WALNUT VALLEY WATER DISTRICT

JUNE 2021

FINAL

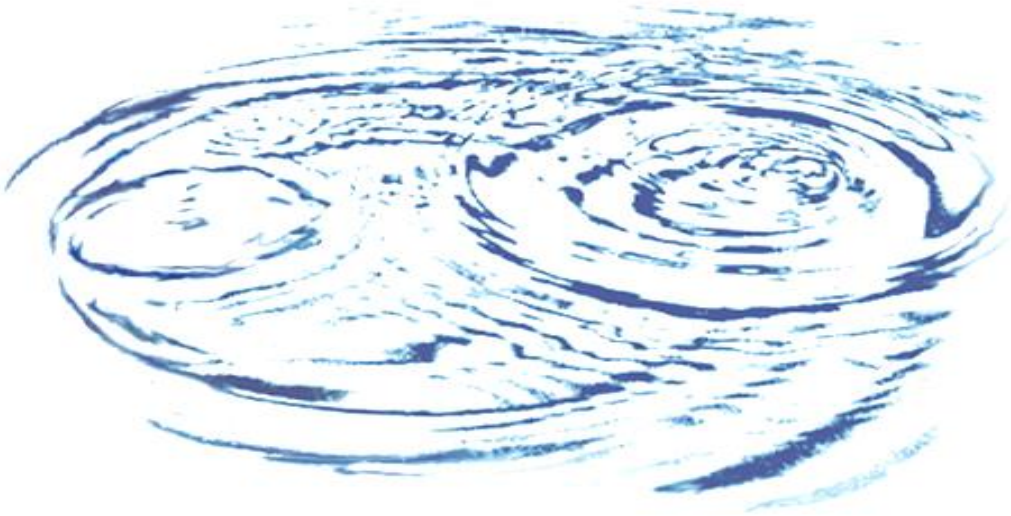
2020 URBAN WATER MANAGEMENT PLAN

STETSON ENGINEERS INC.

Northern California • Southern California • Arizona • Colorado • Oregon

Walnut Valley Water District

2020 Urban Water Management Plan



JUNE 2021

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TABLE OF CONTENTS

Page

CHAPTER 1 1-1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW 1-1

1.1 RECOMMENDED UWMP ORGANIZATION 1-4
1.2 UWMPS IN RELATION TO OTHER EFFORTS 1-5
1.3 UWMPS AND GRANT OR LOAN ELIGIBILITY 1-6
1.4 DEMONSTRATION OF CONSISTENCY WITH THE DELTA PLAN FOR PARTICIPANTS IN COVERED ACTIONS 1-6
1.5 TIPS FOR UWMP PREPARERS 1-8

CHAPTER 2 2-1

PLAN PREPARATION 2-1

2.1 PLAN PREPARATION 2-2
2.2 BASIS FOR PREPARING A PLAN 2-2
2.2.1 PUBLIC WATER SYSTEMS 2-4
2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS 2-4
2.3 REGIONAL PLANNING 2-5
2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE 2-5
2.4.1 REGIONAL UWMP 2-6
2.4.2 REGIONAL ALLIANCE 2-7
2.5 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE 2-7
2.5.1 FISCAL OR CALENDAR YEAR 2-8
2.5.2 REPORTING COMPLETE 2020 DATA 2-8
2.5.3 UNITS OF MEASURE 2-9
2.6 COORDINATION AND OUTREACH 2-9
2.6.1 WHOLESALE AND RETAIL COORDINATION 2-9
2.6.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY 2-10
2.6.3 NOTICE TO CITIES AND COUNTIES 2-11

CHAPTER 3 3-1

SYSTEM DESCRIPTION 3-1

3.1 GENERAL DESCRIPTION 3-2
3.2 SERVICE AREA BOUNDARY MAPS 3-4
3.3 SERVICE AREA CLIMATE 3-5
3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS 3-7
3.4.1 SERVICE AREA POPULATION 3-7
3.4.2 OTHER SOCIAL, ECONOMIC, AND DEMOGRAPHIC FACTORS 3-8
3.5 LAND USES WITHIN SERVICE AREA 3-9

TABLE OF CONTENTS
(Continued)

Page

CHAPTER 4 4-1

WATER USE CHARACTERIZATION 4-1

4.1 NON-POTABLE VERSUS POTABLE WATER USE 4-2
4.2 PAST, CURRENT, AND PROJECTED WATER USES BY SECTOR 4-2
4.2.1 WATER USE SECTORS LISTED IN WATER CODE 4-5
4.2.2 WATER USE SECTORS IN ADDITION TO THOSE LISTED IN WATER CODE 4-7
4.2.3 PAST WATER USE 4-7
4.2.4 DISTRIBUTION SYSTEM WATER LOSS 4-8
4.2.5 CURRENT WATER USE 4-11
4.2.6 PROJECTED WATER USE 4-12
4.2.7 CHARACTERISTIC FIVE-YEAR WATER USE 4-14
4.3 WORKSHEETS AND REPORTING TABLES 4-15
4.3.1 OPTIONAL PLANNING TOOL USE ANALYSIS WORKSHEET 4-15
4.3.2 DWR 2020 UWMP SUBMITTAL TABLES 4-16
4.4 WATER USE FOR LOWER INCOME HOUSEHOLDS 4-16
4.5 CLIMATE CHANGE CONSIDERATIONS 4-17

CHAPTER 5 5-1

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE 5-1

5.1 GUIDANCE FOR WHOLESALE SUPPLIERS 5-2
5.2 SB X7-7 FORMS AND SUMMARY TABLES 5-3
5.2.1 SB X7-7 VERIFICATION FORM (BASELINES AND TARGETS) 5-3
5.2.2 SB X7-7 2020 COMPLIANCE FORM 5-4
5.2.3 SUBMITTAL TABLES 5-1 AND 5-2 5-4
5.2.4 REGIONAL UWMP/REGIONAL ALLIANCE 5-5
5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPS 5-5
5.3.1 SUPPLIER SUBMITTED 2015 UWMP, NO CHANGE TO SERVICE AREA 5-5
5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE 5-7
5.4.1 SERVICE AREA POPULATION 5-7
5.4.2 GROSS WATER USE 5-8
5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD) 5-10
5.5.1 2020 ADJUSTMENTS FOR FACTORS OUTSIDE OF SUPPLIER'S CONTROL 5-10
5.5.2 SPECIAL SITUATIONS 5-11
5.5.3 IF SUPPLIER DOES NOT MEET 2020 TARGET 5-11
5.6 REGIONAL ALLIANCE 5-12

CHAPTER 6 6-1

WATER SUPPLY CHARACTERIZATION 6-1

6.1 WATER SUPPLY ANALYSIS OVERVIEW 6-3
6.1.1 SPECIFIC ANALYSIS APPLICABLE TO ALL WATER SUPPLY SOURCES 6-4
6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS 6-6

TABLE OF CONTENTS
(Continued)

Page

6.1.3 OPTIONAL PLANNING TOOL 6-7
6.2 NARRATIVE SECTIONS FOR SUPPLIER'S UWMP WATER SUPPLY CHARACTERIZATION 6-8
6.2.1 PURCHASED OR IMPORTED WATER 6-8
6.2.2 GROUNDWATER 6-12
6.2.3 SURFACE WATER 6-41
6.2.4 STORMWATER 6-41
6.2.5 WASTEWATER AND RECYCLED WATER 6-41
6.2.6 DESALINATED WATER OPPORTUNITIES 6-52
6.2.7 WATER EXCHANGES AND TRANSFERS 6-53
6.2.8 FUTURE WATER PROJECTS 6-55
6.2.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER 6-58
6.2.10 SPECIAL CONDITIONS 6-61
6.3 SUBMITTAL TABLES COMPLETION USING THE OPTIONAL PLANNING TOOL 6-62
6.4 ENERGY USE 6-63

CHAPTER 7 7-1

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT 7-1

7.1 INTRODUCTION 7-2
7.2 WATER SERVICE RELIABILITY ASSESSMENT 7-3
7.2.1 SERVICE RELIABILITY - CONSTRAINTS ON WATER SOURCES 7-6
7.2.2 SERVICE RELIABILITY - YEAR TYPE CHARACTERIZATION 7-7
7.2.3 WATER SERVICE RELIABILITY – SUPPLY AND DEMAND COMPARISON 7-9
7.2.4 DESCRIPTION OF MANAGEMENT TOOLS AND OPTIONS 7-13
7.3 DROUGHT RISK ASSESSMENT 7-14
7.3.1 DRA DATA, METHODS, AND BASIS FOR WATER SHORTAGE CONDITIONS 7-15
7.3.2 DRA INDIVIDUAL WATER SOURCE RELIABILITY 7-17
7.3.3 DRA TOTAL WATER SUPPLY AND USE COMPARISON 7-20
7.3.4 OPTIONAL PLANNING TOOL WORKBOOK 7-22

CHAPTER 8 8-1

WATER SHORTAGE CONTINGENCY PLAN 8-1

8.1 WATER SUPPLY RELIABILITY ANALYSIS 8-3
8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES 8-4
8.2.1 DECISION MAKING PROCESS 8-5
8.2.2 DATA AND METHODOLOGIES 8-6
8.3 SIX STANDARD WATER SHORTAGE LEVELS 8-8
8.4 SHORTAGE RESPONSE ACTIONS 8-11
8.4.1 DEMAND REDUCTION 8-11
8.4.2 SUPPLY AUGMENTATION 8-21
8.4.3 OPERATIONAL CHANGES 8-24
8.4.4 ADDITIONAL MANDATORY RESTRICTIONS 8-25

TABLE OF CONTENTS
(Continued)

Page

8.4.5 EMERGENCY RESPONSE PLAN 8-25
8.4.6 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN 8-28
8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS 8-30
8.5 COMMUNICATION PROTOCOLS 8-33
8.6 COMPLIANCE AND ENFORCEMENT 8-33
8.7 LEGAL AUTHORITIES 8-35
8.8 FINANCIAL CONSEQUENCES OF WSCP 8-37
8.9 MONITORING AND REPORTING 8-38
8.10 WSCP REFINEMENT PROCEDURES 8-40
8.11 SPECIAL WATER FEATURE DISTINCTION 8-41
8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY 8-42

CHAPTER 9 9-1

DEMAND MANAGEMENT MEASURES 9-1

9.1 DEMAND MANAGEMENT MEASURES FOR WHOLESALE SUPPLIERS 9-2
9.2 EXISTING DEMAND MANAGEMENT MEASURES FOR RETAIL SUPPLIERS 9-3
9.2.1 WATER WASTE PREVENTION ORDINANCES 9-3
9.2.2 METERING 9-4
9.2.3 CONSERVATION PRICING 9-5
9.2.4 PUBLIC EDUCATION AND OUTREACH 9-6
9.2.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS 9-8
9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT 9-9
9.2.7 OTHER DEMAND MANAGEMENT MEASURES 9-9
9.3 REPORTING IMPLEMENTATION 9-12
9.3.1 IMPLEMENTATION OVER THE PAST FIVE YEARS 9-12
9.3.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS 9-15
9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS) 9-16

CHAPTER 10 10-1

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION 10-1

10.1 INCLUSION OF ALL 2020 DATA 10-2
10.2 NOTICE OF PUBLIC HEARING 10-2
10.2.1 NOTICE TO CITIES AND COUNTIES 10-3
10.2.2 NOTICE TO THE PUBLIC 10-5
10.3 PUBLIC HEARING AND ADOPTION 10-6
10.3.1 PUBLIC HEARING 10-6
10.3.2 ADOPTION 10-7
10.4 PLAN SUBMITTAL 10-7
10.4.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR 10-8
10.4.2 ELECTRONIC DATA SUBMITTAL 10-8

TABLE OF CONTENTS
(Continued)

Page

10.4.3 SUBMITTING A UWMP, INCLUDING WSCP, TO THE CALIFORNIA STATE LIBRARY 10-9
10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES 10-9
10.5 PUBLIC AVAILABILITY 10-10
10.6 NOTIFICATION TO PUBLIC UTILITIES COMMISSION 10-10
10.7 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN 10-11
10.7.1 AMENDING A UWMP 10-11
10.7.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN 10-11

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

Table 2-1	Public Water Systems	2-5
Table 2-2	Plan Identification Type	2-6
Table 2-3	Supplier Identification	2-8
Table 2-4	Water Supplier Information Exchange	2-10
Table 3-1	Population – Current and Projected	3-8
Table 4-1	Demands for Potable and Non-Potable Water - Actual	4-4
Table 4-2	Use for Potable and Non-Potable Water - Projected	4-4
Table 4-3	Total Gross Water Use (Potable and Non-Potable)	4-5
Table 4-4	12 Month Water Loss Audit Report	4-10
Table 4-5	Inclusion in Water Use Projections	4-14
Table 5-1	Baselines and Targets Summary from SB X7-7 Verification Form	5-4
Table 5-2	2020 Compliance from SB X7-7 2020 Compliance Form	5-5
Table 6-1	Groundwater Volume Pumped	6-41
Table 6-2	Wastewater Collected Within Area in 2020	6-45
Table 6-3	Wastewater Treatment and Discharge within Service Area in 2020	6-46
Table 6-4	Current and Projected Recycled Water Direct Beneficial Uses Within Service Area	6-49
Table 6-5	2015 Recycled Water Use Projection Compared to 2020 Actual	6-50
Table 6-6	Methods to Expand Future Recycled Water Use	6-52
Table 6-7	Expected Future Water Supply Projects or Programs	6-57
Table 6-8	Water Supplies - Actual	6-60
Table 6-9	Water Supplies – Projected	6-61
Table 7-1	Basis of Water Year Data (Reliability Assessment)	7-8
Table 7-2	Normal Year Supply and Demand Comparison	7-10
Table 7-3	Single Dry Year Supply and Demand Comparison	7-11
Table 7-4	Multiple Dry Years Supply and Demand Comparison	7-12
Table 7-5	Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b)	7-21
Table 8-1	Water Shortage Contingency Planning Levels	8-9
Table 8-2	Demand Reduction Actions	8-20
Table 8-3	Supply Augmentation and Other Actions	8-24
Table 10-1	Notification to Cities and Counties	10-4

TABLE OF CONTENTS
(Continued)

LIST OF FIGURES

Figure 1 Water Service Area

Figure 2 Water Service Area and City Boundaries

Figure 3 Main San Gabriel Basin Location

Figure 4 Puente Basin Location

Figure 5 Spadra Basin Location

TABLE OF CONTENTS
(Continued)

LIST OF APPENDICES

Appendix A	DWR Standardized Tables
Appendix B	Demonstration of Reduced Imported Water Reliance
Appendix C	Completed Plan Checklist
Appendix D	60 – Day and Public Hearing Notifications
Appendix E	AWWA Water Loss Audit Reports
Appendix F	Climate Change Considerations (CAL-ADAPT Data)
Appendix G	SB X7-7 Verification Form
Appendix H	SB X7-7 2020 Compliance Form
Appendix I	Long Beach Judgment
Appendix J	Amended Main Basin Judgment
Appendix K	Puente Basin Judgment
Appendix L	Ordinance No. 07-16-09
Appendix M	Los Angeles County's "All Hazards Mitigation Plan"
Appendix N	Walnut Valley Water District's "Rules and Regulations Governing Water Consumers"
Appendix O	Water Rates
Appendix P	Resolution Adopting 2020 UWMP and WSCP

TABLE OF CONTENTS
(Continued)

LIST OF ACRONYMS

AB	Assembly Bill
AF	Acre-Feet
AFY	Acre-Feet Per Year
AMI	Advanced Metering Technology
Annual Assessment	Annual Water Supply and Demand Assessment
AWWA	American Water Works Association
BPOU	Baldwin Park Operable Unit
CDWC	California Domestic Water Company
CECs	Constituents of Emerging Concern
Central District	Central Basin Municipal Water District
CIMIS	California Irrigation Management Information System
Corps of Engineers	U.S. Army Corps of Engineers
Court	Superior Court of the State of California for the County of Los Angeles
CPUC	California Public Utilities Commission
CWC	California Water Code
CWEA	Cooperative Water Exchange Agreement
DACs	Disadvantaged Communities
Delta	Sacramento-San Joaquin Delta
District	Walnut Valley Water District
DMMs	Demand Management Measures
DOF	Department of Finance
DPW	Los Angeles County Department of Public Works
DRA	Drought Risk Assessment
DWR	Department of Water Resources
ERP	Emergency Response Plan
ETo	Evapotranspiration
FY	Fiscal Year
GCMs	General Circulation Models
GIS	Geographical Information Systems
GPCD	Gallons Per Capita Per Day
gpm	Gallons Per Minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
JWPCP	Joint Water Pollution Control Plant
Key Well	Baldwin Park Key Well
LACSD	Los Angeles County Sanitation Districts
LARWQCB	Los Angeles Regional Water Quality Control Board
M&I	Municipal and Industrial
Main Basin	Main San Gabriel Basin
MGD	Million gallons per day
MSL	Mean Sea Level
MWD	Metropolitan Water District of Southern California
NCP	National Contingency Plan

TABLE OF CONTENTS
(Continued)

NDMA	N-nitrosodimethylamine
PBWA	Puente Basin Water Agency
OSY	Operating Safe Yield
PCE	Perchloroethylene
PHET	Premium High-Efficiency Toilet
Plan	Urban Water Management Plan
PWRP	Pomona Water Reclamation Plant
RCP	Representative Concentration Pathway
RDA	Water Resource Development Assessment or Supplemental Water Reliability Storage Program
RDA II	Water Resource Development Assessment for Stormwater Augmentation Program or Supplemental Water Stormwater Augmentation Program
RDM	Robust Decision Making
River Watermaster	San Gabriel River Watermaster
ROD	Record of Decision
RRA	Risk and Resilience Assessment
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
SJCWRP	San Jose Creek Water Reclamation Plant
SNMP	San Gabriel Valley Salt and Nutrient Management Plan
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWRCB - DDW	State Water Resources Control Board – Division of Drinking Water
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TVMWD	Three Valleys Municipal Water District
USEPA	U.S. Environmental Protection Agency
Upper District	Upper San Gabriel Valley Municipal Water District
UWMP	Urban Water Management Plan
VOCs	Volatile Organic Compounds
WBIC	Weather-Based Irrigation Controllers
WQA	Water Quality Authority
WRCC	Western Regional Climate Center
WRD	Water Replenishment District of Southern California
WSAP	Water Supply Allocation Plan
WSCP	Water Shortage Contingency Plan
WUCA	Water Utility Climate Alliance
WUE	Water Use Efficiency

TABLE OF CONTENTS
(Continued)

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CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

LAY DESCRIPTION - INTRODUCTION

An urban water supplier is defined (pursuant to Section 10617 of the California Water Code[1]) 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 Walnut Valley Water District (District) is classified as an urban water supplier because it serves more than 3,000 customers (i.e. individual metered accounts) and it supplies more than 3,000 acre-feet of water annually to its customers for municipal purposes.

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

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

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

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

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

The District 2020 Plan consists of the following Chapters:

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

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

LAY DESCRIPTION – CHAPTER 1

URBAN WATER MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

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

- An overall lay description of the 2020 Plan, including California Water Code and Urban Water Management Plan Act requirements, is provided. The District's is required to prepare an Urban Water Management Plan.
- The District's 2020 Plan was prepared consistent with the recommended organization provided in DWR's Final "Urban Water Management Plan Guidebook 2020", dated March 2021. A description regarding the organization of the 2020 Plan, including a summary of each Chapter, is provided. The District's Water Shortage Contingency Plan (discussed in Chapter 8) is also included in the 2020 Plan.
- The 2020 Plan incorporates DWR's water use and supply tables (standardized tables) for the reporting and submittal of UWMP data. These tables are included within the respective sections of the 2020 Plan and in Appendix A.
- The District's coordination efforts with other planning agencies are discussed, including coordination efforts with Three Valley Municipal Water District, planning agencies including the Cities of Diamond Bar, Industry, Pomona, Walnut, and West Covina, the Los Angeles County Department of Regional Planning, and the Southern California Association of Governments
- The District's eligibility to receive grants and loans administered by the State of California and/or DWR, as a result of preparing the 2020 Plan, is discussed.
- Information is provided which demonstrates the District's prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta (Delta). The District has

reduced its reliance on imported water supplies for Fiscal Year 2014-15 and Fiscal Year 2019-2020. In addition, the District is projected to continue reducing its reliance on imported water supplies through Fiscal Year 2044-45.

- The checklist developed by DWR and used by the District to incorporate the specific UWMP requirements is discussed. The completed checklist is provided in Appendix C.

1.1 RECOMMENDED UWMP ORGANIZATION

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

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

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

in Appendix A. The District also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool.

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

1.2 UWMPS IN RELATION TO OTHER EFFORTS

The District's 2020 Plan was prepared in coordination with planning agencies including the Cities of Diamond Bar, Industry, Pomona, Walnut, and West Covina, the Los Angeles County Department of Regional Planning, and the Southern California Association of Governments (SCAG). In addition, the District's 2020 Plan was prepared using management documents including the Los Angeles County's "*2019 County of Los Angeles All-Hazards Mitigation Plan*".

The District is a sub-agency of Three Valleys Municipal Water District, a wholesale water agency. Three Valleys Municipal Water District prepared a 2020 Plan which is incorporated in the District's 2020 Plan by reference. In addition, the District provided its 2020 Plan to Three Valleys Municipal Water District which includes water use projections in five-year increments for a normal year, a single dry year, and a five consecutive year drought over the next 25 years.

1.3 UWMPS 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*."

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

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

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

(c)(1) Water suppliers that have done all of the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

The District has reduced its reliance on imported water supplies for FY 2014-15 and FY 2019-20. In addition, the District is projected to continue reducing its reliance on imported water supplies through FY 2044-45. A further discussion which demonstrates the District's measurable reduction in Delta reliance and improvement in regional self-reliance is provided in Appendix B.

1.5 TIPS FOR UWMP PREPARERS

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

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

CHAPTER 2

PLAN PREPARATION

LAY DESCRIPTION – CHAPTER 2

PLAN PREPARATION

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

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

- The District's notification process to the cities and county within which the District provides water supplies to is discussed.

2.1 PLAN PREPARATION

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

"*The California Water Code (Water Code) specifies several requirements for preparing a UWMP, including who is required to prepare a UWMP; how to prepare a UWMP, depending on whether the Supplier choses to participate in a regional or individual planning effort; selection of reporting year-type; and coordination, notification, and outreach.*"

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

2.2 BASIS FOR PREPARING A PLAN

CWC 10617.

"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CWC 10620.

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10621.

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

The District's 2020 Plan was prepared in accordance with the UWMP Act which was established in 1983. The UWMP Act requires every "urban water supplier" to prepare and adopt a Plan, to 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.

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

2.2.1 PUBLIC WATER SYSTEMS

CWC 10644.

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

California Health and Safety Code 116275.

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

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

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

2.2.2 SUPPLIERS SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

The District serves only a single Public Water System. Table 2-1 provides the District's Public Water System name and number.

Table 2-1 Public Water Systems

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
Add additional rows as needed			
1910234	Walnut Valley Water District	27,103	18,603
	TOTAL	27,103	18,603
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: The "Volume of Water Supplied 2020" includes recycled water supplies of 1,973 AF. Source for "Number of Municipal Connections 2020": https://sdwis.waterboards.ca.gov/PDWW/			

2.3 REGIONAL PLANNING

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

2.4 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

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

District notified and coordinated with appropriate regional agencies and constituents (See Section 2.6).

Table 2-2 Plan Identification Type

Submittal Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* (select from drop down list)
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES:			

2.4.1 REGIONAL UWMP

CWC 10620.

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

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

2.4.2 REGIONAL ALLIANCE

CWC 10608.20.

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

CWC 10608.28.

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

(1) Through an urban wholesale water supplier.

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

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

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

(5) By hydrologic region.

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

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

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

2.5 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

CWC 10608.20.

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

2.5.1 FISCAL OR CALENDAR YEAR

The data provided in the District's 2020 Plan is reported on a fiscal year (FY) basis, unless noted otherwise, as shown in Table 2-3. A fiscal year begins on July 1st of every year and ends June 30th of the following year.

Table 2-3 Supplier Identification

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesaler
☑	Supplier is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables are in calendar years
☑	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
07/01	
Units of measure used in UWMP * (select from drop down)	
Unit	AF
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES:	

2.5.2 REPORTING COMPLETE 2020 DATA

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

2.5.3 UNITS OF MEASURE

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

2.6 COORDINATION AND OUTREACH

CWC 10631.

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

2.6.1 WHOLESALE AND RETAIL COORDINATION

The District is a sub-agency of Three Valleys Municipal Water District, a wholesale agency. As indicated in Table 2-4, the District has provided its 2020 Plan to Three Valleys Municipal Water District which includes water use projections in five-year increments for normal, single dry, and a five consecutive year drought period over the next 25 years.

Table 2-4 Water Supplier Information Exchange

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

2.6.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY

CWC 10620.

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642.

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

The District is a retail water supplier that serves customers in the City of Diamond Bar, and portions of the Cities of Industry, Pomona, Walnut, and West Covina, as well as unincorporated areas of Los Angeles County including Rowland Heights. The District is required to coordinate the preparation of the Plan with appropriate agencies in the area, including appropriate water suppliers that share a common source. Therefore, the District coordinated the preparation of its 2020 Plan with Three Valleys Municipal Water District. As discussed in Section 10.2, the District notified agencies, as well as the cities and

county within which the District provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the 2020 Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

2.6.3 NOTICE TO CITIES AND COUNTIES

CWC 10621.

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

As discussed in Section 10.2, notification was provided to the cities and county within which the District provides water supplies that the 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).

CHAPTER 3

SYSTEM DESCRIPTION

LAY DESCRIPTION – CHAPTER 3

SYSTEM DESCRIPTION

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

- A description of the District's service area is provided. The District's service area is located approximately 20 miles east of the City of Los Angeles in the San Gabriel Valley. The District's service area encompasses an area of approximately 29 square miles and includes approximately 27,100 service connections. This service area covers the City of Diamond Bar and portions of the Cities of Industry, Pomona, Walnut, and West Covina, as well as unincorporated areas of Los Angeles County including Rowland Heights. The District's service area is primarily a residential area with most commercial and industrial uses located within the City of Industry.
- The District's water service area encompasses an area of approximately 29 square miles. The location of the District's water service area is provided in Figure 1.
- A description regarding the District's water service area climate is provided. The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration (ETo) in the vicinity of the District's service area is summarized. The sources of the climate information are also discussed.
- The population within the District's water service area is discussed and projected. The sources of the population information are also discussed. The District provides water service to an area with a current population of 99,956. The District is projected to have a population of 106,038 by FY 2044-45.

- A discussion of land use information used by the District to develop the 2020 Plan is provided. The District reviewed the current and projected land uses within its service area. The District also reviewed data provided by the Southern California Association of Governments, the Department of Finance, and the United States Census Bureau and prepared for counties, cities, and unincorporated areas within Southern California.

3.1 GENERAL DESCRIPTION

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.

The District's service area is located approximately 20 miles east of the City of Los Angeles in the San Gabriel Valley. The District's service area encompasses an area of approximately 29 square miles and includes approximately 27,100 service connections. This service area covers the City of Diamond Bar and portions of the Cities of Industry, Pomona, Walnut, and West Covina, as well as unincorporated areas of Los Angeles County including Rowland Heights. The District's service area is primarily a residential area with most commercial and industrial uses located within the City of Industry.

The District relies on local groundwater and imported surface water sources to meet water demand in its service area. However, local groundwater sources are limited due to adjudication and the District is primarily dependent on surface water from the Colorado River and Northern California that is imported by Metropolitan Water District of Southern California (MWD) through Three Valleys Municipal Water District. In 1955, the District, in collaboration with the City of Pomona and Rowland Water District, constructed a joint pipeline (Joint Water Line) for the purpose of delivering treated imported water to meet water demands within each respective water agency's service area. The Joint Water Line transports potable water from MWD's Weymouth Treatment Plant in La Verne, as well as from Three Valleys Municipal Water District's Miramar Treatment Plant in Claremont to the District's Edmund M. Biederman Terminal Storage Reservoir and Hydroelectric Facilities in the City of Walnut.

The Joint Water Line measures 7.6 miles in length and varies from 42 to 54 inches in diameter. The Joint Water Line served as the District's sole source of water until the completion of the Badillo/Grand Transmission Main in 1993. The Badillo/Grand Transmission Main provides an additional water supply point for treated imported water supply. Because it provides an alternative location to access treated imported water, this 5.5-mile transmission main ensures system reliability during emergency situations including a fire or earthquake. The District also owns and operates a 150-kilowatt hydroelectric plant located at its Joint Water Line connection. The power generated by this plant is sold to Southern California Edison.

In order to minimize its dependence on imported potable water, the District also operates a recycled water system for landscape irrigation including at parks and school grounds, which traditionally placed a significant demand on the District's potable water system. Recycled water is wastewater that has undergone an extensive treatment process and is available for reuse after being tested and certified to ensure that it is safe for irrigation purposes. The District obtains its recycled water from Los Angeles County Sanitation District's Pomona Water Reclamation Plant. The recycled water supply is augmented by

groundwater pumped from the District's recycled water wells. Through this recycled water system, the District can deliver and use an average of 763 million gallons (about 2,340 AF) annually of recycled water.

3.2 SERVICE AREA BOUNDARY MAPS

As discussed in Section 3.1, the District's service area covers approximately 29 square miles encompassing the City of Diamond Bar and portions of the Cities of Industry, Pomona, Walnut, and West Covina, as well as unincorporated areas of Los Angeles County including Rowland Heights. A service area boundary map is provided on Figure 1. The District's water service area boundary relative to vicinity municipal boundaries is also provided on Figure 2.

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

3.3 SERVICE AREA CLIMATE

CWC 10631.

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

CWC 10630.

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

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of the District's service area is summarized in the tabulation below. Historical climate information was obtained from the Western Regional Climate Center (WRCC), Los Angeles County Department of Public Works (DPW), and from DWR's California Irrigation Management Information System (CIMIS).

Service Area Climate Information

Month	Average Temperature (F)	Average Minimum Temperature (F)	Average Maximum Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	51.9	38.5	65.6	3.4	2.0
February	54.2	40.8	67.7	3.5	2.4
March	56.4	42.6	70.3	2.7	3.8
April	59.9	45.9	74.1	1.2	4.6
May	64.0	50.2	77.9	0.4	5.2
June	69.1	53.9	84.3	0.1	6.0
July	74.4	58.0	91.0	0.0	6.6
August	74.7	58.3	91.2	0.1	6.4
September	72.0	55.6	88.6	0.3	4.9
October	65.3	50.2	80.6	0.8	3.5
November	58.1	42.9	73.2	1.5	2.3
December	52.7	38.7	66.5	2.7	1.7
Annual	62.2	47.6	77.4	17.2	49.2

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 047050 (Pomona Fairplex, California) from 1893 through 2017. 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 78 (Pomona).

The historical average rainfall in the vicinity of the District's service area is 17.2 inches. The District's service area in the San Gabriel Valley has a dry climate and summers can reach average maximum daily temperatures in the high 80s to low 90s. Although changes in climatic conditions will have an impact, the projected water supply demands will be based on an average year, a single dry year and a five consecutive year drought, based on historical data and projected demands. Precipitation within the vicinity of the District's service area is discussed further in Section 7.2.

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

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

3.4.1 SERVICE AREA POPULATION

CWC 10631.

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

The District provides water service to an area with a current population of 99,956. Table 3-1 presents the current and projected population of the area encompassed by the District's service area from FY 2019-20 to FY 2044-45. The District is projected to have a population of 106,038 by FY 2044-45.

The District initially reviewed the available historical population within its service area for population growth trends. The District determined historical U.S. Census populations within its service area using DWR's Population Tool (https://wuedata.water.ca.gov/). The District's service area boundary was uploaded to DWR's Population Tool in a "KML" file format (i.e., Google Earth format). The KML file was originally created in a GIS shapefile format and converted into a KML format. The uploaded KML file represents the District's service area boundary from 1990 to present (2020). DWR's Population Tool utilized U.S. Census data from 1990, 2000, and 2010, along with the District's service area boundary, to estimate the population served by the District in the years 1990, 2000, and 2010. The calculated FY 2019-20 population (discussed in Section 5.4) was used to determine

compliance with the District's SB X7-7 water use target for 2020 (discussed in Section 5.5).

Projected populations in the District's service area were based on growth rate projections obtained from data provided by 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.

Table 3-1 Population – Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	99,956	101,187	102,433	103,695	104,860	106,038
NOTES: The DWR Population Tool was used to estimate the 2020 population (See Section 5.4.1). Growth rates obtained from SCAG data were applied to the 2020 population and projected through 2045 (See Section 3.4.1).						

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 the District's water management planning. However, increased population will have an impact on water demand.

3.5 LAND USES WITHIN SERVICE AREA

CWC 10631.

(a) 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.

The District reviewed the current and projected land uses within its service area during the preparation of this 2020 Plan. Information regarding current and projected land uses is included in the City of Diamond Bar's General Plan 2040. The existing land uses within the District's service area include residential (single-family and multi-family), commercial, industrial, institutional, and open space. The projected land uses within the District's service area is expected to remain similar to the existing land uses. In addition, although mostly built-out, the projected population within the District's service area is anticipated to increase (as discussed in Section 3.4). A discussion of the existing and projected water uses for the individual water use sectors within the District's service area, which includes the different land uses, is provided in Section 4.2. As discussed in Section 2.6, the District coordinated the preparation of the 2020 Plan with the Cities of Diamond Bar, Industry, Walnut, West Covina, the County of Los Angeles, and other agencies.

As discussed in Section 3.4, the District 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 the 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.

CHAPTER 4

WATER USE CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 4

WATER USE CHARACTERIZATION

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

- The District provides water service to individual "water use sectors". These water use sectors include single-family residential, multi-family, commercial, and institutional (and governmental), and industrial. Individual descriptions for these water use sectors are provided in Section 4.2.1.
- The District's total water demands (including potable and recycled water) over the past 10 years have ranged from 21,183 AFY to 29,886 AFY, with an average of 22,916 AFY. The District currently measures its water use through meter data and billing records.
- The District conducts an annual water loss audit to identify distribution system water losses. Water losses can result from pipeline leaks and inaccurate metering due to faulty meters. Water loss estimates are incorporated into the District's projected water demands.
- The District's current and projected water demands are provided in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 4-3.
- The District's water demand projections incorporate water savings which are the result of implementation of new plumbing codes along with consumer awareness of the need to conserve water.

- The projected water demands for lower income households are identified and are included in the District's total projected water demands.
- The District's sources of water supply and how those sources may be impacted by climate change are discussed. The proactive actions the District and other local/regional water managers may take to address the potential climate change impacts on water supplies are also discussed.
- The District will be able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.1 NON-POTABLE VERSUS POTABLE WATER USE

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

4.2 PAST, CURRENT, AND PROJECTED WATER USES BY SECTOR

CWC 10635.

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

CWC 10631.

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

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

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

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

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

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

The District provides water service to individual "water use sectors" as identified by the California Water Code. The water use sectors supplied by the District are discussed in Section 4.2.1. The water use for each of these sectors during FY 2019-20 is provided in Table 4-1. The projected water use for each individual water use sector is provided in Table 4-2 and is based on the percentage breakdown of water use from each individual water use sector in FY 2019-20 (the percentages were then applied to the projected total water use).

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

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	11,387
Multi-Family		Drinking Water	1,685
Commercial		Drinking Water	1,687
Industrial		Drinking Water	247
Institutional/Governmental		Drinking Water	658
Losses		Drinking Water	949
Other	Construction	Drinking Water	17
		TOTAL	16,630

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

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

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

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type	Additional Description (as needed)	Projected Water Use[2] *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		12,108	12,256	12,408	12,547	12,688
Multi-Family		1,792	1,814	1,836	1,857	1,877
Commercial		1,794	1,816	1,838	1,859	1,880
Industrial		263	266	269	272	275
Institutional/Governmental		700	708	717	725	733
Losses		1,009	1,021	1,034	1,045	1,057
Other		18	18	19	19	19
	TOTAL	17,684	17,899	18,121	18,324	18,529

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

NOTES:

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

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	16,630	17,684	17,899	18,121	18,324	18,529
Recycled Water Demand[1] *From Table 6-4*	1,973	3,489	3,532	3,575	3,619	3,664
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	18,603	21,173	21,431	21,696	21,943	22,193
[1] Recycled water demand fields will be blank until Table 6-4 is complete *[2] Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*						
NOTES:						

4.2.1 WATER USE SECTORS LISTED IN WATER CODE

CWC 10631.

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

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

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

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

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

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

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

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

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

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

The 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 the District uses to meet its water demands. Section 6.1 provides a tabulation of the District's historical annual water demands for each water supply source. Over the past ten years, the District's total water demands (including potable and recycled water) have ranged from 21,183 AFY to 29,886 AFY, with an average of 22,916 AFY. In addition, the District recently experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. The District reviewed its historical water demands to determine the projected water demands and water supply reliability (discussed in Chapter 7). The District is able to provide sufficient water supplies to meet the projected water demands of its customers, including during a five consecutive year drought period.

4.2.4 DISTRIBUTION SYSTEM WATER LOSS

CWC 10631.

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

(J) Distribution system water loss.

CWC 10631.

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

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

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

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

The California Water Code Section 10608.34 requires “On or before October 1, 2017, and on or before October 1 of each year thereafter, each urban retail water supplier shall submit a completed and validated water loss audit report for the previous calendar year or the previous fiscal year...” The water loss audits must follow American Water Works Association (AWWA) guidance and be validated by a certified water audit validator. The District has completed the annual water loss audit process through October 1, 2020, as required by the California Water Code (i.e., the District has completed water loss audits

representing calendar years 2016, 2017, 2018, and 2019). The District's water loss audits were prepared and validated pursuant to DWR requirements. The annual water loss audit reports submitted by retail water agencies in California, including the District (provided in Appendix E), are available on DWR's website (https://wuedata.water.ca.gov/awwa_plans).

The District's annual water loss audits identify real water losses (e.g., leaks and main failures) and apparent water losses (e.g., customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption). The District's distribution system water losses are based on the sum of the real and apparent water losses and are summarized in Table 4-4 for the past five years. Over the past five years, the District's average distribution system water losses represent approximately 3.9 percent of its total water demands. This average water loss factor was incorporated into the District's total potable water demand projections (Tables 4-2 and 4-3).

Table 4-4 12 Month Water Loss Audit Report

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
07/2015	871
07/2016	1,083
07/2017	1,017
07/2018	822
07/2019	949
[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.* [2] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: TThe "Volume of Water Loss" quantities for FY 2016-17 through FY 2018-19 were obtained from the annual AWWA Water Loss Audits (and based on the combination of apparent losses and real losses). Because the AWWA water loss audits were reported on a calendar year basis, half of the water loss during each calendar year was applied to the water losses for the corresponding fiscal year (to estimate the water losses for the entire fiscal year), pursuant to direction from DWR staff. The AWWA Water Loss Audit for calendar year 2020 will be prepared by October 2021. The "Volume of Water Loss" quantities for FY 2015-16 and for FY 2019-20 were estimated based on metered water production less metered water deliveries to customers.	

The California Water Code Section 10608.34 directs the SWRCB to "adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses." Pursuant to this law, and as discussed above, urban retail water suppliers (including the District) have been submitting water loss audits to DWR annually since October 2017. Pursuant to Assembly Bill (AB) 1668 and (SB) Senate Bill 606, urban retail water suppliers are required to calculate an "urban water use objective" that includes indoor, outdoor, commercial, industrial and institutional irrigation uses and allowed system water loss by the year 2024. In addition, by calendar year 2028, urban retail water suppliers are required to comply with individual volumetric standards (based on an

economic model) for leak detection and repair actions. The goal of the proposed water loss standards is to reduce collective water losses throughout California by approximately 40 percent. The District will continue to develop its water loss standard and urban water use objective pursuant to SWRCB requirements.

4.2.5 CURRENT WATER USE

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

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

4.2.6 PROJECTED WATER USE

CWC 10635.

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

CWC 10631.

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

CWC 10631.

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

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

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

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

drought are provided in Chapter 7. The projected water demands for each of the District's water use sectors are provided in Table 4-2.

The District's water demands were projected based on a review of the SB X7-7 calculations discussed in Chapter 5 (including the SB X7-7 water use target for 2020), existing water use factors based on recent water demands, and the total population projections based on land use trends within the District. The projected water demands for the water use sectors were based on the percentage breakdown of water demands from each individual water use sector in FY 2019-20 (the percentages were then applied to the projected total water demands). A discussion of the District's water supplies from Three Valleys Municipal Water District, a wholesaler, are discussed in Section 6.2. As discussed in Section 2.6, the District has coordinated its water demand projections with Three Valleys Municipal Water District for each water use sector.

The District's water demand projections 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. The District's "Rules and Regulations Governing Water Consumers" (Rules and Regulations) updated in June 2017 by Ordinance No. 07-16-09, (discussed in Section 9.2), includes methods for current and ongoing reduction in water use and water waste. Prior to adoption of Ordinance No. 07-16-09, the District's water use rate ranged from approximately 199 gallons per capita day to 221 gallons per capita day (from 1999 through 2008). As identified in Section 5.5, the District's actual water use rate during FY 2019-20 was 149 gallons per capita per day which is a decrease of up to 72 gallons per capita per day from the recent historical water use and includes passive savings. The District's projected water demands, incorporate water use targets less than its established SB X7-7 water use target for 2020 and incorporate ongoing water passive savings and reduced water use. As indicated in Table 4-5, estimated future water savings have been considered as part of the District's water use projections.

Table 4-5 Inclusion in Water Use Projections

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	Section 4.2.6 and Chapter 8
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	

4.2.7 CHARACTERISTIC FIVE-YEAR WATER USE

CWC 10635.

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

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

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

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

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

4.3 WORKSHEETS AND REPORTING TABLES

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

4.3.1 OPTIONAL PLANNING TOOL USE ANALYSIS WORKSHEET

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

4.3.2 DWR 2020 UWMP SUBMITTAL TABLES

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

4.4 WATER USE FOR LOWER INCOME HOUSEHOLDS

CWC 10631.1.

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

California Health and Safety Code 50079.5.

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

The District water demands projections provided in Table 4-3 include projected water demands for lower income single-family and multi-family households. A lower income household is defined as a household with an income less than 80 percent of the area median income, adjusted for family size. For the purpose of this evaluation the entire Los Angeles County was used for the "area median income". The total number of lower

income households within the District's service area was estimated based on billing records provided by the District, a review of the City of Diamond Bar's Community Plan 2040, a review of median household income range statistics provided by the US Census Bureau (https://data.census.gov/cedsci/), and a review of GIS maps of Disadvantaged Communities[2] (DACs), including block groups, tracts, and places, provided by DWR. The estimated number of lower income households located within the District's service area is approximately 28.4 percent of the total number of households. As indicted in Table 4-2, the total projected residential (single family and multi-family) water demands within the District in 2045 is estimated at about 11,779 AFY. Based on a 28.4 percent use factor of total residential water demands, the projected water demand for lower income households will be about 3,351 AFY by the FY 2044-2045. The projected water demands for lower income households were included in the District's total projected water demands, as indicated in Table 4-5.

4.5 CLIMATE CHANGE CONSIDERATIONS

CWC 10630.

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

CWC 10635.

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

[2] GIS information for DACs is based on data from the US Census showing census block groups, tracts, and places identified as disadvantaged communities (less than 80 percent of the State's median household income) or severely disadvantaged communities (less than 60 percent of the State's median household income)

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[3]". 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 the District's sources of water supply, management practices associated with those sources, and the long-term reliability of those sources. Section 7.3 includes a Drought Risk Assessment which considers the potential impacts of climate change to the District's water supply sources. Chapter 8 provides a detailed discussion of the District's Water Shortage Contingency Plan, including but not limited to, the six standard water shortage levels in the event climate change results in a reduction to water supplies associated with a periodic drought condition. The following is a discussion of the District's sources of supply, how those sources may be impacted by climate change, and the proactive actions the District and other local/regional water managers may take to address the potential climate change impacts on water supplies.

[3] www.merriam-webster.com

Imported Water Supplies

The District receives treated imported water as discussed in Section 6.2.1 and relies on the Main San Gabriel Basin (Main Basin) Watermaster to manage the groundwater supplies of the Main Basin which it purchases from California Domestic Water Company. Consequently, the District directly and/or indirectly relies on the Metropolitan Water District of Southern California for those imported water supplies. MWD has prepared a Regional 2020 Urban Water Management Plan which includes a discussion (Section 2.6 in MWD's 2020 UWMP) of the reliability of its water supplies and the impacts of climate change and is incorporated by reference in this Plan. Furthermore, the District is a sub-agency of the Three Valleys Municipal Water District which has also provided a discussion of climate change considerations and that discussion is included by reference. The following is a brief summary of MWD's efforts:

Resource Planning

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

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

Knowledge Sharing and Research Support

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

adaptation. WUCA has also released numerous research papers on climate change.

Implementation of Programs and Policies

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

Groundwater Supplies – Main San Gabriel Basin

The District relies on groundwater produced from the Main San Gabriel Basin as discussed in Section 6.2.2. 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), the District has used climate tools available on the California Energy Commission's Cal-Adapt website (https://cal-adapt.org/) \to identify potential future climate change cycles for the 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 the District's climate change analysis, the RCP 4.5 scenario was selected.

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

The climate tools available on the Cal-Adapt website were 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 F), the average annual rainfall in the Main Basin is projected to be 20.06 inches over the next 25 years (through 2045), compared to a 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 Main Basin Watermaster has taken (and may reinstate as needed) the following proactive actions to anticipate and circumvent the potential impacts of climate change. These actions will enable the District to rely on the Main Basin as a reliable source of supply.

Judgment Amendments

Since FY 2011-12 the Main Basin 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 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 MWD 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 (RDA II) 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 RDA II 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 RDA II 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 RDA II funds to purchase untreated imported water to replenish the Basin for the "general benefit" of all Producers within the Main Basin. The RDA II 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 RDA II 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 an MWD Letter Agreement which includes Upper District and Three Valleys District. This pre-delivered MWD water is purchased out of MWD'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.

Groundwater Supplies – Puente Basin

The District uses groundwater produced from the Puente Basin as noted in Section 6.2.2. Recognizing there is no means to replenish the Puente Basin (other than deep percolation of precipitation, plus subsurface inflow/outflow) the potential impacts of climate change on the Puente Basin groundwater supplies are less pronounced. As a subbasin to the San Gabriel Valley Basin (Basin Number 4-13 pursuant to DWR Bulletin 118), the Puente Basin has been identified by DWR as a very low-priority groundwater basin partially due to the fact it is adjudicated. In that regard, the Puente Basin is actively managed by the Puente Basin Watermaster and those management activities are described in detail in Section 6.2.2.

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

To address the uncertainty in future greenhouse gas emissions, Cal-Adapt has developed a RCP 4.5 scenario and a RCP 8.5 scenario. RCP 4.5 represents a scenario in which

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

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

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

Based on the data generated by the Cal-Adapt simulations (see Appendix F), the average annual rainfall in the Puente Basin is projected be 17.58 inches over the next 25 years (through 2045), compared to a historical average of 16.21 inches (from 1950 through 2019). In addition, the average maximum temperature is projected to be 81.6 degrees Fahrenheit compared to a historical average of 78.2 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. The simulation does not denote the duration or intensity of the storms contributing to the annual precipitation. Notwithstanding, the Puente Basin does not have any groundwater replenishment facilities and all replenishment is from deep percolation of precipitation, plus subsurface inflow/outflow. Consequently, increased precipitation may not have long term benefits to the Puente Basin.

Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, the Puente Basin Watermaster has taken (and may reinstate as needed) the following proactive actions to anticipate and circumvent the potential impacts of climate change. These actions will enable the District to rely on the Puente Basin as a reliable source of supply recognizing the potential impact due to climate change.

Adjusted Operating Safe Yield

The adjudicated water rights in the Puente Basin are 4,400 AF. Through adoption of an annual Operating Safe Yield, the Puente Basin Watermaster has the ability to reduce the amount of water rights available to Producers before they must cease production and shift to more expensive imported water. The Operating Safe Yield has recently been adjusted to 2,506 AF which is about 57 percent of the adjudicated total.

Groundwater Supplies – Spadra Basin

The District uses groundwater produced from the Spadra Basin as noted in Section 6.2.2 of this Plan. Recognizing there is no means to replenish the Spadra Basin (other than deep percolation of precipitation, plus subsurface inflow/outflow) the potential impacts of climate change on the Spadra Basin groundwater supplies are less pronounced. As a subbasin to the San Gabriel Valley Basin (Basin Number 4-13 pursuant to DWR Bulletin 118), the Spadra Basin has been identified by DWR as a very low-priority groundwater basin. Although not adjudicated, a Ground Water Sustainability Plan (GSP) is being prepared for the Spadra Basin to address the requirements of the Sustainable Groundwater Management Act and those management activities are described in detail in Section 6.2.2.

Nonetheless, the District has used climate tools available on the California' Energy Commission's Cal-Adapt website (https://cal-adapt.org/) to identify potential future climate

change cycles for the Spadra Basin. The Cal-Adapt website has been developed by the Geospatial Innovation Facility at the University of California, Berkeley with funding and advisory oversight by the California Energy Commission and California Strategic Growth Council.

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

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

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

Based on the data generated by the Cal-Adapt simulations (see Appendix F), the average annual rainfall in the Spadra Basin is projected to be 18.73 inches over the next 25 years (through 2045), compared to a historical average of 16.99 inches (from 1950 through 2019). In addition, the average maximum temperature is projected to be 81.9 degrees

Fahrenheit compared to a historical average of 78.4 degrees Fahrenheit. Although there may be more precipitation in the future, it may be more likely to fall as rainfall compared to snowfall. Notwithstanding, the Spadra Basin does not have any groundwater replenishment facilities and all replenishment is from deep percolation of precipitation, plus subsurface inflow/outflow. Consequently, increased precipitation may have long term benefits to the Spadra Basin. The simulation does not denote the duration or intensity of the storms contributing to the annual precipitation.

Recognizing these potential impacts to local hydrology resulting from climate change and the resultant impacts to the groundwater supplies, the Spadra Basin producers are developing response actions as part of a Groundwater Sustainability Plan (pursuant to the Sustainable Groundwater Management Act), which has not been completed as of the preparation of this Plan. In addition, Spadra Basin producers have an alternative source of water supply.

CHAPTER 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

LAY DESCRIPTION – CHAPTER 5

SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

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

- The Water Conservation Act of 2009 (or SB X7-7) required the State of California achieve a 20 percent reduction in urban water use by the year 2020.
- SB X7-7 required urban water suppliers, including the District, to develop a "2020 Water Use Target" to assist the State of California to achieve the 20 percent reduction. The 2020 Water Use Target represents the amount of water each person should use per day (i.e. gallons per capita per day or GPCD) by the year 2020.
- The District previously determined its 2020 Water Use Target during the preparation of its 2015 Plan by completing standardized tables (or the SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009. The District's SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G. The District's 2020 Water Use Target is 169 GPCD.
- The District's 2020 Plan incorporates the 2020 Water Use Target and determines compliance based on actual water use.
- The population within the City's service area during Fiscal Year 2019-20 is estimated at 99,956. The District's population was estimated using the California Department of Water Resources' online "Population Tool" which incorporates

United States Census data in a Geographic Information Systems (or GIS) format to estimate the population within the District's service area.

- The District's "gross water" use represents the total volume of water entering its distribution system from its water supply sources. The District's gross water use excludes recycled water deliveries or water conveyed to another supplier. The District's annual gross water during Fiscal Year 2019-20 was 16,630 AF.
- The District's per-capita water use is based on the gross water use divided by the population. The District's per-capita water use during Fiscal Year 2019-20 was 149 GPCD. The District's confirmed 2020 Water Use Target is 169 GPCD. The District's per-capita water use during Fiscal Year 2019-20 meets the 2020 Water Use Target.
- The District has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.1 GUIDANCE FOR WHOLESALE SUPPLIERS

CWC 10608.12.

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

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

5.2 SB X7-7 FORMS AND SUMMARY TABLES

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

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

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

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

The District's service area has not changed (i.e. expansion or contraction) since the 2015 Plan was prepared. The District's 2020 Plan incorporates the Baseline water uses and

2020 Water Use Target calculated in the 2015 Plan. The District previously prepared standardized tables (SB X7-7 Verification Form) to demonstrate compliance with the Water Conservation Act of 2009 in its 2015 Plan, including compliance with the District's 2015 Interim Water Use Target. The District's SB X7-7 Verification Form has not been modified and is included as part of this 2020 Plan as Appendix G.

5.2.2 SB X7-7 2020 COMPLIANCE FORM

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

5.2.3 SUBMITTAL TABLES 5-1 AND 5-2

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

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

Submittal Table 5-1 Baselines and Targets Summary From SB X7-7 Verification Form *Retail Supplier or Regional Alliance Only*				
Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*1998*	*2008*	*211*	*169*
5 Year	*2003*	*2007*	*209*	
**All cells in this table should be populated manually from the supplier's SBX7-7 Verification Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

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

Submittal Table 5-2: 2020 Compliance From SB X7-7 2020 Compliance Form *Retail Supplier or Regional Alliance Only*				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*		
149	*0*	*149*	*169*	*Y*
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

5.2.4 REGIONAL UWMP/REGIONAL ALLIANCE

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

5.3 BASELINE AND TARGET CALCULATIONS FOR 2020 UWMPS

5.3.1 SUPPLIER SUBMITTED 2015 UWMP, NO CHANGE TO SERVICE AREA

The general requirements associated with determining the Baseline periods, Baseline water uses, and 2020 Water Use Target were previously provided by DWR. Based on the requirements, the District calculated the Baseline water uses and 2020 Water Use Target in its 2015 Plan. The District's service area has not changed (i.e. expansion or

contraction) since the 2015 Plan was prepared. The District's 2020 Plan incorporates the Baseline water uses and 2020 Water Use Target calculated in the 2015 Plan. The District's SB X7-7 Verification Form is included in Appendix G.

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

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

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

The District's calculated 2020 Water Use Target was compared with the 95 percent of the average water use within the 5-year Baseline to determine whether any adjustments were required. The District confirmed 2020 Water Use Target is 169 GPCD and is summarized in Table 5-1.

5.4 METHODS FOR CALCULATING POPULATION AND GROSS WATER USE

5.4.1 SERVICE AREA POPULATION

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

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

CWC 10644.

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

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

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

DWR's Population Tool was also used to estimate the 2020 population within the District's service area. The total number of service connections within the District's service area (including residential, commercial, and industrial connections) in the years 2010 and 2020 were entered into the Population Tool. Based on the historical U.S. Census populations (from 1990, 2000, and 2010) and available data regarding total service connections for those corresponding years, DWR's Population Tool estimated the population within the District's service area for FY 2019-20 (using the service connection data for FY 2019-20) to be 99,956. The FY 2019-20 population is consistent with the historical population growth trends. The District's FY 2019-20 population is presented in Table 3 of the SB X7-7 2020 Compliance Form.

5.4.2 GROSS WATER USE

CWC 10608.12.

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

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

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

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

Gross water use represents the total volume of water entering a distribution system (but excludes recycled water deliveries, water placed into long term storage, water conveyed to another supplier, water delivered for agricultural use, and process water if there is a substantial percentage used for industrial purposes) over a 12-month period. The District's annual gross water use amounts are based on the total amount of water entering the District's distribution system from its water supply sources (including purchased imported water). The annual gross water use by the District during FY 2019-20 was 16,630 AF.

The annual gross water use amounts within the District for each year of the Baseline periods (discussed in Section 5.2) are provided in SB X7-7 Verification Form, Table 4 (Appendix G). A further discussion of the Baseline periods is provided in Section 5.2.

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

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

5.5 2020 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

CWC 10608.12.

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

CWC 10608.20.

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

As discussed in Section 5.4.2, the annual gross water use by the District during FY 2019-20 was 16,630 AF. As discussed in Section 5.4.1, the estimated population within the District's service area for FY 2019-20 is 99,956. As a result, the District's per-capita water use during FY 2019-20 was 149 GPCD. As discussed in Section 5.3, the District's confirmed 2020 Water Use Target is 169 GPCD. The District's per-capita water use during FY 2019-20 meets the 2020 Water Use Target and is in compliance. The District has also demonstrated compliance with the 2020 Water Use Target by completing the SB X7-7 2020 Compliance Form (provided in Appendix H).

5.5.1 2020 ADJUSTMENTS FOR FACTORS OUTSIDE OF SUPPLIER'S CONTROL

CWC 10608.24.

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

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

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

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

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

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

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

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

5.5.2 SPECIAL SITUATIONS

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

5.5.3 IF SUPPLIER DOES NOT MEET 2020 TARGET

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

5.6 REGIONAL ALLIANCE

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

CHAPTER 6

WATER SUPPLY CHARACTERIZATION

LAY DESCRIPTION – CHAPTER 6

WATER SUPPLY CHARACTERIZATION

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

- The District's water supply sources include treated and untreated imported surface water purchased from Metropolitan Water District of Southern California through Three Valleys Municipal Water District and recycled water supplies (from recycled water purchased from the Los Angeles County Sanitation Districts and from groundwater pumped from the Puente Basin and Spadra Basin).
- The District's main source of water supply is treated imported surface water purchased from Metropolitan Water District of Southern California through Three Valleys Municipal Water District.
- A tabulation of the District historical water supplies is provided in Section 6.1.
- A discussion regarding the District's imported water supplies from Three Valley Municipal Water District is provided. Information regarding imported water connections, capacities, reliability, and historical production is provided.
- A discussion regarding the District's groundwater supplies from the Main Basin, Puente Basin, and Spadra Basin is provided. Information regarding basin location, adjudication, management, water levels, water quality, water rights, and historical production is provided.
- A discussion regarding the District's recycled water supplies is provided. The District's recycled water supplies are produced by Los Angeles County Sanitation

Districts. The District uses recycled water for industrial, landscape irrigation, and construction customers.

- The District's proposed future projects to maximize its water supply resources are discussed.
- The District's "energy intensity" is discussed and represents the quantity of energy consumed, measured in kilowatt hours, divided by the volume of water, measured in acre-feet over a one-year period. The total energy intensity associated with the District's water management processes was estimated during FY 2019-20.

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

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

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

6.1 WATER SUPPLY ANALYSIS OVERVIEW

CWC 10631.

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

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

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

(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).

The District's water supply sources include treated and untreated, imported surface water purchased from Metropolitan Water District of Southern California through Three Valleys Municipal Water District and recycled water supplies (from recycled water purchased from the Los Angeles County Sanitation Districts and from groundwater pumped from the Puente Basin and Spadra Basin). The District will also begin purchasing treated groundwater from the Main Basin produced by California Domestic Water Company. The

District's main source of water supply is treated imported surface water. A tabulation of the District's historical water supplies is provided below.

Fiscal Year	System Water Supply Sources (AF)						Total
	Potable Water	Recycled Water					
	Purchased Water (Imported Water)	Reservoir	Spadra Basin Groundwater	Puente Basin Groundwater	Recycled Water (Pomona Water Reclamation Plant)	Subtotal	
2010-11	19,422	2	78	533	1,176	1,789	21,211
2011-12	20,361	0	86	645	1,250	1,981	22,342
2012-13	20,741	0	108	703	1,457	2,268	23,008
2013-14	21,139	6	101	905	1,473	2,486	23,625
2014-15	18,669	5	41	856	1,588	2,489	21,158
2015-16	15,905	3	50	803	1,170	2,025	17,930
2016-17	17,197	1	55	871	1,259	2,185	19,382
2017-18	18,485	0	57	1,300	1,201	2,558	21,043
2018-19	16,275	2	67	892	937	1,897	18,173
2019-20	16,630	0	55	667	1,251	1,973	18,603

Note: Purchased water excludes water wheeled through the District's system

Source: Data provided by the District

6.1.1 SPECIFIC ANALYSIS APPLICABLE TO ALL WATER SUPPLY SOURCES

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

- The District's existing and planned sources of water supply are identified;
- Each source of supply is quantified in five-year increments through FY 2044-45;
- The anticipated supply availability under normal, single dry, and five consecutive dry years, and any other water year conditions included in the Drought Risk Assessment (see Chapter 7) are described;

- The management of each water supply in correlation with other identified supplies is described.
- Information pertinent to the reliability analysis, including climate change effects, is considered.

The District historically has relied on treated, imported surface water purchased from MWD through Three Valleys Municipal Water District and recycled water supplies (from recycled water purchased from the Los Angeles County Sanitation Districts and from groundwater pumped from the Puente Basin and Spadra Basin). The following descriptions summarize the District's sources of supply (detailed descriptions are provided in Section 6.2).

Existing and Planned Sources of Supply

Purchased Treated Imported Water

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

Groundwater

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

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

Surface Water

The District does not use surface water supplies to meet its water demands.

Storm Water

The District has historically received groundwater from the Puente Basin and Spadra Basin. Management and use of the stormwater runoff from the groundwater basin watersheds is crucial to groundwater management. However, the District currently does not have its own program to beneficially use stormwater runoff as a direct source of supply.

Wastewater and Recycled Water

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

6.1.2 OTHER CHARACTERIZATION CONSIDERATIONS

A description of the District's water system along with a map of its service area is included in Chapter 3. In addition, the agencies which manage the water supplies used by the City

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

6.2 NARRATIVE SECTIONS FOR SUPPLIER'S UWMP WATER SUPPLY CHARACTERIZATION

6.2.1 PURCHASED OR IMPORTED WATER

THREE VALLEYS MUNICIPAL WATER DISTRICT

The District purchases treated, imported water from Metropolitan Water District of Southern California through Three Valleys Municipal Water District (TVMWD). MWD imports water from the Colorado River through the Colorado River Aqueduct, owned and operated by MWD, and the State Water Project, which utilizes the California Aqueduct for transmission to Southern California. Water delivered to TVMWD's sub-agencies can be treated at MWD's Weymouth Treatment Plant located in the City of La Verne. Water can also be treated by TVMWD at its Miramar Water Treatment Plant located in the City of Claremont.

TVMWD uses a tiered rate structure for water sales to its sub-agencies, including the District. TVMWD allocates each sub-agency a specific quantity of imported water at the Tier 1 water rate for the calendar year. Any water purchases in excess of the Tier 1 allocation may incur Tier 2 rates. During Calendar Year 2020, the District had a Tier 1 allocation of 26,057 AFY from TVMWD.

The District can purchase treated, imported water directly from its PM-10 (15 cubic feet per second capacity), PM-12 (4 cubic feet per second capacity), and PM-24 (75 cubic feet per second capacity) connections. Treated water can also be distributed through the Pomona-Walnut-Rowland Joint Water Line (JWL). The JWL provides treated water to the District, City of Pomona, and Rowland Water District. The District's treated, imported water purchases from TVMWD over the past five years have been tabulated in Section 6.1. Over the past five years, the District purchased 19,011 AFY to 20,564 AFY, with an average of 19,660 AFY from TVMWD. The District's projected purchases of treated,

imported water from TVMWD, over the next 25 years in five-year increments, is provided in Table 6-9.

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

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

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

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction

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

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

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

Purchased Water from California Domestic Water Company

The District can purchase treated groundwater produced by California Domestic Water Company. The District and Rowland Water District (through the Puente Basin Water Agency) entered into a "Water Storage and Export Agreement" with California Domestic Water Company in July 2015. The agreement allows for the delivery of up to

approximately 5,000 AFY of potable water from the Main San Gabriel Basin to the District and Rowland Water District. Pursuant to the agreement, California Domestic Water Company began delivering water to Rowland Water District during FY 2016-17. In order to maximize production, the Pathfinder Pipeline was constructed and will enable the transmission of water from California Domestic Water Company into the District's distribution system. Although the District does not directly pump from the Main Basin for potable supplies, a discussion regarding groundwater supplies from the Main Basin is provided in Section 6.2.2.

Because the Pathfinder Pipeline was only recently constructed, the District has not purchased water (treated Main Basin groundwater) from California Domestic Water Company over the past five years. However, the District's projected purchases of water from the California Domestic Water Company, over the next 25 years in five-year increments, are provided in Table 6-9.

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.

MAIN SAN GABRIEL BASIN

Main Basin - Sustainable Groundwater Management Act

The Main San Gabriel 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 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.

Main Basin - Adjudication

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 Valley Water Company 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 I. 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 San Gabriel Valley Municipal Water District (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 J.

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 Upper District and the San Gabriel Valley Municipal Water District (SGVMWD), 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.

Main 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, SGVMWD, and 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 freshwater 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[4] 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.

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).

[4] 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.

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.

Main Basin – 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 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 MWD. SGVMWD 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.

Groundwater Management Plan

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: River Watermaster[5] and Main Basin Watermaster[6].

The following sections provide a description of the two Judgments and the Five-Year Water Quality and Supply Plan that make up the groundwater management plan for the Main Basin. In addition, this section describes Upper District's and San Gabriel Basin Water Quality Authority's (WQA) policies to promote groundwater basin clean-up.

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.

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[5] 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.
[6] Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., Los Angeles County Case No. 924128, Judgment entered January 4, 1973.

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 MWD and Upper District, which permits MWD 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 TVMWD and permits TVMWD to deliver and store up to 50,000 acre-feet for future Replacement Water use. The third is with SGVMWD and permits SGVMWD to deliver and store up to 50,000 acre-feet for future Replacement Water use.

Imported Makeup Water has been delivered to lined stream channels and conveyed to the Lower Area. Makeup 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 Makeup Water Obligation when the amount of Makeup 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 Makeup 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.

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 Los Angeles Regional Water Quality Control Board. 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. Total Dissolved Solids (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 TDS 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 fiscal year 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 fiscal year 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 (RDA II) described below.

Supplemental Water Stormwater Augmentation Program (RDA II)

The Water Resource Development Assessment for Stormwater Augmentation Program (RDA II) 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 RDA II Program is intended to purchase imported replenishment water (when available), for stormwater augmentation, to maintain the 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 RDA II 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 RDA II 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 RDA II 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.

MWD Letter Agreement

In 2017, Main Basin Watermaster and Upper District negotiated the pre-delivery of 80,000 acre-feet of imported replenishment water from MWD (Letter Agreement). All 80,000 acre-feet was to be stored in MWD's cyclic storage account. This pre-delivered MWD water would be paid for over a 5-year payment schedule (starting in December of fiscal year 2017-18), by the Watermaster, using annual Replacement Water assessments, RDA funds within Upper District and TVMWD (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 MWD Letter Agreement was developed. Under the extension, MWD 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 MWD, through Upper District and TVMWD.

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[7] -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

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

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:*
   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 MWD imported replenishment water by Watermaster, and subsequently transferred by MWD to Upper District and TVMWD, the above policy/criteria has been superseded by this delivery of imported water to supplement local rainfall and runoff replenishment.

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[8], 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 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;

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

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 (including California Domestic Water Company, or CDWC) 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. As a party to the Main Basin Judgment, CDWC 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 basin-wide 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 clean up;

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.

Main Basin – Historical and Projected Basin Production

The District can purchase treated groundwater from the Main Basin produced by California Domestic Water Company. California Domestic Water Company's share of the Operating Safe Yield is 6.25547 percent. Over the past five years, the District has not purchased any treated groundwater from the Main Basin produced by California Domestic Water Company. As discussed in Section 6.2.1, Walnut Valley Water District and Rowland Water District (through the Puente Basin Water Agency) entered into a "Water Storage and Export Agreement" with the Main San Gabriel Basin Watermaster in July 2015. The agreement allows for the delivery of up to approximately 5,000 AFY of potable water from the Main San Gabriel Basin to Walnut Valley Water District and Rowland Water District. The District's projected purchases of groundwater from the Main Basin, over the next 25 years in five-year increments, is provided in Table 6-9.

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.

Puente Basin

Puente Basin - Sustainable Groundwater Management Act

The Puente Basin is a subbasin of the San Gabriel Valley Groundwater Basin pursuant to DWR Bulletin 118, Basin Number 4-13. Pursuant to the Sustainable Groundwater Management Act of 2014, the Puente Basin was named as an adjudicated groundwater basin and is exempt from the requirements of developing a Groundwater Sustainability Plan and subsequently was designated a low-priority basin. In compliance with SGMA, the Puente Basin Watermaster submits its Annual Report to DWR.

Puente Basin - Adjudication

The Puente Basin was adjudicated in 1986 and a copy of the Puente Basin Judgment is provided in Appendix K. The parties to the Judgment include the City of Industry, the City of Industry Urban Development Agency, Los Angeles Royal Vista Golf Course, Rowland Water District, and Walnut Valley Water District. The provisions of the Judgment are administered and managed by the court-ordered Puente Basin Watermaster.

Puente Basin - Description

The Puente Basin is located in the southeasterly portion of the San Gabriel Valley and covers an area of approximately 8,870 acres. The Puente Basin is relatively shallow, and bedrock is present at the surface in several locations. The boundaries of the Puente Basin are formed on the north and south by the non-water bearing rocks of the San Jose Hills and Puente Hills, respectively. The boundaries of the Puente Basin also include the Main San Gabriel Basin to the west and the Spadra Basin to the east. The location of the Puente Basin is provided in Figure 4.

Primary water-bearing sediments in Puente Basin include weathered alluvium from the adjacent hills and deposits within San Jose Creek. The alluvial fill in the Puente Basin is typically finer-grained and has a higher clay content than the sediments found in the Main San Gabriel Basin. The alluvial fill ranges in depth from 25 feet to 1,300 feet and water-bearing sediments range in thickness from 70 to 120 feet throughout most of the Puente Basin, but increase in thickness towards the west. The storage capacity of the Puente Basin has been previously estimated at approximately 422,000 AF (pursuant to DWR Bulletin 45).

Pursuant to the Puente Basin Judgment, the declared safe yield of the Puente Basin is 4,400 AFY. However, management of the Puente Basin is based on an operating safe yield determined annually by the Puente Basin Watermaster. From FY 2015-2016 through FY 2019-2020, the Puente Basin Watermaster adopted an annual operating safe yield of 1,530 AF, with the District's share at 306 AF. For FY 2020-21, the Puente Basin Watermaster has adopted an operating safe yield of 2,506 AF, with the District's share at 550 AF. The share of Puente Basin pumping rights allocated to the District each year (annual pumping right) can vary based on the following factors:

- The operating safe yield determined by the Puente Basin Watermaster (based on groundwater levels, the subsurface flows, alternative sources of water, and groundwater pumping);

- Accumulated underflow credit or debit pursuant to the Puente Narrows Agreement;
- Unproduced carryover rights; and
- Return flow credits (for water imported into the Puente Basin)

Parties to the Puente Basin Judgment are allowed to carryover unused portions of their annual pumping rights for up to one year. Parties to the Judgment may also produce in any year a quantity of up to 10 percent greater than their share of the operating safe yield. However, any amount extracted above the water rights will then be deducted from the following year's water rights.

Groundwater underflow occurs from the Puente Basin to the Main San Gabriel Basin. In order to account for the outflow between the basins, the Puente Narrows Agreement was adopted in 1972 between the Puente Basin Water Agency (PBWA, which consists of Rowland Water District and Walnut Valley Water District) and the Upper San Gabriel Valley Municipal Water District, and is included as Exhibit J of the Main San Gabriel Basin Judgment. The Puente Narrows Agreement requires an average Base Underflow of 580 AFY from Puente Basin to the Main San Gabriel Basin. Quantities above the Base Underflow are credited to PBWA, quantities less than the Base Underflow are a debit to PBWA. The Puente Narrows Agreement also requires that a perpetual accounting of the subsurface flow be maintained. As of FY 2019-20, the accumulated credit of the PBWA was approximately 18,600 AF.

Groundwater elevations are monitored throughout Puente Basin by the Los Angeles County Department of Public Works, the Puente Basin Water Agency, Rowland Water District, and Walnut Valley Water District. The Puente Basin is constrained on the north and south by bedrock which causes groundwater to generally flow towards the west and northwest. Water elevations in the Puente Basin have been relatively stable since 1975 with an overall fluctuation of approximately 25 feet.

Groundwater quality is monitored by Rowland Water District and Walnut Valley Water District. Groundwater in the Puente Basin is currently contaminated with VOCs, including trichloroethylene (TCE) and perchloroethylene (PCE). In addition nitrate, and TDS concentrations exceed drinking water quality standards.

Puente Basin - Historical and Projected Basin Production

Groundwater from the Puente Basin is used for non-potable purposes, including irrigation through the District's recycled water distribution system. The District's production over the past five years has been tabulated in Section 6.1. Over the past five years, the District has produced 667 AFY to 907 AFY, with an average of 1,300 AFY from the Puente Basin. The recycled water system (including Puente Basin water) is used by the District as a replacement to potable water supplies. The District's projected production from the Puente Basin, over the next 25 years in five-year increments, is provided in Table 6-9.

SPADRA BASIN

Spadra Basin - Sustainable Groundwater Management Act

The Spadra Basin is an un-adjudicated sub-basin of the San Gabriel Valley Groundwater Basin (DWR Bulletin 118 Groundwater Basin Number 4-13). Pursuant to the Sustainable Groundwater Management Act of 2014, DWR has designated the San Gabriel Valley Groundwater Basin as a "Very Low Priority". A GSP is not required to be developed for an adjudicated sub-basin of the San Gabriel Valley Groundwater Basin. However, the Spadra Basin is unadjudicated. Consequently, local water agencies including Walnut Valley Water District and the City of Pomona collectively formed a Groundwater Sustainability Agency (GSA) for the Spadra Basin (Spadra Basin GSA) in February 2017. Although the Walnut Valley Water District and the City of Pomona are the primary stakeholders of the Spadra Basin GSA, California State Polytechnic University Pomona,

and the Walnut Hills Mobile Home Community were invited to be part of the Spadra Basin Advisory Committee. The Spadra Basin GSA plans to prepare and adopt a GSP with the purpose of maximizing the beneficial use of the Spadra Basin while ensuring long-term sustainability. Currently, the Spadra Basin GSA is developing a GSP which will be completed by January 31, 2022. The Spadra Basin GSP will include the following components:

- Description of the Spadra Basin, and basin settings
- Development of sustainable management criteria
- Evaluation of the sustainability of future baseline conditions
- Evaluation of basin optimization scenarios to achieve sustainability
- Preparation and adoption

Following issuance of the GSP, additional information will be available regarding groundwater use and reliability. That information will be included in future UWMPs.

Spadra Basin - Description

The Spadra Basin is located at the southeasterly portion of the San Gabriel Valley and covers an area of approximately 4,200 acres. The Spadra Basin is a small, unconfined, alluvial aquifer system. The Spadra Basin is surrounded by four adjudicated groundwater basins consisting of the Chino Basin to the east, the Main San Gabriel Basin to the northwest, the Puente Basin to the west, and the Six Basins to the north. The location of the Spadra Basin is provided in Figure 5.

San Jose Creek is the main stream that drains the Spadra Basin. The source of the San Jose Creek is waters originating from the San Gabriel Mountains (through Thompson Creek). San Jose Creek flows through the Spadra Basin towards the west until it ultimately merges with the San Gabriel River. However, the urbanization of local areas as

well as the lining of San Jose Creek have limited the amount of natural recharge and return flow recharge to the Spadra Basin. Pursuant to DWR Bulletin 45, the storage capacity of the 50-foot zone above the water table is estimated at 15,000 AF, and the storage capacity of a similar zone below the water table is estimated at 11,000 AF. Groundwater from the Spadra Basin has been produced by the City of Pomona, Walnut Valley Water District, California State Polytechnic University, Pomona, and the Walnut Hills Mobile Home Community.

The Spadra Basin is shallow and contains high concentrations of TDS and nitrate, resulting in poor quality groundwater. Groundwater produced from the Spadra Basin that is used for potable water uses often require treatment or blending prior to use to comply with SWRCB-DDW drinking water standards. As a result, groundwater produced from the Spadra Basin is used primarily for non-potable overlying uses by local water agencies. Due to limited natural recharge and poor water quality, the Spadra Basin's ability to support additional wells is restricted.

Spadra Basin - Historical and Projected Basin Production

Groundwater from the Spadra Basin is used for non-potable purposes, including irrigation as part of the District's recycled water distribution system. The District's production over the past five years has been tabulated in Section 6.1. Over the past five years, the District has produced 50 AFY to 67 AFY, with an average of 57 AFY from the Spadra Basin. The recycled water system (including Spadra Basin groundwater) is used by the District as a replacement to potable water supplies. The District's projected production from the Spadra Basin, over the next 25 years in five-year increments, is provided in Table 6-9.

Table 6-1 Groundwater Volume Pumped

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Puente Basin	803	871	1,300	892	667
Alluvial Basin	Spadra Basin	50	55	57	67	55
	TOTAL	853	926	1,357	959	722
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

6.2.3 SURFACE WATER

The District does not use surface water supplies to meet its water demands.

6.2.4 STORMWATER

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

6.2.5 WASTEWATER AND RECYCLED WATER

CWC 10633.

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

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

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

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

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

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

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

The District operates and maintains a recycled water system that delivers non-potable water to users for landscape irrigation, construction, cooling towers and industrial processes. The District primarily receives recycled water supplies from the Los Angeles County Sanitation Districts' (LACSD) Pomona Water Reclamation Plant (PWRP). The District also uses untreated groundwater from Puente Basin and Spadra Basin to meet recycled water demand. The following sections discuss the wastewater collection, treatment, and recycled water distribution in the District's service area. Recycled water volumes in the tables reflect the recycled municipal wastewater portion of the District's recycled water system.

6.2.5.1 RECYCLED WATER COORDINATION

CWC 10633.

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

The District coordinates with several agencies regarding recycled water use, including LACSD, the Los Angeles County Department of Public Works, and Rowland Water District. LACSD collects wastewater from the District's service area. Los Angeles County Department of Public Works manages the wastewater collection system in the District's service area. The District delivers recycled water to Rowland Water District, when needed, through an emergency recycled water connection.

The District coordinated with these agencies during the development of the 2020 Plan.

6.2.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CWC 10633.

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

Wastewater generated by the District is treated by LACSD. Wastewater is collected within the District's local sewer collection system. The District's local sewers tie into one of LACSD's regional trunk sewers. The regional trunk sewer lines deliver wastewater to one or more water reclamation plants owned by LACSD for treatment. The water reclamation plants are not located within the District's service area. The water reclamation plants serving the District include the San Jose Creek Water Reclamation Plant (SJCWRP) and the Joint Water Pollution Control Plant (JWPCP); however, the percentage breakdown between these two plants in treating the District's wastewater in unknown. LACSD

estimated approximately 69 gallons per person per day of wastewater is generated within LACSD's service area. Based on a 2020 population of 99,956 within the District, the estimated amount of wastewater collected by the District is approximately 6.9 million gallons per day (about 7,700 AFY), as shown in Table 6-2. As indicated previously, and in Table 6-3, wastewater is not treated or disposed within the District's service area.

The SJCWRP, which began operations in 1971, has a treatment capacity of about 100 million gallons per day (MGD) and provides coagulated, filtered and disinfected tertiary effluent. During FY 2018-19, the SJCWRP produced a total of 43.77 MGD or 49,045 AFY of recycled water. Recycled water produced at the SJCWRP is used at over 180 different reuse sites. These include groundwater recharge and irrigation of parks, schools and greenbelts. 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.

LACSD's JWPCP, which began operation in 1928, currently has a treatment capacity of about 300 MGD. The treatment level is primary and secondary treatment with disinfection. Solids collected in primary and secondary treatment are processed in anaerobic digestion tanks where bacteria break down organic material and produce methane gas. Treated wastewater is ultimately disinfected prior to being discharged to the Pacific Ocean. Though highly treated, effluent from the JWPCP does not meet recycled water standards and is therefore not re-used for such purposes. However, all water discharged to the ocean is monitored by LACSD to ensure compliance with applicable local, state, and federal standards for discharge water.

Table 6-2 Wastewater Collected Within Area in 2020

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
	Percentage of 2020 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2020 *	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Los Angeles County Sanitation District	Estimated	7,700	Los Angeles County Sanitation District	San Jose Creek Water Reclamation Plant	No	No
Total Wastewater Collected from Service Area in 2020:		7,700				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES:						

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

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
☑	**No wastewater is treated or disposed of within the UWMP service area.** The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area? *Drop down list*	Treatment Level *Drop down list*	2020 volumes [1] Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
						Total	0	0	0	0	0
[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3. [2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility											
NOTES:											

6.2.5.3 RECYCLED WATER SYSTEM DESCRIPTION

CWC 10633.

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

The District currently relies on three supply sources for its recycled water demands. Its primary supply source is treated recycled water from the PWRP. Its secondary supply source is groundwater produced from the Puente Basin and Spadra Basin. Lastly, its third supply source is treated imported potable water from MWD. However, imported water is only used to supply its recycled water demand during water shortages or service interruptions from the PWRP.

Currently, the District's recycled water system includes 300 metered connections serving 715 acres of land, 31.5 miles of transmission and distribution pipelines with diameters ranging between 4-inches to 20-inches, three storage tanks with a combined capacity of approximately 5.2 million gallons, five wells with a combined average production of approximately 2,000 gallons per minute (gpm), one pump plant, three booster stations, and one groundwater booster pump station (inactive). The District's main pump (Bourdet) has a capacity of 3,500 gpm while its booster pump has a capacity of 1,500 gpm. The other two booster pump stations (Brea Canyon Rd and IBC) have capacities of 600 gpm and 3,375 gpm, respectively.

As previously discussed, the District receives treated effluent from PWRP for its recycled water system. The District purchases the treated effluent from LACSD and conveys the effluent through the North Side transmission line to the District's main pumping station. The District then uses its recycled water supply to irrigate schools, parks, landscape maintenance districts, freeway slopes, street medians, a golf course, and several business landscape areas.

The District's recycled water use in FY 2019-20 was 1,973 AF (consisting of 1,251 AF from PWRP, 667 AF from the Puente Basin, and 55 AF from the Spadra Basin).

6.2.5.4 POTENTIAL, CURRENT, AND PROJECTED RECYCLED WATER USES

CWC 10633.

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

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

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

The District uses recycled water for landscape irrigation, including nurseries, golf courses, roadside irrigation, parks, schools, greenbelts, and maintenance districts. The District plans to increase recycled water use within its service area by expanding the recycled water system to additional landscape irrigation areas not currently using recycled water.

Future recycled water use projections are based on current recycled water use and planned recycled water projects. As shown in Table 6-4, the current and projected deliveries reflect the volume of municipal recycled wastewater from the PWRP to customers through the District's recycled water distribution system. The amount of untreated non-potable groundwater from the Puente Basin and Spadra Basin used to augment the system was excluded from the recycled water volume delivered to each customer.

The District plans to continue to increase delivery capacity and expand the recycled water system to serve additional customers. Because the District is reliant on imported water supplied from TVMWD, the economic value of a recycled water system continues to

increase. Any additional recycled water supplies that can offset imported water purchases will make these projects more viable.

The District's 2015 Plan projected recycled water use in 2020 to be 2,639 AF. The District's recycled water use in 2020 was 1,973 AF. Table 6-5 provides a comparison of the 2015 Plan projection to the actual 2020 use.

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

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area											
☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.										
Name of Supplier Producing (Treating) the Recycled Water:	Los Angeles County Sanitation District										
Name of Supplier Operating the Recycled Water Distribution System:	Walnut Valley Water District										
Supplemental Water Added in 2020 (volume) *Include units*	722										
Source of 2020 Supplemental Water	Untreated, nonpotable groundwater from Puente Basin and Spadra Basin										
Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)	
Agricultural irrigation											
Landscape irrigation (exc golf courses)	Schools, Parks, City Landscape	3,664	Schools, Parks, City Landscape	Tertiary	1,741	3,257	3,300	3,343	3,387	3,432	
Golf course irrigation		232		Tertiary	232	232	232	232	232	232	
Commercial use											
Industrial use											
Geothermal and other energy production											
Seawater intrusion barrier											
Recreational impoundment											
Wetlands or wildlife habitat											
Groundwater recharge (IPR)											
Reservoir water augmentation (IPR)											
Direct potable reuse											
Other (Description Required)											
				Total:	1,973	3,489	3,532	3,575	3,619	3,664	
				2020 Internal Reuse							
[1] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*											
NOTES:											

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

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
☐	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.	
Beneficial Use Type	**2015 Projection for 2020 [1]**	**2020 Actual Use [1]**
Insert additional rows as needed.		
Agricultural irrigation		
Landscape irrigation (exc golf courses)	2,639	1,741
Golf course irrigation		232
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	2,639	1,973
[1] **Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.		
NOTE:		

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.

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

- As a retail water supplier, the District will offer its customers (with non-potable water demands) an economic incentive to convert its use to recycled water. For example, a commodity rate schedule for recycled water with unit rates below a potable water supply encourages customers with non-potable water demands to use recycled water.
- As a sub-agency of TVMWD, the District will investigate the availability of financial assistance for plumbing retrofits necessary to receive recycled water.
- The District will evaluate the viability of making conversion to recycled water mandatory for those customers with non-potable supplies that are in proximity to an existing or planned recycled water pipeline.

Table 6-6 Methods to Expand Future Recycled Water Use

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.2.5	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Add additional rows as needed			
Retrofits	Retrofit landscape irrigation systems	Ongoing	1,600
		Total	1,600
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

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.

Main Basin

Groundwater produced from the Main Basin is low in TDS and does not require desalination. The SWRCB-DDW recommended TDS level is 500 milligrams per liter (mg/L) and water can be provided for long-term domestic use with TDS concentrations of up to 1,000 mg/L. Recent water quality data indicates the TDS values for the District's groundwater wells are less than 500 mg/L. Due to the high quality (low TDS concentration) of the groundwater, the District does not need to investigate the use of desalination to develop or reestablish a new long-term supply. However, there may be

opportunities for use of desalinated ocean water as a potential water supply source in the future, if needed, through coordination with other agencies that have ocean 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.

6.2.7.1 EXCHANGES

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

The District, in partnership with the Rowland Water District, has entered into a Water Production and Delivery agreement with the California Domestic Water Company for the delivery of up to approximately 5,000 AFY of potable water from the Main San Gabriel Basin. The District's share of annual deliveries is expected to be 2,500 AF. Pursuant to the terms of the Storage and Export Agreement signed on July 1, 2015 and approved on September 4, 2015 between Puente Basin Watermaster (the District and Rowland Water District) and the Main Basin Watermaster, up to 15,000 AF of imported surface water can be stored in the Main Basin in advance of, and in exchange for, groundwater which is produced and sold to the District by CDWC. Approximately 22,166 AF is currently stored by Rowland Water District and the District in the Main Basin.

6.2.7.2 TRANSFERS

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

The District does not have any current or planned transfer opportunities.

6.2.7.3 EMERGENCY INTERTIES

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

The District currently has 10 emergency interties with neighboring water agencies. Of these 10 emergency interconnections, eight are used for emergency backup use, while two are used for supply delivery.

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.

La Habra Heights County Water District Project

The District, in partnership with the Rowland Water District, has entered into a project agreement to jointly construct the La Habra Heights County Water District Pipeline Project. Roland Water District has entered into a Water Production and Delivery agreement with the La Habra Heights County Water District and the Orchard Dale Water District for delivery of up to approximately 2,000 AFY of potable water from the Central Basin. This amount delivered will be divided evenly between the Rowland Water District and the District. The source of the water, a combination of leased local supplies and water rights owned by the Puente Basin Water Agency, the project is independent of MWD's system and imported water supplies.

Pomona Basin Regional Groundwater Project

The Project involves the production of Six Basins groundwater by the Agency. This project will reactivate one nitrate and perchlorate contaminated groundwater well (Old Baldy) and install an additional well (Durward,) and inject produced water into the Pomona-Walnut-Rowland (PWR) Joint Water Line for blending with imported water in

order to meet potable water quality standards. Once completed, the project will provide the District with approximately 1,250 AFY of additional groundwater supply.

The Cadiz Water Project

In partnership with TVMWD, the District is a participant in the Cadiz Valley Water Conservation, Recovery and Storage Project (Cadiz Water Project), a potential new water source from a large, renewable aquifer located in the eastern Mojave Desert in San Bernardino County. The project will prevent the annual loss of groundwater to evaporation, create a new water supply source and a groundwater bank for many Southern California water purveyors. TVMWD has executed a non-binding agreement with Cadiz, Inc. to secure 5,000 AFY from the Cadiz Water Project. Upon finalization of a purchase agreement by TVMWD and Cadiz, Inc., the District could receive all or part of the secured amount through TVMWD and is considering the potential for requiring future development projects to purchase the water to offset any new demand generated.

The Santa Margarita Water District (SMWD) serves as the lead agency responsible for the Cadiz Water Project's environmental review. The Cadiz Water Project will be governed by a comprehensive groundwater management program that will be enforced by the County of San Bernardino. Over the course of the Cadiz Water Project's 50-year life, approximately 5 percent of the aquifer's water is expected to be pumped, and water levels are expected to not fall more than 80 feet below the water table. The Cadiz Water Project's open, transparent regulatory review resulted in separate and independent approvals under the California Environmental Quality Act and the San Bernardino County Desert Groundwater Ordinance. Both approvals were upheld against six separate legal challenges in Orange County Superior Court in 2014. Cadiz is pursuing final Project approvals, and deliveries of this water could begin as early as 12 to 18 months after the start of construction.

Table 6-7 Expected Future Water Supply Projects or Programs

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Section 6.2.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
La Habra Heights County Water District Project	Yes	La Habra Heights County Water District and Rowland Water District	Construction of a joint pipeline to obtain Central Basin groundwater supplies	2022	All Year Types	1,000
Pomona Basin Regional Groundwater Project	Yes	Walnut Valley Water District and Puente Basin Water Agency	Reactivate one groundwater well and install an additional well	2022	All Year Types	1,250
Cadiz Water Project	Yes	Three Valleys Muncipal Water District	Water source from a large, renewable aquifer located in the eastern Mojave Desert in San Bernardino County	Future	All Year Types	5,000
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

6.2.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

CWC 10631.

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

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

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

6.2.9.1 DESCRIPTION OF SUPPLIES

As discussed in Section 6.2, the District's water supply sources consist of treated imported water purchased from Three Valleys Municipal Water District (see Section 6.2.1), purchased groundwater from the Main Basin (see Section 6.2.2), and recycled water (see Section 6.2.5). The actual quantities of the water supply sources available to the District during FY 2019-20 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to the District in five-year increments through FY 2044-45 during normal or average years are summarized in Table 6-9. The reliability of these sources of supply are addressed in Section 7.2.3, including during normal years, single dry years, and five consecutive year droughts.

The order of use of the District's projected reliable water supplies from FY 2019-20 through FY 2044-45 in five-year increments is based on historical practices, water supply

availability, and the cost of water. It is anticipated the District will initially purchase groundwater produced from the Main Basin. At the same time the District will continue to use recycled water for non-potable demands. The District will then use treated local surface water, to the extent it is available. The District will also use treated imported water. In addition, the District plans to purchase groundwater produced from Six Basins and Central Basin (see Section 6.2.8)

6.2.9.2 QUANTIFICATION OF SUPPLIES

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

The District's projected quantities of treated imported water supplies are based on historical long-term averages and available supplies during previous dry year conditions. The District's projected quantities of recycled water supplies to meet non-potable demands are based on historical long-term averages. The District will be able to meet the remainder of its total water demands through purchased groundwater from the Main Basin, Central Basin, and Six Basins. Consequently, it is anticipated the District will have sufficient water supplies available to meet projected demands.

Table 6-8 Water Supplies - Actual

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Purchased or Imported Water	TVMWD/MWD	16,630	Drinking Water	
Groundwater (not desalinated)	Spadra Basin	55	Other Non-Potable Water	
Groundwater (not desalinated)	Puente Basin	667	Other Non-Potable Water	
Recycled Water	Pomona Water Reclamation Plant	1,251	Recycled Water	
	Total	18,603		0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: Groundwater pumped from Spadra Basin and Puente Basin was utilized in the District's recycled water system.				

Table 6-9 Water Supplies – Projected

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Purchased or Imported Water	TVMWD/MWD	13,559		13,774		13,996		14,199		14,404	
Purchased or Imported Water	Main Basin	2,500		2,500		2,500		2,500		2,500	
Purchased or Imported Water	Six Basins	625		625		625		625		625	
Groundwater (not desalinated)	Central Basin	1,000		1,000		1,000		1,000		1,000	
Groundwater (not desalinated)	Spadra Basin	105		105		105		105		105	
Groundwater (not desalinated)	Puente Basin	1,291		1,291		1,291		1,291		1,291	
Recycled Water	Pomona Water Reclamation Plant	2,093		2,136		2,179		2,223		2,268	
Total		21,173	0	21,431	0	21,696	0	21,943	0	22,193	0
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.											
NOTES: Groundwater pumped from Spadra Basin and Puente Basin is utilized in the District's recycled water system											

6.2.10 SPECIAL CONDITIONS

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

6.2.10.1 CLIMATE CHANGE EFFECTS

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

6.2.10.2 REGULATORY CONDITIONS AND PROJECT DEVELOPMENT

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

6.2.10.3 OTHER LOCALLY APPLICABLE CRITERIA

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

6.3 SUBMITTAL TABLES COMPLETION USING THE OPTIONAL PLANNING TOOL

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

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. The information used to calculate the estimated energy intensity associated with the District's water system is provided below. The energy intensity information is based on readily obtainable energy and water use data for the following water management processes: 1) extraction or diversion of water supplies; 2) placement into storage; 3) conveyance to distribution; 4) treatment; and 5) water system distribution.

The District has tabulated its energy intensity using readily obtainable energy consumption data obtained from monthly electricity bills from Southern California Edison (SCE) for the whole water system and the corresponding water use data obtained from

available water meter readings. The District has reported the energy intensity associated with the water management processes which occur within its operational control. Because the District does not track individual energy usage for each water management process identified above, the District has estimated the energy intensity using the a "total utility approach" (i.e. sum of all water management processes). The total energy consumed was approximately 4,820,225 kWh during FY 2019-20. Although the total energy consumption reported includes electricity usage for general administration (e.g. at the District's headquarters) which is not associated with any water management processes, the general administration energy usage is considered negligible compared to overall water system use and has not been netted out.

The total volume of water entering the potable water system was approximately 20,564 AF during FY 2019-20 and is consistent with the total volume of water provided in Table 4-1 (less recycled water supplies).

The total energy intensity associated with the District's water management processes is estimated at 234 kWh/AF. The energy intensity data and calculations based on the "total utility approach" are provided in Table O-1B below.

The District's water management processes include "consequential hydropower generation" where the energy generation is a direct consequence of water delivery (i.e. all water passing through the energy generation devices is delivered to users). Pursuant to DWR guidance, the consequential hydropower generation has been netted from the total amount of "Energy Consumed (kWh)" shown in Table O-1B below. The District's water management processes do not include "non-consequential hydropower generation" where the energy generation is not a direct consequence of water delivery (i.e. energy could be generated even if no water was being delivered to water users). In addition, the District's water management processes do not include any substantial "self-generated energy sources" including solar, wind, geothermal, biomass, co-generation, and diesel generator sources.

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

Urban Water Supplier: *Walnut Valley Water District*

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

Table O-1B: Recommended Energy Reporting - Total Utility Approach				
Enter Start Date for Reporting Period	7/1/2019	Urban Water Supplier Operational Control		
End Date	6/30/2020			
☐ Is upstream embedded in the values reported?		Sum of All Water Management Processes	Non-Consequential Hydropower	
Water Volume Units Used	*AF*	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (volume unit)		*20564*	*0*	*20564*
Energy Consumed (kWh)		*4820225*	*0*	*4820225*
Energy Intensity (kWh/volume)		*234.4*	*0.0*	*234.4*

Quantity of Self-Generated Renewable Energy
0 kWh

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

Data Quality Narrative:

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

Narrative:

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

CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

LAY DESCRIPTION – CHAPTER 7

WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

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

- FY 2019-20 represents an "average" or "normal" water year for the District in which the total amount of rainfall was similar to the historical average rainfall.
- A "single dry" year for the District was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall.
- A "five consecutive year drought" period for the District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall.
- The District's current and projected water supplies available during normal years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-2.
- The District's current and projected water supplies available during single dry years in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-3.
- The District's current and projected water supplies available during each year of a five consecutive year drought in five-year increments over the next 25 years are provided (through Fiscal Year 2044-45) as shown on Table 7-4.
- The reliability of the District's water supply sources, including a review of water supply constraints, is provided. A single dry year or a five consecutive year drought

period will not compromise the District's ability to provide a reliable supply of water to its customers.

- A Drought Risk Assessment (or DRA) is provided which includes an assessment of the District's water supply reliability over a five-year consecutive drought period. The District's DRA assumes a five-year consecutive drought from FY 2020-21 through FY 2024-25 and includes a review of water supplies, water uses, and water supply reliability for each water supply source during this period. The District's water system has experienced a prior five consecutive year drought with no limitation to its collective water supplies. However, the cost of those water supplies may have increased based on the mix of water supplies which are used. Consequently, the District has the ability to enact varying water shortage levels (see Chapter 8) to help educate its customers and provide an economic incentive for the retail customers to reduce their water consumption.

7.1 INTRODUCTION

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

7.2 WATER SERVICE RELIABILITY ASSESSMENT

CWC 10635.

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

Information regarding the reliability of the District's water supplies is based on the historical precipitation data in the San Gabriel Valley. Historical annual precipitation in the San Gabriel Valley is discussed in Section 3.3 and is based on historical data collected from Station 047050 (Pomona Fairplex, California). Furthermore, Section 4.5 of this Plan notes that potential future climate change impacts may result in an increase in the average annual precipitation within the District's service area, thus indicating use of historical data is a reasonable and conservative approach. As indicated in Section 3.3, the historical average rainfall in the vicinity of the District's service area is 17.2 inches. FY 2010-11 represents an average or normal water year for the District in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the District was represented in FY 2017-18, in which the total amount of rainfall was below the historical average rainfall. A five consecutive year drought period for the District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for average, single dry, and five consecutive year drought and provides the total amount of water supplies available to the District during those base years. The following discussion assesses the water service reliability of the District's water supply sources.

Water Service Reliability - Imported Water

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

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

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

In general, the WSAP process calculates total historical member agency demand. That historical demand is then compared to member agency projected local supply for a specific Allocation year. The balance required from MWD, less an Allocation reduction factor, is the member agency's "Water Supply Allocation" of imported water from MWD. When a member agency reduces its local demand through conservation or other means,

the Allocation of imported water will increase. Depending on MWD's available supply, MWD can establish a specific WSAP shortage level. The shortage level causes a regional reduction and calculates an allocation for each of its member agency. Additional information about MWD's WSAP is provided in MWD's Regional 2020 UWMP which is incorporated by reference. The following is a summary of MWD's water shortage levels:

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

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

Water Service Reliability Summary

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

7.2.1 SERVICE RELIABILITY - CONSTRAINTS ON WATER SOURCES

CWC 10631.

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

The District's sources of supplies consist of treated, imported surface water purchased from Metropolitan Water District through Three Valleys Municipal Water District and recycled water supplies (from recycled water purchased from the Los Angeles County Sanitation Districts and from groundwater pumped from the Puente Basin and Spadra Basin), as described in Section 6.2. Although all of these supplies are managed, the following constraints may occur which the District has considered in this reliability analysis.

Main Basin

The District purchases groundwater from CDWC which is pumped from the Main Basin. The groundwater historically had been impacted by contamination. However, CDWC has developed and implemented appropriate treatment (blending and/or treatment facilities) which have been approved by SWRCB-DDW. These groundwater supplies are considered reliable both from a water quality and quantity standpoint.

Imported water

The District also receives treated surface water from MWD through TVMWD. Water quality from MWD relating to supply reliability is addressed separately in MWD's 2020 Regional Urban Water Management Plan.

7.2.2 SERVICE RELIABILITY - YEAR TYPE CHARACTERIZATION

7.2.2.1 TYPES OF YEARS

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

As indicated in Section 3.3, the historical average rainfall in the vicinity of the District's service area is 17.2 inches. FY 2010-11 represents an average or normal water year for the District in which the total amount of rainfall was similar to the historical average rainfall. A single dry year for the District was represented in FY 2017-18, in which the total amount of rainfall was less than the historical average rainfall. A five consecutive year drought period for the District is represented from FY 2011-12 to FY 2015-16, where the total amount of rainfall during each of these years was less than the historical average rainfall. Table 7-1 summarizes these "base years" for an average year, a single dry year and a five consecutive year drought period and provides the total amount of water supplies available to the District during those base years.

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

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	**Base Year** If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	**Available Supplies if Year Type Repeats**	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	**% of Average Supply**
Average Year	2011	21,211	100%
Single-Dry Year	2018	21,043	99.2%
Consecutive Dry Years 1st Year	2012	22,342	105.3%
Consecutive Dry Years 2nd Year	2013	23,008	108.5%
Consecutive Dry Years 3rd Year	2014	23,625	111.4%
Consecutive Dry Years 4th Year	2015	21,158	99.8%
Consecutive Dry Years 5th Year	2016	17,930	84.5%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

7.2.2.2 SOURCES FOR WATER DATA

The monthly historical average temperatures (including minimum and maximum), monthly historical average rainfall, and monthly evapotranspiration in the vicinity of the

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.

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

As previously discussed in Section 4.2.6, the District's projected normal year water demands over the next 25 years, in five-year increments, were based on the District's 2020 Water Use Target of 169 GPCD for potable water demands. The ratio of total water supplies (including potable and recycled water supplies) available to the District during a historical average year in FY 2010-11 (or 21,298 AF) and during a historical single dry year in FY 2017-18 (or 22,795 AF) was used to estimate the District's projected water demands during single dry years. The ratio of water supplies available to the District during a historical average year in FY 2010-11 (or 21,298 AF) and a historical a five

consecutive year drought period from FY 2011-12 to FY 2015-16 (or 22,421 AF, 24,171 AF, 29,886 AF, 22,450 AF, and 21,183 AF, respectively) was used to estimate the District's projected water demands during a five consecutive year drought period. The District's projected dry year water supplies over the next 25 years were based on the minimum supplies needed by the District to meet projected single-dry year demands. Table 7-2, Table 7-3, and Table 7-4 summarize the District's projected water demands and supplies over the next 25 years in five-year increments, including during normal years, single dry years, and a five consecutive year drought periods. These tables indicate the District can meet water demands during normal years, single dry years, and a five consecutive year drought periods over the next 25 years.

7.2.3.1 WATER SERVICE RELIABILITY – NORMAL YEAR

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

Table 7-2 Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	21,173	21,431	21,696	21,943	22,193
Demand totals *(autofill from Table 4-3)*	21,173	21,431	21,696	21,943	22,193
Difference	0	0	0	0	0
NOTES:					

7.2.3.2 WATER SERVICE RELIABILITY – SINGLE DRY YEAR

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

Table 7-3 Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	21,003	21,261	21,523	21,768	22,016
Demand totals*	21,003	21,261	21,523	21,768	22,016
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

7.2.3.3 WATER SERVICE RELIABILITY – FIVE CONSECUTIVE DRY YEARS

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

Table 7-4 Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	22,300	22,574	22,853	23,113	23,377
	Demand totals	22,300	22,574	22,853	23,113	23,377
	Difference	0	0	0	0	0
Second year	Supply totals	22,965	23,247	23,534	23,801	24,073
	Demand totals	22,965	23,247	23,534	23,801	24,073
	Difference	0	0	0	0	0
Third year	Supply totals	23,580	23,869	24,164	24,439	24,718
	Demand totals	23,580	23,869	24,164	24,439	24,718
	Difference	0	0	0	0	0
Fourth year	Supply totals	21,118	21,378	21,641	21,888	22,138
	Demand totals	21,118	21,378	21,641	21,888	22,138
	Difference	0	0	0	0	0
Fifth year	Supply totals	17,896	18,116	18,340	18,548	18,760
	Demand totals	17,896	18,116	18,340	18,548	18,760
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

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.

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

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

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

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

7.3 DROUGHT RISK ASSESSMENT

CWC 10635.

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

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

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

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

(4) Considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.

The District's sources of supplies consist of groundwater from the Main Basin (which is managed by the Main Basin Watermaster) purchased through CDWC, treated import water purchased through Three Valleys Municipal Water District and managed by the Metropolitan Water District of Southern California, and recycled water supplies (from LACSD and from groundwater pumped from the Puente Basin and Spadra Basin). The following discussion provides a DRA which assesses the District's water supply reliability over a five year consecutive drought period. The District's DRA incorporates a five-year consecutive drought from FY 2020-21 through FY 2024-25 and includes a review of water supplies, water uses, and water supply reliability.

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

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

- The five consecutive year drought period associated with the 2020 UWMP is based on five consecutive dry years from FY 2020-21 through FY 2024-25.
- The projected water supplies available during each year of this five consecutive year drought are assumed to be identical to the water supplies produced during each year between FY 2011-12 and FY 2015-16 (which represents the most recent and historical five consecutive year drought).
- The projected demands during this five consecutive year drought are based on water demands from FY 2010-11 (a normal year) which were adjusted based on projected population over the next five years along with the ratio of the normal year demands to actual demands over each year of the most recent and historical five consecutive year drought period (from FY 2011-12 and FY 2015-16).

- The projected demands were compared to the projected supplies to identify potential water supply deficits which may require implementation of the Water Shortage Contingency Plan (discussed further in Chapter 8).

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

- Drought Year 1: The region had experienced an average to above average year of precipitation in the prior year. Water use in the prior year had been below average due to a 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 increase 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 increase 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 INDIVIDUAL WATER SOURCE RELIABILITY

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

Groundwater – Main San Gabriel Basin

The District purchases water supplies from the Main Basin, through CDWC, which is actively managed by the Main Basin Watermaster, as described in Section 6.2.2. Each year the Main Basin Watermaster reviews water supply conditions including local rainfall, groundwater levels, local stormwater runoff available for replenishment, imported water availability and the amount of imported water stored in the groundwater basin for future demands. The Watermaster identifies the annual amount of groundwater which may be pumped (such as an Operating Safe Yield) before more expensive imported water would need to be purchased from MWD through the Three Valleys Municipal Water District to replenish the Basin for all production in excess of the water rights. Regardless of the annual safe yield adopted there is never a restriction on the amount of water which may be pumped from the Main Basin, only the cost of producing the groundwater is impacted. The Main Basin Watermaster is not restricted as to when or how much untreated imported water be delivered to the Main Basin, only that it ultimately be delivered. In addition, the District has entered into a "Storage and Export Agreement" with the Main Basin Watermaster establishing an untreated imported water storage account in the Main Basin from which the District may draw upon to offset its purchases from CDWC. In doing so,

the District reduces its need to purchase untreated imported water in the future in the midst of a drought when imported water supplies may be limited. The quantity groundwater purchased (and reliably available) during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. During this period, the District was able to increase its production of its groundwater supplies from an adjudicated and managed groundwater basin. The District also had the ability to systematically implement aspects of its Water Shortage Contingency Plan (see Chapter 8). As a result of these collective actions (and experience during prior consecutive five-year droughts), the District does not anticipate a water supply shortage from the Main Basin.

Groundwater - Puente Basin

The District receives water supplies is from the Puente Basin which is actively managed by the Puente Basin Watermaster, as described in Section 6.2.2. The Puente Basin is adjudicated; however, the District's water rights are fixed each year. Consequently, the District cannot produce in excess of its own water rights or rights it may have leased from others. The District also has access to water supplies from Main San Gabriel groundwater basin and treated imported water. The quantity groundwater used (and reliably available) during the most recent and historical five consecutive year drought period have been tabulated in Section 6.1. The District manages its water supply portfolio to optimize the water supplies available each year and to avoid a water supply shortage. The District also had the ability to systematically implement aspects of its Water Shortage Contingency Plan (see Chapter 8). As a result of these collective actions (and experience during prior consecutive five-year droughts), the District does not anticipate a water supply shortage.

Imported Water

The District obtains imported water from the Metropolitan Water District of Southern California through Three Valleys Municipal Water District. Section 6.2.1 describes the

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

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

Recycled Water

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

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

Summary

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

7.3.3 DRA TOTAL WATER SUPPLY AND USE COMPARISON

Gross water use for the projected five consecutive year drought is shown on Table 7-5. Section 7.3.2 describes the water source reliability for each source of supply the District will rely on during a five consecutive year drought. The annual quantities are summed and are also provided on Table 7-5. For the purposes of the District's DRA, as a worst-case scenario, the District has considered no water supply augmentation (as indicated in Table 7-5) from its groundwater supplies. When necessary, the District can implement various water shortage levels of its Water Shortage Contingency Plan (as discussed in Chapter 8) in order to reduce its water demands. The total water supplies available to the District shown in Table 7-5 are based on the quantity of supplies produced by the District (i.e. demands) during the most recent historical five consecutive 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, it is anticipated the District will not be required to implement various stages of its Water Shortage Contingency Plan to balance water demands with available supplies during the projected five consecutive year drought.

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

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)	
2021	**Total**
Total Water Use	20,135
Total Supplies	22,342
Surplus/Shortfall w/o WSCP Action	2,207
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	2,207
Resulting % Use Reduction from WSCP action	0%
2022	**Total**
Total Water Use	21,293
Total Supplies	23,008
Surplus/Shortfall w/o WSCP Action	1,715
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	1,715
Resulting % Use Reduction from WSCP action	0%
2023	**Total**
Total Water Use	22,435
Total Supplies	23,625
Surplus/Shortfall w/o WSCP Action	1,190
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	1,190
Resulting % Use Reduction from WSCP action	0%
2024	**Total**
Total Water Use	20,606
Total Supplies	21,158
Surplus/Shortfall w/o WSCP Action	552
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	552
Resulting % Use Reduction from WSCP action	0%
2025	**Total**
Total Water Use	17,896
Total Supplies	17,930
Surplus/Shortfall w/o WSCP Action	34
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	0
WSCP - use reduction savings benefit	0
Revised Surplus/(shortfall)	34
Resulting % Use Reduction from WSCP action	0%

7.3.4 OPTIONAL PLANNING TOOL WORKBOOK

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

CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

LAY DESCRIPTION – CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

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

- The District's Water Shortage Contingency Plan is a detailed approach which presents how the District intends to act, or respond, in the case of an actual water shortage contingency.
- Preparation of the District's "Annual Water Supply and Demand Assessment" (or Annual Assessment) is discussed. Commencing July 1, 2022, the District is required to submit the Annual Assessment. The Annual Assessment will include a review of the District's "unconstrained" water demands for the current year and for a potential upcoming single dry year. Unconstrained water demands represent the District's water demands prior to any "response actions" the District may invoke pursuant to the District's Water Shortage Contingency Plan.
- The District will manage water supplies to minimize the adverse impacts of water shortages. The District's plan for water usage during periods of shortage is designed to incorporate six standard water shortage levels corresponding to progressive ranges from up to a 10, 20, 30, 40, and 50 percent shortage, and greater than a 50 percent shortage.
- For each declared water supply shortage level, customers will be required to reduce their consumption by the percentage specified in the corresponding water supply shortage level.

- For each declared water supply shortage level, the District has established response actions to reduce demand on water supplies and to reduce any shortage gaps in water supplies. These demand reduction actions include irrigation and other outdoor use restrictions, rate structure changes, and other water use prohibitions.
- The operational changes the District will consider in addressing water shortages on a short-term basis are discussed and include improved monitoring, analysis, and tracking of customer water usage to enforce demand reduction measures.
- The District's Emergency Response Plan is summarized. The Emergency Response Plan provides the management, procedures, and designated actions the District and its employees will implement during emergency situations (including catastrophic water shortages) resulting from natural disasters, system failures, and other unforeseen circumstances.
- The preparation of the District's seismic risk assessment and mitigation plan is discussed. The locations of earthquake faults in the vicinity of the District's water service area are provided.
- The effectiveness of the shortage response actions for each of the District's standard water shortage levels is presented. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands.
- The communication protocols implemented by the District when it declares any water shortage level are presented.
- The compliance and enforcement procedures associated with District's standard water shortage levels are presented.
- The legal authorities associated with District's standard water shortage levels are presented.
- The financial consequences associated with District's standard water shortage levels are presented.

- The District will evaluate the need for revising the Water Shortage Contingency Plan in order to resolve any water shortage gaps, as necessary. The steps necessary for the District to adopt and amend its Water Shortage Contingency Plan are presented.

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

8.1 WATER SUPPLY RELIABILITY ANALYSIS

CWC 10632.

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

The District's sources of supply were discussed in Section 6.2 of the 2020 UWMP and consist of groundwater from Main Basin (through CDWC), Puente Basin, Spadra Basin, and treated imported water purchased from TVMWD. In addition, the District provides recycled water for irrigation instead of potable supplies. Both Main Basin and Puente Basin are adjudicated, and groundwater supplies are managed. A GSP is being developed for Spadra Basin. The reliability of the various sources of supply are discussed in Chapter 7 of the 2020 UWMP. Based on the adjudication provisions in the Main Basin, the District is able to purchase groundwater, provided an applicable assessment is paid to the Main Basin Watermaster to purchase untreated imported water for groundwater replenishment. Imported water supplies (both treated and untreated) may be impacted in the event MWD implements its WSAP due to a water supply shortage. Finally, recycled water is locally generated and generally is not impacted by drought conditions.

8.2 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

CWC 10632.

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

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

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

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

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

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

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

CWC 10632.1.

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

Commencing July 1, 2022, the District is required to submit an "Annual Water Supply and Demand Assessment" (Annual Assessment) in accordance with DWR's guidance and requirements. The Annual Assessment will include a review of the District's unconstrained

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

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

The components of Annual Assessment consist of the following:

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

8.2.1 DECISION MAKING PROCESS

The District purchases treated, imported water from the Metropolitan Water District of Southern California through Three Valleys Municipal Water District as its primary source of water supply and that source is managed on a fiscal year basis. Consequently, during the third quarter of each fiscal year the District will review its water demands from the initial six months. This information will be used to help develop the Annual Assessment. A draft of the Annual Assessment will be circulated internally within the District for peer review and comment. Based on comments received, a redraft will be prepared and provided to District managers during the Spring of each year. The draft subsequently will be provided to the General Manager for final review. Subsequently, a final draft of the Annual Assessment will be provided to the District's Board of Directors for review and

included in the agenda as part of a Board meeting such that it can be approved and any recommended specific shortage response actions may be enacted. The final Annual Assessment will be provided to DWR no later than July 1 of each year.

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

8.2.2 DATA AND METHODOLOGIES

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

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

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

3) Unconstrained Water Demand: The potential unconstrained water demands during the current year and the upcoming (potential single dry) year, prior to any special shortage response 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 Monthly Reports, existing water shortage levels (see Section 8.3), and existing water conservation ordinances (see Section 9.2.1).

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

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

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

8.3 SIX STANDARD WATER SHORTAGE LEVELS

CWC 10632.

(a)(3)(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(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 indicating a cross-reference relating its existing categories to the six standard water shortage levels.

The District has a legal responsibility to provide water utility services, including water for residential, commercial, industrial, public authority, and for public fire hydrants and private fire services. The District will manage water supplies prudently to minimize the adverse impacts of water shortages. In its 2015 Plan, the District's WSCP was designed to provide a minimum of 50 percent of normal supply during a severe or extended water shortage. For its 2020 Plan, the District's WSCP is designed to provide water supplies in the event there is less than 50 percent of normal supply during a severe or extended water shortage. Water shortage trigger mechanisms have been established to ensure that this policy is implemented. This includes structured stages of action referred to as water shortage planning levels.

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

Table 8-1 Water Shortage Contingency Planning Levels

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description*)
1	Up to 10%	Watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum number of days per week, to be determined by the District's Board of Directors, or as modified by the General Manager, based on the District's then existing water supply conditions. All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within five days after written notification by the District unless other arrangements are made by the District.
2	Up to 20%	In additon to Shortage Level 1, re-filling of water constituting more than one foot of depth and initial filling of residential swimming pools or outdoor spas with potable water is prohibited.
3	Up to 30%	In additon to Shortage Level 2, filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under Ordinance No. 07-16-09.
4	Up to 40%	In addition to Shortage Level 3, watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum of two days per week on a schedule established and posted by the District.
5	Up to 50%	In addition to Shortage Level 4, watering or irrigating of lawn, landscape, or other vegetated area with potable water is limited to a maximum of one day per week on a schedule established and posted by the District.
6	>50%	In addition to Shortage Level 5; Additional restrictions may be implemented as determined by the District, after notice to customers.
NOTES:		

The 2020 Plan requires urban water suppliers to have six standardized water shortage response actions in accordance with the DWR. The District's previous WSCP, originally included in its 2015 Plan as Ordinance No. 07-16-09 (see Appendix L), described a permanent Initial Stage followed by four water shortage levels that would be mandatory once put into effect. The Initial Stage accounted for less than 10 percent reduction, Stage 1 accounted for 10 percent to 15 percent reduction, Stage 2 accounted for 15 percent to 25 percent reduction, Stage 3 accounted for 25 percent to 35 percent reduction, and Stage 4 accounted for 35 percent to 50 percent reduction.

For its 2020 Plan, the District will continue to incorporate the permanent Initial Stage at all times. The District's existing Stage 1 and Stage 2 will be used to address a DWR water supply shortage Stage 1 and 2 of up to 10 percent and 20 percent, respectively. The District's existing Stage 3 will be used to address a DWR Stage 3 and Stage 4, which will address a water supply shortage of up to 30 percent and 40 percent, respectively. The District's existing Stage 4 will be used to address a DWR Stage 5 and Stage 6. The District's planned Stage 5 will be used to address a water supply shortage of up to 50 percent. The planned Stage 6 will address a water supply shortage of more than 50 percent.

A crosswalk of the existing (prior) and planned stages of action are shown on the figure below.

Corresponding Relationships Between Supplier's 2015 Shortage levels and the 2020 WSCP Mandated Shortage Levels

Established Level	Supply Condition/ Shortage
1	10 to 15%
2	15 to 25%
3	25 to 35%
4	35 to 50%

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

8.4 SHORTAGE RESPONSE ACTIONS

CWC 10632.

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

(A) Locally appropriate supply augmentation actions.

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

(C) Locally appropriate operational changes.

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

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

8.4.1 DEMAND REDUCTION

As a part of the District's ongoing commitment to consistent water use efficiency, the following water use efficiency requirements are effective at all times and are permanent requirements set forth by the District's Rules and Regulations, Section 4.07.01. Violations of this initial stage will be considered waste and an authorized use of water, which will result in penalties outlined in Section 12 of Ordinance No. 07-16-09.

1) Limit on Water Duration: Watering or irrigating of lawn, landscape, or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than 15 minutes watering per day per station. This does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour and water based controllers or stream rotor sprinkles that meet 70 percent efficiency standard.

2) Limits on Watering Hours: Watering or irrigation of lawn, landscape, or other vegetated area with potable water is prohibited between the hours of 8:00 a.m. and 5:00 p.m. on any day, except by use of a hand-held bucket or similar container, a hand-held house equipped with a positive self-closing water shut-off nozzle or device, or for short periods of time for the express purpose of adjusting or repairing an irrigation system.
3) Limits on Watering Following Precipitation/Rainfall: Watering or irrigating of lawn, landscape, or other vegetated area with potable water within 48 hours following measurable precipitation is prohibited.
4) No Excessive Water Flow or Runoff: Watering or irrigating of any lawn, landscape, or other vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter, or ditch is prohibited.
5) No Washing Down Hard or Paved Surfaces: Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios, or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume, high-pressure water broom.
6) Obligation to Fix Leaks, Breaks, or Malfunctions: Excessive use, loss, or escape of water through breaks, leaks, or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected and in no event more than seven days after receiving written notice from the District is prohibited.
7) Limits on Washing Vehicles: Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat, or trailer, whether motorized or not, is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This does not apply to any commercial car washing facility.

8) Re-circulating Water Required for Water Fountains and Decorative Water Features: Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.
9) No Installation of Single Pass Cooling Systems Water System: Installation of single pass cooling systems is prohibited in buildings requesting new water service.
10) No Installation of Non-re-circulating in Commercial Car Wash and Laundry Systems: Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.
11) No Irrigating Ornamental Turf on Public Street Medians: Irrigating ornamental turf on Public Street Medians with potable water is prohibited.
12) Negligent Waste of Water: At the discretion of the General Manager, the District reserves the right to determine negligent waste or misuse of water supplies. Such water use constitutes an unauthorized waste of water and is subject to the imposition penalties outlined in Section 12 of Ordinance No. 07-16-09.

Stage 1 Water Supply Shortage Level (Up to 10%)

A Stage 1 Water Supply Shortage exists when the District, through its Board of Directors, determines that due to drought, a water supply shortage or a threatened water shortage exists, and customer allocations are necessary to make more efficient use of water and appropriately respond to existing water conditions and a reduction of water use of up to 10 percent will be required to lower overall water demand.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 1 Water Supply Shortage:

1) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum number of days per week, to be determined by the District's Board of Directors, or as modified by the General Manager, based on the District's then existing water supply conditions. The irrigation day limitation and schedule will be as posted by the District. This

does not apply to landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system. The District reserves the right to amend the watering day limits within each prescribed stage as determined by conservation necessity.

2) Obligation to Fix Leaks, Breaks, or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within five days after written notification by the District unless other arrangements are made by the District.

Stage 2 Water Supply Shortage Level (Up to 20%)

A Stage 2 Water Supply Shortage exists when the District, through its Board of Directors, determines that due to drought, a water supply shortage or a threatened water shortage exists, and customer allocations are necessary to make more efficient use of water and appropriately respond to existing water conditions and a reduction of water use of up to 20 percent will be required to lower overall water demand.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 2 Water Supply Shortage:

3) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum of three days per week on a schedule established and posted by the District. This does not apply to landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off

nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system. The District reserves the right to amend the watering day limits within each prescribed stage as determined by conservation necessity.

4) Obligation to Fix Leaks, Breaks, or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within 72 hours after written notification by the District unless other arrangements are made by the District.
5) Limits on Filling Residential Swimming Pools and Spas: Re-filling of water constituting more than one foot of depth and initial filling of residential swimming pools or outdoor spas with potable water is prohibited.

Stage 3 Water Supply Shortage Level (Up to 30%)

A Stage 3 Water Supply Shortage exists when the District, through its Board of Directors, determines that due to drought, a water supply shortage or a threatened water shortage exists, and customer allocations are necessary to make more efficient use of water and appropriately respond to existing water conditions and a reduction of water use of up to 30 percent will be required to lower overall water demand.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 3 Water Supply Shortage:

1) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum of two days per week on a schedule established and posted by the District. This does not apply to landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of

adjusting or repairing an irrigation system. The District reserves the right to amend the watering day limits within each prescribed stage as determined by conservation necessity.

2) Obligation to Fix Leaks, Breaks, or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within 48 hours after written notification by the District unless other arrangements are made by the District.
3) Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under Ordinance No. 07-16-09.

Stage 4 Water Supply Shortage Level (Up to 40%)

A Stage 4 Water Supply Shortage exists when the District, through its Board of Directors, determines that due to drought, a water supply shortage or a threatened water shortage exists, and customer allocations are necessary to make more efficient use of water and appropriately respond to existing water conditions and a reduction of water use of up to 40 percent will be required to lower overall water demand.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 4 Water Supply Shortage:

1) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water will be limited to a maximum of two days per week on a schedule established and posted by the District. This does not apply to landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off

nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system. The District reserves the right to amend the watering day limits within each prescribed stage as determined by conservation necessity.

2) Obligation to Fix Leaks, Breaks, or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within 48 hours after written notification by the District unless other arrangements are made by the District.
3) Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under Ordinance No. 07-16-09.

Stage 5 Water Supply Shortage Level (Up to 50%)

A Stage 5 Water Supply Shortage exists when the District, through its Board of Directors, determines that due to drought, a water supply shortage or a threatened water shortage exists, and customer allocations are necessary to make more efficient use of water and appropriately respond to existing water conditions and a reduction of water use of up to 50 percent will be required to lower overall water demand.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 5 Water Supply Shortage:

1) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water is limited to a maximum of one day per week on a schedule established and posted by the District. This does not apply to landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar

container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system. This restriction does not apply to the following categories of use:

i. Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self-closing water shut-off nozzle or device
ii. Maintenance of existing landscape necessary for fire protection
iii. Maintenance of existing landscape for soil erosion control
iv. Maintenance of plant materials identified to be rare or essential to the well-being of protected species
v. Maintenance of landscape within active public parks and playing fields, daycare centers, golf course greens, and school grounds, provided that such irrigation does not exceed two days per week according to the schedule established in Section 6(8)(1) and time restrictions in Section 5(8)(1) of Ordinance No, 07-16-09
vi. Actively irrigated environmental mitigation projects

Stage 6 Water Supply Shortage Level (More than 50%)

Stage 6, also referred to as an “Emergency” condition, exists when the District, through its Board of Directors, declares a water shortage emergency and notifies its residents and businesses that more than 50 percent reduction of water use is necessary to maintain sufficient water supplies for public health and safety.

In addition to the prohibited uses of water identified above, the following water conservation requirements apply during a declared Stage 6 Water Supply Shortage:

1) Limits on Watering Days: Watering or irrigating of lawn, landscape, or other vegetated area with potable water is limited to a maximum of one day per week on a schedule established and posted by the District. This does not apply to

landscape irrigation zones that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two gallons of water per hour. This also does not apply to watering or irrigating by use if a hand-held bucket or similar container, or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system. This restriction does not apply to the following categories of use:

i. Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self-closing water shut-off nozzle or device
ii. Maintenance of existing landscape necessary for fire protection
iii. Maintenance of existing landscape for soil erosion control
iv. Maintenance of plant materials identified to be rare or essential to the well-being of protected species
v. Maintenance of landscape within active public parks and playing fields, daycare centers, golf course greens, and school grounds, provided that such irrigation does not exceed two days per week according to the schedule established in Section 6(8)(1) and time restrictions in Section 5(8)(1) of Ordinance No, 07-16-09
vi. Actively irrigated environmental mitigation projects

Table 8-2 Demand Reduction Actions

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Landscape - Limit landscape irrigation to specific times	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Limits on watering hours	Yes
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	No excessive water flow or runoff	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	No washing down of paved surfaces	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Obligation to fix leaks, breaks, or malfunctions	Yes
1	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Limits on washing vehicles	Yes
1	Water Features - Restrict water use for decorative water features, such as fountains	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Re-circulating water required for water fountains and decorative water features	Yes
1	Other	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	No Installation of single pass cooling systems water system in buidings requesting new water service	Yes
1	Other	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Installation of non re-circulating water system is prohibited in new commercial conveyor car wash and new commercial laundry systems	Yes
1	CII - Restaurants may only serve water upon request	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Drinking water served upon request only	Yes
1	CII - Lodging establishment must offer opt out of linen service	Collective reduction from all Shortage Level 1 actions is up to 2,041 AF	Option to decline daily linen services at commercial lodging establishments	Yes
2	Other	Collective reduction from all Shortage Level 2 actions is up to 4,082 AF	Includes all Stage 1 actions	Yes

2	Other water feature or swimming pool restriction	Collective reduction from all Shortage Level 2 actions is up to 4,082 AF	Re-filling of water constituting more than one foot of depth and initial filling of residential swimming pools or outdoor spas with potable water is prohibited	Yes
3	Other	Collective reduction from all Shortage Level 3 actions up to 6,124 AF	Includes all Stage 2 actions	Yes
3	Other water feature or swimming pool restriction	Collective reduction from all Shortage Level 3 actions up to 6,124 AF	Filling or refilling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life	Yes
4	Other	Collective reduction from all Shortage Level 4 actions up to 8,165 AF	Includes all Stage 3 actions	Yes
5	Other	Collective reduction from all Shortage Level 5 actions up to 10,206 AF	Includes all Stage 4 actions	Yes
6	Other	Collective reduction from all Shortage Level 6 actions up to >10,206 AF	includes all Stage 5 actions	Yes
NOTES:				

8.4.2 SUPPLY AUGMENTATION

The District does not plan to add a new source of water supply to address customer demands, but instead will consider increased supplies from existing sources. Table 8-3 reflects this approach and does not identify any new supplies. Instead, the District will focus on demand reduction measures in the event existing sources of supply are not sufficient to meet customer demands. As discussed in Chapter 6, the District's water supply sources include treated, imported surface water purchased from MWD through Three Valleys Municipal Water District, recycled water supplies (from recycled water purchased from LACSD and from groundwater pumped from the Puente and Spadra Basin), and groundwater pumped from Main Basin (purchased through CDWC). As noted in Section 8.2, beginning July 1, 2022, the District will prepare and submit an Annual Assessment which will include a review of water supplies available to meet water demands for the current and upcoming years. In the event the District is currently in, or considers entering into, one of the standard water shortage levels identified in Section 8.3, the District will consider the water supply augmentation actions described below.

Groundwater rights from the Main Basin, Puente Basin and Spadra Basin are fixed and production cannot be increased. However, for each water shortage level discussed in Section 8.3, the District may consider augmenting its existing water supplies through purchase of additional groundwater which CDWC produces from the Main Basin. As noted in Section 6.2.2, the Main Basin is managed by the Main Basin Watermaster. During the period of management under the Main Basin Judgment, significant drought events have occurred. In each drought cycle the Main Basin has been managed to maintain water levels. Parties to the Main Basin Judgment, including CDWC, are authorized to produce groundwater in excess of their rights and pay assessments for such production to the Main Basin Watermaster. The assessments are used to purchase untreated imported water to replenish the Main Basin. The Main Basin Watermaster purchases untreated imported water to replenish the Main Basin from MWD through Three Valleys Municipal Water District. Groundwater quality is carefully monitored and managed by the Main Basin Watermaster. Treatment facilities and/or blend plans have been developed by water agencies to meet potable water standards and to prevent the spread of any groundwater contamination. Groundwater quality in the Main Basin is not expected to impact potable supplies or constrain supply reliability. Based on historical and on-going management practices, the District can rely on the Main Basin for adequate supplies in response to each of the standard water shortage levels identified in Section 8.3.

For each water shortage level discussed in Section 8.3, the District will consider supplementing its existing water supplies through increased groundwater production instead of the purchase of additional imported water supplies. Due to previous critically dry conditions, MWD developed the Water Supply Allocation Plan whereby available supplies are equitably allocated to its member agencies, including Three Valleys Municipal Water District. The WSAP establishes ten different shortage levels and a corresponding drought allocation to each member agency. Based on the shortage level established by MWD, the WSAP provides a reduced drought allocation to a member agency for its M&I retail demand. The ratio of MWD water supply drought allocation to

local water supply will change based on the WSAP stage. MWD drought allocation can be used to make Full Service water deliveries at the Tier 1 rate up to a Tier 1 allocation. Any Full Service water delivered in excess of a drought allocation is subject to a penalty rate in addition to the normal rate paid for the water.

In addition to the WSAP, MWD describes supply augmentation actions in its Regional 2020 UWMP, which is incorporated by reference. MWD's primary first response to any gap between core supplies (from the State Water Project and Colorado River) and demand is to make optimal use of its supply augmentation options, consisting of drawing from flexible supply programs and storage reserves. MWD has developed and actively manages a portfolio of water supply programs including water transfer, storage, and exchange agreements. MWD pursues voluntary water transfer and exchange programs to help mitigate supply/demand imbalances and provide additional dry-year supply sources. In addition, MWD has developed significant storage capacity in reservoirs, conjunctive use, and other groundwater storage programs totaling approximately 6.0 million AF. Pursuant to MWD's "Emergency Storage Objective", updated in 2019, approximately 750,000 AF of total stored water is emergency storage reserved by MWD for use in the event of supply interruptions. Based on MWD's historical and on-going water supply and storage programs and management practices, the District will use up to the treated imported water supply made available from MWD through Three Valleys Municipal Water District in association with each of the standard water shortage levels identified in Section 8.3. Water demands will be addressed through increased use of the local groundwater supplies and implementation of demand reduction measures through the various stages of action.

Table 8-3 Supply Augmentation and Other Actions

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1	Transfers	Not applicable (see Notes)	
2	Transfers	Not applicable (see Notes)	
3	Transfers	Not applicable (see Notes)	
4	Transfers	Not applicable (see Notes)	
5	Transfers	Not applicable (see Notes)	
6	Transfers	Not applicable (see Notes)	
NOTES: The District will consider increased purchased water from the Main Basin, through CDWC, to address increased demands. As noted in Table 8-2, the District plans to implement demand reduction measures in the event water supplies from existing sources are not sufficient to meet anticipated demands.			

8.4.3 OPERATIONAL CHANGES

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

As noted in Section 8.4.2, beginning July 1, 2022, the District will prepare and submit an Annual Assessment which will include a review of the water supplies available to meet

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

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

8.4.4 ADDITIONAL MANDATORY RESTRICTIONS

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

8.4.5 EMERGENCY RESPONSE PLAN

Catastrophic water shortages are incorporated in the District's standard water shortage levels (identified in Section 8.3) and the associated demand reduction measures (described in Section 8.4.2). In addition to the water supply augmentation actions

(Section 8.4.1) and potential operational changes (Section 8.4.3) which the District may consider in order to continue providing sufficient water supplies, the District will review and implement any necessary steps included in its “Emergency Response Plan”.

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

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

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

The District’s RRA evaluated a series of potential malevolent acts, natural hazards, and other threats in order to estimate the potential “monetized risks” (i.e. associated economic consequences to both the water system and surrounding region, and the likelihood of

occurrence) associated with the District's water facility assets. The cost-effectiveness of implementing potential countermeasures to reduce risks was also reviewed.

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

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

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

8.4.6 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC 10632.5.

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

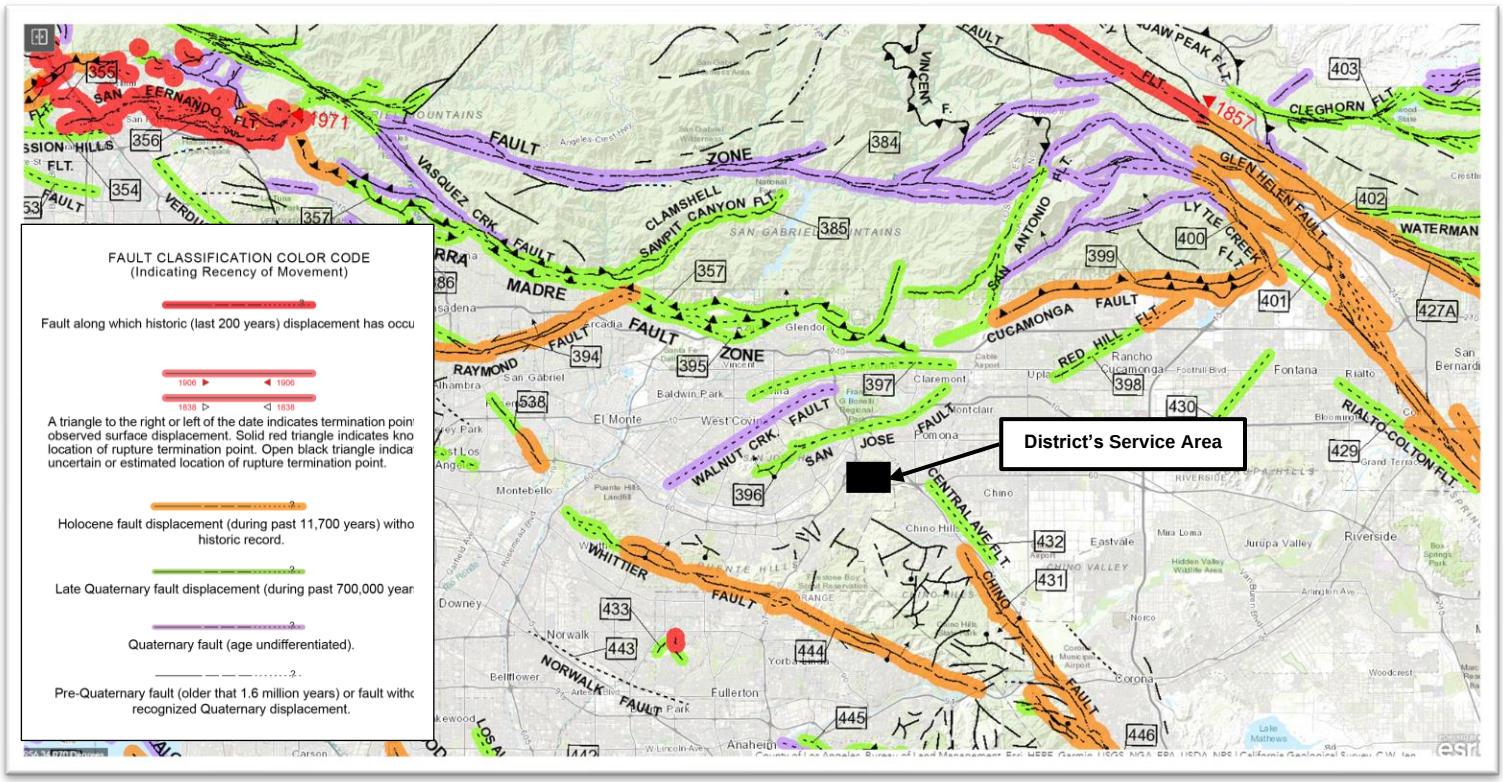
(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

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

The 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 M.

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

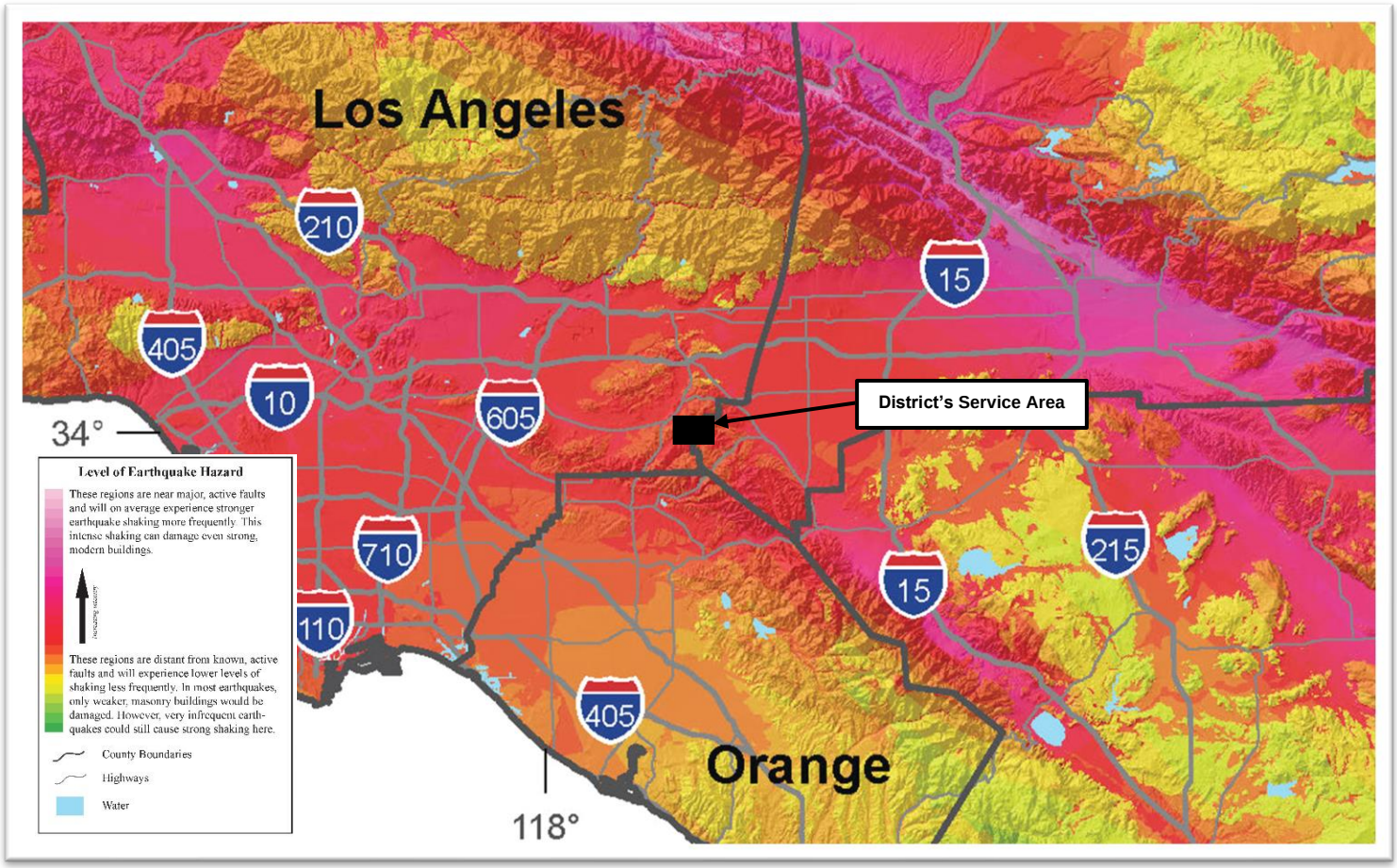
Location of Earthquake Faults



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

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

Earthquake Shaking Potential



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

8.4.7 SHORTAGE RESPONSE ACTION EFFECTIVENESS

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

Section 6.1 provides a tabulation of the District's historical annual water demands for each water supply source. During the past 10 years, the District experienced a five consecutive year drought within its service area from FY 2011-12 to FY 2015-16. Throughout this extended dry year period, the District's annual water production ranged from 21,183 AF to 29,886 AF, with an average of approximately 24,022 AF. In addition, historical records indicate the District previously produced a maximum of up to 29,886 AF during FY 2013-14. The District has been able to provide sufficient water supplies to its customers, including during long-term droughts and years with historically high water demands. In addition, the District has been able to provide water service to meet maximum day water demands for these years, including during the summer months.

The District's water demands during the most recent five years (from FY 2015-16 to FY 2019-20) averaged approximately 21,787 AFY. Due to conservation efforts and demand management measures (discussed in Chapter 9), the District's recent water demands have been significantly less than its historical water demands, including during long-term droughts. The District's projected water demands (during normal, single dry, and multiple dry years) are provided in Section 7.2.3 and are anticipated to incorporate similar reductions in water use rates as a result of the shortage response actions, ongoing conservation efforts, and demand management measures. Because the District's projected water demands are similar to, it is anticipated the District will be able to continue providing sufficient water supplies to its customers to meet projected water demands, including during long-term droughts. In addition, as discussed in Section 8.4.2, based on historical and on-going management practices, the District can rely on its water supply source from the Main Basin for adequate supply augmentation in response to each of the standard water shortage levels identified in Section 8.3.

The District previously adopted Ordinance No. 07-16-09 in July 2016 which declared a water supply shortage and established water-use restrictions and regulations equivalent to the standard water shortage Stage 1 identified in Section 8.3. During this Stage 1 water shortage period, the District was able to reduce water demands by up to 10 percent and

provide sufficient water supplies to its customers. This Stage 1 water shortage period currently remains in effect throughout the District's service area. A copy of the Ordinance is provided in Appendix L.

Based on the District's demonstrated ability to meet water demands during past water supply shortages, the adopted water shortage levels, the adjusted operating safe yields, and water supplies during long-term droughts, it is anticipated that the District will be able to provide sufficient water supplies to its customers during each of its standard water shortage stages. Although adequate supplies are anticipated, the cost of those water supplies may become incrementally more expensive. The District will enact varying stages of its WSCP to encourage retail customers to reduce water consumption and at the same time reduce the need to use the more expensive water supplies. Notwithstanding, the effectiveness of each of the District's shortage response actions, in order to reduce any potential gaps between supply and demand, has been quantified in the expected demand reduction section provided in Table 8-2 and Table 8-3. The effectiveness of the District's shortage response actions is based on the District's water demands prior to 2015 (unconstrained demands). The District reduced its water demands in 2015 in response to the Governor's April 1, 2015 Executive Order B-29-15 which mandated statewide reduction in water use of 25 percent. The District's actual water demand reduction during this period was used to estimate the extent of water use reductions for the District's Water Shortage Stages. The District's Water Shortage Stages 1, 2, 3, 4, 5, and 6 are expected to reduce water demands by up to 10%, 20%, 30%, 40%, 50%, and greater than 50%, respectively.

8.5 COMMUNICATION PROTOCOLS

CWC 10632.

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

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

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

(C) Any other relevant communications.

Under Section 10 of Ordinance No. 07-16-09: The existence of Water Supply Shortage Stage conditions may be declared by resolution and adopted at a regular or special Board meeting held by the District in accordance with State law. The mandatory conservation requirements applicable to each Water Shortage Stage condition will take effect on the tenth day after the Stage level is declared. Within five days of following the declaration of the shortage level, the District will publish a copy of the resolution in a newspaper used for publication of official notices.

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.

Violations of Ordinance No. 07-16-09 may be considered an unauthorized use of water and subject to penalties established in the District's Rules and Regulations, Article 4.05.02.03 and/or Article 4.03.07.06. Each day that a violation of this ordinance occurs is considered a separate offense by the District.

Penalties for failure to comply with any provisions of Ordinance No. 07-16-09 are as follows:

1) First Violation: The District will issue a written notice of non-compliance and deliver a copy of this ordinance by certified mail.
2) Second Violation: For a second violation within the preceding 12 calendar months, the District will issue a final written notice of non-compliance.
3) Third and Subsequent Violations: A third violation, and any subsequent violation, within the preceding 12 calendar months may be considered an unauthorized use of water and subject to penalties established in Article 4.05.02.03 and/or Article 4.03.07.06 of the District's Rules and Regulations.
4) Water Flow Restrictor: In addition to any fines, the District may install a water flow restrictor device of approximately one gallon per minute capacity for services up to one and one-half inches in size and comparatively sized restrictors for larger services after providing written notice to the customer of intent to install a flow restrictor for a minimum of 48 hours prior to such installation.

A person or entity that violates this ordinance is responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's schedule of charges then in effect. The charge for installing and/or removing any flow restricting device and disconnection service must be paid to the District before water supply is returned. Nonpayment will be subject to the same remedies as nonpayment of basic water rate established in the District's Rules and Regulations.

The District will issue a Notice of Violation by certified mail or personal delivery at least 10 days before taking enforcement action. Such notice must describe the violation and the date by which corrective action must be taken. A customer may appeal the Notice of Violation by filing a written notice of appeal with the District no later than the close of business on the day before the date scheduled for enforcement action. Any Notice of Violation not timely appealed will be final. Upon receipt of a timely appeal, a hearing on the appeal will be scheduled, and the District will send by certified mail a written notice of the hearing date to the customer at least 10 days before the date of the hearing. Pending receipt of a written appeal or pending a hearing pursuant to an appeal, the District may take appropriate steps to prevent the unauthorized use of water appropriate to the nature and extent of the violations and the current declared water level condition.

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.

Under Section 4 of Ordinance No. 07-16-09, the District's General Manager or his or her designated representative is hereby authorized and directed to implement the staged water conservation and enforcement provisions of the Ordinance, as necessary. In that regard, the General Manager or his or her designated representative shall have the authority to select from among the mandatory water use restrictions, including daily irrigation limitations, specified for each stage of water supply shortage based on the District's then existing water supply conditions.

The District's General Manager, or designee, may declare a water shortage emergency and may immediately enact the mandatory requirements of any of the water supply shortage stages designated herein. The required measures of the designated water supply shortage stage will be effective immediately and will be communicated to the public. The emergency implementation will be ratified by resolution of the District's Board of Directors at its next meeting.

The District shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency. This includes the Cities of Diamond Bar, Industry, Pomona, Walnut, and West Covina, as well as the County of Los Angeles.

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.

Potential revenue reductions and expense increases associated with activated shortage response actions are regulated and tracked by the District's Finance Manager.

During periods of water supply shortages, state-mandated water use restrictions, or emergency conditions, the District may require its customers to reduce demands below levels projected under the current water rate structure. Under any of these circumstances, the District may experience a decrease in revenues that may result in insufficient funds to meet projected expenses.

In order to offset any decline in revenues, the District's Board of Directors may adopt resolutions to make additional adjustments to the water rates based on the District's increased costs to provide water to its customers.

8.9 MONITORING AND REPORTING

CWC 10632.

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

During times of drought, the District closely monitors customer consumption to ensure its efforts are effective in reducing system-wide demand. Data collected assists the District in making critical decisions and prioritizing drought response actions. The District employs various tools to monitor, evaluate, and report on its conservative objectives. In addition, the District submits the monthly Urban Water Supplier Monitoring Report to SWRCB.

Monthly Reporting

The District evaluates both billed consumption and monthly production data relative to established goals. Using this data allows District staff to gauge effectiveness in managing overall demand and customers' responsiveness to requests to conserve. The results are compiled and presented to the Board on a monthly basis.

Customer Metering

Customer accounts are metered and billed monthly. Using these records, the District tracks and evaluates consumption data by customer category, meter size, tier-width, and neighborhood, to determine whether customer groups are reaching conservation targets. If drought surcharges are implemented, billing data is evaluated to determine how the surcharges affect customer demand.

Advanced Metering Technology (AMI)

The District has installed approximately 13,000 smart meters, with the remaining meters to be converted to AMI by 2024. From the utility side, smart meters provide multiple

benefits including leak detection, demand forecasting, performance indicators, and improved reporting. By leveraging this data, the District can identify, monitor, and target programs to specific users. This will allow the District to focus conservation messaging and programs on specific customers, or groups of customers. From the customers' side, smart meters can provide information of when and where water is used, establish water budget and water usage alerts, comparisons of water use against other customers, forecasting, and quick leak detection.

Water Conservation and Data Management Services

The District has recently entered into a contract for the use of water conservation and data management software known as Eagle Aerial. Eagle Aerial allows the District to analyze total water allocation at the parcel level, spot water use trends, and identify large water users. The information will be critical in calculating indoor and outdoor water use for purposes of complying with the recently enacted water conservation legislation (AB 1668 and SB 606).

Water Use Efficiency Strategic Plan

The District recently completed its Water Use Efficiency Strategic Plan. The Water Use Efficiency Strategic Plan will enable the District to project long-range demands, identify attainable conservation goals, develop strategies, and raise awareness. This plan includes a cost-effective suite of water conservation measures that will help meet future water needs locally and regionally. In addition, by adhering to the Water Use Efficiency Strategic Plan, the District can meet the State of California's current and future requirements and objectives.

8.10 WSCP REFINEMENT PROCEDURES

CWC 10632.

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

The District's WSCP has been prepared as an adaptive management plan. As discussed in Section 8.9, the District will monitor and report in the implementation of the WSCP. The District will evaluate the need for revising the WSCP in order to resolve any shortage gaps, as necessary. The District will consider the following potential revisions in the event of a potential shortage gap:

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

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

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

8.11 SPECIAL WATER FEATURE DISTINCTION

CWC 10632.

(b) For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

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

Under Ordinance No. 07-16-09, filling or refilling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level (discussed in Section 8.4.1).

8.12 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

CWC 10632.

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

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

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

If there are any subsequent amendments required, the process for adopting an amended WSCP includes the following:

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

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

CHAPTER 9

DEMAND MANAGEMENT MEASURES

LAY DESCRIPTION – CHAPTER 9

DEMAND MANAGEMENT MEASURES

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

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

(discussed in Chapter 5) through the implementation of these Demand Management Measures.

9.1 DEMAND MANAGEMENT MEASURES FOR WHOLESALE SUPPLIERS

CWC 10631.

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

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

(ii) Metering.

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

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

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

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

9.2 EXISTING DEMAND MANAGEMENT MEASURES FOR RETAIL SUPPLIERS

CWC 10631.

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

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

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

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

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

(vi) Water conservation program coordination and staffing support.

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

9.2.1 WATER WASTE PREVENTION ORDINANCES

Waste is defined as any excessive, unnecessary or unwarranted use of water, including but not limited to any use which causes unnecessary runoff beyond the boundaries of any property as served by its meter and any failure to repair as soon as reasonably possible any leak or rupture in any water pipes, faucets, valves, plumbing fixtures or other water service appliances. The District applies its "Rules and Regulations Governing Water Consumers" (Rules and Regulations), updated in April 2021, throughout its service area. A copy of the Rules and Regulations is provided in Appendix N. Regulations concerning

water waste are established in Section 4.05.02.03 of the Rules and Regulations. Under this section, the District has the authority to disconnect a service if practices that are deemed "wasteful" are not mitigated within five days after notice to the consumer. In addition, Section 4.07.01 of the Rules and Regulations establishes the following permanent prohibitions in place for combating wasteful practices:

- Limit on Watering Duration
- No Excessive Water Flow or Runoff
- No Washing Down Hard or Paved Surfaces
- Obligation to Fix Leaks, Breaks, or Malfunctions
- Limits on Washing Vehicles
- Recirculating Water Required for Water Fountains and Decorative Water Features
- No Installation of Single Pass Cooling Water Systems
- No Installation of Non-recirculating Water Systems in Commercial Car Wash and Laundry Systems

These water use efficiency requirements are also identified in the District's Ordinance No. 07-16-09 (See Appendix L).

9.2.2 METERING

CWC 526.

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

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

CWC 527.

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

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

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

9.2.3 CONSERVATION PRICING

The District's current water rates structure is tiered to promote water conservation by customers. The water rates have been developed to fund the cost of water and are related to the overall cost of water service. Single family residential customers are billed on an inclining block rate structure, with a fixed service charge based on meter size to encourage water conservation and discourage waste. The rate structure includes three tiers and differs based on pressure zones within the District. In addition, Ordinance No. 07-16-09 (discussed in Section 9.2.1), the District has additional water conservation measures which will be implemented during a declared Water Supply Shortage, including measures to penalize customers for negligent waste of water. The District's current rate schedule showing conservation pricing is provided in Appendix O.

9.2.4 PUBLIC EDUCATION AND OUTREACH

Public Education

The District maintains a diverse portfolio of public education and communications programs for its customers to learn about and participate in a water-efficient lifestyle. Education and outreach efforts are supported by constant and responsive communication through various mediums that include the District's website, Facebook, Twitter, Instagram, and other social media platforms. The District distributes monthly billing inserts and e-newsletters that serve as a visual guide to inform customers about their water use and ways to conserve, as well as opportunities for them to connect with District representatives and programs.

The District also places ads in the community newspapers, regional newspapers, posts banners, signs, and utilizes local marquees to promote water conservation and participates in and sponsors numerous community events. Public education and outreach messages are translated in other languages to ensure all community members within its service area are reached.

Community Events

The District regularly hosts various community events to invite community members to visit its headquarters and learn about where their water comes from, ways to conserve and save on their monthly water bill, interact with District personnel from every department, participate in live demonstrations of District equipment, and more.

Video Outreach and Virtual Tours

The District has also launched an extensive video campaign in which monthly videos are developed to give customers an inside look of everything related to water, how the District operates, and water savings opportunities. Virtual tours are a component of the video campaign to further extend efforts to bring water education directly to where the customer is located and feels most comfortable.

Student Education

The District hosts multiple water education programs for students in the local elementary, middle, and high schools in its service area. The District is committed to providing students and educators with resources for hands-on learning experiences. This includes in-person presentations, supplemental educational materials, virtual presentations and tours, and more.

Poster Art Contest

The "Water is Life" poster art contest is available to students in grades 3 through 12 attending schools within the District's service area. The annual poster art contest provides students with the opportunity to learn the importance of using water efficiently while demonstrating their artistic abilities. From 2015 to 2020, over 6,000 students participated in this water education program. Educators and teachers, who have students that participate in the contest, receive water education support from the District through sponsored school supplies, field trips, and more.

High School Broadcast Media and Digital Art Contest

The District's high school broadcast media and digital art contest launched in 2019 and encourages students attending schools and living with its service area to develop a water education media campaign based on a specific theme. The theme for the contest is announced in January of each year, the most recent theme was "Vote for Water 2020". Students have the opportunity to learn about water efficiency and efforts to advocate for conservation through various mediums. Since its inception, over 120 students have participated in this water education program.

High School Internship Program

The District conducts a high school student internship program in which 15 high school students who attend a school or live within the service area have an opportunity to learn about the water industry and gain hands-on experience. The internship program serves as a career pathway for students within the local community and a catalyst to develop the

next generation of water professionals. Since its inception in 1997, over 200 students have participated in the water education program, including several who currently hold positions at the District.

Other Student Education Programs

The District also contracts the Discovery Science Center to perform live theatre programs to teach students within its service area about water conservation. A 30-minute water education classroom presentation is also available for grades K through 4. Presentations utilize visuals, class discussion, and audience participation to teach students about topics that include water distribution and treatment, the water cycle, and conservation techniques. In addition, each student receives a Water Awareness Bag that includes activity booklets, conservation coloring books, conservation toys and stickers at no cost.

9.2.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

The District's system is comprised mainly of single and multi-family dwellings. The District estimates water system losses at approximately 3.9 percent, as discussed in Section 4.2. The District has water conservation literature that alerts customers to be on the lookout for water system leaks and to correct them promptly. The District is available to assist customers in answering questions regarding system leaks or higher than expected water usage.

As a part of normal operation and maintenance of the water system, the District's staff does preventive maintenance. This includes regular checks on valves and meters, and pipeline maintenance. If leaks are encountered or suspected during routine inspection of the system, further evaluation is conducted. If leaks are found, they are repaired. The District also uses a leak protection model developed by Fracta. The model enables the District's field crews to focus on the most vulnerable areas shown in the model's map based on a "likelihood of failure" percentage.

The District monitors the water system for loss by comparing water production to water sales. The District will continue to monitor the water system for water loss, and if a trend develops to indicate that further analyses are required, the District will provide the necessary funds to institute another leak detection program.

The District will continue these programs to assess and manage distribution system real losses.

9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

Various District staff are involved in the water conservation program. These include operations personnel who constantly monitors for water waste and customer service staff who respond to conservation questions. In addition, the finance department reviews bills for high water usage to identify any potential leaks. District staff also provide support for water conservation activities focusing on the public outreach programs discussed previously in Section 9.2.4. The District plans to continue to provide water conservation program coordination and staffing support.

9.2.7 OTHER DEMAND MANAGEMENT MEASURES

Water Use Efficiency and Conservation Programs

The District provides its customers with tools and resources to help them lead a water-efficient lifestyle. Integrating the principles of water conservation and direct savings on their monthly water bill, customers learn not only how to use less water, but waste less. Conservation messaging, program information, and events are available on the District's website, Facebook, Twitter, and Instagram as well as its monthly bill inserts, snipes, and e-newsletter.

The District conducts multiple conservation programs that are available at no cost to customers within its service area. These programs include District specific classes, workshops, webinars, distributions, and giveaways as well as rebates and retrofits through the District's wholesaler(s) Three Valleys Municipal Water District and the Metropolitan Water District of Southern California. Conservation goodie bags are provided to customers who participate in the District's varied conservation programs and include items such as water-efficient showerheads, hose nozzles, rain buckets, and moisture meters.

Water Use Efficiency (WUE) Management Plan

In 2019, the District began its efforts to develop a WUE plan to further expand on and develop new WUE programs available to customers within its service area. These conservation measures will result in direct water savings for the District as a whole and as a benefit to customers aiming to use less water in and around their home and business. Prior to the WUE plan, from 2015 through 2019, the District offered multiple MWD conservation programs to its customers via rebates, classes, webinars, and more.

Landscape and Garden Design Workshops

The District offers customers within its service area regular landscape classes with topics focused on "California Friendly & Native Plant Landscaping" and "Turf Removal & Garden Transformation". These events are held in-person and online offering customers continued flexibility. Participation in this conservation program includes a conservation goodie bag, landscape design worksheets, and manuals to provide continued support.

Fix-A-Leak Week

The District participates in USEPA's annual Fix-A-Leak Week. This WaterSense Program serves to educate customers about water savings in and around their homes. The District offers a Leak Detection Class and distributes leak detection kits throughout the entire week for customers who complete a short survey.

Turf Removal Program

Turf grass is a common and expensive landscape covering which often consumes a large percentage of a property's water use and requires regular maintenance. The District offers turf removal workshops in-person and online and assists customers in applying for and submitting turf replacement rebate.

Premium High-Efficiency Toilet (PHET) Replacement Program

In partnership with the SoCal Water$mart program and MWD, the District conducted a PHET replacement program from 2015 through 2019. More than 1,000 high-efficiency toilets were provided to customers within the District's service area.

Rain Barrel Distribution and Rebates

The District offers rebates to customers that collect and re-use rainwater for their homes. From 2015 through 2018 the District hosted a rain barrel distribution, providing more than 2,000 rain barrels to customers within its service area. District personnel are also available to assist in the rebate application process.

High-Efficiency Device Rebates

The District promotes rebates for high-efficiency devices for both residential and commercial customers within its service area. Applicable devices include water-efficient clothes washers, PHET, sprinkler nozzles, rain barrels, weather-based irrigation controllers (WBIC), moisture sensors, plumbing fixtures, landscaping equipment, food equipment, and more. Detailed information for each device, qualifying products, and access to the application portal is available on the District's website.

9.3 REPORTING IMPLEMENTATION

9.3.1 IMPLEMENTATION OVER THE PAST FIVE YEARS

CWC 10631.

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

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

The District is committed to implementing water conservation programs and works collaboratively with Three Valleys Municipal Water District to provide water conservation programs for its residents. As a sub-agency of Three Valleys Municipal Water District, the District's residents also have the benefit of participating in Three Valleys Municipal Water District's conservation efforts. The highlights of demand management measures (DMMs) implementation over the past five years are described below.

As discussed in Section 9.2.1, The District established permanent prohibitions on wasteful practices through Section 4.07.01 of the Rules and Regulations. Along with the Rules and Regulations, District Ordinance No. 07-16-09 was also in effect from FY 2015-16 to FY 2019-2020 and includes similar water use efficiency requirements.

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

As discussed in Section 9.2.3, the District implements a tiered rate structure for residential customers within the District's three pressure zones to encourage water conservation and discourage waste.

As discussed in Section 9.2.4, the District maintains a diverse portfolio of public education and communications programs for its customers to learn about and participate in a water-efficient lifestyle. Education and outreach efforts are supported by constant and responsive communication through various mediums that include the District's website and social media platforms. The District distributed monthly billing inserts and e-newsletters that serve as a visual guide to inform customers about their water use and ways to conserve, as well as opportunities for them to connect with District representatives and programs. The District also placed ads in community newspapers, regional newspapers, posted banners, signs, and utilized local marquees to promote water conservation and participates in and sponsors numerous community events.

The District hosted multiple water education programs for students in the local elementary, middle, and high schools within its service area. This included in-person presentations, supplemental educational materials, and virtual presentations and tours. From 2015 through 2020, the District had over 6,000 students participate in their Poster Art Contest and 120 students participate in their Broadcast Media and Digital Art Contest.

As discussed in Section 9.2.5, the District distributed water conservation literature that alerted customers to be on the lookout for water system leaks and to correct them promptly.

As a part of normal operation and maintenance of the water system, District staff performed preventive maintenance. This included regular checks on valves and meters, and pipeline maintenance. The District monitored the water system for losses by comparing water production to water sales. The District also used a leak protection model

developed by Fracta to focus on the most vulnerable areas shown in the model's map based on a "likelihood of failure" percentage.

As described in Section 9.2.6, various District staff are involved in water conservation activities and public outreach programs. In addition, the District's finance department reviews monthly bills for high water usage in order to assist in identifying any potential leaks.

The District also employed additional DMMs over the past five years, including the following:

- WUE Management Plan: In 2019, the District began developing a WUE plan to further expand on and develop new WUE programs available to customers within its service area.
- Landscape and Gardening Workshops: The district offered customers within its service area regular landscape classes with topics focused on "California Friendly & Native Plant Landscaping" and "Turf Removal & Garden Transformation".
- Fix-A-Leak Week: The District participated in the EPA's annual Fix-A-Leak Week from FY 2015-16 to FY 2019-20.
- PHET Replacement Program: In partnership with the SoCal Water$mart program and MWD, the District replaced high-efficiency toilets for customers within its service area from FY 2015-16 to FY 2019-20.
- Rain Barrel Distribution and Rebates: From FY 2015-16 to FY 2017-18, the District hosted a rain barrel distribution in which they provided rain barrels to customers within its service area.
- High-Efficiency Device Rebates: The District promoted rebates for high-efficiency devices for both residential and commercial customers within its service area.

9.3.2 IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631.

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

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

As discussed in Section 5.5, the District's per-capita water use during FY 2019-20 was 149 GPCD. The District's confirmed 2020 Water Use Target is 169 GPCD. The District's per-capita water use during FY 2019-20 meets the 2020 Water Use Target and is in compliance. The District met the 2020 Water Use Target through the implementation of the Demand Management Measures discussed in Section 9.2. Continued implementation of these Demand Management Measures will assist the District in meeting water use targets and objectives.

9.4 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

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

CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

LAY DESCRIPTION – CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

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

- The steps the District's has performed to adopt and submit its 2020 Plan are detailed.
- The steps the District has performed to adopt and submit its Water Shortage Contingency Plan are detailed.
- The District coordinated the preparation of the 2020 Plan with Three Valleys Municipal Water District. The District notified this agency at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited this agency to participate in the development of the 2020 Plan.
- The District provided a notice of the public hearing to the same agencies regarding the time, date, and place of the public hearing.
- The District published a newspaper notification of the public hearing, once a week for two successive weeks
- The District conducted a public hearing to discuss and adopt the District's 2020 Plan and District's Water Shortage Contingency Plan.
- Within 30 days of adoption, the District submitted the 2020 Plan and Water Shortage Contingency Plan to the California Department of Water Resources.
- Within 30 days of adoption, the District submitted all data tables associated with the 2020 Plan to the California Department of Water Resources.

- Within 30 days of adoption, the District submitted a copy of the 2020 Plan to the State of California Library.
- Within 30 days of adoption, the District submitted a copy of the 2020 Plan (and Water Shortage Contingency Plan) to the County of Los Angeles Registrar/Recorder's office and the District's Office.
- Within 30 days after submittal of the 2020 Plan to the California Department of Water Resources, the District made the 2020 Plan (including the Water Shortage Contingency Plan) available at the District's Office and on the District's website.
- The steps the District will perform to amend the 2020 Plan and/or the Water Shortage Contingency Plan, if necessary, are provided.

10.1 INCLUSION OF ALL 2020 DATA

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

10.2 NOTICE OF PUBLIC HEARING

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

10.2.1 NOTICE TO CITIES AND COUNTIES

CWC 10621.

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

CWC 10642.

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

10.2.1.1 60 DAY NOTIFICATION

As discussed in Section 2.6.2., the District coordinated the preparation of the 2020 Plan with Three Valleys Municipal Water District. The District notified this agency, as well as the cities and county within which the District provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2020 Plan and invited them to participate in the development of the Plan. A copy of the notification letters sent to these agencies is provided in Appendix D.

10.2.1.2 NOTICE OF PUBLIC HEARING

The District provided a notice of the public hearing to the Three Valleys Municipal Water District. The notice includes the time and place of the public hearing. To ensure that the draft 2020 Plan and the draft Water Shortage Contingency Plan were available for review, the District placed a copy at its main office location and made a copy available for review on its website. Copies of the notice of the public hearing are provided in Appendix D.

10.2.1.3 SUBMITTAL TABLES

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

Table 10-1 Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Diamond Bar	Yes	Yes
Industry	Yes	Yes
Pomona	Yes	Yes
Walnut	Yes	Yes
West Covina	Yes	Yes
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Los Angeles County	Yes	Yes
NOTES:		

10.2.2 NOTICE TO THE PUBLIC

CWC 10642.

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

Government Code 6066.

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

The 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, the District published a notice of public hearing in the newspaper during the weeks of June 7, 2021 and June 14, 2021. A notice of public hearing was also provided to the District's main office and was posted throughout the District's service area and on the District's website. A copy of the published notice is provided in Appendix D. To ensure the draft 2020 Plan and the draft Water Shortage Contingency Plan were available for review, the District placed a copy at its main office location and made a copy available for review on its website.

10.3 PUBLIC HEARING AND ADOPTION

CWC 10642.

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

CWC 10608.26.

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

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

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

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

10.3.1 PUBLIC HEARING

Prior to adopting the draft 2020 Plan and the draft Water Shortage Contingency Plan, the District held a public hearing on June 21, 2021 which included input from the community regarding the District's draft 2020 Plan and the draft Water Shortage Contingency Plan. As part of the public hearing, the District adopted a method to determine of its water use targets through selection of Target Method 1 (see Section 5.2.1 and Appendix G). In addition, the District considered the economic impacts of meeting these water use targets; including measures described in Section 8.8.

10.3.2 ADOPTION

CWC 10642.

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

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

10.4 PLAN SUBMITTAL

CWC 10621.

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

CWC 10644.

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

CWC 10635.

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

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

10.4.1 SUBMITTING A UWMP AND WATER SHORTAGE CONTINGENCY PLAN TO DWR

The District's Board of Directors adopted the 2020 Plan on June 21, 2021 and within 30 days of adoption, the District submitted the adopted 2020 Plan (including the Water Shortage Contingency Plan) to DWR. The 2020 Plan and Water Shortage Contingency Plan were submitted through DWR's "Water Use Efficiency (WUE) Data Portal" website.

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

10.4.2 ELECTRONIC DATA SUBMITTAL

CWC 10644.

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

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

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

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

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

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

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

10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2020 Plan (including the Water Shortage Contingency Plan) by the District's Board of Directors, a copy of the 2020 Plan was submitted to the County of Los Angeles Registrar / Recorders office and the District's main office location. A copy of the letter to the County of Los Angeles will be maintained in the District's file.

10.5 PUBLIC AVAILABILITY

CWC 10645.

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

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

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

10.6 NOTIFICATION TO PUBLIC UTILITIES COMMISSION

CWC 10621.

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

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

10.7 AMENDING AN ADOPTED UWMP OR WATER SHORTAGE CONTINGENCY PLAN

CWC 10621.

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

CWC 10644.

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

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

10.7.1 AMENDING A UWMP

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

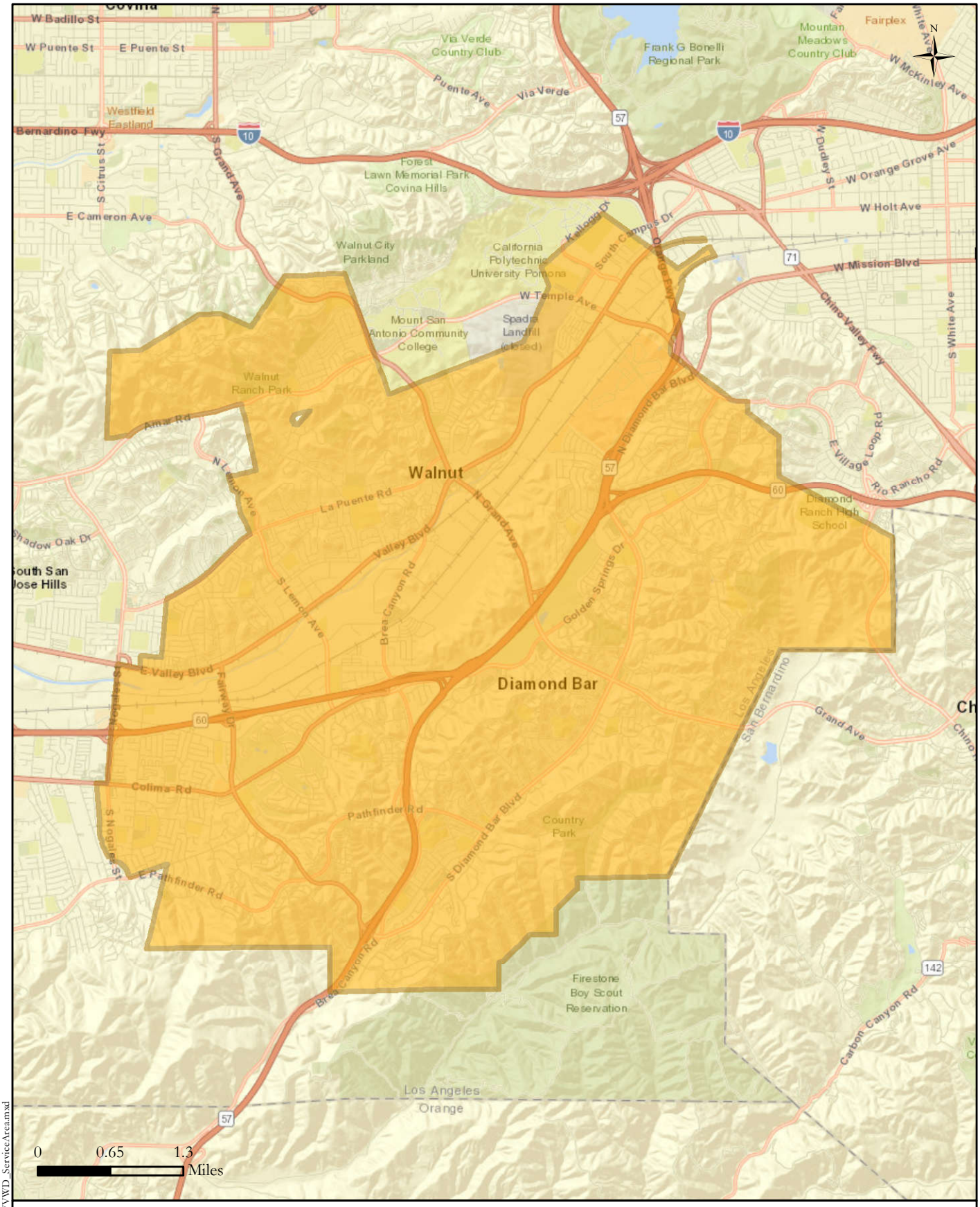
10.7.2 AMENDING A WATER SHORTAGE CONTINGENCY PLAN

CWC 10644.

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

If the District amends the adopted 2020 Plan (including the Water Shortage Contingency Plan), the amended Plan (and Water Shortage Contingency Plan) will undergo adoption by the District's Board of Directors. Within 30 days of adoption, the amended Plan (and Water Shortage Contingency Plan) will then be submitted to DWR, the State of California Library, the County of Los Angeles Registrar / Recorders office, and the District's main office location.

FIGURE 1



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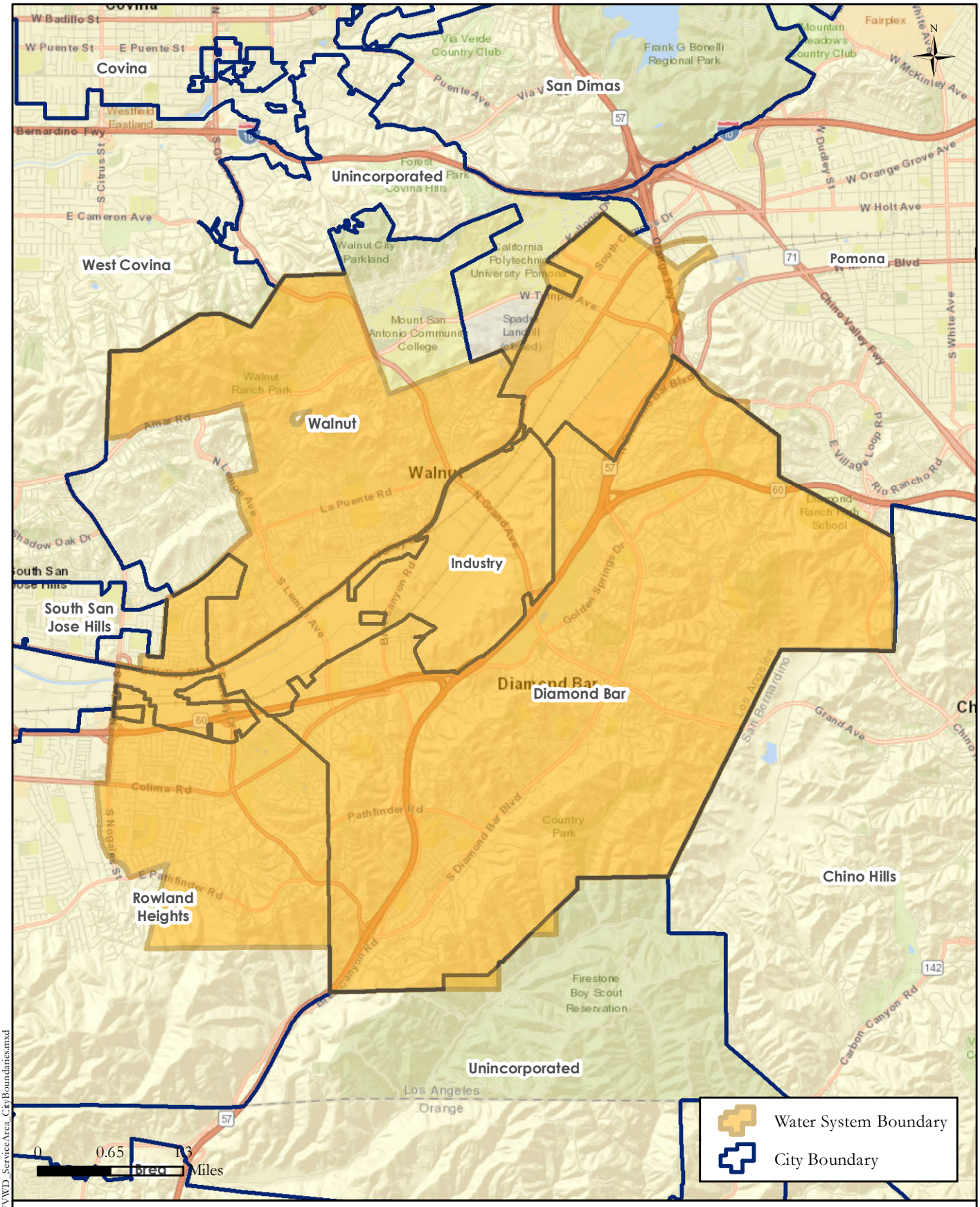
STETSON ENGINEERS INC.

WALNUT VALLEY WATER DISTRICT
WATER SERVICE AREA

FIGURE 2

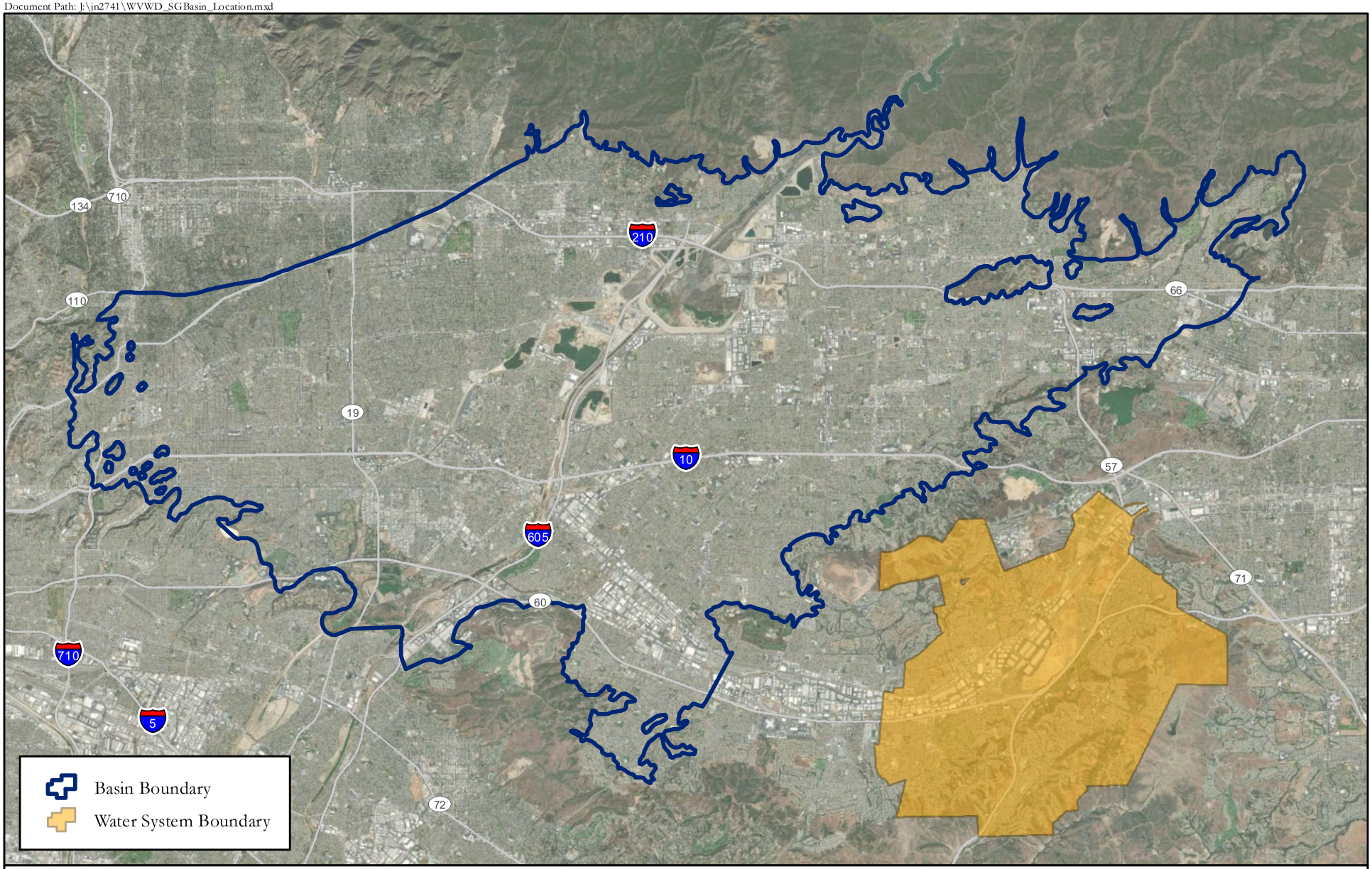


Document Path: J:\jn2741\WVWD_ServiceArea_CityBoundaries.mxd

STETSON ENGINEERS INC.

WALNUT VALLEY WATER DISTRICT
WATER SERVICE AREA
AND CITY BOUNDARIES

Document Path: J:\jn2741\WVWD_SGBasin_Location.mxd



STETSON ENGINEERS INC.

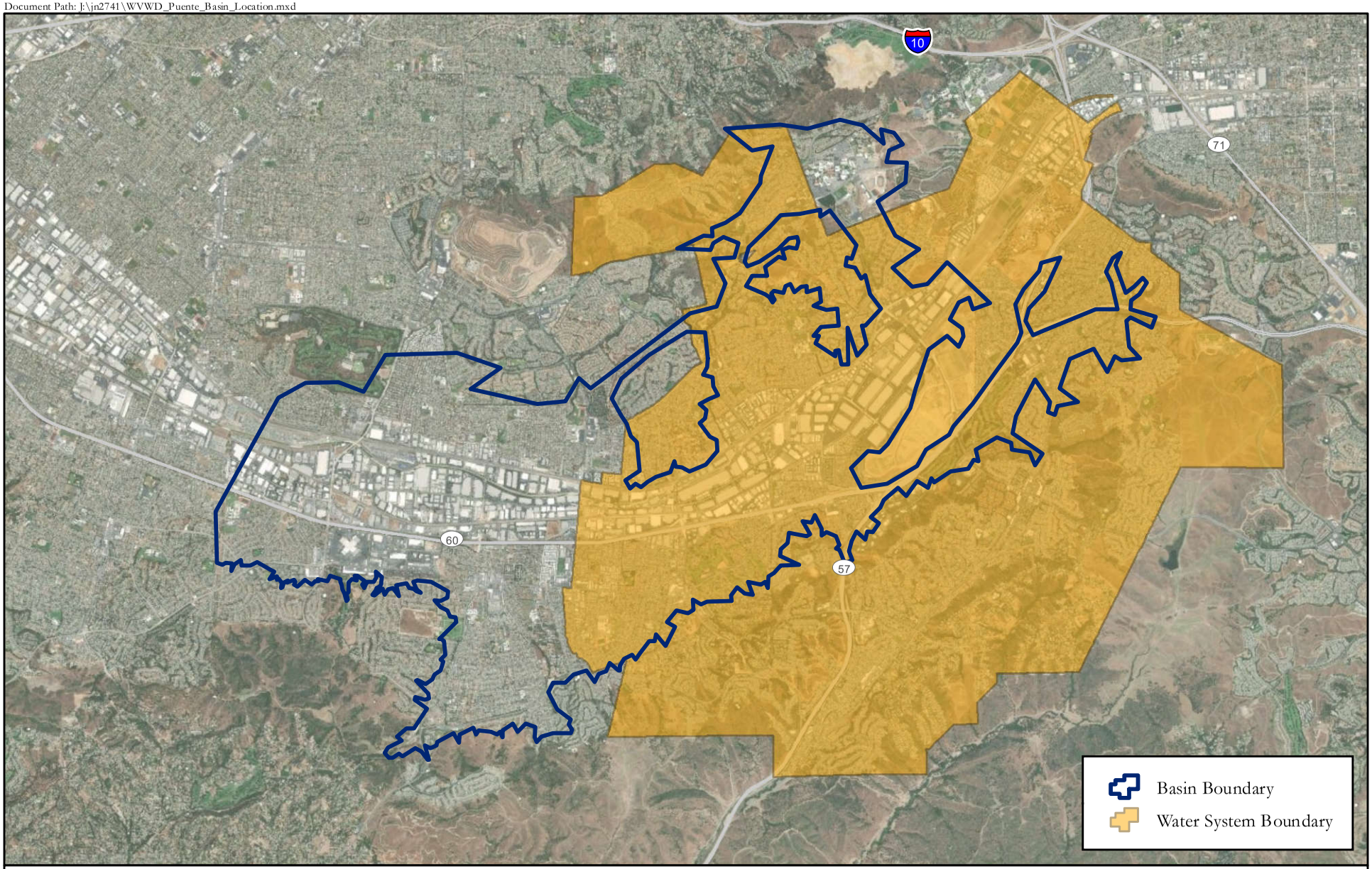
WALNUT VALLEY WATER DISTRICT
MAIN SAN GABRIEL BASIN LOCATION

0 1.5 3 Miles

N

FIGURE 3

Document Path: J:\jn2741\WVWD_Puente_Basin_Location.mxd



STETSON ENGINEERS INC.

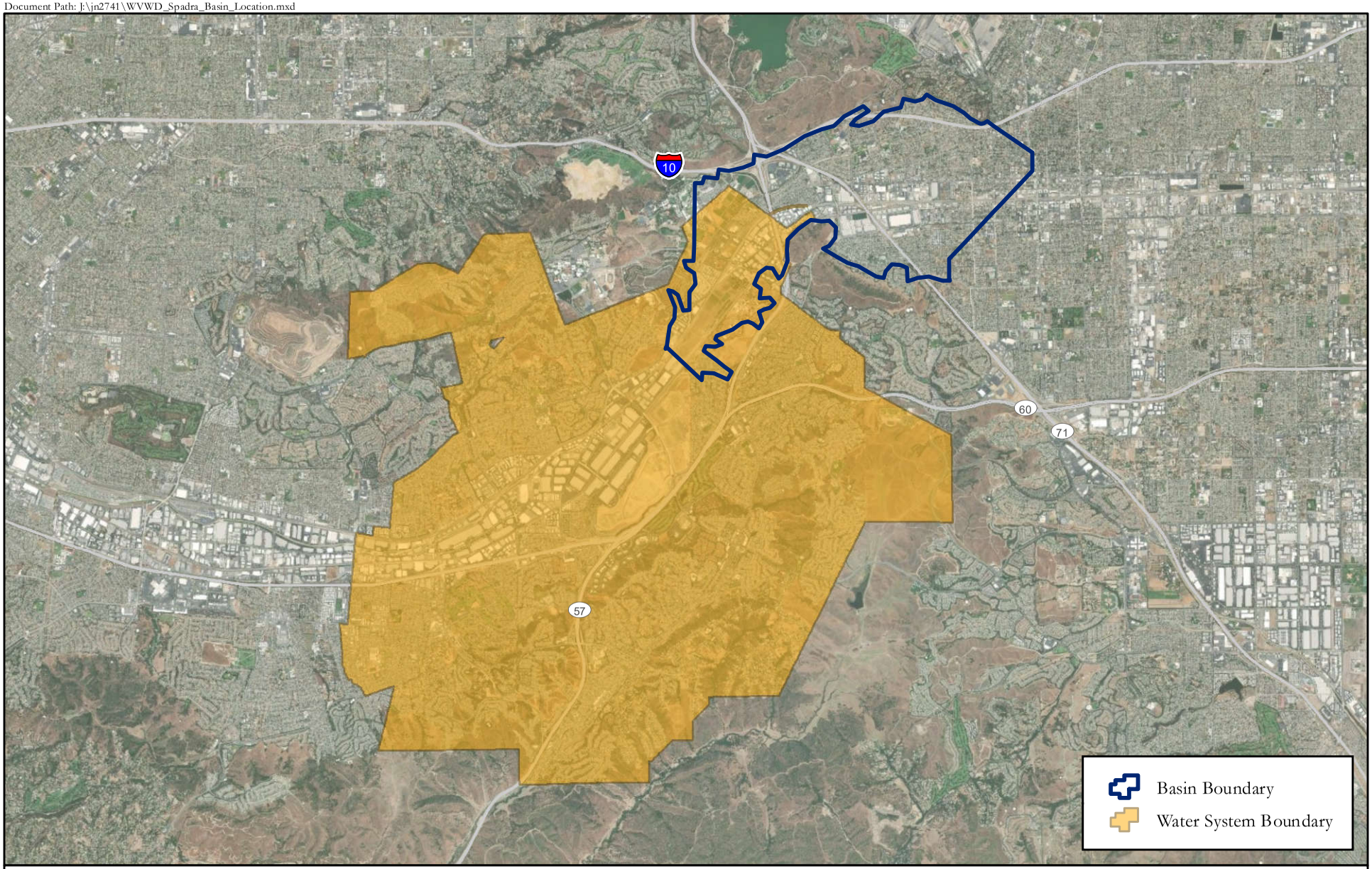
WALNUT VALLEY WATER DISTRICT
PUENTE BASIN LOCATION

0 0.5 1 Miles

N

FIGURE 4

Document Path: J:\jn2741\WVWD_Spadra_Basin_Location.mxd



STETSON ENGINEERS INC.

WALNUT VALLEY WATER DISTRICT
SPADRA BASIN LOCATION

0 0.5 1 Miles

N

FIGURE 5