District's service area comes from two main sources: the Main Basin and Metropolitan.

7.2.1.1 Groundwater

Water produced within the Main Basin historically had been impacted by man-made contaminants in certain areas and at varying depths. The Watermaster, in coordination with Upper District, has worked with state and federal regulators, along with local water companies to clean up water supplies. Multiple treatment facility sites have been constructed and operated to remove contaminants from the groundwater. Wells which pump potable water from the Main Basin meet the State Water Resources Control Board – Division of Drinking Water's (DDW's) drinking water standards. Therefore, the existing quality of the groundwater does not affect the groundwater supply within Upper District boundaries for 2020, 2025, 2030, 2035, 2040, and 2045.

As discussed in detail in Section 6.2.2, the Watermaster prepares and annually updates the Five-Year Water Quality and Supply Plan in accordance with the requirements of Section 28 of its Rules and Regulations. The objective of the Five-Year Water Quality and Supply Plan is to coordinate groundwater-related activities so that both water supply and water quality in the Main Basin are protected and improved. Many important issues are detailed in the Five-Year Plan, including how Watermaster plans to:

1. Monitor groundwater supply and quality;
2. Develop projections of future groundwater supply and quality;
3. Review and cooperate on cleanup projects, and provide technical assistance to other agencies;
4. Assure that pumping does not lead to further degradation of water quality in the Basin;
5. Address Perchlorate, NDMA, and other emerging contaminants in the Basin;
6. Develop a cleanup and water supply program consistent with the USEPA plans for its San Gabriel Basin Superfund sites; and
7. Coordinate and manage the design, permitting, construction, and performance evaluation of the BPOU cleanup and water supply plan.

Current and projected water quality of the Main Basin is discussed in the Main Basin's Five-Year Water Quality and Supply Plan, which is attached in Appendix J.

7.2.1.2 Imported Water

Water from Metropolitan is delivered by Upper District to its member agencies within its service area for direct use and groundwater replenishment. Metropolitan's water quality meets all state and federal water quality standards. Water quality plays a vital role in Metropolitan's availability of a useful water supply. Water quality affects the reliability of groundwater storage, recycled water and impacts the Bay-Delta. To the extent possible, Metropolitan responds to water quality concerns by concentrating on protecting the quality of the source water and developing water management programs that maintain and enhance water quality. Metropolitan's efforts and water quality data are explained in Sections 4 of its 2020 UWMP, which is incorporated by reference. As discussed in Metropolitan's 2020 UWMP, Metropolitan anticipates no significant reductions in water supply availability from these sources due to water quality concerns and has not identified any water quality risks that cannot be mitigated. Metropolitan discusses the reliability of its existing and planned sources of water supply in Section 2 of its 2020 UWMP, which is incorporated by reference.

Colorado River

Through farm and irrigation conservation programs, improved reservoir system operations, land management programs, and water transfer and exchanges, Metropolitan has increased the reliable supply from the Colorado River Aqueduct.

Quagga mussels in the lower Colorado River threaten Metropolitan's Colorado River Aqueduct system and have the potential to grow exponentially unless the Colorado River water is isolated and allowed to dry out. In 2007, Metropolitan developed its Quagga

Mussel Control Program to monitor and control the quagga mussel population. Although Colorado River water may be delivered as Supplemental Water to the Main Basin, there are issues which must be addressed prior to delivery. The conditions which would allow an area to dry out to eliminate the quagga population do not exist on the San Gabriel River when delivering water through USG-3; however, Watermaster is coordinating with Upper District, Metropolitan and the Los Angeles County Department of Public Works to develop a solution to mitigate the Quagga mussel issue in order to deliver Colorado River water through CEN B-48. A second concern is the high TDS concentration in Colorado River water, which would need to be addressed through Watermaster's "Criteria for Delivery of Supplemental Water".

State Water Project

The SWP may not be able to fulfill all of its contractual water delivery requirements in the future. In order for the State Water Project to deliver all of the water contracted, additional water supplies must be developed. Water diverted at the Sacramento-San Joaquin Delta by the SWP must be water that is surplus to the needs of the areas of origin. As local use of water in northern California increases, the supply to the SWP may be reduced. The Bay-Delta is a part of the SWP water delivery system. The reliability of the Bay-Delta to deliver water may be impacted by potential risks associated with endangered species, earthquakes, levee failure, and climate change. In order to mitigate these potential risks, State and federal resources and environmental protection agencies and a broad range of stakeholders are involved in a multiyear planning process referred to as the CALFED process to develop programs to greatly improve the capacity and reliability of the SWP and the environmental conditions of the Bay-Delta.

The Bay Delta Conservation Plan (BDCP) grew out of the CALFED Bay-Delta Plan's Ecosystem Restoration Program Conservation Strategy. A draft BDCP was prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, and a broad range of stakeholders. The BDCP identifies conservation

strategies, water flow, and habitat restoration actions in California's Sacramento-San Joaquin Delta. The goal of the BDCP is to provide for both species/habitat protection and improved reliability of water supplies. Under Governor Brown, the BDCP planning process began analyzing alternatives for new conveyance independent of landscape-scale habitat restoration called the California WaterFix. In July 2017, DWR approved California WaterFix and Metropolitan's board authorized its participation in California WaterFix in 2017 and 2018. However, Governor Newsom announced in 2019 that he did not support the currently envisioned WaterFix and instead supported a single tunnel. Consequently, DWR withdrew all WaterFix approvals and environmental compliance documentation. On January 15, 2020, DWR issued a Notice of Preparation of an Environmental Impact Report for a BDCP proposed project that would include new conveyance facilities in the Delta to add to the existing SWP infrastructure. The new conveyance facilities would include a new single main tunnel connecting new intakes to an existing pumping plants and would provide an alternative location for diversion of water from the Delta.

DWR's "State Water Project Delivery Capability Report 2019," dated August, 2020, indicates the delivery reliability of SWP water is approximately 58 percent, on average, over the next 20 years. The DWR report incorporated future impacts on water deliveries as a result of the following:

- Climate change and sea level rise;
- Regulatory requirements in accordance with the SWRCB Water Quality Control Plan; and
- Biological opinions issued by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) governing SWP and Central Valley Project operations.

The "State Water Project Delivery Capability Report 2019" indicates current SWP delivery capability has been negatively impacted by the following factors:

- Increases in SWP obligations to meet in-basin uses which decrease the ability of the SWP to export water relative to the Central Valley Project;

- DWR operational changes at Lake Oroville to maintain higher levels of storage; and
- Climate change impacts on hydrologic conditions in California.

The long-term impact of these issues cannot be fully quantified at this time. DWR plans to develop additional water supply facilities in order for the SWP to deliver contracted water beyond historical delivery quantities.

7.2.2 YEAR TYPE CHARACTERIZATION

Table 7-1 summarizes "base years" for average, single dry, and five consecutive year drought years and provides the total amount of imported water supplies available to Upper District during those base years. These year types are discussed below.

7.2.2.1 Types of Years

Upper District's base years for average, single dry, and five consecutive year drought years are provided in Section 7.2 and are summarized in Table 7-1. Upper District relies on Metropolitan for its supplies of untreated and treated imported water and LACSD for recycled water; consequently, a single dry year or a five consecutive year drought period will not compromise Upper District's ability to provide a reliable supply of water to its customers. As indicated in Section 6.1, Upper District's water supplies were sufficient in meeting Upper District's historical water demands during normal, single, and five consecutive year drought years. A normal or average year was based on a year during the past 20 years with a total precipitation similar to the historical average precipitation in the vicinity of Upper District's service area. A five consecutive year drought period for Upper 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. Upper District primarily obtains its water supply from surface water from Metropolitan. In

addition, Upper District obtains recycled water from LACSD. Both types of water supply are included in Tables 7-2, 7-3 and 7-4. As discussed in Section 7.3 and shown in Table 7-2, Table 7-3, and Table 7-4, a single dry year or a five consecutive year drought period will not compromise Upper District's ability to provide a reliable supply of water to its member agencies.

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 Upper District's service area are discussed in Section 3.3 Historical climate information was obtained from the WRCC, DPW, and from DWR's CIMIS.

7.2.3 WATER 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.

As previously discussed in Chapter 6, Upper District's member agencies rely on water supply from: 1) Metropolitan imported water supply; and 2) Main Basin groundwater. Upper District provides treated imported water for drinking water and provides untreated imported water for groundwater replenishment. As previously discussed in Section 7.2.1,

a single dry year or a five consecutive year drought period will not compromise Upper District's ability to provide a reliable supply of water to its member agencies.

Imported Water

It is assumed the WSAP is implemented when Metropolitan has restricted water supply during a single dry year and a five consecutive year drought. Tables 7-3 and 7-4 compares Upper District's demand and supply on imported water from Metropolitan during single dry and five consecutive year drought periods. As shown in Tables 7-3 and 7-4, Upper District will be able to provide both treated imported water for direct deliveries and untreated imported water for Replacement Water within its WSAP allocation for the next 20 years during single dry and five consecutive year drought periods.

In addition, Metropolitan's 2020 UWMP has concluded that the region can provide reliable water supplies under both the single driest year and the five consecutive year drought hydrologies for the next 25 years (see Appendix F). The 2020 UWMP prepared by Metropolitan, which is incorporated by reference, should be referred to for more details on the reliability of Metropolitan's imported water supplies.

Groundwater

Upper District's member agencies produce water from the Main Basin. The amount of basin replenishment affects the elevation of the Key Well, which represents changes in the groundwater basin. As shown on Figure 6, the Main Basin historically goes through phases of drafting, which are followed by filling. As noted in Section 6.2, the Main Basin is a well-managed groundwater basin and can ensure long-term reliability of water supply. Additional information on the reliability of the groundwater basin and the elevation of the Key Well is discussed in Section 6.2.2.

7.2.3.1 Water Service Reliability – Normal Year

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

7.2.3.2 Water Service Reliability – Single Dry Year

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

7.2.3.3 Water Service Reliability – Fiver Consecutive Dry Years

Table 7-4 summarizes Upper 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 Upper District can meet water demands during five consecutive year drought periods over the next 25 years.

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.

This Plan describes the management tools and options used to maximize local resources and minimize the need to import water. In particular, Section 6.2

discusses the management of the groundwater basin, Chapter 9 discusses the Demand Management Measures (DMMs) implemented by Upper District, Section 6.8 describes future water supply projects within Upper District's service area and Section 6.5 discusses recycled water use and the potential plans to serve additional member agencies within Upper District's service area. As a wholesale water agency, Upper District delivers imported treated water to its member agencies for direct use and untreated imported water from groundwater replenishment and is committed to assisting its member agencies to maximize their local resources. As discussed in Chapter 9, Upper District participates in wholesale agency programs, which provide financial incentives for water conservation, technical support through workshops, and available staff for conservation projects. As discussed in Section 6.5, Upper District's direct non-potable use recycled water program is part of Upper District's effort to reduce reliance on imported water supplies, provide an economic benefit as well as enhance local water supply reliability.

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.

Upper District's water supply sources include treated imported water, untreated imported water, and recycled water. The following discussion provides a DRA which assesses Upper District's water supply reliability over a five consecutive year drought period. Upper District's DRA incorporates a five-year consecutive drought from FY 2021 through FY 2025 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

Upper District's DRA was prepared using historical production data from Upper District's water supply sources. The following assumptions were considered during the preparation of Upper 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 2019-20 (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 methodologies were considered during the preparation of Upper 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 reduce 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.
- 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.
- 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.
- 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.

7.3.2 DRA WATER SOURCE RELIABILITY

Upper District's DRA incorporates a five consecutive year drought based on five consecutive dry years commencing in FY 2020-21. The quantity of water supplies available for each year during this five consecutive year drought period included in Upper District's DRA is assumed to be the same as the quantity of water supplies produced by Upper District (i.e. demands) during the most recent and historical five consecutive year drought which occurred from FY 2011-12 and 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.

Upper District obtains imported water from the Metropolitan Water District of Southern California. Section 6.2.1 describes the planning conducted by the Metropolitan Water District of Southern California regarding imported water supplies available to Upper District. The reliability of Metropolitan's supplies is also discussed in its 2020 Regional UWMP and is incorporated by reference. Upper District purchases imported water which is delivered directly within its distribution system. Upper District's purchases of imported water over the past ten years have been tabulated in Section 6.1.

As discussed in Section 6.2.7.2, Upper District and Metropolitan actively store water in the Man Basin through a long-term cyclic storage agreement. Metropolitan is able to deliver water for groundwater replenishment purposes in advance of Upper District's specific requirement for such water, as supplies allow. These operations provide additional reliability to groundwater supplies in the Main Basin for Upper District's member agencies.

The imported water purchases by Upper District during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. Because Upper 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 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 imported water which may be available in a future five consecutive year drought absent Metropolitan's programs which it has since implemented.

Summary

Upper District's water system has previously experienced a five consecutive year drought with no limitation to its collective water supplies. Upper District has the ability to enact varying water shortage levels (see Chapter 8), through allocations from Metropolitan, and to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.3.3 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 imported water supply Upper District will rely on during a five consecutive year drought. The annual quantities are summed and are also provided on Table 7-5. When necessary, Upper 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 Upper District shown in Table 7-5 are based on the quantity of supplies produced by Upper District (i.e. demands) during the most recent historical five consecutive year drought period (from FY 2011-12 through FY 2015-16). As shown in Table 7-5, assuming no additional water supply benefits will be available from groundwater supplies, Upper District will need to implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during

years 1, 2, 3, 4, and 5 of the projected five consecutive year drought. Additionally, Upper District's member agencies will need to reduce their retail demands.

Metropolitan has established a Tier 1 allocation for Upper District of approximately 67,300 acre-feet per year which is available during non-WSAP years. During the last five consecutive year drought period, Metropolitan instated it's WSAP with Upper District receiving a WSAP allocation of approximately 27,900 acre-feet. These potential supplies during a five consecutive year drought period are compared with the DRA estimated supplies and demands (Table 7-5) in the tabulation below.

Drought Year	Demands (AF)	Supplies (AF)			Surplus/Shortfall (AF)		
FY	DRA Estimate	DRA Estimate	WSAP Allocation	Tier 1 Allocation	DRA Estimate	WSAP Allocation	Tier 1 Allocation
2020-21	30,527	25,401	27,900	67,300	(5,126)	(2,627)	36,773
2021-22	21,845	15,563	27,900	67,300	(6,282)	6,055	45,455
2022-23	63,862	39,779	27,900	67,300	(24,083)	(35,962)	3,438
2023-24	94,718	52,410	27,900	67,300	(42,307)	(66,818)	(27,418)
2024-25	53,709	26,734	27,900	67,300	(26,975)	(25,809)	13,591

7.3.4 OPTIONAL PLANNING TOOL WORKBOOK

DWR has deemed the "Planning Tool Worksheet" as optional and Upper District is not required by DWR to use the tool. Upper District has provided sufficient water supplies to its member agencies, including during long-term droughts and years with historically high-water demands. Upper District has also been able to provide water service to meet maximum day water demands for these years, including during the summer months. Upper 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.

8.0 WATER SHORTAGE CONTINGENCY PLAN

Lay Description

Chapter 8 discusses the Water Shortage Contingency Plan (WSCP) for Upper District. Due to Upper District being a wholesale water agency and relying on Metropolitan for all of its imported water supplies, Upper District's WSCP incorporates Metropolitan's Water Surplus and Drought Management (WSDM) Plan and WSAP in its WSCP.

A water shortage means that the water supply available is insufficient to meet the normally expected customer water use at a given point in time. The WSCP anticipates a water supply shortage and provides guidance for managing and mitigating a potential water shortage. The WSCP can be amended as needed without amending Upper District's 2020 Urban Water Management Plan in its entirety.

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

- Upper District's Water Shortage Contingency Plan presents how Upper District intends to act, or respond, in the case of an actual water shortage contingency.
- Preparation of Upper District's "Annual Water Supply and Demand Assessment" (or Annual Assessment) is discussed. Commencing July 1, 2022, Upper District is required to submit the Annual Assessment. The Annual Assessment will include a review of Upper District's "unconstrained" water demands for the current year and for a potential upcoming single dry year. Unconstrained water demands represent Upper District's water demands prior to any "response actions" Upper District may invoke pursuant to Upper District's Water Shortage Contingency Plan.
- Metropolitan manages water supplies to minimize the adverse impacts of water shortages. Metropolitan's plan for water usage during periods of shortage has

been correlated to incorporate 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.

- Metropolitan and Upper District's response actions to reduce demand on water supplies and to reduce any shortage gaps in water supplies are summarized.
- Upper District's Emergency Response Plan is summarized.
- The local and regional seismic risk assessments are discussed. The locations of earthquake faults in the vicinity of Upper District's water service area are provided.
- The effectiveness of the shortage response actions is presented. Upper District has been able to provide sufficient water supplies to its member agencies, including during long-term droughts and years with historically high-water demands.
- The communication protocols implemented by Upper District during a water supply shortage are presented.
- The legal authorities associated with Upper District's WSCP are presented.
- The financial consequences associated with Upper District's standard water shortage levels are presented.
- Upper 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 Upper 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 Upper 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.

Upper District's sources of supply were discussed in Section 6.2 of the 2020 UWMP and consist of imported water purchased from Metropolitan. Upper District's member agencies also rely on managed groundwater supplies from the Main Basin. The reliability of the various sources of supply are discussed in Chapter 7 of the 2020 UWMP. Imported water supplies (both treated and untreated) may be impacted in the event Metropolitan implements its WSAP due to a water supply shortage.

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 June 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 June 1 of each year, whichever is later.

Beginning July 1, 2022, Upper District will 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 Upper District's unconstrained water demands (i.e. water demands prior to any projected response actions Upper District may trigger under this Water Shortage Contingency Plan) for the current year and the upcoming (potential single dry) year. Upper District will also include information regarding anticipated shortages, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with Upper District's Water Shortage Contingency Plan.

For each Annual Assessment, Upper 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 an Annual Assessment consist of the following:

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

8.2.1 DECISION MAKING PROCESS

Upper District purchases treated and untreated imported water as its primary source of water supply. Consequently, during the third quarter of each FY Upper District will review its water demands from the initial six months along with the current groundwater basin conditions, local hydrology and imported water supply outlook. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be

circulated internally within Upper District for peer review and comment. Based on comments received, a redraft will be prepared and provided to the General Manager for final review. Subsequently, a final draft of the Annual Assessment will be provided to Upper 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 Upper 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 supplies resources are available to Upper District.

8.2.2 DATA AND METHODOLOGIES

The key data inputs and methodologies which will be evaluated by Upper 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 criteria include the key data inputs and methodologies described below.
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 prior to any

special shortage actions, 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 Monitoring 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. 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.

The preliminary assessment will be prepared by Upper District staff and will be reviewed by Upper District's General Manager. Following the review of the preliminary assessment, Upper District will prepare the Annual Assessment for presentation and approval during a regular scheduled meeting of Upper District's Board of Directors prior to June 30th of each year. Upon Board approval, District staff will formally submit the Annual Assessment to the California Department of Water Resources by July 1st of each year. The Annual Assessments will be instrumental in providing guidance to Upper 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 supplies resources are available to Upper District.

8.3 SIX STANDARD WATER SHORTAGE LEVELS

CWC 10632.

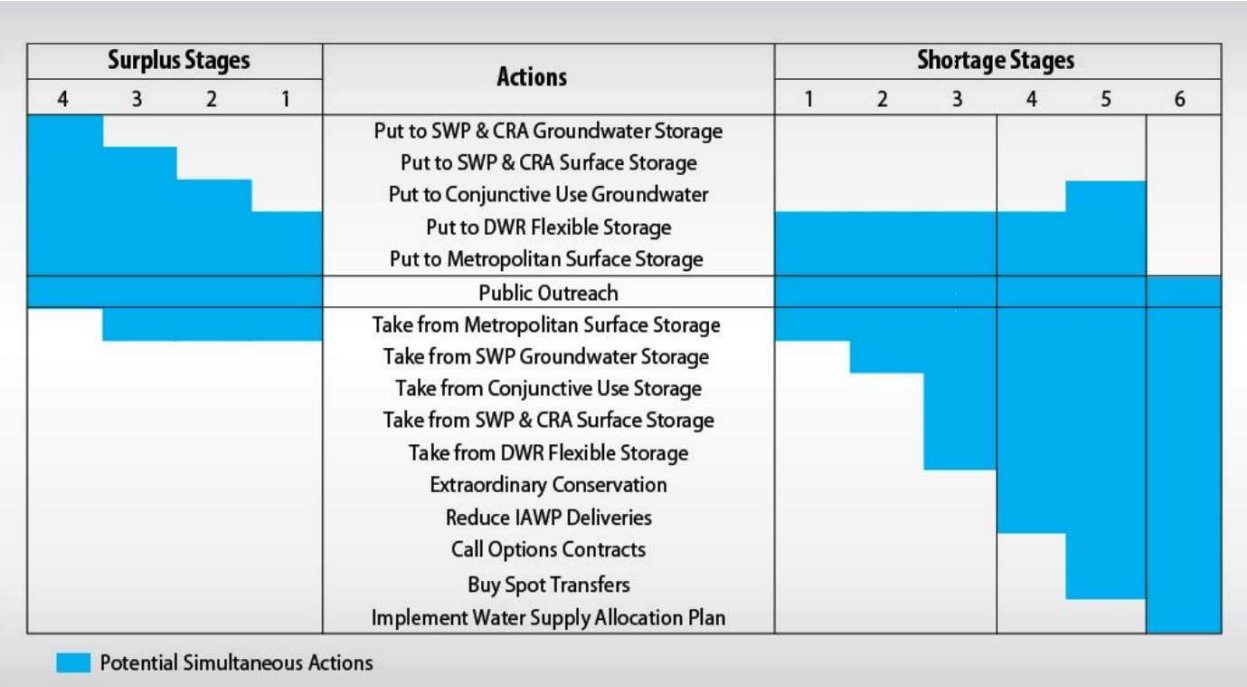
(a)(3)(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions 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.
(a)(3)(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.

Upper District is a member agency of Metropolitan and as such relies on Metropolitan for all its imported water supplies. According to Metropolitan's draft 2020 UWMP, Metropolitan's supply is considered to be in surplus as long as net annual deliveries are made to the water storage programs. Metropolitan's supply is considered to be in a shortage condition when Metropolitan must withdraw water from storage to meet demands. Metropolitan has developed a Water Surplus and Drought Management (WSDM) Plan which is discussed further in the following section and is included in Section 2.5 of Metropolitan's 2020 UWMP, which is incorporated by reference.

The WSDM Plan was adopted in April 1999 as a management tool for planning during wet and dry years. Upper District participated in Metropolitan's WSDM Plan by jointly

participating in the development of the plan through various workshops held by Metropolitan. The WSDM Plan addresses regional water management strategies. The WSDM Plan has specific management actions for six specific water shortage stages and four surplus situations. Shortages can be classified as "shortage", "severe shortage", or "extreme shortage". The following graphic provides a summary of Metropolitan's water shortage and water surplus stages.

Resource Stages, Anticipated Actions, and Supply Declarations



Source: The Metropolitan Water District of Southern California 2020 Urban Water Management Plan. Draft April 2021.

Metropolitan has established a Tier 1 allocation for Upper District of 67,228 acre-feet per year which is available during non-WSAP years. Furthermore, Metropolitan allows Upper District to purchase additional imported water at a Tier 2 rate. During a Shortage Stage 6 of the WSDM Plan, Metropolitan will implement the WSAP, discussed in Section 6.1. Depending on Metropolitan's available supply, Metropolitan can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. At such times MWD instates its WSAP as the

result insufficient water supplies, Upper District's imported water supplies will be significantly impacted for the period of time the WSAP is in place. The available supplies during a WSAP will vary based on the level of the allocation, but was about 27,900 acre-feet during fiscal year 2015-16 (Level 3).

Additional information about Metropolitan's WSAP is provided in Metropolitan's 2020 UWMP. The following is a summary of Metropolitan'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 accordance with the CWC in which urban water suppliers are required to define six standard water shortage levels, Upper District has developed the crosswalk illustrated below that translates Upper District's previously established shortage levels to the mandated standard shortage levels. These shortage level stages are shown in Table 8-1.

Shortage Level	Water Shortage Condition
Level 1	5%
Level 2	10%
Level 3	15%
Level 4	20%
Level 5	25%
Level 6	30%
Level 7	35%
Level 8	40%
Level 9	45%
Level 10	50%

Shortage Level	Percent Shortage Range
1	Up to 10%
2	Up to 20%
3	Up to 30%
4	Up to 40%
5	Up to 50%
6	> 50%

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.

During a water shortage, Metropolitan may be required to implement shortage response actions that will be customized to meet the circumstances of the particular shortage which will include supply augmentation, demand response measures, and operational measures. The following provides a summary of shortage response actions that may be implemented by Metropolitan and passed through to Upper District as a member agency.

Shortage Stages and Response Actions

Shortage Stage	Shortage Percentage	Shortage Response	
1	Up to 10%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation
2	10% to 20%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation
3	20% to 30%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation
4	30% to 40%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation
5	40% to 50%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation
6	More than 50%	Take from Storage Execute Flexible Supplies Implement Voluntary Demand Reduction Implement Water Supply Allocation Plan Take from Emergency Storage, if needed	• 0 to 100% met by Storage • 0 to 100% met by Flexible Supplies • 0 to 20% of total retail water use met by implementing Communication Plan • 0 to 50% of total base demand met by WSAP supply allocation • Take from emergency storage during a catastrophic event

Source: The Metropolitan Water District of Southern California 2020 Urban Water Management Plan. Draft April 2021.

8.4.1 SUPPLY AUGMENTATION

Upper District is a member agency of Metropolitan and as such relies on Metropolitan for all its imported water supplies. Metropolitan's first response to a gap between supplies and demands is to optimize its supply options from the SWP and Colorado River including its flexible supply programs and storage reserves. Metropolitan pursues water transfer and exchange programs to mitigate supply deficiencies. See Metropolitan's WSCP for more information.

8.4.2 DEMAND REDUCTION

As discussed previously, water supply shortages may require Metropolitan to enact the WSAP to implement regional reductions to its member agencies' allocations of imported

water. By limiting Upper District's available supplies, Upper District's member agencies would be required to reduce their retail demands on treated imported water or obtain additional supplies from other sources. As discussed in Section 9, Upper District encourages efficient use of water and implements demand management measures, regardless of the status of available supplies from Metropolitan. During a water shortage, Upper District will continue its outreach efforts to encourage water conservation and will continue to implement its demand management actions such as offering its rebate programs and landscape surveys to reduce demands. See Metropolitan's WSCP for more information.

8.4.3 OPERATIONAL CHANGES

As discussed in Section 3.1, Upper District does not own any water distribution facilities. Accordingly, any operational changes required during a water shortage would be enacted by Metropolitan. Examples of possible operational changes include suspension of maintenance cycles, deferment of planned system outages, and adjustment to the flow and routing through Metropolitan's system. See Metropolitan's WSCP for more information.

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

As a wholesale agency, Upper District is not required by DWR to complete Section 8.4.4.

8.4.5 EMERGENCY RESPONSE PLAN

Upper District is prepared to assist its member agencies and emergency response efforts in the event of an emergency within its service area. Upper District has prepared an

Emergency Response Action Plan (ERAP) documenting roles and responsibilities and procedures during an emergency. The ERAP is provided in Appendix K.

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.

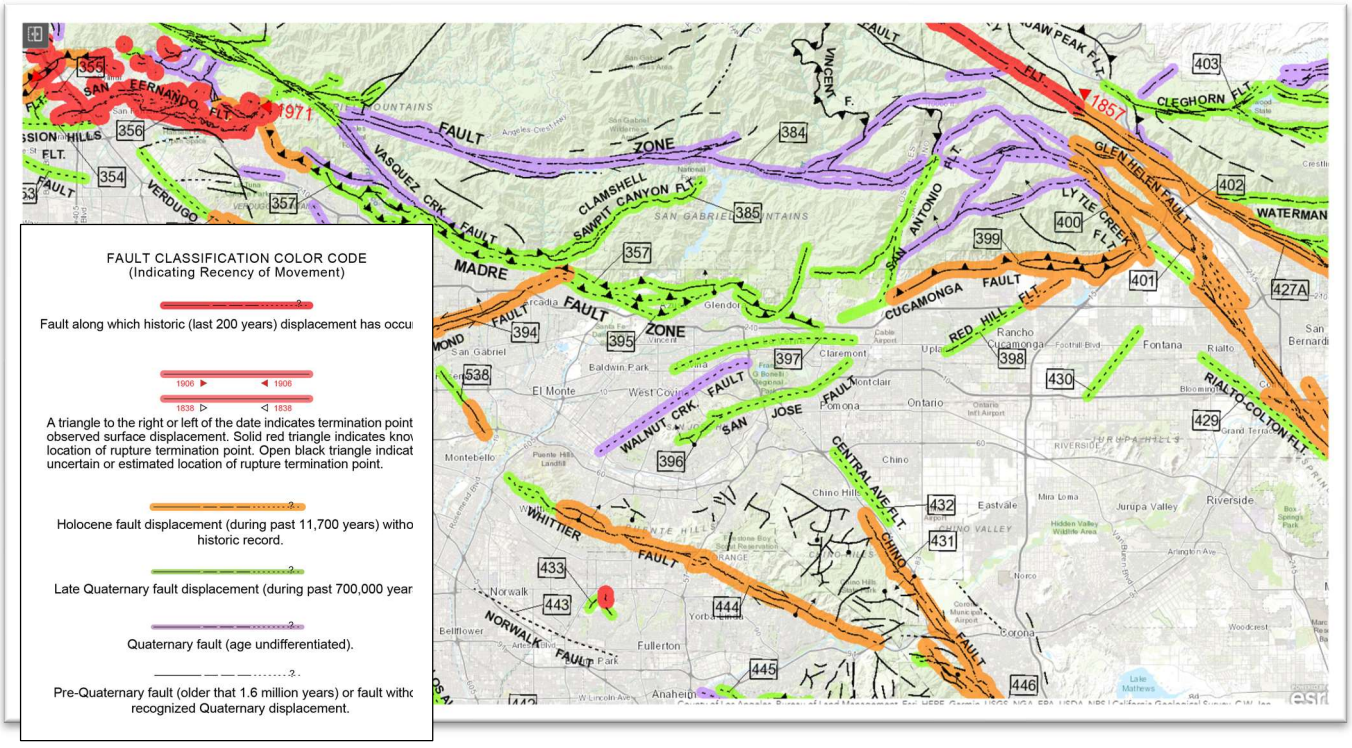
As discussed in Section 8.4.5, Upper District is prepared to assist its member agencies in the event of an emergency, such as a seismic event. Metropolitan has prepared a seismic risk assessment and mitigation plan as part of its resilience strategy which is included in Appendix 9 of Metropolitan's UWMP.

The County of Los Angeles prepared a "All-Hazards Mitigation Plan" in 2019 which identified methods to assess significant natural hazards (including earthquakes) affecting areas throughout Los Angeles County, and the mitigation strategies necessary to reduce risks, including seismic risk. The County's "All-Hazards Mitigation Plan" is provided in Appendix L. Additional information regarding the County of Los Angeles Emergency Management plans and procedures can be found at the following link: https://ceo.lacounty.gov/emergencydisaster-plans-and-annexes/

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 Upper 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 Upper District's water service area include the San Andreas fault, the Walnut Creek fault, the San Jose fault, the Red Hill fault, the Raymond fault, the Cucamonga fault, and the Sierra Madre fault.

Location of Earthquake Faults

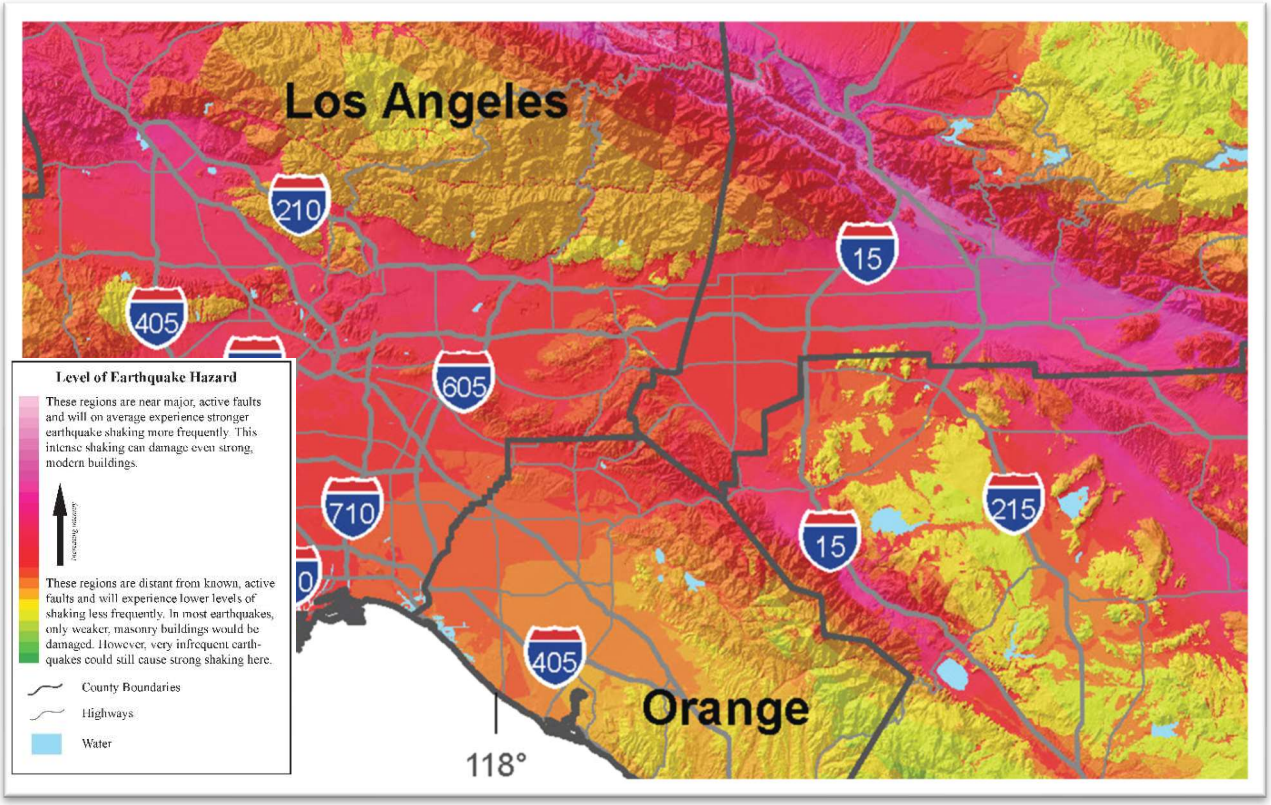


Source: https://maps.conservation.ca.gov/cgs/fam/App/

The following figure provides the relative intensity of ground shaking in the vicinity of Upper District's service area from anticipated future earthquakes. The locations of relatively long-period (1.0 second) earthquake shaking, including Upper 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).

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 is evident in Upper District's historical ability to meet its customer's water demands in response to a water supply shortage. In addition, Upper District supports local agencies in efforts to enforce regulations and prohibitions on water use. The effectiveness of Upper 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 Upper District's historical annual water demands from its member agencies for each water supply source. During the past 10 years, Upper District experienced a five consecutive year drought within the area receiving its water supplies from FY 2011-12 to FY 2015-16. Throughout this extended dry year period, Upper District's imported water deliveries ranged from approximately 15,563 AF to 52,410 AF. Upper District has been able to provide sufficient water supplies to its member agencies, including during long-term droughts and years with historically high water demands.

Based on Upper District's ability in meeting water demands during past water supply shortages, it is anticipated that Upper District will be able to continue providing sufficient water supplies to its customers during any of its standard water shortage levels.

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, Upper District's Annual Assessment will be submitted to DWR by June 1 of each year or within 14 days of receiving its final allocation, whichever is later. The Annual Assessment will provide information on Upper District's anticipated shortage,

triggered response actions, compliance and enforcement actions, and communication actions, as discussed in Section 8.2. Upper District may use the Annual Assessment as a method of declaring the appropriate water shortage level. Information pertaining to a water shortage and any Metropolitan water supply allocation will be provided to the public, member agencies, interested parties, and local agencies.

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.

As a wholesale agency, Upper District is not required by DWR to complete Section 8.6.

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.

Public entities that supply water, such as Metropolitan and Upper District, may adopt ordinances and resolutions, including a WSCP, by a majority vote of the governing body after holding a properly noticed public hearing. California Water Code also provides the authority for pricing to encourage water conservation.

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, Upper District shall declare a water shortage emergency, by way of a resolution adopted by Upper District's board, and in accordance with CWC Chapter 3 (commencing with Section 350) of Division 1. Upper District shall also coordinate with any city or county within its service area for possible declaration of a local emergency.

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.

Upper District generates revenue from several sources including property taxes, a ready-to-serve charge, interest on accumulated funds, and surcharges on water sales. In the

event of a water shortage, imported water sales may be reduced, which may impact: 1) revenue generated from surcharges on water sales; and 2) accumulated funds.

In 1995, Upper District passed Resolution 4-95-333, which was amended in 2009 by Resolution 2-09-465, to levy a surcharge on all water sales (see Appendix M). Through these Resolutions, Upper District initiated a program to levy a surcharge on all water sales to generate additional revenue. This program has continued and is still maintained today.

Revenue from water sales for Upper District is based on the surcharge for 1) treated direct use and 2) untreated water for groundwater replenishment. The calendar year 2021 rate for full-service, treated water is $1,207, of which about $103 is a surcharge. The calendar year 2021 rate for full-service, untreated water was $880, of which $103 is a surcharge.

In the event of a shortage of water supply, direct deliveries of treated water could be reduced by 50 percent. During the FY 2019-20, Upper District's treated direct use sales were about 6,000 acre-feet. If direct deliveries were reduced by 50 percent, Upper District's treated direct use requirement would decrease to about 3,000 acre-feet and it would result in a revenue reduction. Based on the current surcharge rate of $103 per acre-foot for direct deliveries, there would be a loss of revenue of about $310,000.

Upper District would experience a loss of revenue if there was a shortage of water supply; however, Upper District's projected demand for direct deliveries for the next 20 years shows a decreasing trend. Future demands on Metropolitan for direct deliveries are assumed to be minimal. Upper District will rely more on untreated imported water for groundwater replenishment and will decrease its demands for treated imported water, as shown in Table 6-9.

In the event of a shortage of water supply, Replenishment Service water sales could be reduced by up to 50 percent. If sales of untreated imported water for groundwater replenishment were reduced by 50 percent, it would result in a revenue reduction.

However, the full-service, untreated water sales for the groundwater replenishment program continuously has periods of filling and drafting and the revenue from this program will eventually be received.

Upper District has reserve funds set aside in case of a decrease in water sales. In the event of a significant decrease in water sales, it may be necessary for Upper District to utilize these reserve funds to cover fixed operating expenses until normal operating revenues could be reestablished. During a significant decrease in water sales, during which Upper District could not cover fixed operating expenses with reserve funds, it could be necessary for Upper District to postpone or otherwise impact established water supply project schedules.

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.

As a wholesale agency, Upper District is not required by DWR to complete Section 8.9. Upper District will coordinate with its member agencies to assist with communication and outreach efforts needed during water shortages. In addition, Upper District will coordinate with Metropolitan on regional efforts to maximize water use efficiency and mitigate supply limitations.

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.

Metropolitan's WSCP and will periodically re-evaluated and refined as necessary. As a member agency, Upper District will coordinate with Metropolitan regarding any changes to the WSDM Plan and WSAP. During a water supply shortage, Upper District will review the implementation results for any current or potential shortage gaps between water supplies and demands. Upper 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).
- Incorporation of additional actions recommended by District staff or other interested parties

This Water Shortage Contingency Plan is adopted as part of Upper District's 2020 Urban Water Management Plan adoption process discussed in Section 10.3. It is anticipated Upper District will review, revise, and adopt an updated WSCP as part of preparing its 2025 Urban Water Management Plan as necessary. Any updates to Upper District's WSCP will include a public hearing and adoption process by Upper District's Board.

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.

As a wholesale agency, Section 8.11 is not applicable to Upper District.

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

CWC 10632.

(c) The urban water supplier shall make available the water shortage contingency plan

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

- Upper District will conduct a public hearing and make the Water Shortage Contingency Plan available for public inspection.
- Upper District will provide notification of the time and place of the public hearing to any city or county in which water is provided.
- Upper 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).
- Upper 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, Upper 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. Upper 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, Upper 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:

- Upper District will conduct a public hearing and make the amended Water Shortage Contingency Plan available for public inspection.
- Upper District's Board will adopt the amended Water Shortage Contingency Plan
- Upper 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 Upper District's Water Shortage Contingency Plan (and 2020 Urban Water Management Plan) is provided in Chapter 10.

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9.0 DEMAND MANAGEMENT MEASURES

Lay Description

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

- Upper District has implemented "Demand Management Measures" to reduce its water demands.
- Upper District's Demand Management Measures include metering of all its water supply connections with its retail member agencies.
- Upper District's Demand Management Measures include public education and outreach programs regarding water conservation.
- Upper District's Demand Management Measures include staffing of its water conservation program.
- Additional Demand Management Measures including wholesale supplier assistance programs are discussed.
- A summary of the Demand Management Measures Upper District has implemented over the past five (5) years is provided.

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.

Upper District has a proactive and extensive public outreach campaign that is deeply rooted in conservation and education efforts that promote water use efficiency.

The 2020 UWMP reporting period began under ongoing serious drought conditions. In March 2016, hydrological conditions began to shift due to a substantial increase in precipitation. In April 2017, SWRCB rescinded the mandatory conservation standards for urban water suppliers while keeping in place water use reporting requirements and prohibitions against wasteful practices. Urban Water Suppliers served by Upper District continued to achieve substantial reductions in their conservation levels even after the mandatory conservation standards were rescinded.

While the drought was officially declared “over” in April 2017, dry climate conditions persisted throughout FY 2017-18, causing groundwater storage levels to remain depleted in many areas. Understanding the need to continue building on its conservation efforts, Upper District maintained its emphasis on water efficient practices as a way of life for its residents and businesses. Upper District’s approach is in keeping with the State’s long-term framework for conservation and drought planning released in April 2017 titled, "Making Conservation a California Way of Life", which outlines implementation of EO-B-37-16.

Locally, the Main San Gabriel Basin slowly began to recover from its historic low of 169.4 feet reached in November 2019. Understanding the need to continue a strong conservation message in the San Gabriel Valley, Upper District maintained proactive and

innovative conservation and education outreach efforts. Through FY 18/19, Upper District unveiled new conservation programs for residents and businesses within its service area. During FY 19/20, Upper District continued to implement conservation programs, yet a considerable challenge was faced with the emergence of the Covid-19 pandemic. The Governor's Executive Order to shelter-at-home, which began in March 2020, remained in effect through the end of FY 19/20. This unprecedented event resulted in several event and project cancellations. Upholding the safety and health of the public, Upper District pivoted its programs to continue water use efficiency efforts while maintaining social distance practices.

Upper District is an active member of both the California Water Efficiency Partnership (CalWEP) and the Alliance for Water Efficiency (AWE), having held membership in both organizations since their respective inceptions. Previously, Upper District was an active member of the California Urban Water Conservation Council (CUWCC) which dissolved in 2016. The dissolution of the CUWCC resulted in the discontinuation of Best Management Practices (BMP) reporting. Even so, the Demand Management Measures (DMMs) mirror the BMPs and the DMMs continue to be vigorously implemented as part of Upper District's integrated approach to actively pursuing water supply reliability.

The Upper District has actively encouraged its retailers to become members of CalWEP and subsequently AWE since CalWEP is the regional chapter of AWE. Throughout the UWMP reporting period Upper District staff actively informed its retailers about CalWEP and AWE, noting the benefits of membership and encouraging retailers to join both organizations. Emails were sent to the retailers via the Conservation Action Roundtable (CAR) email list encouraging membership and providing information about dues cost-sharing offered by Metropolitan Water District of Southern California (Metropolitan). Upper District invited CalWEP staff to conduct presentations about the organization a few times during the reporting years. Upper District also continued to inform retailers about various studies, programs, and workshops offered by CalWEP. These correspondences are provided in Appendix N.

Prior to its dissolution, Upper District remained actively involved in the CUWCC and sat on their Membership Committee. Upper District ensured its retailers were provided information about workshops, studies, programs, and other resources offered through CUWCC. Upper District also encouraged its retailers to become members of the CUWCC. These correspondences are provided in Appendix O.

Upper District remains avidly committed to developing, implementing, managing, and evaluating comprehensive water use efficiency efforts as a good-faith-effort to implementing all cost-effective DMMs. Upper District also continues to encourage its retail agencies to actively implement all cost-effective DMMs established for retail agencies.

9.1.1 METERING

Upper District, in coordination with Metropolitan, meters all water sales for direct use, groundwater replenishment, make-up water, and separately for recycled water.

9.1.2 PUBLIC EDUCATION AND OUTREACH

Water use efficiency is promoted through a wide spectrum of public education and outreach programs. Upper District offers conservation brochures and posters, activity booklets, public outreach displays, oral presentations, videos, and workshops to inform the public of conservation efforts. Upper District also raises awareness about water conservation through its annual WaterFest event, information booths, website, e-newsletter, press releases, news ads, paid advertising, and social media platforms.

In an effort to raise awareness among youth and their families, regarding water conservation and related issues, Upper District offers student education programs

available to all schools within its service area. Upper District's school education programs, materials, and presentations meet state education framework requirements.

Upper District also participates in additional educational youth programs offered through Metropolitan which also meet state education framework requirements and are made available to the schools within Upper District's boundaries. Discussion of Metropolitan's school education programs and public outreach efforts are included in Metropolitan's 2020 UWMP, which is incorporated by reference.

Additional information regarding Upper District's public education and outreach efforts for the UWMP reporting period is provided below in section 9.3 Implementation Over the Past Five Years. Information can also be found on Upper District's website (http://upperdistrict.org).

9.1.3 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

Upper District's water conservation and outreach program is managed by the Director of Government and Community Affairs who oversees the development of Upper District's external relations, public outreach, and education programs. The Conservation Coordinator position, created in September 1992, is as a full-time position assigned to promote and implement Upper District's water use efficiency and education programs. The Conservation Coordinator is responsible for planning, developing, coordinating, implementing, and evaluating Upper District's water use efficiency programs and also assists Upper District's retailers by providing technical assistance for implementing local programs.

The Government and Community Affairs Representative position was created in 2013 to assist in the implementation of Upper District's public outreach and social media campaigns. Other Upper District staff provide support for Upper District's conservation

programs and outreach efforts. Consultants are also retained on an as-needed basis to supplement project management for specific conservation programs.

9.1.4 OTHER DEMAND MANAGEMENT MEASURES

There are no additional DMMs other than the ones discussed under Section 9.1.

9.1.5 ASSET MANAGEMENT

Upper District does not have its own distribution system and relies on Metropolitan's distribution system for delivery of treated and untreated imported water to Upper District's member agencies. Therefore, Upper District is not required to fill out the Asset Management section. Information on Metropolitan's Asset Management can be found in Metropolitan's 2020 UWMP, which is incorporated by reference.

9.1.6 WHOLESALE SUPPLIER ASSISTANCE PROGRAMS

As a wholesaler Upper District implements wholesale agency programs which have included financial incentives for water conservation devices, technical support and guidance, and regional implementation of programs when viable. Providing a regional approach allows all consumers in the service area an opportunity to participate in conservation programs that some local retailers might be unable to implement on their own. Such programs ensure consistent participation guidelines and consistent public messaging regarding water use efficiency.

Upper District provides financial incentives for water conservation through various water use efficiency programs. Upper District provides technical support by conducting workshops for various water conservation programs and provides on-one-one guidance

with program strategies and processes. Upper District also organizes and facilitates conservation roundtables that keep its retailers informed about conservation programs and outreach efforts as well as offers them an open forum to discuss their own programs and efforts.

Regional Program Implementation

When agreeable and beneficial, Upper District develops, secures funding for, implements, and manages regional water use efficiency programs on behalf of its retail water agencies. This approach capitalizes on the economies of scale, ensures consistent programs guidelines, and maintains a consistent regional water use efficiency message to the public. During the reporting period, Upper District implemented a variety of regional programs including, but not limited to, large landscape survey and retrofit program, plant voucher program, water bottle filling station program, watershed restoration program, as well as a number of school education programs, public workshops, and public outreach campaigns. Details regarding Upper District's Wholesale Supplier Assistance regional program implementation efforts for the UWMP reporting period is provided below in section 9.3 Implementation Over the Past Five Years. Information regarding Upper District's conservation programs can also be found on Upper District's website (http://upperdistrict.org).

Efforts also include substantial promotion of water use efficiency programs offered through Metropolitan that are available to customers within Upper District's service area. Examples of such programs include the SoCal Water$mart rebate program, Water Savings Incentive Program (WSIP) designed for improving non-residential water efficiency through upgraded equipment or services that do not qualify for standard rebates, and On-Site Retrofit Program which provides financial incentives to property owners who convert potable water irrigation or industrial water systems to recycled water use. Discussion of Metropolitan's regional water use efficiency programs are included in Metropolitan's 2020 UWMP which is incorporated by reference.

Local Program Assistance

Upper District also aids its retailers with creating, developing, and implementing local programs. Assistance has been provided in a variety of ways, depending on the needs of each retailer, and has included: program design and strategy, targeting customer classes, assistance with funding procurement, program implementation, marketing, reporting, staff training opportunities, and provision of water use efficiency research and information. Details regarding Upper District's Wholesale Supplier Assistance local program assistance efforts for the UWMP reporting period is provided below in section 9.3 Implementation Over the Past Five Years.

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.

As a wholesale agency, Upper District is not required by DWR to complete Section 9.2.

9.3 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.

Public Education and Outreach

Every individual plays a role in protecting and preserving our natural resources, including water. It is important for people of all ages to build awareness about environmental issues that may impact their water supplies. In pursuit of raised awareness, Upper District continues to create and expand its public outreach and youth education efforts with an emphasis on making water conservation a way of life. Upper District's public education and outreach efforts during the reporting period are discussed further on the following pages.

Sustainable Landscape Demonstration Program

The goal of the Sustainable Landscape Demonstration Program was to convert high-water-need landscaping in public spaces to water efficient landscaping. The demonstration sites educate visitors about reducing water usage by installing high-efficiency irrigation equipment and utilizing climate-appropriate water efficient plants. The sites also provide a focus point for the community that demonstrate sustainable

landscaping and the benefits of on-site stormwater retention and capture. An interactive Google Map of the demonstration garden sites can be accessed and viewed online at https://upperdistrict.org/demogardenprogram/.

Program Metrics:

Sustainable Landscape Demonstration Garden Sites Completed		
Site	**City**	**Coordinates**
City of Arcadia Parkway	Arcadia	34.13986, -118.02509
Temple City City Hall	Temple City	34.1073, -118.05786
South El Monte Parkway	South El Monte	34.04855, -118.05138
Covina City Hall Courtyard	Covina	34.08784, -117.88939
City of Duarte Parkway	Duarte	34.12658, -117.97743
Dorris Dann Kids Campus	El Monte	34.08292, -118.01818
South Pasadena Street Median	South Pasadena	34.10416, -118.14992

Residential Plant Voucher Program

The Residential Plant Voucher Program was an innovative small-scale pilot program that offered qualifying residents a voucher redeemable for up to $250 worth of approved water efficient, climate-appropriate plants to help transform their yards into beautiful water efficient landscapes. The program website offered information about qualifying plants and helpful information for converting a yard into a water efficient landscape.

Program Metrics:

- FY 18/19 to FY 19/20 - 238 vouchers redeemed for 3,708 water efficient, climate-appropriate plants.

Water Filling Station Program

Upper District implemented a Water Filling Station (WFS) program which involves the installation of water bottle filling stations at designated public facilities located within Upper District's service area. The program provides accessibility to tap water and an alternative to one-time use plastic bottles while highlighting the quality and safety of tap

water. The production, packaging, and transportation of one-time use plastic bottles is both water and energy intensive. The aftermath of using one-time plastics is a long-term negative impact on the environment, with a substantial volume of plastic bottles finding their way into local rivers and streams.

The success of the WFS program resulted in several water retailers stepping forward to fund additional water fill stations, expanding the program far beyond the original number of site installation pilot projects and highlighting the power of collaborative efforts. The WFS program benefits local communities, delivering positive environmental impacts while emphasizing the safety of local drinking water. Accommodating this partnering approach capitalized on the economies of scale, ensured consistent program guidelines, maintained a consistent regional water use efficiency message to the public, and created a successful partnering endeavor between the Upper District and its water retailers. An interactive map of all WFS installation sites can be viewed at https://upperdistrict.org/waterfillstationprogram/.

Program Metrics:

- FY 2018-19 - 2 Water Fill Stations installed.
- FY 2019-20 - 22 Water Fill Stations installed.

Watershed Restoration Program

Started in 1992, the Watershed Restoration Program is a cooperative partnership between the Upper District and the U.S. Forest Service that incorporates volunteers into efforts to protect and maintain the local watershed. Program activities typically include collection of native seeds, planting of saplings and trash removal. Volunteers are taught about watersheds and water conservation: making the connection between the local mountains and their own drinking water.

Program Metrics:

Watershed Restoration Program Events						
FY	**# of Events**	**Volunteer Participants**	**Volunteer Hours**	**Saplings Planted**	**Trash Collected (lbs.)**	**Acorn Collection (lbs.)**
FY 2015-16	4	149	596	365	0	0
FY 2016-17	5	222	888	607	300	133
FY 2017-18	5	104	416	920	4,335	0
FY 2018-19	4	227	908	647	180	0
FY 2019-20	3	193	772	514	19	0
Totals	**21**	**895**	**3,580**	**3,053**	**4,834**	**133**

Sustainable Watershed Education Program

Upper District partners with the Discovery Science Foundation to provide 4th-6th grade student curriculum that focuses on water use efficiency, watershed issues, and groundwater awareness. Offered free to participating schools, the program includes interactive assemblies for fourth and fifth graders and in-class hands-on workshops for sixth graders. The program is offered to all schools within Upper District's service area.

Program Metrics:

Assembly and Workshop Student Participants					Fieldtrips	
FY	**4th Graders**	**5th Graders**	**6th Graders**	**Total**	**Trips**	**# of 4th -6th Grade Students**
FY 2015-16	3,307	2,999	1,299	7,605	2	113
FY 2016-17	3,463	4,259	2,224	9,946	4	233
FY 2017-18	3,619	4,154	2,579	10,352	0	0
FY 2018-19	3,329	4,029	2,437	9,795	10	528
FY 2019-20	2,295	2,712	2,027	7,034*	1	60
Totals	**16,013**	**18,153**	**10,566**	**44,732**	**17**	**934**

*Reservations for another 1,753 students to participate during the 19/20 school year had to be cancelled due to school closures as a result of Covid-19. Nine schools were awarded field trips however only one school completed their field trip prior to the closure

of schools and cancellation of all gatherings. The cancelled field trips will be honored once conditions are deemed safe and students have returned to schools.

Teacher/Parent Toolkit and Youth Activities

Upper District created an online teacher/parent toolkit which offers a wealth of water education resources and tools to help teach youth about the importance of using water more efficiently both indoors and outdoors. Videos, lessons, activities, and weblinks offer information that teach about the water cycle, water sources, and water distribution systems which help students develop their own understanding of why water is a critical resource and the importance of conservation. The toolkit can be viewed online at https://upperdistrict.org/teacherparenttoolkit/.

Water Efficient Landscape Classes

A number of water efficient workshops were offered free to the public covering topics such as water efficient landscaping, turf removal, home greywater systems, and leak detection. Some of the courses were also offered in Spanish and Mandarin. Upper District also partnered with Metropolitan and Three Valleys Metropolitan to host a special workshop focusing on the Model Water Efficient Landscape Ordinance for municipal staff and professional landscapers.

Program Metrics:

Workshop Participation		
FY	**# of Workshops**	**# Attendees**
FY 2015-16	11	237
FY 2016-17	10	285
FY 2017-18	8	208
FY 2018-19	7	257
FY 2019-20	2	40
Totals	**38**	**1,027**

Solar Cup

Solar Cup is a youth program sponsored by Metropolitan that provides high school teams the hands-on opportunity to build solar powered boats that they compete in race and endurance categories. The three-day competition is the culmination of several months of planning and building that offers student participants an opportunity to learn about natural resources, the development/use of alternative fuel sources, the protection of water quality, as well as program management skills. Upper District has participated since 2003 and provides funding sponsorship to teams within its service area.

Program Metrics:

Solar Cup Sponsorships	
FY	**# Teams**
FY 2015-16	3
FY 2016-17	4
FY 2017-18	3
FY 2018-19	4
FY 2019-20*	4
Totals	**18**

*Event cancelled due to Covid-19

Water Awareness Art Contest

The Upper District's "Water is Life" art contest inspires students to think about how important water is to all life and encourages youth to express the value of water through their artwork. The contest has 4 categories: grades K-2, 3-5, 6-8 and 9-12.

Program Metrics:

Art Contest Participation		
FY	**# of Student Entries**	**# of Schools**
FY 2015-16	156	32
FY 2016-17	123	30
FY 2017-18	170	25
FY 2018-19	167	33
FY 2019-20*	0	0
Totals	616	120

*Contest cancelled due to Covid-19

Water Education Grant Program

The Water Education Grant Program offers grants of up to $1,000 for classroom or school projects, grades K-12, that further a better understanding of water as a vital resource and the important role it plays in Southern California.

Program Metrics:

Water Education Grants			
FY	**Total Grants Awarded**	**# Participating Students**	**Grant Funding Awarded**
FY 2015-16	9	459	$9,000
FY 2016-17	23	2,771	$20,282
FY 2017-18	7	915	$6,620
FY 2018-19	16	1,535	$11,792
FY 2019-20	19	1,892	$13,413
Totals	**74**	**7,572**	**$61,107**

Waterfest

Upper District brought back its signature community event in FY 2016-17 after a five-year hiatus. This educational event for residents, families, and children features interactive educational booths, environmental displays, informative presentations, free water-saving materials, raffles, and more. The Upper District partnered with the Los Angeles County Department of Parks and Recreation on the event and invited its retailers to participate with information booths.

Program Metrics:

WaterFest Attendees	
FY	**# Attendees**
FY 2016-17	3,000
FY 2017-18	3,000
FY 2018-19	2,000
FY 2019-20*	0
Totals	**8,000**

*Event cancelled due to Covid-19

Water Conservation Booths

In promoting drought awareness, Upper District launched an aggressive grassroots outreach campaign to educate the residents of the San Gabriel Valley. Informational booths on water conservation were hosted by Upper District at city-sponsored events such as summer concerts, community gatherings, and environmental fairs.

Program Metrics:

Conservation Information Booths	
FY	**# Booths**
FY 2015-16	110
FY 2016-17	80
FY 2017-18	80
FY 2018-19	80
FY 2019-20*	0
Totals	**350**

*All booths/in-person events cancelled due to Covid-19

Community Town Hall Events

In an effort to better educate San Gabriel Valley residents about the impacts of the unprecedented drought, Upper District hosted four town hall events throughout Upper District's service area during FY 2015-16. Topics of these town hall events included emergency management and preparedness, California drought and El Niño, water-wise and California-friendly landscaping, and local water supply and conservation best practices.

Program Metrics:

- FY 2015-16 - 250 attendees.

Water Splash Newsletter

During FY 2019-20 Upper District unveiled a new monthly e-newsletter called "Water Splash" to engage and inform residents and key stakeholders. The program is emailed out to over 12,000 recipients. Content includes information about conservation, water efficient programs, available rebates, water resources, water quality, WaterSense information, and kid's activities. Water Splash newsletter examples are provided in Appendix P.

WaterSmart Video Series

During the reporting period Upper District produced a series of informational videos regarding conservation, local water supply, and water quality. Spanish and Mandarin versions of some of the videos are also presented. These videos can be viewed on Upper District's website at https://upperdistrict.org/watersavingresources/ or on the Upper District YouTube channel at: https://www.youtube.com/channel/UC4UGkTbGqtPRGXzlmgXq2IA.

Upper District's Website

During FY 2019-20 Upper District's website underwent a thorough content review and complete renovation. The website features a streamlined format and meets all accessibility and public access guidelines for special districts. Upper District's website can be viewed at http://upperdistrict.org.

Upper District's Media Outreach

Throughout the reporting period Upper District utilized a variety of media sources for education and outreach efforts. Print media included ads in publications such as San Gabriel Valley Tribune, Chinese World Journal, La Opinion, Beacon Media, Building Trades News, and Civic Publications. Online outreach ad sources included San Gabriel Valley Tribune online, La Opinion online, and Facebook and Instagram. Theater movie screen ads were also utilized. Media outreach examples are provided in Appendix Q.

Program Metrics:

Media Outreach				
FY	**Print Ads**	**Online Ads**	**Facebook Ads**	**Theater Screen Ads**
FY 2015-16	30	16	0	500
FY 2016-17	39	21	0	0
FY 2017-18	38	20	3	0
FY 2018-19	31	20	3	0
FY 2019-20	31	15	3	0
Totals	**169**	**92**	**9**	**500**

WaterSense Collaboration

As an active WaterSense partner, Upper District strives to promote the WaterSense label and to further the water use efficiency outreach conducted through WaterSense. During the UWMP reporting period Upper District took a proactive approach to support and expand the WaterSense outreach campaigns by offering to fund the translation of several WaterSense campaign materials into Chinese. Translated materials included 5 different "When in Drought" collaterals, 4 "Outdoor Watering" collaterals, as well as "It's Time to Start a Sprinkler Spruce-Up", "Is Your Watering Under Control", "Fix a Leak" Tip Sheet, "Your Better Bathroom" and "Detect and Chase Down Leaks" Checklist. These translated materials were fully funded by Upper District and provided to WaterSense to make available to all WaterSense partners through the WaterSense partner website A WaterSense outreach example is provided in Appendix R.

Upper District Social Media

Public outreach regarding conservation and sustainability were also conducted by engaging the public through social media platforms that include:

- Facebook - https://www.facebook.com/upperdistrict/
- Instagram - https://www.instagram.com/upperdistrict/
- Twitter - https://twitter.com/upperdistrict
- YouTube - https://www.youtube.com/channel/UC4UGkTbGqtPRGXzlmgXq2IA

San Gabriel Valley Water Smart Award Program

In 2015, Upper District unveiled the San Gabriel Valley Water Smart Award which annually recognizes cities, businesses, elected officials and/or community partners for their efforts in promoting water conservation through education, advocacy, or community engagement. Further information about the Award program can be found on the Upper District's website at https://upperdistrict.org/sgv-water-smart-awards/.

Upper District's "Where Solutions Flow" Tours

Upper District has actively engaged the region's local elected officials by offering educational programs on conservation, key water policies, and water issues that affect the San Gabriel Valley. Upper District in partnership with the Main San Gabriel Basin Watermaster, Metropolitan, the Army Corps of Engineers, LA County Flood Control District and San Gabriel Valley Water Company have provided educational tours of the San Gabriel Valley water infrastructure. The tour has also included an educational Water 101 for local city council members and municipal staff.

Program Metrics:

Tours	
FY	**# Tours**
FY 2015-16	3
FY 2016-17	2
FY 2017-18	4
FY 2018-19	2
FY 2019-20*	0
Totals	**11**

*All tours cancelled due to Covid-19

Speakers' Bureau Presentations

Upper District Board members, management, and staff make numerous presentations throughout the year to City Councils, School Boards, Chambers of Commerce, and other community organizations. These presentations provide stakeholders with information about water conservation, local water issues and challenges, recycled water projects, water-related legislation, and the history of the Upper District.

Wholesale Supplier Assistance Programs – Regional Programs Implemented

During the UWMP reporting period Upper District implemented a variety of regional programs that included the following:

Rain Barrel Distribution Program

Through the Rain Barrel Distribution Program Upper District provided free rain barrels to qualifying residents. Rain barrels are used to capture, divert, and store rainwater that can be used for landscape irrigation. Upper District worked in conjunction with the San Gabriel Valley Mosquito and Vector Control to ensure participants were taught appropriate methods for mitigating mosquito propagation.

Program Metrics:

- FY 2015-16 - 1,977 rain barrels distributed.

Large Landscape Survey and Retrofit Program

The objective of the Large Landscape Survey and Retrofit Program was to actively increase large landscape irrigation efficiency at Commercial, Industrial, and Institutional (CII) sites. The program offered free irrigation assessments, and retrofits of some irrigation equipment, to large-landscaped CII sites in the Upper District's service area. The program also provided landscaping staff with technical information that offered guidance for maintaining water efficient landscaping.

Program Metrics:

Large Landscape Survey and Retrofit Program							
FY	**Sites Surveyed**	**Sites Retrofitted**	**Landscape Surveys (acres)**	**WBIC (stations)**	**Moisture Sensor (stations)**	**Large Rotary Nozzles**	**Rotating Nozzles for Pop-Up Spray Heads**
FY 2015-16	34	22	259.35	308	144	312	8,033
FY 2016-17	37	33	165.29	864	0	449	11,880
FY 2017-18	60	41	183.46	1,027	449	987	6,174
FY 2018-19	63	45	228.26	2,069	1,706	1,841	13,772
Total	**194**	**141**	**836.36**	**4,268**	**2,299**	**3,589**	**39,859**

Wholesale Supplier Assistance Programs – Local Program Assistance

During the reporting period, Upper District implemented a variety of local assistance programs that included the following efforts:

Retailer Staff Workshops

Technical assistance was provided to Upper District's retailers through a variety of free workshops offered for retailer staff. Upper District worked with its workshop consultant to obtain approval from State Water Board for attendees to earn contact hours for their participation. Technical assistance workshops provided during the UWMP reporting period included:

- 2 Residential Water Survey Training workshops - A two-day workshop covering the basics of conducting residential water surveys, including a hands-on full indoor and outdoor survey exercise onsite at a residence. Approval was gained from the State Water Resources Control Board Drinking Water Operator Certification Program to offer 8 contact hours for participants completing the workshop.

- 3 Conservation and Customer Care workshops - A half-day workshop geared toward customer service representatives and other retailer staff that have contact with customers. The workshop provided information about the local water supply, recent climate and supply conditions, and basic conservation information that could be offered in response to concerned customers. Approval was gained from the State Water Resources Control Board Drinking Water Operator Certification Program to offer 4.0 contact hours for participants completing the workshop.
- 1 Cost Benefit Analysis workshop - A half-day workshop that focused on how to conduct a cost-benefit analysis of water conservation measures. Attendees were provided an understanding of how to prepare a cost-benefit analysis of conservation measures and then use the results to select cost-effective conservation programs. Approval was gained from the State Water Resources Control Board Drinking Water Operator Certification Program to offer 4.5 contact hours for participants completing the workshop.
- 1 Model Water Efficient Landscape workshop - Co-hosted with TVMWD and Metropolitan. The one-day workshop offered a look at the essential elements of California's Model Water Efficient Landscape Ordinance (MWELO) as well as the key elements for designing, building, and maintaining healthy water efficient landscapes for California's "new normal" for landscaping. CEUs for the workshop were offered for APLD, IA, ISA, and/or NALP certifications.

SoCal Water$mart Rebate Program

Upper District takes an active role in promoting rebates for water efficient devices offered through Metropolitan's SoCal Water$mart rebate program. These rebates are available to all qualifying residents and businesses within Upper District's service area. Residential rebated items include: High-Efficiency Clothes Washers (HECWs), Premium High Efficiency Toilets (PHETs), Weather-Based Irrigation Controllers (WBICs), Rotating Sprinkler Nozzles, Soil Moisture Sensors, (SMS) and turf removal. CII rebated devices include PHETs, High Efficiency Urinals, WBICs, SMS, conductivity controllers, turf removal, as well as some industry-specific water efficient devices. Upper District's

outreach efforts elevated public awareness of the program which resulted in increased program participation. Rebates provided for residents and businesses within Upper District's area are shown in the following table.

Program Metrics:

FY	Residential Rebates		CII Rebates	
	Device Quantity	**Applications**	**Device Quantity**	**Applications**
FY 2015-16	1,413,642	3,334	326,564	207
FY 2016-17	188,097	1,523	277,902	47
FY 2017-18	5,368	1,403	25,809	23
FY 2018-19	17,732	1,220	3,636	35
FY 2019-20	73,676	899	22,796	17
Total	**1,698,515**	**8,379**	**656,707**	**329**

Member Agency Allocation Funding for Local Programs

Upper District offers its retailers access to funding allocated through Metropolitan's Member Agency Allocation Program (MAAP) for the implementation of water use efficiency programs. Upper District assists its retailers with advice and information regarding project proposals, program formulation, reporting templates, and assistance on an as-needed basis. Individual retailers will report the metrics of their programs in their own respective 2020 Urban Water Management Plans. The following table provides a breakdown of MAAP funding Upper District provided to participating retailers during the UWMP reporting period.

Program Metrics:

MAAP Funding Provided for Local Programs			
FY	**Amount Provided**	**Retailer**	**Program/ Device**
FY 2015-16	$31,200	Suburban Water Systems	HET Distribution
FY 2015-16	$30,100	San Gabriel Valley Water Company	HET Distribution
FY 2015-16	$6,400	Industry Public Utilities	HET Distribution
FY 2015-16	$6,400	La Puente Valley County Water District	HET Distribution
FY 2015-16	$11,320	California American Water Company	PHET Distribution
FY 2015-16	$3,000	Valley County Water District	PHET Distribution
FY 2016-17	$800	La Puente Valley County	PHET Distribution
FY 2016-17	$3,440	Industry Public Utilities	PHET Distribution
FY 2016-17	$680	La Puente Valley County	PHET Distribution
FY 2016-17	$520	Industry Public Utilities	PHET Distribution
FY 2016-17	$7,500	City of El Monte	Rain Barrel Distribution
FY 2016-17	$8,240	Valley County Water District	PHET Distribution
FY 2016-17	$14,850	Valley County Water District	Rain Barrel Distribution
FY 2017-18	$1,600	La Puente Valley County	PHET Direct Distribution
FY 2017-18	$720	Industry Public Utilities	PHET Direct Distribution
FY 2017-18	$4,188	Suburban Water Systems	Res. Landscape Survey/Retrofit
FY 2017-18	$6,800	Valley County Water District	PHET Direct Distribution
FY 2018-19	$12,000	Valley County Water District	PHET Direct Distribution
FY 2018-19	$54,400	Valley County Water District	PHET Direct Distribution
FY 2019-20	$24,416	Suburban Water Systems	Res. Landscape Survey/Retrofit
FY 2019-20	$45,120	Valley County Water District	PHET Direct Distribution
FY 2019-20	$18,000	City of Arcadia	Conservation Demo Garden
TOTAL	**$291,694**		

Technical Assistance Guidance

Upper District conservation staff continued providing one-on-one technical assistance regarding conservation programs to its retailers. Such assistance included informational resources, advice, program strategizing, and guidance pertaining to program development. Technical Assistance Guidance examples are provided in Appendix S.

Upper District also offered technical assistance through its Conservation Action Roundtable (CAR) meetings which kept retailers informed with program updates, upcoming events, conservation-related messaging and outreach campaigns, access to informational resources and tools, as well as information regarding pertinent WUE legislation and reporting requirements. CAR also empowered the retailers to share information about their own programs and discuss lessons, challenges, approaches, and solutions. CAR meetings notes are provided in Appendix T.

Technical Assistance Funding WUE Regional Tool

Upper District also assisted its retailers by contributing $5,000 of funding toward the researching and updating of the Alliance for Water Efficiency's Water Conservation Tracking Tool. The Tracking Tool is an Excel-based planning model that water suppliers use to evaluate and track water savings, costs, and benefits of water use efficiency programs. Many utilities in California rely on this tool for conservation planning.

Upper District's contribution was to assist with the updating of the California version of the Tracking Tool to help water suppliers plan their water conservation programs while remaining in compliance with new state requirements. Five of Upper District's retail agencies, comprising approximately 51% of Upper District's entire service area, are already CalWEP/AWE members and will be able to make use of this tool at no cost. The collaboration and updating of the Conservation Tracking Tool included Upper District staff participating in their Program Advisory Committee which offers review and input on the tool as it is being updated.

9.4 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

(F)(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.

As a wholesale agency, Upper District is not required by DWR to complete Section 9.4.

9.5 WATER USE OBJECTIVES

As a wholesale agency, Upper District is not required to comply with the Water Use Objectives. However, Upper District will continue to implement the Demand Management Measures discussed in Section 9.1.

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10.0 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Lay Description

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

- The steps Upper District has performed to adopt and submit its 2020 Plan are detailed.
- The steps Upper District has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- Upper District coordinated the preparation of its 2020 Plan with interested parties and the cities and county within with Upper District provides water supplies. Upper 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.
- Upper District provided a notice of the public hearing to the same agencies regarding the time, date, and place of the public hearing.
- Upper District published a newspaper notification of the public hearing, once a week for two successive weeks
- Upper District conducted a public hearing to discuss and adopt Upper District's 2020 Plan and its Water Shortage Contingency Plan.
- Within 30 days of adoption, Upper District submitted the 2020 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.
- Within 30 days of adoption, Upper District submitted all data tables associated with the 2020 Plan to the California Department of Water Resources.
- Within 30 days of adoption, Upper District submitted a copy of the 2020 Plan to the State of California Library.

- Within 30 days of adoption, Upper District submitted a copy of the 2020 Plan (and Water Shortage Contingency Plan) to the County of Los Angeles Registrar / Recorder's office.
- Within 30 days after submittal of the 2020 Plan to the California Department of Water Resources, Upper District made the 2020 Plan (including the Water Shortage Contingency Plan) available on Upper District's website.
- The steps Upper 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 Upper District's 2020 Plan is provided on a FY basis through June 30, 2020 (as discussed in Section 2.4.2).

10.2 NOTICE OF PUBLIC HEARING

Upper District's public hearing notification process for its 2020 Plan and the WSCP 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 2.6.2. Upper District coordinated the preparation of the Urban Water Management Plan with water management agencies, relevant public agencies and other water suppliers. These interested parties include the following:

- Amarillo Mutual Water Company
- California American Water Company (Duarte System and San Marino)
- California Domestic Water Company
- City of Arcadia
- City of Azusa Light & Water
- City of Baldwin Park
- City of Bradbury
- City of Covina
- City of Duarte
- City of El Monte
- City of Glendora
- City of Industry
- City of Irwindale
- City of La Puente
- City of Monrovia
- City of Rosemead
- City of San Gabriel
- City of South El Monte
- City of South Pasadena
- City of Temple City
- City of West Covina
- City of Whittier
- County of Los Angeles

- Covina Irrigating Company
- Del Rio Mutual Water Company
- East Pasadena Water Co., Ltd.
- Golden State Water Company (San Gabriel District)
- Hemlock Mutual Water Company
- La Puente Valley County Water District and Industry Public Works
- Main San Gabriel Basin Watermaster
- Rurban Homes Mutual Water Company
- San Gabriel County Water District
- San Gabriel River Watermaster
- San Gabriel Valley Water Company
- Sterling Mutual Water Company
- Suburban Water Systems
- Sunny Slope Water Company
- Valencia Heights Water
- Valley County Water District
- Valley View Mutual Water Company

Upper District notified these agencies (including the cities and counties within which Upper 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.

Additionally, a notice of the public hearing was sent to the above listed interested parties. Copies of the notice of the public hearing are provided in Appendix D.

10.2.1.2 Notice of Public Hearing

Upper District encouraged the active involvement of the population within its service area prior to and during the preparation of the Plan. Pursuant to Section 6066 of the Government Code, Upper District published a notice of public hearing in the newspaper during the weeks of May 26, 2021 and June 2, 2021. To ensure that the plan was available for review, Upper District made a copy of the 2020 draft Plan available for review on its website.

10.2.1.3 Submittal Tables

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

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.

Upper District encouraged the active involvement of the population within its service area prior to and during the preparation of the Plan. Pursuant to Section 6066 of the

Government Code, Upper District published a notice of public hearing in the newspaper during the weeks of May 26, 2021 and June 2, 2021. A notice of public hearing was also provided to the Upper District's customers and on Upper District's website. A copy of the published notice is provided in Appendix D. To ensure the draft 2020 Plan and the draft WSCP were available for review, Upper District 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 2020 Plan, Upper District held a public hearing on June 9, 2021 which included input from the community regarding Upper District's draft 2020 Plan.

Upper District is committed to the implementation of the 2020 Plan in accordance with Section 10643 of the Act, including the water DMMs (see Chapter 9). Upper District

continues to be committed to the concept of good water management practice and intends to expand its water conservation program as budgets and staffing allow. Upper District's water conservation program will periodically be re-evaluated and modified to institute additional methods or techniques as the need arises. Upper District reviewed implementation of its 2015 Plan and incorporated changes to create the 2020 Plan.

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, Upper District adopted both the draft 2020 Plan and the draft WSCP (included in Chapter 8). A copy of the minute motion adopting the 2020 Plan and the WSCP is provided in Appendix U.

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.

Upper District's submittal process for its 2020 Plan and the WSCP 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 by Upper District Council and by July 1, 2021, Upper District submitted the adopted 2020 Plan (including the WSCP) to DWR. The 2020 Plan and WSCP were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

DWR provided a checklist to make determine if an Urban Water Management Plan has addressed the requirements of the California Water Code. Upper District has completed the DWR checklist by indicating where the required CWC elements can be found within Upper 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, Upper District submitted all data tables associated with the 2020 Plan through DWR's "Water Use Efficiency (WUE) Data Online Submittal Tool" website.

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

Within 30 days of adoption of the 2020 Plan by Upper District's Board, 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 is maintained in Upper District's file. The 2020 Plan was mailed to the following address if sent by regular mail:

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

The 2020 Plan was 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 by Upper District Council, a copy of the 2020 Plan was submitted to the County of Los Angeles Registrar / Recorders office. A copy of the letter to the County of Los Angeles is maintained in Upper 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, Upper District made the 2020 Plan and WSCP available at Upper District's office during normal business hours and on Upper 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.

Upper District is not required to provide notice to the 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.

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

10.7.1 AMENDING A UWMP

If Upper District amends the adopted 2020 Plan, the amended Plan will undergo adoption by Upper District's governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the State of California Library, and the County of Los Angeles Registrar / Recorders office.

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 Upper District amends the adopted 2020 WSCP, the amended WSCP will undergo adoption by Upper District's governing board. Within 30 days of adoption, the amended WSCP will then be submitted to DWR, the State of California Library, the State of California Library, and the County of Los Angeles Registrar / Recorders office.