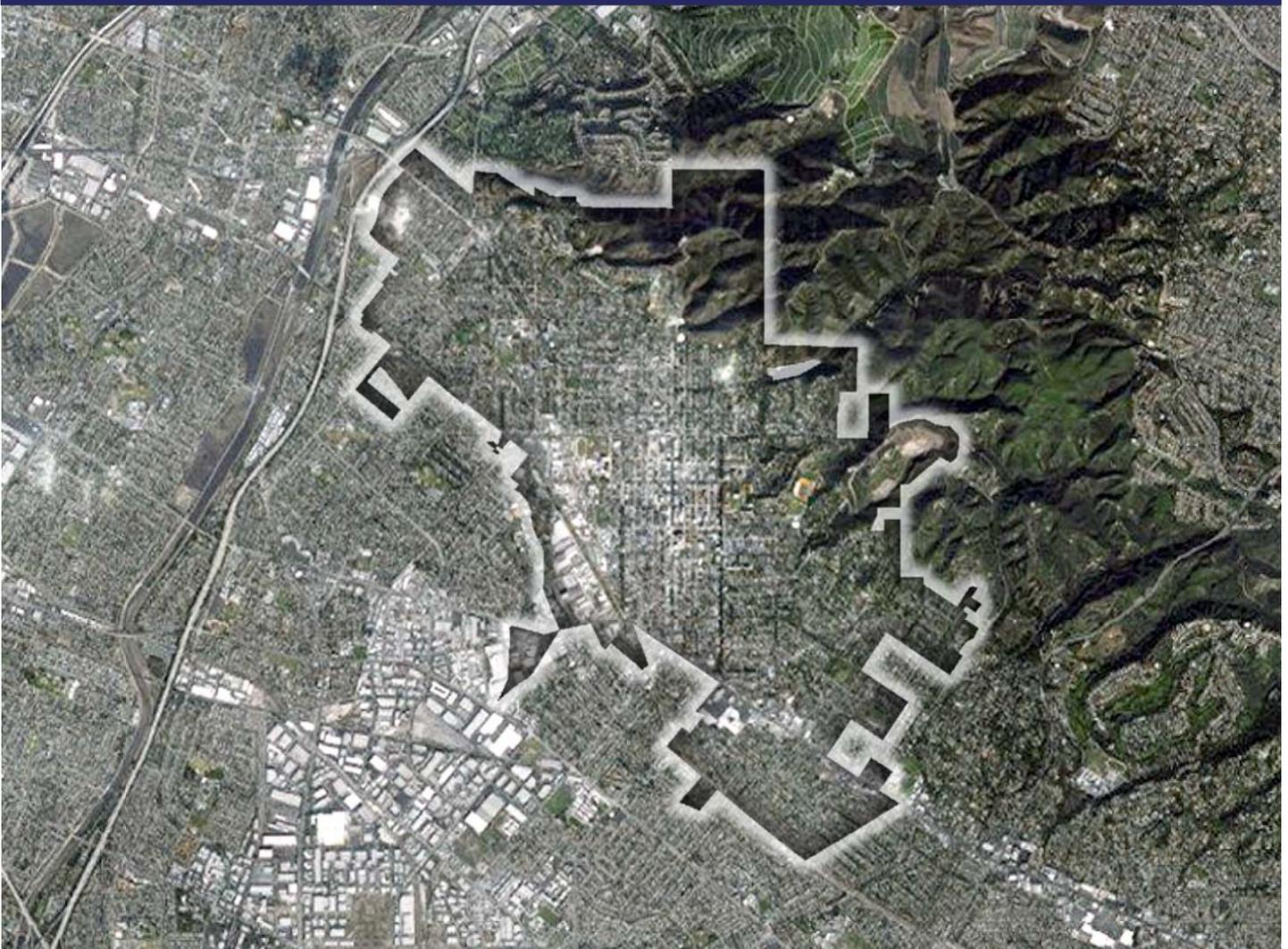


City of Whittier

2015 Urban Water Management Plan

May 2016



861 Village Oaks Drive, Suite 100 ▪ Covina, California 91724
Phone: (626) 967-6202 ▪ FAX: (626) 331-7065 ▪ www.stetsonengineers.com

Northern California ▪ Southern California ▪ Arizona ▪ Colorado

TABLE OF CONTENTS

Page

CHAPTER 1.....	1-1
INTRODUCTION AND OVERVIEW	1-1
1.1 BACKGROUND AND PURPOSE	1-1
1.2 URBAN WATER MANAGEMENT PLANNING AND THE CALIFORNIA WATER CODE	1-2
1.2.1 URBAN WATER MANAGEMENT PLANNING ACT OF 1983	1-2
1.2.2 APPLICABLE CHANGES TO THE WATER CODE SINCE 2010	1-2
1.2.3 WATER CONSERVATION ACT OF 2009 (SB X7-7)	1-3
1.3 URBAN WATER MANAGEMENT PLANNING IN RELATION TO OTHER PLANNING EFFORTS	1-4
1.4 UWMP ORGANIZATION	1-4
CHAPTER 2.....	2-1
PLAN PREPARATION	2-1
2.1 BASIS FOR PREPARING A PLAN	2-1
2.1.1 PUBLIC WATER SYSTEMS	2-3
2.1.2 AGENCIES SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS.....	2-4
2.2 REGIONAL PLANNING	2-4
2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE	2-4
2.3.1 REGIONAL UWMP	2-5
2.3.2 REGIONAL ALLIANCE	2-5
2.4 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE.....	2-6
2.4.1 FISCAL OR CALENDAR YEAR	2-6
2.4.2 REPORTING COMPLETE 2015 DATA.....	2-6
2.4.3 UNITS OF MEASURE.....	2-6
2.5 COORDINATION AND OUTREACH	2-7
2.5.1 WHOLESALE AND RETAIL COORDINATION	2-7
2.5.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY	2-7
2.5.3 NOTICE TO CITIES AND COUNTIES	2-8
CHAPTER 3.....	3-1
SYSTEM DESCRIPTION	3-1
3.1 GENERAL DESCRIPTION.....	3-1
3.2 SERVICE AREA BOUNDARY MAP	3-2
3.2.1 MAP FORMAT RECOMMENDATIONS	3-3
3.3 SERVICE AREA CLIMATE	3-3
3.3.1 CLIMATE CHANGE (OPTIONAL).....	3-5
3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS	3-5
3.4.1 OTHER DEMOGRAPHIC FACTORS	3-6

TABLE OF CONTENTS (Continued)

	<u>Page</u>
CHAPTER 4.....	4-1
SYSTEM WATER USE.....	4-1
4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND.....	4-1
4.2 WATER USES BY SECTOR.....	4-1
4.2.1 DEMAND SECTORS LISTED IN WATER CODE.....	4-2
4.2.2 DEMAND SECTORS IN ADDITION TO THOSE LISTED IN THE WATER CODE	4-3
4.3 DISTRIBUTION SYSTEM WATER LOSSES.....	4-4
4.4 ESTIMATED FUTURE WATER SAVINGS (OPTIONAL)	4-5
4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS.....	4-6
4.6 CLIMATE CHANGE (OPTIONAL).....	4-7
CHAPTER 5.....	5-1
SB X7-7 BASELINE AND TARGETS	5-1
5.1 GUIDANCE FOR WHOLESALe AGENCIES	5-1
5.2 UPDATING CALCULATIONS FROM 2010 UWMP.....	5-2
5.2.1 TARGET METHOD.....	5-2
5.2.2 REQUIRED USE OF 2010 U.S. CENSUS DATA.....	5-3
5.2.3 SB X7-7 VERIFICATION FORM	5-3
5.3 BASELINE PERIODS.....	5-3
5.3.1 DETERMINATION OF THE 10-15 YEAR BASELINE PERIOD (BASELINE GPCD).....	5-4
5.3.2 DETERMINATION OF THE 5-YEAR BASELINE PERIOD (TARGET CONFIRMATION).....	5-5
5.4 SERVICE AREA POPULTION	5-6
5.4.1 POPULATION METHODOLOGY.....	5-7
5.5 GROSS WATER USE	5-8
5.5.1 GROSS WATER TABLES.....	5-9
5.6 BASELINE DAILY PER CAPITAL WATER USE	5-9
5.7 2015 AND 2020 TARGETS	5-10
5.7.1 SELECT AND APPLY A TARGET METHOD	5-10
5.7.2 5-YEAR BASELINE – 2020 TARGET CONFIRMATION.....	5-12
5.7.3 CALCULATE THE 2015 INTERIM URBAN WATER USE TARGET	5-13
5.7.4 BASELINE AND TARGETS SUMMARY.....	5-13
5.8 2015 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD).....	5-13
5.8.1 MEETING THE 2015 TARGET	5-14
5.8.2 2015 ADJUSTMENTS TO 2015 GROSS WATER USE.....	5-14
5.9 REGIONAL ALLIANCE	5-15
CHAPTER 6.....	6-1
SYSTEM SUPPLIES.....	6-1
6.1 GROUNDWATER.....	6-1

TABLE OF CONTENTS (Continued)

		<u>Page</u>
6.1.1	MAIN BASIN	6-1
6.1.2	CENTRAL BASIN	6-2
6.2	RECYCLED WATER	6-2
6.2.1	BASIN DESCRIPTION	6-3
6.2.2	GROUNDWATER MANAGEMENT	6-13
6.2.3	OVERDRAFT CONDITIONS	6-26
6.2.4	HISTORICAL GROUNDWATER PUMPING	6-27
6.3	SURFACE WATER	6-29
6.4	STORMWATER	6-29
6.5	WASTEWATER AND RECYCLED WATER	6-29
6.5.1	RECYCLED WATER COORDINATION	6-30
6.5.2	WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL	6-30
6.5.3	RECYCLED WATER SYSTEM	6-32
6.5.4	RECYCLED WATER BENEFICIAL USES	6-32
6.5.5	ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE	6-33
6.6	DESALINATED WATER OPPORTUNITIES	6-35
6.6.1	MAIN BASIN	6-35
6.6.2	CENTRAL BASIN	6-36
6.7	EXCHANGES OR TRANSFERS	6-36
6.7.1	EXCHANGES	6-36
6.7.2	TRANSFERS	6-36
6.7.3	EMERGENCY INTERTIES	6-37
6.8	FUTURE WATER PROJECTS	6-37
6.9	SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER	6-38
6.10	CLIMATE CHANGE IMPACTS TO SUPPLY	6-39
CHAPTER 7		7-1
WATER SUPPLY RELIABILITY ASSESSMENT		7-1
7.1	CONSTRAINTS ON WATER SOURCES	7-1
7.1.1	WATER QUALITY IN MAIN SAN GABRIEL BASIN	7-1
7.1.2	WATER QUALITY IN CENTRAL BASIN	7-2
7.2	RELIABILITY BY TYPE OF YEAR	7-3
7.2.1	TYPES OF YEARS	7-5
7.2.2	AGENCIES WITH MULTIPLE WATER SOURCES	7-5
7.3	SUPPLY AND DEMAND ASSESSMENT	7-6
7.4	REGIONAL SUPPLY RELIABILITY	7-7
CHAPTER 8		8-1
WATER SHORTAGE CONTINGENCY PLAN		8-1
8.1	STAGES OF ACTION	8-1
8.1.1	PRIORITY BY USE	8-2

**TABLE OF CONTENTS
(Continued)**

		<u>Page</u>
	8.1.2 HEALTH AND SAFETY REQUIRMENTS	8-3
8.2	PROHIBITIONS ON END USES.....	8-4
	8.2.1 LANDSCAPE IRRIGATION	8-4
	8.2.2 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII)	8-5
	8.2.3 SWIMMING POOLS	8-5
	8.2.4 DEFINING WATER FEATURES	8-5
	8.2.5 OTHER	8-7
8.3	PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS	8-7
8.4	CONSUMPTION REDUCTION METHODS	8-7
8.5	DETERMINING WATER SHORTAGE REDUCTIONS	8-10
8.6	REVENUE AND EXPENDITURE REPORTS.....	8-10
8.7	RESOLUTION OR ORDINANCE	8-11
8.8	CATASTROPHIC SUPPLY INTERRUPTION	8-12
8.9	MINIMUM SUPPLY NEXT THREE YEARS	8-13
	8.9.1 THREE YEAR MINIMUM WATER SUPPLY	8-13
CHAPTER 9.....		9-1
DEMAND MANAGEMENT MEASURES		9-1
9.1	DEMAND MANAGEMENT MEASURES FOR WHOLESALe AGENCIES.....	9-2
9.2	DEMAND MANAGEMENT MEASURES FOR RETAIL AGENCIES.....	9-2
	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	9-7
	9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT	9-8
	9.2.7 OTHER DEMAND MANAGEMENT MEASURES	9-9
9.3	IMPLEMENTATION OVER THE PAST FIVE YEARS.....	9-10
	9.3.1 WATER WASTE PREVENTION ORDINANCES	9-11
	9.3.2 METERING.....	9-11
	9.3.3 CONSERVATION PRICING	9-11
	9.3.4 PUBLIC EDUCATION AND OUTREACH	9-11
	9.3.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS	9-12
	9.3.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT	9-12
	9.3.7 OTHER DEMAND MANAGEMENT MEASURES	9-12
9.4	PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS	9-13
9.5	MEMBERS OF THE CALIFORNIA URBAN WATER CONSERVATION COUNCIL	9-14
9.6	DEMAND MANAGEMENT MEASURES NOT IMPLEMENTED	9-14

**TABLE OF CONTENTS
(Continued)**

	<u>Page</u>
CHAPTER 10.....	10-1
PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION	10-1
10.1 INCLUSION OF ALL 2015 DATA.....	10-1
10.2 NOTICE OF PUBLIC HEARING	10-1
10.2.1 NOTICE TO CITIES AND COUNTIES	10-1
10.2.2 NOTICE TO THE PUBLIC.....	10-2
10.3 PUBLIC HEARING AND ADOPTION	10-3
10.3.1 ADOPTION.....	10-4
10.4 PLAN SUBMITTAL	10-4
10.4.1 SUBMITTING A UWMP TO DWR	10-5
10.4.2 ELECTRONIC DATA SUBMITTAL.....	10-5
10.4.3 SUBMITTING A UWMP TO THE CALIFORNIA STATE LIBRARY	10-6
10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES.....	10-6
10.5 PUBLIC AVAILABILITY	10-7
10.6 AMENDING AN ADOPTED UWMP.....	10-7

TABLE OF CONTENTS (Continued)

LIST OF TABLES

Table 2-1	Public Water Systems
Table 2-2	Plan Identification
Table 2-3	Agency Identification
Table 2-4	Water Supplier Information Exchange
Table 3-1	Population – Current and Projected
Table 4-1	Demands for Potable Water - Actual
Table 4-2	Demands for Potable Water - Projected
Table 4-3	Total Water Demands
Table 4-4	12-Month Water Loss Audit Reporting
Table 4-5	Inclusion in Water Use Projections
Table 5-1	Baselines and Targets Summary
Table 5-2	2015 Compliance
Table 6-1	Groundwater Volume Pumped
Table 6-2	Wastewater Collected Within Service Area in 2015
Table 6-3	Wastewater Treatment and Discharge Within Service Area in 2015
Table 6-4	Current and Projected Recycled Water Direct Beneficial Uses Within Service Area
Table 6-5	2010 UWMP Recycled Water Use Projection Compared to 2015 Actual
Table 6-6	Methods to Expand Future Recycled Water Use
Table 6-7	Expected Future Water Supply Projects or Programs
Table 6-8	Water Supplies – Actual
Table 6-9	Water Supplies – Projected
Table 7-1	Basis of Water Year Data
Table 7-2	Normal Water Supply and Demand Comparison
Table 7-3	Single Dry Year Supply and Demand Comparison
Table 7-4	Multiple Dry Years Supply and Demand Comparison
Table 8-1	Stages of Water Shortage Contingency Plan
Table 8-2	Restrictions and Prohibitions on End Uses
Table 8-3	States of Water Shortage Contingency Plan – Consumption Reduction Methods
Table 8-4	Minimum Supply Next Three Years
Table 10-1	Notification to Cities and Counties

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

Figure 1	Historical Baldwin Park Key Well Elevation
Figure 2	Historical Central Basin Groundwater Elevation
Figure 3	Historical Rainfall

LIST OF PLATES

Plate 1	Water Service Area Boundary
Plate 2	Service Area and Central Basin Boundary
Plate 3	Main Basin Location Map
Plate 4	Water Service Area and Municipal Boundaries
Plate 5	Location of Key Well, Spreading Grounds and Water Channels, Main San Gabriel Basin
Plate 6	Municipal Water District Boundaries
Plate 7	Groundwater Contours Map, Main San Gabriel Basin – July 2015

LIST OF APPENDICES

Appendix A	Urban Water Management Planning Act
Appendix B	Notification of Preparation of Urban Water Management Plan
Appendix C	AWWA Water Loss Audit Calculation
Appendix D	Water Conservation Act of 2009
Appendix E	Technical Methodology 2: Service Area Population Backup and Calculation
Appendix F	Standardized Tables SB X7-7 Verification Form
Appendix G	Long Beach Judgment
Appendix H	Main San Gabriel Basin Judgment
Appendix I	Main San Gabriel Basin Watermaster Rules and Regulations
Appendix J	Main San Gabriel Basin Watermaster Five-Year Water Quality and Supply Plan
Appendix K	Central Basin Judgment
Appendix L	2014 Annual Water Quality Report
Appendix M	City of Whittier 2015-16 Temporary Water Restrictions due to State-wide Emergency Drought Conditions
Appendix N	City's Water Rate Schedule
Appendix O	Water Shortage Contingency Resolution
Appendix P	Water Conservation Communications Plan
Appendix Q	CBMWD's School Education Program
Appendix R	Notice of Public Hearing
Appendix S	Resolution Adopting the 2015 Urban Water Management Plan
Appendix T	Completed Plan Checklist



CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1 BACKGROUND AND PURPOSE

The City of Whittier (City) is a water supplier and is required to prepare an Urban Water Management Plan (Plan) in accordance with the California Urban Water Management Planning Act (UWMP Act) which was established in 1983. The Act requires every “urban water supplier” to prepare and adopt a Plan, periodically review its Plan at least once every five years and make any amendments or changes which are indicated by the review. Pursuant to California Water Code Section 10617, 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 of water annually.” The primary objective of the UWMP Act is to direct urban water suppliers to evaluate their existing water conservation efforts and, to the extent practicable, review and implement alternative and supplemental water conservation measures. The UWMP Act is directed primarily at retail water purveyors where programs can be immediately affected upon the consumer. The UWMP Act, originally known as Assembly Bill (AB) 797, is included in Appendix A.

Section 10621(a) of the California Water Code states, “Each water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.” However, due to recent changes in Urban Water Management Plan requirements, California State law has extended the deadline for the 2015 Plans to July 1, 2016. The City prepared the 2010 Plan in May 2011 and an Addendum to the 2010 Plan in July 2014. The 2010 Plan and Addendum collectively will be referred herein as the 2010 Plan. The City’s 2015 Plan is an update to the City’s 2010 Plan.



1.2 URBAN WATER MANAGEMENT PLANNING AND THE CALIFORNIA WATER CODE

1.2.1 URBAN WATER MANAGEMENT PLANNING ACT OF 1983

The City is a water supplier and is required to prepare a Plan in accordance with the UWMP Act established in 1983. The UWMP Act is included in the California Water Code (CWC) under Sections 10610 through 10656. A copy of the UWMP Act is provided in Appendix A. The UWMP Act requires water agencies to develop UWMPs which provide a framework for long-term water planning as well as information regarding long-term resource planning to ensure sufficient water supplies are available to meet existing and future demands. Urban water suppliers are required to report, describe, and evaluate water deliveries and uses, water supply sources, efficient water uses, demand management measures, and water shortage contingency planning.

1.2.2 APPLICABLE CHANGES TO THE WATER CODE SINCE 2010

In compliance with the UWMP Act, the City last updated its Urban Water Management Plan in 2011 and 2014. There have been new amendments added and some reorganization of the California Water Code sections since the City's last update. The following tabulation is a summary of the new requirements which were incorporated in the City's 2015 Plan, as applicable:



Change Number	Topic	CWC Section	Legislative Bill	Summary	Guidebook Section
1	Demand Management Measures	10631 (f)(1) and (2)	AB 2067, 2014	Requires water suppliers to provide narratives describing their water demand management measures, as provided. Requires retail water suppliers to address the nature and extent of each water demand management measure implemented over the past 5 years and describe the water demand management measures that the supplier plans to implement to achieve its water use targets.	Chapter 9
2	Submittal Date	10621 (d)	AB 2067, 2014	Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.	Chapter 10
3	Electronic Submittal	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to be submitted electronically to the department.	Chapter 10
4	Standardized Forms	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.	CH 1, Section 1.4
5	Water Loss	10631 (e) (1) (J) and (e) (3) (A) and (B)	SB 1420, 2014	Requires a plan to quantify and report on distribution system water loss.	Appendix L
6	Estimating Future Water Savings	10631 (e) (4)	SB 1420, 2014	Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.	Appendix K
7	Voluntary Reporting of Energy Intensity	10631.2 (a) and (b)	SB 1036, 2014	Provides for an urban water supplier to include certain energy-related information, including, but not limited to, an estimate of the amount of energy used to extract or divert water supplies.	Appendix O
8	Defining Water Features	10632	AB 2409, 2010	Requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	CH 8, Section 8.2.4

Source: Department of Water Resources’ “Guidebook for Urban Water Suppliers” dated March 2016

1.2.3 WATER CONSERVATION ACT OF 2009 (SB X7-7)

The Water Conservation Act of 2009 (SB X7-7) required retail urban water suppliers to report the following conservation goals in their 2010 UWMPs:

- Base Daily per Capita Water Use;
- 2015 Interim Urban Water Use Target;
- 2020 Urban Water Use Target; and
- Compliance Daily per Capita Water Use



A discussion addressing the requirements of the Water Conservation Act is found in Chapter 5 of the City's 2015 Plan.

1.3 URBAN WATER MANAGEMENT PLANNING IN RELATION TO OTHER PLANNING EFFORTS

The City is a sub-agency of two wholesale water agencies, Upper San Gabriel Valley Municipal Water District (Upper District) and Central Basin Municipal Water District (CBMWD). Upper District and CBMWD each prepared a 2015 Plan which is incorporated in the City's 2015 Plan by reference. In addition, the City provided its water use projections identified in this 2015 Plan to Upper District and CBMWD in five-year increments for normal, single dry, and multiple dry year conditions over the next 20 years.

1.4 UWMP ORGANIZATION

The City's 2015 Plan was prepared consistent with the recommended organization provided in the Department of Water Resources' "Guidebook for Urban Water Suppliers", dated March 2016. The City's 2015 Plan consists of the following Chapters:

Chapter 1 - Introduction and Overview

Chapter 2 - Plan Preparation

Chapter 3 - System Description

Chapter 4 - System Water Use

Chapter 5 - Baselines and Targets



- Chapter 6 - System Supplies
- Chapter 7 - Water Supply Reliability
- Chapter 8 - Water Shortage Contingency Planning
- Chapter 9 - Demand Management Measures
- Chapter 10 - Plan Adoption, Submittal, and Implementation

Pursuant to California Water Code requirements, the City's 2015 Plan incorporates DWR's standardized tables for the reporting and submittal of UWMP data. The standardized tables are provided following the text. The City also submitted the UWMP data (standardized tables) electronically to DWR on <Date???.>.

The City's 2015 Plan also provides supporting documents (appendices) including notification letters of the UWMP update, public notice of the UWMP hearing, adoption resolution from the City's governing body, and the City's Water Shortage Contingency Plan. Further discussions regarding these supporting documents are provided within the individual Chapters of the City's 2015 Plan.



CHAPTER 2 PLAN PREPARATION

2.1 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.

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 December 31, in years ending in five and zero, except as provided in subdivision (d).

(d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

This Urban Water Management Plan (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. The primary



objective of the UWMP Act is to direct urban water suppliers to prepare a plan that describes and evaluates sources of supply, reasonable and practical efficient uses, reclamation, and demand management activities. **The UWMP Act is directed primarily at retail water purveyors where programs can be immediately applied to the consumers.** Sections 10610 through 10656 of the California Water Code, Urban Water Management Planning Act, were enacted in 1983. The UWMP Act, originally known as Assembly Bill (AB) 797, is included in Appendix A.

Section 10621(a) of the California Water Code states, “Each water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.” However, because of recent changes in Urban Water Management Plan requirements, California State law has extended the deadline for the 2015 Plans to July 1, 2016.

The City of Whittier is an “urban water supplier” pursuant to Section 10617 of the California Water Code 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 City does not provide water at wholesale for municipal purposes. This 2015 Plan is an update to the City’s 2010 Plan.



2.1.1 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.

CWC 10608.52.

(a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28. (b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24... The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

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 California Water Code requirements, the City's 2015 Plan incorporates DWR's standardized tables for the reporting and submittal of UWMP data. The standardized tables are provided following the 2015 Plan text. The City also submitted the UWMP data (standardized tables) electronically through DWR's Online Submittal Tool. In addition, the City 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 City serves potable water to more than 3,000 customers and supplies more than 3,000 AFY.

2.1.2 AGENCIES SERVING MULTIPLE SERVICE AREAS / PUBLIC WATER SYSTEMS

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

2.2 REGIONAL PLANNING

The City has developed its 2015 Plan reporting solely on its service area to address all requirements of the California Water Code. The City's 2015 Plan was not developed as a Regional Plan.

2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

As shown in Table 2-2, the City's 2015 Plan is an "Individual UWMP". The City has developed its 2015 Plan reporting solely on its service area to address all requirements of the California Water Code. The City notified and coordinated with appropriate regional agencies and constituents (See Section 2.5).



2.3.1 REGIONAL UWMP

CWC 10620.

(d)(1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide 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 City's 2015 Plan was developed as an "Individual UWMP" and not part of a Regional Plan.

2.3.2 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 City's 2015 Plan was developed as an "Individual UWMP" and not part of a Regional Alliance.

2.4 FISCAL OR CALENDAR YEAR AND UNITS OF MEASURE

CWC 10608.20.

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

2.4.1 FISCAL OR CALENDAR YEAR

The data provided in the City's 2015 Plan is reported on a fiscal year basis, unless noted otherwise, as show in Table 2-3. A fiscal year begins on July 1 of every year.

2.4.2 REPORTING COMPLETE 2015 DATA

The data provided in the City's 2015 Plan is provided on a fiscal year basis through June 30, 2015.

2.4.3 UNITS OF MEASURE

As shown in Table 2-3, the data provided in the City's 2015 Plan is reported in units of acre-feet (AF), unless noted otherwise.



2.5 COORDINATION AND OUTREACH

CWC 10631.

(j) 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 (c). 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 (c).

2.5.1 WHOLESALE AND RETAIL COORDINATION

The City is a member agency of two wholesale water agencies, Upper District and CBMWD. As indicated in Table 2-4, the City has provided its 2015 Plan to Upper District and CBMWD which includes water use projections in five-year increments for normal, single dry, and multiple dry year conditions over the next 20 years.

2.5.2 COORDINATION WITH OTHER AGENCIES AND THE COMMUNITY

CWC 10620.

(d)(2) 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 the plan.

The City of Whittier is a retail water supplier that serves approximately 65 percent of the residents within the City of Whittier. The City 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 City coordinated the preparation of the Urban Water Management Plan with the County of Los Angeles, the Main San Gabriel Basin Watermaster (Main Basin Watermaster), Upper District, CBMWD and the City of Whittier. As discussed in Section 10.2, the City notified these agencies, as well as to the cities and county within which the City provides water supplies, at least sixty (60) days prior to the public hearing of the preparation of the 2015 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 B.

2.5.3 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, notification was provided to the cities and county within which the City provides water supplies that the City was reviewing and considering amendments (updates) to the 2010 Plan, and as a result prepare the 2015 Plan Update. Notification was provided at least 60 days prior to the public hearing (see Appendix B).



CHAPTER 3

SYSTEM DESCRIPTION

3.1 GENERAL DESCRIPTION

CWC 10631.

(a) Describe the service area of the supplier.

The City of Whittier, which was incorporated in 1898, issued a bond that authorized for the purchase of the Pickering Land and Water Company. In 1956, the City of Whittier also acquired the Cate Ditch Company. The location of the City of Whittier is shown on Plate 1. The City of Whittier occupies an area of approximately 12 square miles with elevations ranging from 200 feet to 1,000 feet above mean sea level (MSL).

The City's service area is located within Central Basin is shown on Plate 2, approximately 15 miles southeast of the City of Los Angeles. The City's service area is bounded by the San Gabriel River on the west; Puente Hills to the north; and the City of La Habra Heights, City of La Habra, City of La Mirada, City of Santa Fe Springs, and unincorporated area within the County of Los Angeles to the east and south.

The City is a retail water company that serves approximately 65 percent of the residents of the City of Whittier. The City is a sub-agency of two wholesale water agencies, Upper District and CBMWD. The City is a local purveyor of water that serves retail water customers within the City of Whittier, with water supplied from local groundwater basins and irrigation water from wastewater reclamation plants. The City



has the legal right to pump groundwater from both the Main San Gabriel Basin (Main Basin) and Central Basin.

The City owns and operates three active wells, Wells No. 13, No. 15, and No. 16 located within the Main Basin. Plate 3 shows the boundaries of the City's service area relative to the Main Basin. Historically, the City received treated water from the Whittier Narrows Operable Unit Groundwater Treatment Plant (WNOU-GTP) in-lieu of producing water from City owned wells in the Main Basin. The City stopped receiving treated water from the WNOU-GTP in calendar year 2013, but increased production of groundwater in the Main Basin from City owned wells.

The City owns and operates two wells, Wells No. 8 and No. 14, located within Central Basin.

3.2 SERVICE AREA BOUNDARY MAP

A service area boundary map is provided in Plate 1. The location of the City's service area and the City of Whittier municipal boundary is provided in Plate 4.

Based on the Alternative Methodology for Service Area Population, approximately 64 percent of the City of Whittier's population was within the City's service area during calendar year 2000 and approximately 65 percent during calendar year 2010. For the purpose of this Plan, 65 percent of the City of Whittier's population is within the City's service area for calendar years 2015 through 2040. (see Chapter 3.4 below). The projected water demand and number of service connections by user category are discussed in Chapter 4.



3.2.1 MAP FORMAT RECOMMENDATIONS

The City'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...

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



Service Area Climate Information

Month	Average Temperature (F)	Average Min. Temperature (F)	Average Max. Temperature (F)	Average Total Precipitation (Inches)	ETo (Inches)
January	55.6	41.9	69.1	2.78	2.20
February	57.0	43.7	70.2	3.37	2.41
March	58.9	45.9	71.7	2.20	3.71
April	62.1	49.1	75.2	0.87	4.36
May	65.7	53.5	77.7	0.21	5.29
June	69.9	57.2	82.5	0.06	5.78
July	74.9	61.1	88.7	0.03	6.55
August	75.6	61.6	89.7	0.08	6.02
September	73.9	59.5	88.1	0.27	4.87
October	68.2	53.8	82.2	0.51	3.40
November	61.0	46.4	75.3	1.36	2.38
December	55.9	41.9	69.8	2.01	1.90
Annual	64.7	51.3	78.4	13.74	48.87

Source:

Historical average monthly precipitation information was obtained from the Los Angeles County Department of Public Works and is based on data collected from Station 106Z (Whittier City Yard) from 1959 through 2015. Historical monthly temperature information was obtained from the Western Regional Climate Center (<http://www.wrcc.dri.edu/>) and is based on data collected from Station 047785 (San Gabriel Fire Department) from 1939 through 2015. Historical monthly average ETo information was obtained from the California Irrigation Management Information Systems (<http://www.cimis.water.ca.gov>) and is based on data collected from Station 159 (Monrovia).

The historical average rainfall in the vicinity of the City’s service area is about 13.74 inches. The City’s service area has a dry climate and summers can reach average daily temperatures in the high 80s. Although changes in climatic conditions will have an impact, the projected water supply demands will be based on average year, single dry year and multiple-dry years, based on historical data and projected demands.



3.3.1 CLIMATE CHANGE (OPTIONAL)

The California Water Code does not require the City to address climate change. However, a discussion on single-dry year and multiple dry years is provided in Section 7.2 and a discussion on potential impacts to basin management practices is provided in Section 6.2. A discussion regarding the regional impacts of climate change on demand and supply are provided in Metropolitan Water District of Southern California's 2015 Plan, which is incorporated by reference.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

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 City provides water service to an area with a 2015 population of about 56,200. Table 3-1 presents the current and projected population of the area encompassed by the City from 2015 to 2040. Projected populations in the City's service area were based on projections obtained from the Southern California Association of Governments (SCAG). The SCAG data incorporates demographic trends, existing land use, general plan land use policies, and input and projections from the Department of Finance (DOF) and the US Census Bureau. The population estimate for 2015 in Table 3-1 is consistent with the DWR requirements discussed in Section 5.4.1.



3.4.1 OTHER DEMOGRAPHIC FACTORS

CWC 10631.

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

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



CHAPTER 4

SYSTEM WATER USE

4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND

Chapter 4 addresses the City's potable water demands. Recycled water demands are addressed separately in Section 6.5; however, a summary is provided in Table 4-3.

4.2 WATER USES BY SECTOR

CWC 10631(e).

(1) 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, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(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.

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



The City's past and current, and projected water demands are provided in five-year increments through 2041 in Tables 4-1 and 4-2. Water demand sectors are also identified (see Section 4.2.1). The City's total water demand projections are based on the SB X7-7 calculations prepared in Section 5.7. The water demands for each individual water demand sector were projected based on the percentage breakdown of water demands from each individual water demands sector in 2015 (the percentages were then applied to the projected total water demands).

4.2.1 DEMAND SECTORS LISTED IN WATER CODE

As shown in Table 4-1, the City's service area includes the following water demand 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. Commercial water demands are included in retail demands.)



- **Industrial**
(Industrial users are defined as water users that are primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. Industrial water demands are included in retail demands.)
- **Landscape**
(Landscape connections supply water solely for landscape irrigation. Landscapes users may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. Landscape water demands are included in retail demands.)
- **Distribution system losses**
(Distribution system losses are discussed in Section 4.3)

4.2.2 DEMAND SECTORS IN ADDITION TO THOSE LISTED IN THE WATER CODE

The City'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).



4.3 DISTRIBUTION SYSTEM WATER LOSSES

CWC 10631(e)(1).

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, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:...

(J) Distribution system water loss

CWC 10631(e)(3).

(A) For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.

(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.

The City estimated its distribution system water loss over the most recent 12-month period from July 2014 to June 2015 using the methodology developed by the American Water Works Association (AWWA). The City's distribution system water loss over the most recent 12-month period available, from July 2014 to June 2015, was 582 acre-feet, as shown in Table 4-4. This is about a 7 percent water loss from water supplied. A copy of the AWWA water system balance calculation for the City's distribution system water loss is provided in Appendix C.



4.4 ESTIMATED FUTURE WATER SAVINGS (OPTIONAL)

CWC 10631(e)(4).

(A) If available and applicable to an urban water supplier, water use projections may 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 City's projections include future water savings based on the City's Water Conservation Communications Plan, Ordinance No. 2509, and the executed "Temporary Water Restrictions." The City instituted Water Conservation Communications Plan, Ordinance No. 2509, and the executed "Temporary Water Restrictions" as a way to carefully manage its water supply with active water conservation measures not only in times of drought, but at all times, in order to ensure a reliable minimum supply of water to meet current and future water supply needs. Historically, the City's gallons per capita per day (GPCD) was about 155 GPCD. Due to the executed "Temporary Water Restrictions" and the Water Conservation Communications Plan, the City's 2015 GPCD was about 124 GPCD.



4.5 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 City's water use projections (See Section 7.3) through 2040 include projected water demands for lower income single-family and multi-family households. The total number of lower income households within the City's service area was estimated based on billing records provided by the City, a review of the City's General Plan, and a review of GIS maps of Disadvantaged Communities¹ (DACs), including block groups, tracts, and places, provided by DWR. The City's projections in Tables 4-2 and 4-3 includes lower income households. During fiscal year 2014-15, the City's records indicate that the City currently provides service to approximately 162 lower income households. Based on a 5.05 persons per connections factor (discussed in Section 5.4.1) and 124 GPCD (calculated and discussed in Section 5.8.1), the estimated demand is about 104 acre-feet for 2015. Assuming lower income households

¹ 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)



will increase 1 percent per year and 134 GPCD (calculated and discussed in Section 5.7.2) by 2040, the projected water demand for lower income households is about 176 acre-feet per year by the year 2040.

4.6 CLIMATE CHANGE (OPTIONAL)

DWR had deemed Section 4.6 as optional. The City is not required by DWR to complete this section. However, a discussion on single-dry year and multiple dry years is provided in Section 7.2 and a discussion on potential impacts to basin management practices is provided in Section 6.2. A discussion regarding the regional impacts of climate change on demand and supply are provided in Metropolitan Water District of Southern California's 2015 Plan, which is incorporated by reference.



CHAPTER 5

SB X7-7 BASELINE AND TARGETS

The Water Conservation Act of 2009 (or SB X7-7) required retail urban water suppliers to determine target water use for the years 2015 and 2020 in order to help the State achieve a 20 percent reduction in urban water use by the year 2020. Methodologies for calculating baseline and compliance daily urban per capita water use for the consistent implementation of the Water Conservation Act of 2009 were previously published by DWR's "Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use", dated October 1, 2010. DWR provided updated methodologies in its "Guidebook for Urban Water Suppliers," dated March 2016. DWR's guidance documents were used by the City to determine the required water use parameters which are discussed below. The City developed the baselines and targets individually and not regionally. A copy of the Water Conservation Act of 2009 is provided in Appendix D.

5.1 GUIDANCE FOR WHOLESALE AGENCIES

CWC 10608.36.

Urban wholesale water suppliers shall include in the urban water management plans... an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

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



5.2 UPDATING CALCULATIONS FROM 2010 UWMP

CWC 10608.20.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Methodologies DWR 2010, Methodology 2 Service Area Population.

Page 27 - Water suppliers may revise population estimates for baseline years between 2000 and 2010 when 2010 census information becomes available. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates.

5.2.1 TARGET METHOD

The methodology selected in the City's 2010 Plan to determine the City's 2015 and 2020 urban water use targets was:

- "Method 3" and was based on ninety-five percent of the applicable state hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Water Conservation Plan.

The City prepared an Addendum to its 2010 Plan (titled "Addendum No. 1") in July 2014 and used 2010 U.S. Census data to recalculate its "baseline population" (See Section 5.2.2) as well as its target water use (See Section 5.7.1). The recalculation in Addendum No. 1 was approved by DWR and is incorporated in this 2015 Plan (See Appendix E).



5.2.2 REQUIRED USE OF 2010 U.S. CENSUS DATA

The City prepared Addendum No. 1 to its 2010 Plan in July 2014 and used 2010 U.S. Census data to recalculate its “baseline population” as well as its target water use. The recalculation in Addendum No. 1 was approved by DWR and is incorporated in this 2015 Plan (See Appendix E).

5.2.3 SB X7-7 VERIFICATION FORM

The required SBX7-7 Verification Form is provided in Appendix F.

5.3 BASELINE PERIODS

CWC 10608.20.

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

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

The Baseline Daily Per Capita Water Use is defined as the average water use, expressed in gallons per capita per day (GPCD), for a continuous, multi-year baseline period. There were two different baseline periods (including a 10-year baseline period²

² Pursuant to CWC 10608.12(b)(1), the 10-year baseline period is based on “a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010”



and a 5-year baseline period³) for calculating Baseline Daily Per Capita Water Use in the City's 2010 Plan. The baseline periods applicable for the City's 2015 Plan have been reviewed and are presented below.

5.3.1 DETERMINATION OF THE 10-15 YEAR BASELINE PERIOD (BASELINE GPCD)

CWC 10608.12.

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

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 City received about 90 acre-feet of recycled water deliveries during fiscal year 2007-08, which is less than 10 percent of its total retail water demands. Consequently, a 10-year baseline period water use of 155 GPCD for

³ Pursuant to CWC 10608.12(b)(3), the 5-year baseline period is based on "a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010"



the City was determined and incorporated into this 2015 Plan and is based on a continuous 10-year period between fiscal year 1995-96 through fiscal year 2004-05 (See SB X7-7 Table 1, Appendix F). A further discussion of determining water use targets based on the 10-year baseline period water use is discussed further in Section 5.7.

5.3.2 DETERMINATION OF THE 5-YEAR BASELINE PERIOD (TARGET CONFIRMATION)

CWC 10608.12.

(b)(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

CWC 10608.22.

...an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day

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 (See Section 5.7) must be greater than or equal to 95 percent of the 5-year baseline period water use. A 5-year baseline period water use of 141 GPCD for the City was determined and incorporated into this 2015 Plan and is based on a continuous 5-year period between fiscal year 2003-04 through fiscal year 2007-08 (See SB X7-7 Table 1, Appendix F). A further discussion of the 2020 water use



target confirmation based on the 5-year baseline period water use is discussed further in Section 5.7.2.

5.4 SERVICE AREA POPULATION

CWC 10608.20.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010...the baseline 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.

For the purposes of projecting water use targets (See Section 5.7), agencies must determine the population that they served for each baseline year in both of the baseline periods (identified in Section 5.3) and for the 2015 compliance year (fiscal year 2014-15). The City has incorporated U.S. Census data through 2010 into baseline population calculations in this 2015 Plan (See Section 5.4.1). According to DWR, the full 2010 U.S. Census data was not available until 2012. The City prepared Addendum No. 1 to its 2010 Plan in July 2014 and used 2010 U.S. Census data to recalculate its “baseline population” as well as its target water use. The City prepared its service area boundary map consistent with DWR mapping requirements discussed in Section 5.4.3. In addition, the City estimated its current and projected population consistent with DWR



mapping requirements discussed in Section 5.4.1. The recalculation in Addendum No. 1 was approved by DWR and is incorporated in this 2015 Plan (See Section 5.7).

5.4.1 POPULATION METHODOLOGY

DWR requires urban water suppliers to use Technical Methodology 2: Service Area Population (Part II, Section M of the UWMP Guidebook) and Appendix A: Alternative Methodology for Service Area Population of the UWMP Guidebook (see Attachment 4) to estimate the City's service area population. The following discusses the steps taken to calculate the City's service area population.

Using "Technical Methodology 2," the City used its Geographic Information System (GIS) to overlay its water service area boundary over the US Census shape files for the years 2000 and 2010 (See Appendix E). The US Census shape files show the total City of Whittier population for calendar years 2000 and 2010. This GIS method has been used to calculate the population within the City's water service area for calendar years 2000 and 2010. Using Methodology 2, the City extrapolated the years between 2000 and 2010 (See Table 2A, Appendix E).

The City used Appendix A: Alternative Methodology for Service Area Population to calculate the service area population between 1995 and 1999. Using Appendix A: Alternative Methodology for Service Area Population, the City used its service area population for calendar year 2000 and the number of residential connections for calendar year 2000 (fiscal year 2000-01 was used to represent calendar year 2000) to calculate the "Persons per Residential Connections" for calendar year 2000. Based on Methodology 2, the year 2000 population is 53,328. From the City's data, the City's number of residential connections during 2000 was 10,561 meters. The "Persons per Residential Connections" is 5.05 ($53,328 / 10,561$). The "Persons per Residential



Connections” number is used to calculate the population for each year from 1995 through 1999 by multiplying by the number residential connections in 1995 through 1999 (See Table 2A, Appendix E).

This process resulted in a determination that approximately 64 percent of the City of Whittier’s population was within the City’s service area during calendar year 2000 and approximately 65 percent during calendar year 2010. For the purpose of this Addendum No. 1, 65 percent of the City of Whittier’s population is within the City’s service area for calendar years 2015 through 2040. Table 3-1 presents the current and projected population for the City of Whittier and the City’s service area from 2015 to 2041. The City’s estimated populations during the baseline periods are provided in SB X7-7 Table 3, Appendix F.

5.5 GROSS WATER USE

CWC 10608.12.

(g) "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.



Annual gross water use amounts within the City for each year of the 10-year baseline year (1995 to 2004) identified in Section 5.3.1, and for each of the 5-year baseline year (2003 to 2007) identified in Section 5.3.2, and for 2015 (fiscal year 2014-15), are provided in SB X7-7 Table 4 (Appendix F) and are based on the total amount of water entering the City's distribution system from its water supply sources (groundwater production wells).

5.5.1 GROSS WATER TABLES

Annual gross water use amounts within the City for each for each year of the 10-year baseline year (1995 to 2004), identified in Section 5.3, and for 2015 (fiscal year 2014-15), are provided in SB X7-7 Table 4 (Appendix F).

The City does not use indirect recycled water within its service area. Consequently, the City is not required by DWR to complete SB X7-7 Table 4-B (Appendix F).

Industrial process water is not included in the City's gross water use provided in SB X7-7 Table 4 (Appendix F). Consequently, the City is not required by DWR to complete SB X7-7 Table 4-C.1, SB X7-7 Table 4-C.2, SB X7-7 Table 4-C.3, SB X7-7 Table 4-C.4, and SB X7-7 Table 4-D.

5.6 BASELINE DAILY PER CAPITAL WATER USE

The "daily per capita water use" is based on the water used per person per day (GPCD) within the City. The daily per capita water use is estimated by dividing gross water use (See Section 5.5 and Appendix F, SBX7-7 Table 4) by the service area



population (See Section 5.4 and Appendix F, SBX7-7 Table 3). The City's baseline daily per capita water uses were determined for each baseline year (fiscal year 1995-96 to 2004-05) for fiscal year 2014-15 and are provided in SBX7-7 Table 5 (Appendix F).

5.7 2015 AND 2020 TARGETS

CWC 10608.20.

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

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan....

As discussed in Section 5.2.1, "Target Method 3" has been incorporated in the City's 2015 Plan to determine the City's 2015 and 2020 urban water use targets. A further discussion regarding the selected target method is provided below.

5.7.1 SELECT AND APPLY A TARGET METHOD

Calculation of the 2020 Urban Water Use Target includes adoption of one of four available methods (pursuant to California Water Code Section 10608.20(b)). The City reviewed the following available methods.

Target Method 1: *Eighty percent of the urban retail water supplier's Baseline Per Capita Daily Water Use.*



Using this target method, the Urban Water Use Target for the City was calculated as **124 GPCD**, based on 80 percent of the City’s Baseline Per Capita Daily Water Use of 155 GPCD (See SB X7-7 Table 7-A, Appendix F).

Target Method 2: *Estimate using the sum of the specified three performance standards specified in California Water Code Section 10608.20(b)(2).*

Due to insufficient data, this target method was not considered.

Target Method 3: *Ninety-five percent of the applicable state hydrologic region target, as set forth in the state’s 20x2020 Water Conservation Plan.⁴*

The City’s service area lies entirely within the “South Coast” Hydrologic Region. According to SB X7-7 Table 7-E (Appendix F), the 2020 regional water use target for the South Coast Hydrologic Region is 149 GPCD. The Target Method 3 regional use target for the South Coast Hydrologic Region (or 95 percent of the 2020 regional water use target) is 142 GPCD.

Target Method 4: *Water Savings (DWR Provisional Method 4)*

Due to insufficient data, this target method was not considered.

⁴ California Department of Water Resources, State Water Resources Control Board, California Bay-Delta Authority, California Energy Commission, California Department of Public Health, California Public Utilities Commission, and California Air Resources Board. *20x2020 Water Conservation Plan*. February 2010.



The City's Urban Water Use Target was initially determined to be **142 GPCD** for 2020 and is based on Target Method 3 above, as indicated in SBX7-7 Table 7 (Appendix F).

5.7.2 5-YEAR BASELINE – 2020 TARGET CONFIRMATION

CWC 10608.22.

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

As discussed in Section 5.3.2, , if an urban retail water supplier's 5-year baseline period water use is greater than 100 GPCD, the calculated 2020 Urban Water Use Target (See Section 5.7.1) must be greater than or equal to 95 percent of the 5-year baseline period water use. The City's calculated 5-year baseline period water use was 141 GPCD (See Section 5.3.2). The value calculated for 95 percent of the 5-year baseline period water use is **134 GPCD**. The City's 2020 Urban Water Use Target was initially determined using Target Method 3 above to be 142 GPCD, which is higher than the value calculated in this step (134 GPCD). Therefore, an adjustment is needed to the City's 2020 Urban Water Use Target of **134 GPCD** (See SBX7-7 Table 7-F, Appendix F).



5.7.3 CALCULATE THE 2015 INTERIM URBAN WATER USE TARGET

The City's 2015 Interim Target is based on the value mid-point between the 10-year baseline period water (155 GPCD, See Section 5.3.1 and SBX7-7 Table 5, Appendix F) and the confirmed 2020 Urban Water Use Target (134 GPCD, See Section 5.7.2 and SBX7-7 Table 7, Appendix F). The City's 2015 Interim Target is **145 GPCD** as indicated in SBX7-7 Table 8 (Appendix F).

5.7.4 BASELINE AND TARGETS SUMMARY

A summary of the City's baseline water use and targets is provided in Table 5-1.

5.8 2015 COMPLIANCE DAILY PER CAPITA WATER USE (GPCD)

CWC 10608.12.

(e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period...

CWC 10608.24.

(a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

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.



5.8.1 MEETING THE 2015 TARGET

As discussed in Section 5.7.3, the City's 2015 Interim Target is **145 GPCD**. The City's actual water use during fiscal year 2014-15 was **124 GPCD**. The City is currently in compliance with the 2015 Interim Target, as show in SB X7-7 Table 9 (Appendix F).

5.8.2 2015 ADJUSTMENTS TO 2015 GROSS WATER USE

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.*

Methodology Document, 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.

As discussed in Section 5.8.1, the City is currently in compliance with its 2015 Interim Target. As a result, adjustments to the City's 2015 gross water use were not incorporated into the City's 2015 Plan (See Table 5-2).



5.9 REGIONAL ALLIANCE

As discussed in Section 2.3.2, the City's 2015 Plan was not developed as part of a Regional Alliance. Information from the City's 2015 Plan is not required to be reported in a Regional Alliance report.



CHAPTER 6

SYSTEM SUPPLIES

The City's water supply sources include water pumped from local groundwater basins and recycled water. The City's main source of water supply is groundwater pumped from both the Main Basin and the Central Basin.

6.1 GROUNDWATER

6.1.1 MAIN BASIN

The City pumps groundwater from the Main Basin from the City's three active wells located near Whittier Narrows Dam (Wells No. 13, No. 15, and No. 16). These wells have a combined capacity of about 9,200 gallons per minute (gpm). Historically, the City received treated water from the WNOU-GTP in-lieu of producing water from City owned wells in the Main Basin. The City stopped receiving treated water from the WNOU-GTP in calendar year 2013 but continues to pump groundwater from City owned wells in the Main Basin. The City has the legal right to pump groundwater from the Main Basin. Although there is no limit on the quantity of water that may be extracted by Parties to the Main Basin Adjudication, including the City, groundwater production in excess of a Party's water right, or its proportional share (pumper's share) of the Operating Safe Yield,⁵ requires purchase of untreated imported water to recharge the Main Basin. The City has a prescriptive pumping right of about 8,271 acre-feet and a pumper's share of 4.18519 percent of the Operating Safe Yield. If the City pumps more than the allowed amount of water, replacement water may be purchased from Upper

⁵ Operating Safe Yield is set by Watermaster to allocate to each Party its portion of groundwater that can be produced from the Main Basin free of a Replacement Water Assessment.



District to recharge the Main Basin. The Main Basin is located north of the Whittier Narrows Dam.

6.1.2 CENTRAL BASIN

The City pumps groundwater from Central Basin through its two active wells, Wells No. 8 and No. 14. According to the Central Basin Adjudication, the City has an allowed pumping allocation of 895 acre-feet per year. The Central Basin Adjudication allows Parties to the Judgment to pump up to 20 percent more of its annual allowed pumping allocation plus any carry-over as described in Chapter 3.2.2.1. In December 2013, the Court approved amendments to the Judgment which implement a water storage program. The amendment states, "...a party may store up to 200 percent of the party's Allowed Pumping Allocation, if space is available." In addition, the amendments allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 100 percent of the party's Allowed Pumping Allocation minus the amount of carryover water set aside for storage. The purpose of the storage program creates an added reliability in water supply from the Central Basin. Based on the amendments, the City may store up to 200 percent of its Allowed Pumping Allocation of 895 acre-feet, which equates to about 1,790 (200% x 895) acre-feet. This stored water may be used as an additional source of supply within the Central Basin. The Water Replenishment District of Southern California (WRD) is responsible for recharging Central Basin.

6.2 RECYCLED WATER

In addition to groundwater, the City also has recycled water supplies from CBMWD. The City has seven recycled water service connections within its water system. In fiscal year 2014-15, the City delivered about 81 acre-feet of recycled water,



as shown in Table 6-4. Additional information on the City's recycled water supplies is provided in Section 6.5.

6.2.1 BASIN DESCRIPTION

CWC 10631.

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

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

Main Basin - Description

The San Gabriel Valley 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 Plate 5.

The San Gabriel River and its tributary, 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. The boundaries of these water districts are shown on Plate 6.



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 are now less than two thousand acres. The agricultural areas tend to be located in the easterly portion of the Main Basin and along power transmission rights of way adjacent to the San Gabriel River. Agricultural plots are discontinuous and relatively small. There are several major industrial areas adjacent to the San Gabriel River and within other portions of the valley. The greatest area of land use in the valley is for residential and commercial purposes. DWR Bulletin 118 does not identify the Main Basin as being in overdraft.

Main Basin - Geology

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

Most of the alluvium deposited within this depression is debris from the San Gabriel Mountains, washed and blown down from the side of the mountains over time. This process has also resulted in the materials of the Main Basin varying in size from relatively coarse gravel nearer the mountains to fine and medium-grained sand containing silt and clay as the distance from the mountains increases. The principal water-bearing formations of the Main Basin are unconsolidated and semi-consolidated sediments, which vary in size from coarse gravel to fine-grained sands. The interstices between these alluvial particles throughout the Main Basin fill with water and transmit water readily to wells. The thickness of the water-bearing materials in the Main Basin



ranges from 200 to 300 feet in the northeastern portion of the Main Basin near the mountains (DPW, 1934, page 141) to nearly 4,000 feet in the South El Monte area (DWR, 1966, page 31).

The soils overlying the Main Basin average about six feet in depth. Soil depths are generally greater at the perimeter of the valley and decrease toward the center along the San Gabriel River. These soils are residual, formed in place through chemical, mechanical and plant weathering processes. The infiltration rates of these soils are greater along the natural channels and their adjacent flood plains. Lower infiltration rates are found in the perimeter areas of the valley. Since the valley is mostly urbanized, a significant portion of the area has been paved and many miles of stream channel have been lined for flood control purposes, thus decreasing infiltration of water through streambeds. Detailed basin geology is discussed in the report entitled "Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geo-hydrology" (DWR, 1966).

Main Basin - Hydrology

The total fresh water storage capacity of the Main Basin is estimated to be about 9.5 million acre-feet. Of that, about 1,100,000 acre-feet have been used historically in Main Basin operations. The change in groundwater elevation at the Key Well is representative of changes in groundwater in the Main Basin. One foot of elevation change at the Key Well is roughly the equivalent of about 8,000 acre-feet of water storage. The location of the Key Well is shown on Plate 5 and the hydrograph of the Key Well is shown on Figure 1. 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 2015 at 174.0 feet, at which time Main Basin storage was estimated to be about 7,400,000 acre-feet. The Key Well hydrograph shown on Figure 1 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, as shown on Plate 7. 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).

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. Plate 5 shows the location of the sub-basins within the Main Basin.

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, which are shown on Plate 5. 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. The locations of these water spreading facilities are shown on Plate 5. 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 as shown on Plate 7. 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.

Central Basin – Description

Central Basin is located in Los Angeles County approximately 20 miles southeasterly of downtown Los Angeles. On its north, Central Basin is bounded by the Hollywood Basin, and that boundary runs through the City of Los Angeles. The remainder of the northern boundary of Central Basin extends along the Merced Hills, across Whittier Narrows, and then along Puente Hills. The northern Basin boundary terminates at the Orange County line, which forms the eastern boundary of the Central Basin. This boundary is a political and not a geologic one, and the aquifers in this area reach into the East Coastal Plan area of Orange County. The south-southwest boundary of the Central Basin is known as the Newport-Inglewood Uplift (NIU), separating Central and West Basin from Long Beach up to the Baldwin Hills just north of the City of Inglewood. DWR Bulletin 118 does not identify Central Basin as currently being in overdraft.

Central Basin – Geology

Central Basin is one of two groundwater basins in the Coastal Plain of Los Angeles County. It is comprised of Quaternary-age sediments (less than 1.8 million years old) of gravel, sand, silt, and clay that were deposited from the erosion of nearby hills and mountains, and from historical beaches and shallow ocean floors that covered



the area in the past. Underlying these Quarternary sediments are basement rocks such as the Pliocene Pico Formation that generally do not provide sufficient quantities of groundwater for pumping. Separating the Central Basin from the West Coast Basin is the NIU, a series of discontinuous faults and folds that form a prominent line of northwest trending hills including the Baldwin Hills, Dominguez Hills, and Signal Hill.

Central Basin covers approximately 270 square miles and is bounded on the north by the Hollywood Basin and the Elysian, Repetto, Merced, and Puente Hills, to the east by the Los Angeles County/Orange County line, and to the south and west by the NIU. DWR divided the Central Basin into four sections; the Los Angeles Forebay, the Montebello Forebay, the Whittier Area, and the Pressure Area.

The two forebays represent areas of unconfined aquifers that allow percolation of surface water down into the deeper aquifers to replenish the basins. The Whittier Area and Pressure Area are confined aquifer systems that receive relatively minimal recharge from surface water. They are replenished from the up-gradient forebay areas and adjacent groundwater basins.

Central Basin – Hydrogeology

The aquifers of Central Basin received their water supply primarily from the surface and subsurface inflow of water from the San Gabriel Valley. The water originates as rainfall in the San Gabriel Mountains, the runoff from which is conveyed to the Los Angeles River, the Rio Hondo, and the San Gabriel River. The Los Angeles River enters Central Basin through the Los Angeles Narrows, crosses the Los Angeles Forebay Area, and proceeds south across Central Basin, exiting Central Basin through the Dominguez Gap in West Basin. The Rio Hondo, enters Central Basin at Whittier Narrows parallel to the San Gabriel River, proceeds southwesterly across the Montebello Forebay Area and joins the Los Angeles River midway across the Basin.



The San Gabriel River also enters Central Basin through the Whittier Narrows, crosses the Montebello Forebay, and runs south to the Pacific Ocean near Long Beach at the Orange County line.

As the Rio Hondo and San Gabriel Rivers flow through the Upper San Gabriel Valley toward Whittier Narrows, much of their flow percolates into the Main Basin. This water crosses the Whittier Narrows and enters Central Basin as subsurface flow into the aquifers of Central Basin. At the same time, the surface flows of the Rio Hondo and the San Gabriel River percolate downward into the aquifers of Central Basin in the Montebello Forebay. In the Montebello Forebay, the underground aquifers merge and are unconfined, and thus are capable of receiving large quantities of water from percolation through the sand and gravel surface of the forebay area.

The Los Angeles Forebay area is also favorably situated for percolation from the flows of the Los Angeles River, but the Los Angeles Forebay has been largely eliminated as a source of fresh water replenishment to Central Basin, due to lining of the Los Angeles River channel and the paving over of the forebay area. In the Montebello Forebay area, by contrast, flood flows have been largely controlled through the construction of the Whittier Narrows Dam, and the river channels have not been lined in the area, so percolation can still occur.

Groundwater in the Central Basin provides a substantial portion of the water supply needed by residents and industries in the overlying area. Groundwater occurs in the pore spaces of the sediments in the basin. The major aquifers identified in Central Basin include the following, from shallowest to deepest: a) the Gaspar and semi-perched aquifers of the Holocene Alluvium Formation; b) the Exposition, Artesia, Gage, and Gardena aquifers of the Upper Pleistocene Lakewood Formation; c) the Hollydale, Jefferson, Lynwood, and Silverado aquifers of the Lower Pleistocene Upper San Pedro Formation; and d) the Sunnyside Aquifer of the Lower Pleistocene Lower San Pedro



Formation. Water levels have exhibited a general recovery since the Basin was adjudicated in the early 1960s, as shown on Figure 2. Aquifer depths can reach more than 2,000 feet in Central Basin although production wells generally do not need to be drilled this deep to tap sufficient water.

6.2.2 GROUNDWATER MANAGEMENT

CWC 10631(b).

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

- (1) A copy of any groundwater management plan adopted by the urban water supplier ... or any other specific authorization for groundwater management.*
 - (2) ...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.*
-

Main Basin – 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: San Gabriel River Watermaster (River Watermaster)⁶ and Main San Gabriel Basin Watermaster (Basin Watermaster)⁷. The City is a party to both

⁶ 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.

⁷ Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., Los Angeles County Case



Judgments and as such participates in these cases. The City also participates in the Main Basin management described in the Main Basin Watermaster document entitled "Five-Year Water Quality and Supply Plan." The City is a party in the Long Beach Judgment and as such participations in that case.

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.

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 G.

No. 924128, Judgment entered January 4, 1973.



Under the terms of the Long Beach Judgment, the area downstream from Whittier Narrows (Lower Area), the plaintiffs and those they represent, are to receive a quantity of usable water annually from the San Gabriel River system comprised of usable surface flow, subsurface flow at Whittier Narrows and water exported to the Lower Area. This annual entitlement is guaranteed by the area upstream of Whittier Narrows (Upper Area), the defendants, and provision is made for the supply of Make-up Water by the Upper Area for years in which the guaranteed entitlement is not received by the Lower Area.

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

The detailed operations described in the Long Beach Judgment are complex and requires continuous compilation of data so that annual determinations can be made to assure compliance with the Long Beach Judgment. In order to do this, a three-member Watermaster was appointed by the Court, one representing the Upper Area parties nominated by and through Upper District, one representing the Lower Area parties nominated by and through the Central District, and one jointly nominated by Upper District and Central District. This three-member board is known as the 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 2014-15 and operations of the river



system under that Court Judgment and through the administration by the River Watermaster have been satisfactory since its inception.

One major result of the Long Beach Judgment was to leave the Main Basin free to manage its water resources so long as it meets its downstream obligation to the Lower Area under the terms of the Long Beach Judgment. Upper District intervened in the Long Beach case as a defendant to enforce the provisions of a Reimbursement Contract, which was incorporated into the Long Beach Judgment to assure that any Make-up Water obligations under the terms of the Long Beach Judgment would be satisfied.

Main Basin – Main Basin Judgment

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



Under the terms of the Main Basin Judgment all rights to the diversion of surface water and production of groundwater within the Main Basin and its Relevant Watershed were adjudicated. The Main Basin Judgment provides for the administration of the provisions of the Main Basin Judgment by a nine-member Main Basin Watermaster. Six of those members are nominated by water producers (producer members) and three members (public members) are nominated by the Upper District and the San Gabriel 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. A copy of the Main Basin Watermaster's Rules and Regulations, updated as of June 2012, is located in Appendix I.

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 Basin management program under the Court Judgment and a Make-up Obligation Assessment in order to fulfill the requirements for any make-up 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 Amended 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 Baldwin Park Key Well⁸ (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 – 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

⁸ The Baldwin Key Well is a monitoring well located in the City of Baldwin Park used to determine the trends in the groundwater levels throughout the Main Basin.



reduce the groundwater extractions from the western portion of the Main Basin and the associated drawdown concerns.

Imported water for groundwater replenishment is delivered through the flood control channels and diverted and spread at spreading grounds through Main Basin Watermaster's agreement with the Los Angeles County Department of Public Works (DPW). Groundwater replenishment utilizes imported water and is considered Replacement Water under the terms of the Main Basin Judgment. 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 100,000 acre-feet for future Replacement Water use. The second Cyclic Storage Agreement is with Three Valleys Municipal Water District (TVMWD) and permits Metropolitan to deliver and store up to 40,000 acre-feet for future Replacement Water use. The third is with SGVMWD and contains generally the same conditions as the agreement with MWD except that the stored quantity is not to exceed 50,000 acre-feet.

Imported Make-up Water has been delivered to lined stream channels and conveyed to the Lower Area. Make-up Water is required to be delivered to the Lower Area by the Upper Area when the Lower Area entitlement under the Long Beach Judgment exceeds the usable water received by the Lower Area. Imported water is used to fulfill the Make-up Water Obligation when the amount of Make-up Water cannot be fulfilled by reimbursing the Lower Area interests for their purchase of recycled water. The amount of recycled water for which reimbursement may be made as a delivery of



Make-up Water is limited by the terms of the Long Beach Judgment to the annual deficiency in Lower Area Entitlement water or to 14,735 acre-feet, whichever is the lesser quantity.

Main Basin – 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, 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. A copy of the most recent Five-Year Water Quality and Supply Plan (excluding its appendices) is located in Appendix J.

Main Basin Watermaster prepares and annually updates the Five-Year Water Quality and Supply Plan in accordance with the requirements of Section 28 of the 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. Review and cooperate on cleanup projects, and provide technical assistance to other agencies;
4. Assure that pumping does not lead to further degradation of water quality in the Basin;
5. Address Perchlorate, N-nitrosodimethylamine (NDMA), and other emerging contaminants in the Basin;
6. 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
7. 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 the City) 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, the City 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.



Main Basin – Water Quality Authority 406 Plan

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

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

WQA reviews and adopts the Section 406 Plan on an annual basis and as necessary, makes revisions according to changing regulatory, political and/or funding environments.

In support of the Section 406 Plan, WQA also adopts an annual fiscal year 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.



Central Basin – Groundwater Management Plan

Groundwater production in Central Basin is restricted to adjudicated rights fixed by the Central Basin Judgment and managed by a court-appointed Watermaster. The City was a defendant in Central Basin Judgment⁹ and as such had participation. The following section provides a historical overview based on the Central Basin Watermaster Annual Report.

Central Basin – Judgment

On January 2, 1962, the Central and West Basin Water Replenishment District (now WRD) filed Case No. 786,656 in the Superior Court, County of Los Angeles, naming more than 700 parties as defendants. It sought to adjudicate water rights of groundwater and regulate pumping from the Central Basin. By September 1962, a proposed agreement had been approved by a sufficient number of water producers (producers owning over 75 percent of the Assumed Relative Rights within Central Basin) to guarantee control over groundwater pumping in Central Basin. On September 28, 1962, the Court signed the “Order Pursuant to Stipulation and Interim Agreement and Petition for Order” and appointed DWR as Watermaster.

Subsequently, a stipulated judgment was drafted. Approval was received by public utility water companies and other producers representing well over 200,000 acre-feet, or 75 percent, of the total rights within Central Basin. This was a prerequisite to filing the stipulated judgment with the Court. On May 17, 1965, the case went to trial before Judge Edmund M. Moor. Following testimony on engineering, geology, hydrology, and safe yield of Central Basin and arguments on water right entitlement, the case was continued to August 25, 1965. Shortly thereafter, Judge Moor appointed

⁹ Central and West Basin Water Replenishment District, etc. vs. Charles E. Adams etc., Los Angeles County Case No. 786,656, Judgment entered in 1965.



DWR as Watermaster. The final Judgment was signed on October 11, 1965 and became affective on October 1, 1966.¹⁰ A copy of the Central Basin Judgment is located in Appendix K.

The Judgment was amended on March 21, 1980, to provide for a transition in the administrative year from a water year (October 1 to September 30) to a fiscal year (July 1 to June 30). Under the Judgment, this transition in turn contained a “short” administrative year of nine months – October 1, 1980 to June 30, 1981. The administrative year starting July 1, 1981 was on a fiscal year basis.

The Judgment was again amended on July 19, 1985, modifying the annual budget (\$20 minimum assessment) and exchange pool provisions. The second amended Judgment of May 6, 1991 modified the carryover and overproduction provisions (to 20 percent of allowed pumping allocation or 20 acre-feet, whichever is greater, from 10 percent of allowed pumping allocation or 10 acre-feet), and defined drought carryover, and provided for exemptions for extractors of contaminated groundwater.

On January 12, 2001, by order of the Central Basin Watermaster, WRD issued Non-Consumptive Use Permit No. 2000-01 to the Southeast Water Coalition for the “Central Basin Early Remediation Project” to remedy or ameliorate groundwater contamination that originated in the San Gabriel Valley and that has moved into the northeast portion of the Central Basin.

In December 2013, the Court approved amendments to the Central Basin Judgment which implement a water storage program, which can be found in Appendix K. The amendment replaced the Department of Water Resources with a new

¹⁰ Central and West Basin Water Replenishment District, etc. v. Charles E. Adams, et al, Los Angeles County Case No. 786,656.



Watermaster, which consists of the “Administrative Body,” the “Water Rights Panel” and the “Storage Panel,” each with different functions. The Court appointed WRD to be the Administrative Body to administer the Watermaster accounting and reporting. The Water Rights Panel, which enforces issues related to pumping rights within the adjudication, is made up of seven water rights holders who are selected through election. The Storage Panel, which comprises the Water Rights Panel and WRD, approves certain groundwater storage efforts.

The Amended Judgment states, “...a party may store up to 200 percent of the party’s Allowed Pumping Allocation, if space is available.” In addition, the amendments allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 100 percent of the party’s Allowed Pumping Allocation minus the amount of carryover water set aside for storage, as noted above. The purpose of the storage program creates an added reliability in water supply from the Central Basin. In addition, the amendments allow for transfer of water between Central Basin and West Basin by permitting parties with water rights in Central Basin to increase production in Central Basin, while another party decreases production in West Basin by the corresponding amount.

Under the Judgment, water rights are fixed and do not vary year to year. Water producers cannot exceed their water rights by more than 20 percent or 20 acre-feet, whichever is greater, in any year and an adjustment is made the following year. In addition, water producers cannot carry over more than 20 percent or 20 acre-feet, whichever is greater, of their water rights for use in the following year.

Sustainable Groundwater Management Act

The 2014 Sustainable Groundwater Management Act (SGMA) directed DWR to establish initial groundwater basin priorities for the basins identified and defined in



DWR's Bulletin 118. DWR finalized the basin prioritization in June 2014 through the California Statewide Groundwater Elevation Monitoring (CASGEM)¹¹ program. The CASGEM basin prioritization program is being used by DWR to focus resources towards implementing legislation to require all groundwater basins be monitored for seasonal and long-term groundwater elevation trends. DWR plans to evaluate the status of groundwater level monitoring in "High" or "Medium" priority groundwater basins. If DWR determines that groundwater levels in all or part of a High or Medium Priority basin are not being monitored, DWR will work cooperatively with local entities to establish a monitoring program. Compliance with DWR requirements allows the basin monitoring entities to be eligible to receive State water grants or loans. The Main San Gabriel (Basin 4-13) groundwater basin is identified through CASGEM as a "high" priority basin. The Central (Basin 4-11.04) groundwater basin is identified through CASGEM as a "high" priority basin.

6.2.3 OVERDRAFT CONDITIONS

CWC 10631(b).

(2) For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, 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 eliminate the long-term overdraft condition.

¹¹ http://www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm



The City produces groundwater from the Main Basin and Central Basin, which is an adjudicated basin as discussed in Section 6.2.2. The City is not required by DWR to complete Section 6.2.3.

6.2.4 HISTORICAL GROUNDWATER PUMPING

CWC 10631(b).

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

(3) 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.

Main Basin

The City pumps groundwater from the Main Basin from the City's three active wells located near Whittier Narrows Dam (Wells No. 13, No. 15, and No. 16). These wells have a combined capacity of about 9,200 gallons per minute (gpm). Historically, the City received treated water from the WNOU-GTP in-lieu of producing water from City owned wells in the Main Basin. The City stopped receiving treated water from the WNOU-GTP in calendar year 2013 but continues to pump groundwater from City owned wells in the Main Basin. The City has the legal right to pump groundwater from the Main Basin. Although there is no limit on the quantity of water that may be extracted by Parties to the Main Basin Adjudication, including the City, groundwater production in excess of a Party's water right, or its proportional share (pumper's share) of the



Operating Safe Yield,¹² requires purchase of untreated imported water to recharge the Main Basin. The City has a prescriptive pumping right of about 8,271 acre-feet and a pumper's share of 4.18519 percent of the Operating Safe Yield. If the City pumps more than the allowed amount of water, replacement water may be purchased from Upper District to recharge the Main Basin. The Main Basin is located north of the Whittier Narrows Dam.

Central Basin

The City pumps groundwater from Central Basin through its two active wells, Wells No. 8 and No. 14. According to the Central Basin Adjudication, the City has an allowed pumping allocation of 895 acre-feet per year. The Central Basin Adjudication allows Parties to the Judgment to pump up to 20 percent more of its annual allowed pumping allocation plus any carry-over as described in Chapter 3.2.2.1. In December 2013, the Court approved amendments to the Judgment which implement a water storage program. The amendment states, "...a party may store up to 200 percent of the party's Allowed Pumping Allocation, if space is available." In addition, the amendments allow parties to convert unused Allowed Pumping Allocation to stored water and revised the amount of carryover to be equal to 100 percent of the party's Allowed Pumping Allocation minus the amount of carryover water set aside for storage. The purpose of the storage program creates an added reliability in water supply from the Central Basin. Based on the amendments, the City may store up to 200 percent of its Allowed Pumping Allocation of 895 acre-feet, which equates to about 1,790 (200% x 895) acre-feet. This stored water may be used as an additional source of supply within the Central Basin. The Water Replenishment District of Southern California (WRD) is responsible for recharging Central Basin.

¹² Operating Safe Yield is set by Watermaster to allocate to each Party its portion of groundwater that can be produced from the Main Basin free of a Replacement Water Assessment.



Summary of Groundwater Production

The City's past five years water demand from the Main Basin and Central Basin are shown on Table 6-1. The City pumps all of its water right from Central Basin and then pumps its additional water demand from the Main Basin.

6.3 SURFACE WATER

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

6.4 STORMWATER

The City does not use stormwater to meet its water demands.

6.5 WASTEWATER AND RECYCLED WATER

As a local water purveyor, the City delivers water to its customers from both its groundwater and recycled water supplies. The City currently has seven recycled water service connections within its water system. The City uses recycled water for landscape irrigation in highways, freeways, parks and schools. Table 6-4 summarizes current and projected recycled water use within the City from fiscal year 2014-15 to fiscal year 2040-41. The following sections provide a description of the City's current recycled water use and its plans to expand the use of recycled water as a source of water supply over the next 26 years.



6.5.1 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...

No wastewater is disposed of within the City's service area. Wastewater from the City's service area is collected and treated in the County Sanitation District of Los Angeles County's (CSDLAC's) Los Coyotes Water Reclamation Plant (LCWRP) and Long Beach Water Reclamation Plant (LBWRP). The LCWRP and LBWRP also receive wastewater from other cities served by CSDLAC. The City contacted CSDLAC and received information on the amount of wastewater treated, collected and generated within the City's service area.

6.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

CWC 10633(a).

(Describe) 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.

CWC 10633(b).

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



Wastewater from the City's service area is collected and treated in the CSDLAC's LCWRP and LBWRP. The LCWRP and LBWRP also receive wastewater from other cities served by CSDLAC. Table 6-2 shows the wastewater collected and treated within the City's service area. No wastewater is disposed of within the City's service area.

The LCWRP, which began operation in 1970, is located in Cerritos, California and has a current design capacity of 37.5 million gallons per day (MGD). The LCWRP plant serves a population of approximately 370,000 people. The method of disposal when treated recycled water is not used (non-recycled) is discharge to the San Gabriel River and eventually flows to the ocean.

The LBWRP, which began operation in 1973, is located in Long Beach, California and has a current design capacity of 25 MGD. The LBWRP plant serves a population of approximately 250,000 people. The method of disposal when treated recycled water is not used (non-recycled) is discharge to Coyote Creek, a tributary of the San Gabriel River that flows to the ocean.

CSDLAC estimates approximately 80 gallons of wastewater is generated per person per day within CSDLAC's service area. Based on the City's 2015 population of 56,200 within the City's service area, the estimated volume of wastewater generated and collected within the City's service area in 2015 is approximately 5,036 acre-feet, as shown in Table 6-2.



6.5.3 RECYCLED WATER SYSTEM

Section 10633

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

Recycled water use within the City of Whittier began in 1994 when CBMWD extended its recycled water system into the northern portion of CBMWD's service area. Recycled water delivered to the City of Whittier is part of the Torres Project, which delivers recycled water from the SJCWRP. The City has seven recycled water connections within its service area to deliver recycled water to its customers. Recycled water use within the City's service area is primarily for irrigation along the California Department of Transportation freeways and highways, in the City of Whittier parks (Founders Park [two connections] and Palm Park) and in schools (Dexter School, Orange Grove School, and Longfellow School). Current recycled water demand within the City's service area is shown on Table 6-4.

6.5.4 RECYCLED WATER BENEFICIAL USES

Section 10633

(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

Section 10633

(e) (Provide) a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

As shown in Table 6-4 and previously discussed in Section 6.5.3, the City has seven recycled water connections within its service area to deliver recycled water to its customers. Recycled water use within the City's service area is primarily for landscape irrigation along the California Department of Transportation freeways and highways, in the City of Whittier parks (Founders Park [two connections] and Palm Park) and in schools (Dexter School, Orange Grove School, and Longfellow School). The City is actively working with CBMWD to identify other potential uses of recycled water.

Projected recycled water demand within the City's service area is shown on Table 6-4. Projected recycled water use was estimated at a constant 90 acre-feet because historically, records show sporadic use trends, and the average use of recycled water from fiscal years 1995-96 through 2009-10 is approximately 90 acre-feet per year. The City's actual use of recycled water in 2015 was 81 acre-feet and the 2010 Plan projected a recycled water use of 90 acre-feet for 2015, as shown in Table 6-5.

6.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

Section 10633



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

As a local retail water company, the City offers its customers (with non-potable water demands) the option of both potable and recycled water. These customers have the option to receive recycled water in lieu of potable water to use for irrigation. The City's potable water supply comes from wells located in the Main Basin and Central Basin. The City's recycled water supply is part of Central Basin's Torres Project and comes from SJCWRP. The City offers a commodity rate schedule in which customers are charged \$1.76 per CCF for potable water and \$1.50 per CCF for recycled water. This commodity rate schedule encourages customers with non-potable water demands to use recycled water.

As a sub-agency of CBMWD, the City has the benefit of receiving financial assistance for plumbing retrofits necessary to receive recycled water. CBMWD advances funds for the necessary plumbing retrofits, which are then reimbursed. In addition, CBMWD offers recycled water at a lower rate and the savings are passed on to City customers with non-potable water demands. CBMWD also promotes the use of recycled water within its system as a more reliable water source than imported water.

The financial incentives discussed above (lower cost of recycled water compared to potable water, and financial assistance from CBMWD) have not resulted in significant increases in recycled water use.



The City's recycled water is provided by CBMWD. The City does not have a recycled water program, but CBMWD's recycled water program is available to customers of the City. Additional details on CBMWD's recycled water program are available in CBMWD's 2015 Plan, which is incorporated by reference.

6.6 DESALINATED WATER OPPORTUNITIES

Section 10631(h)

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

6.6.1 MAIN BASIN

Groundwater produced from the Main Basin has acceptable Total Dissolved Solids (TDS) concentrations (less than secondary Maximum Contaminant Level (MCL) of 1,000 milligrams per liter or mg/l) and does not require desalination. The annual average TDS value is for San Gabriel's Main Basin Wells is approximately 338 mg/L, according to the draft Main Basin Salt and Nutrient Management Plan, which is below its secondary MCL. SWRCB-DDW recommended level is 500 mg/l and water can be provided for long-term domestic use with TDS concentrations of up to 1,000 mg/l. Due to the high quality (low TDS concentration) of the groundwater, the City has not needed 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.



6.6.2 CENTRAL BASIN

The average TDS concentrations for the Central Basin groundwater is less than its secondary MCL of 1,000 mg/l, based on most recent available data in the City's groundwater wells. Therefore, groundwater produced from the Central Basin does not require desalination. However, there may be opportunities for use of desalinated ocean water as a future potential water supply source, if needed, through coordination with other agencies that have ocean desalination programs.

6.7 EXCHANGES OR TRANSFERS

Section 10631(d)

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

6.7.1 EXCHANGES

The City has no exchanges.

6.7.2 TRANSFERS

The City has a temporary lease of Central Basin water rights with the City of Commerce for fiscal year 2016-17. This temporary lease of water rights provides the City with 3,000 acre-feet of water available to pump during fiscal year 2016-17.



6.7.3 EMERGENCY INTERTIES

The City has five interconnections with other water agencies that serve as short-term emergency exchange opportunities. The City has emergency interconnections with the following water agencies:

- City of Pico Rivera
- City of Santa Fe Springs
- California Domestic Water Company
- San Gabriel Valley Water Company
- Suburban Water Systems

6.8 FUTURE WATER PROJECTS

Section 10633

(g) ...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 average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The City pumps groundwater from both the Main Basin and Central Basin and utilizes recycled water within its water system. In Central Basin, the City has 895 acre-feet per year of pumping rights. The City has a temporary lease of Central Basin water rights with the City of Commerce for fiscal year 2016-17. This temporary lease of water



rights provides the City with 3,000 acre-feet of water available to pump in Central Basin during fiscal year 2016-17.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

Section 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 10631(a).*

 - (4) (Provide 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.*
-

As discussed in Chapter 6, the City's water supply sources include local groundwater and recycled water supply sources. The actual quantities of the water supply sources available to the City during calendar year 2015 are summarized in Table 6-8. The reliable quantities of projected water supply sources available to the City in five-year increments through 2041 during average years are summarized in Table 6-9.

The City's reliable projected water supply from fiscal years 2019-20 through 2040-41 in five-year increments is assumed to be limited to its water rights and that no leasing and over-production requiring replacement water produced, as shown in Table 6-9. The Main Basin water supply projected in Table 6-9 are based on the following: 1) Fiscal year 2014-15 uses an Operating Safe Yield of 150,000 acre-feet (set by Main Basin Watermaster), and 2) Fiscal years 2019-20, 2024-25, 2029-30, 2034-35, 2039-40 and 2040-41 assumes a long-term average Operating Safe Yield of 198,000 acre-feet.



The City has an estimated carryover right of about 3,556 acre-feet for fiscal year 2014-15, which is not included in Table 6-9. The total long-term average groundwater pumping rights from the Main Basin and Central Basin is about 9,182 acre-feet (8,287 + 895). In addition, the City can store up to 1,790 acre-feet into Central Basin. Consequently, the total long-term average reliable groundwater supply available to the City is up to 10,972 (9,182 + 1,790) acre-feet. (The projected demand in 2040-41 is 8,099 acre-feet).

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

The California Water Code does not require the City to address climate change. However, a discussion on single-dry year and multiple dry years is provided in Section 7.2 and a discussion on potential impacts to basin management practices is provided in Section 6.2. A discussion regarding the regional impacts of climate change on demand and supply are provided in MWD's 2015 Plan, which is incorporated by reference.



CHAPTER 7

WATER SUPPLY RELIABILITY ASSESSMENT

7.1 CONSTRAINTS ON WATER SOURCES

Section 10631(c)

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Section 10634

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

The City has not experienced water supply constraints or deficiencies. Management of the City's primary groundwater supplies is based on adjudications, which are described in Section 6.2.2.

7.1.1 WATER QUALITY IN MAIN SAN GABRIEL BASIN

In the early 1980s, widespread contamination by VOCs associated with past industry practices was discovered in the Main Basin. In the late 1990s, groundwater contaminated with VOCs at concentrations below the MCL was found to have reached the City's production wells at its Whittier Narrows wellfield. The City's Whittier Narrows wellfield is located near the estimated leading edge of the contaminated groundwater



plume of the WNOU. As part of the WNOU, EPA constructed the WNOU-GTP to treat contaminated groundwater from several extraction wells located in the vicinity of the City's Whittier Narrows wellfield. The WNOU-GTP consists of one dedicated granular-activated carbon treatment system to treat four shallow zone extraction wells (EW4-3, EW4-4, EW4-8, and EW4-9) and another dedicated granular-activated carbon treatment system to treat three intermediate zone extraction wells (EW4-5, EW4-6, and EW4-7).

In 2004, the City and EPA entered into an agreement for operation of the WNOU-GTP. The City began receiving treated water from the WNOU-GTP in December 2005. The City stopped receiving treated water from the WNOU-GTP in calendar year 2013 but continues to pump groundwater from City owned wells in the Main Basin.

The City owns and operates three active wells, Wells No. 13, No. 15, and No. 16 located within the Main Basin. As shown in the City's 2014 Annual Water Quality Report provided to its customers, the City's groundwater wells meets all SWRCB-DDW standards for drinking water (see Appendix L). Groundwater from Wells No. 13 and No. 16 meets all SWRCB-DDW standards for drinking water. Well No. 15 has a SWRCB-DDW approved blending plan for VOCs. The water supply from the City's wells will provide a reliable water source for the City for the next 20 years.

7.1.2 WATER QUALITY IN CENTRAL BASIN

As indicated above, in the early 1980s, contaminants were detected in the Main Basin groundwater supply. Based on the contamination level, the EPA declared the area as a superfund site. The contaminant plume continued to travel south, passing through the Whittier Narrows into the Central Basin area and toward the Montebello Forebay, threatening the local groundwater supplies. A \$10-million project, federally funded by the United States Bureau of Reclamation, was constructed to prevent the contaminant plume from the Main Basin from spreading into the Central Basin's local



groundwater supply. As part of the project, two wells were constructed in northern Pico Rivera that pump contaminated water to a treatment plant in the City of Whittier. The contaminated water is treated using a granular-activated carbon treatment system. In October 2004, CBMWD received its domestic drinking water permit from CDPH to distribute the water for potable use. The water was integrated back into the drinking water system beginning in December 2004.

The City currently has two active wells, Wells No. 8 and No. 14, in the Central Basin. As shown in the City's 2014 Annual Water Quality Report provided to its customers, the City's groundwater wells meets all SWRCB-DDW standards for drinking water (see Appendix L). Well No. 8 has a SWRCB-DDW approved blending plan for manganese. Well No. 14 meets all SWRCB-DDW standards for drinking water. The water supply from these wells will provide a reliable source of water for the City for the next 20 years.

7.2 RELIABILITY BY TYPE OF YEAR

Section 10631(c)

- (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:
- (a) an average water year,
 - (b) a single dry water year,
 - (c) multiple dry water years.
-

As a result of the Main Basin and the Central Basin management, the City has not experienced water supply deficiencies. The management of both basins is based on their adjudications, which are described in Section 6.2.2. Based on current management practices in the Main Basin and Central Basin, the minimum water



supplies available at the end of an average water year, a single dry year, and multiple dry years would be at least equal if not greater than the City's water demand.

Information regarding the reliability of the groundwater supplies from Main Basin and Central Basin is based on historical rainfall data in the vicinity of the City's service area (See Figure 3), which results in stormwater which is used to replenish the groundwater basins, and past data on the availability of water supply to meet demands during seasonal or climatic shortage. As indicated in Section 3.3, the historical average rainfall in the vicinity of the City's service area is about 13.74 inches. Fiscal year 2005-06 represents an average or normal water year for the City in which the total amount of rainfall was about 10.14 inches. A single dry year for the City was represented in fiscal year 2013-14 in which the total amount of rainfall was about 6.0 inches. A multiple dry year period for the City is represented from fiscal year 2011-12 to or fiscal year 2013-14, where the total amount of rainfall was about 7.3 inches, 5.0 inches, and 6.0 inches, respectively. Table 7-1 summarizes these "base years" for average, single dry, and multiple dry years and provides the total amount of water supplies available to the City during those base years. The City's historical water supply provided in Figures 1 and 2 shows that during these base years (for average year, single dry year and multiple dry years), groundwater production remained stable. A single dry year or a multiple dry year period will not compromise the City's ability to provide a reliable supply of water to its customers.

Based on current management practices, the City will be able to rely on the Main Basin, the Central Basin and recycled water for adequate supply over the next 26 years under single year and multiple year droughts.



7.2.1 TYPES OF YEARS

The City's base years for average, single dry, and multiple dry years are provided in Section 7.2 and are summarized in Table 7-1. As indicated in Section 6.2.4, the City's groundwater supplies were sufficient in meeting the City's historical water demands under all base years, including during normal, single, and multiple dry years. A normal or average year was based on a year during the past 10 years with a total precipitation similar to the historical average precipitation in the vicinity of the City's service area. Because a single dry year or a multiple dry year period will not compromise the City's ability to provide a reliable supply of water to its customers, a single dry year in this Plan was selected based on the second year of a multiple dry year period during the past 10 years. The multiple dry year period was based on a period of three consecutive dry years during the past 10 years.

7.2.2 AGENCIES WITH MULTIPLE WATER SOURCES

The City primarily obtains its water supply from groundwater wells located in the Main Basin and Central Basin and recycled water. As discussed in Section 7.3 and shown in Table 7-2, Table 7-3, and Table 7-4, a single dry year or a multiple dry year period will not compromise the City's ability to provide a reliable supply of water to its customers.



7.3 SUPPLY AND DEMAND ASSESSMENT

Section 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 total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.

As previously discussed, the City's projected normal year water demands over the next 26 years in five-year increments were based on the City's 2020 Urban Water Use Target of 134 GPCD. The Urban Water Use Target Goals and City's expected demands were then applied to estimate the City's projected normal year demands in 2015, 2020, 2025, 2030, 2035, 2040 and 2041 as shown in Table 4-3. The City's projected normal year supplies in 2015, 2020, 2025, 2030, 2035, 2040 and 2041 were based on the reliability of supply in the Main Basin and Central Basin and based on an Operating Safe Yield of 198,000 acre-feet in the Main Basin, as discussed in Section 6.9 and shown on Table 4-3. The City will continue to use groundwater and recycled water as its future water supplies through 2041. For a single-dry and multiple dry years, the City assumed an Operating Safe Yield of 150,000 acre-feet in the Main Basin and historical conditions during a single-dry year and multiple dry years in the Main Basin and Central Basin. Table 7-2, Table 7-3, and Table 7-4 summarize the City's projected water demands and supplies over the next 26 years in five-year increments, including during normal, single, and multiple dry years. These tables indicate the City can meet water demands during normal, single dry, and multiple dry years over the next 26 years.



7.4 REGIONAL SUPPLY RELIABILITY

Section 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 City will be able to rely on the Main Basin for adequate supply over the next 20 years under single year and multiple year droughts.

As discussed in Section 6.2.2, Central Basin has been adjudicated and is well managed. The successful management of the reduction in groundwater withdrawals by the Central Basin Judgment, combined with the spreading program and the guaranteed minimum inflow from the Main Basin (see Section 4.2.1.1), resulted in recovery of water levels in wells throughout the Central Basin. In each drought cycle the Central Basin has been managed to maintain water levels. Therefore, based on historical and on-going management practices, the City will be able to rely on the Central Basin for adequate supply over the next 20 years under single year and multiple year droughts.

Chapter 6 provides a description of the management of groundwater resources in the Main Basin and Central Basin, as well as information on basin management. Chapter 6 also demonstrates the management structure of the Main Basin and Central Basin provides a reliable source of groundwater supply for the City during average,



single-dry and multiple-dry water years. Historical data indicates the Main Basin and Central Basin have been well managed for the full period of the adjudications, resulting in a stable and reliable water supply. There are no contemplated basin management changes, other than increasing direct use of recycled water (see Section 6.5) and the planned use of recycled water for groundwater replenishment in the Main Basin to reduce the need to import water from other regions. Therefore, the groundwater supplies in the Main Basin and Central Basin are deemed reliable.



CHAPTER 8

WATER SHORTAGE CONTINGENCY PLAN

Section 10632

(a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier.

8.1 STAGES OF ACTION

Section 10632(a)

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

The City has prepared a draft “Four Stage Rationing Plan” to implement during declared water shortages. This suggested rationing plan includes voluntary and mandatory rationing, which depends on the causes, severity, and anticipated duration of the water supply shortage, as presented on Table 8-1. The following provides a description of the stages of action the City may implement during a declared water shortage.



- **Stage I Shortage – Voluntary Rationing Programs.** The City’s customers may adjust either interior or outdoor water use (or both), in order to meet voluntary water reduction goals.
- **Stage II and Stage III Shortages – Mandatory Rationing Programs.** The City may establish a recommended Health and Safety allotment of 68 gallons per capita per day (gpcd) for Stage II and 60 gpcd for Stage III. This amount of water is sufficient for essential interior water use with no or little water use habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 68 gpcd is sufficient to provide for limited non-essential (i.e. outdoor) uses.
- **Stage IV Shortage – Mandatory Rationing Program.** The City’s Health and Safety allotment will be reduced to 50 gpcd. This would require customers to make changes in their interior water use habits (for instance, not flushing the toilets unless “necessary” or taking less frequent showers). This is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster.

8.1.1 PRIORITY BY USE

Priorities of use of available potable water during shortages are based on the requirements set forth in the CWC Sections 350-358. Water allocations are established for all customers according to the following ranking system.

- Minimum Health and Safety allocations for the interior residential needs (includes single-family, multi-family, hospitals and convalescent facilities, retirement and mobile home communities, student housing, fire fighting and public safety)



- Commercial, industrial, institutional/governmental operations (where water is used for manufacturing and for minimum Health and Safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape use)
- Permanent agricultural (orchards, vineyards, and other commercial agriculture which would require at least five years to return to production)
- Annual agriculture (floriculture, strawberries, and other truck crops)
- Existing landscaping
- New customers, proposed projects without permits when shortage is declared.

It is not expected that any potable water supply reductions would result in recycled water shortages.

8.1.2 HEALTH AND SAFETY REQUIREMENTS

In a **Stage I Shortage**, customers may adjust either interior or outdoor water use (or both) in order to meet the voluntary water reduction goal. However, under **Stage II, Stage III and Stage IV** mandatory rationing programs, the City has established a Health and Safety allotment of 68 gpcd. Under this Health and Safety allotment, customers will have sufficient essential interior water without water use habit changes or having to retrofit plumbing fixtures. If a customer chooses to change his/her water use habits or retrofit plumbing fixtures, 68 gpcd would be sufficient to provide limited non-essential (i.e. outdoor) uses. **Stage IV Shortage** mandatory rationing would require customers to make changes in their water use habits (for instance, not flushing the toilets unless “necessary” or taking less frequent showers).



8.2 PROHIBITIONS ON END USES

Section 10632(a)

- (4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning*
 - (5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*
-

On May 15, 2015, the Director of Public Works for the City executed “Temporary Water Restrictions” due to the Governor of California issuing a proclamation of a state of emergency based on drought conditions on January 17, 2014, as shown in Appendix M. Under the executed Temporary Water Restrictions, customers were restricted to use water for sprinkling, wetting, irrigation or construction purposes. The “Temporary Water Restrictions” shall remain in effect as long as the State Water Resources Control Board emergency regulations shall remain in effect, or until the Director of Public Works determines that the emergency no longer exists, or until the City takes action to revise these restrictions. The following sections describe the water uses prohibited as follows and described more in Appendix M.

8.2.1 LANDSCAPE IRRIGATION

- The application of potable water to outdoor landscapes in a manner that causes runoff
- The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall



- The irrigation with potable water of ornamental turf on public street medians
- The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development
- Outdoor irrigation of ornamental landscapes or turf with potable water is limited to no more than three days per week.
- No outdoor irrigation is allowed on Fridays.
- Governmental organizations irrigating parks are restricted to irrigate three days per week.

8.2.2 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII)

- The serving of drinking water other than upon request in eating or drinking establishments
- To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily.

8.2.3 SWIMMING POOLS

Under the executed “Temporary Water Restrictions,” there is no prohibition on swimming pools.

8.2.4 DEFINING WATER FEATURES

Section 10632



(b) Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the 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.

Health and Safety Code Section 115921

As used in this article the following terms have the following meanings: (a) "Swimming pool" or "pool" means any structure intended for swimming or recreational bathing that contains water over 18 inches deep. "Swimming pool" includes in-ground and aboveground structures and includes, but is not limited to, hot tubs, spas, portable spas, and non-portable wading pools.

- The use of potable water in a fountain or other decorative water feature, except a recirculating system. This does not apply to swimming pools or spas.
- A list of water features within the City is shown below

PARKS WITH SPRAY POOLS/WATER FEATURES

Facility	Address	Feature	Recirculating? Y/N
Central Park	6532 Friends Ave.	Fish pond	N
Lee Owens Park	7930 Greenleaf Ave.	Spray Zone	N
Hoover Fountain	10839 Beverly Blvd.	Decorative fountain	Y
Michigan Park	8228 Michigan Ave.	Spray pool	N
Palm Park	5706 El Rancho Dr.	Spray pool	N
Parnell Park	10711 Scott Ave.	Spray pool	N
Pat Nixon Fountain	Mar Vista @ Colima	Decorative fountain	Y
Penn Park	13950 Penn St.	Spray pool	N
J.G. Whittier Park	7227 Whittier Ave.	Spray sculpture	N
Main Library	7344 Washington Ave	Barefoot Boy ftn.	Y



8.2.5 OTHER

- The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device.
- The application of potable water to driveways and sidewalks

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

Section 10632(a)

(6) Penalties or charges for excessive use, where applicable.

The City currently does not impose any penalties or charges for excessive water use at this time. However, starting in fiscal year 2015-16, the City implemented a new water rate schedule which includes tiered rates, as shown in Appendix N. Under the first tier, customers would pay \$1.76/ccf. Under the second tier, customers would pay \$2.50/ccf. This new tiered water rate schedule would help minimize excessive water use.

8.4 CONSUMPTION REDUCTION METHODS

Section 10632(a)

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage



contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

The City's consumption reduction methods include education and outreach to the public, increased water conservation budget and conservation personnel, and new prohibitions on specific water uses (Appendix M). The City's Parks Division also uses water smart irrigation controllers. The City is looking into expanding its recycled water program in order to reduce potable water use.

Within Chapter 13.24.010 of Title 13 of the City of Whittier's Municipal Code are water restrictions during an emergency. The City's Municipal Code allows the City to restrict the use of water for sprinkling, wetting, irrigation or construction purposes during a water emergency, which would be equivalent to Stage IV (see Table 8-2):

"Upon notice published in a daily paper in the city, the director of public services shall have the right to restrict the use of water for sprinkling, wetting, irrigation or construction purposes to such hours and for such time as may be deemed advisable. In the event of any emergency, the director of public services shall have the right, power and authority to turn off the water from any main or mains or pipes of the water system of the city with or without notice. The director of public services is enforced with power or authority to determine when an emergency exists and such discrimination shall be final or until revised at a meeting of the council. In addition to the power given in this section, the council reserves the right in the event of any emergency to turn off the water from any main or mains or pipes of the city either with or without notice so long a time as the council may deem advisable."

The City must provide the minimum Health and Safety water needs (Chapter 7.1.2) to its customers at all times. The City's water shortage response is designed to provide at least 50 percent of the "normal" water supply (currently 124 GPCD) during a



severe or extended water shortage. The stages of action are designed to ensure this goal is met and are shown on Table 8-1. The stages may be triggered by a shortage in one water source or a combination of sources. If more than one Stage is triggered due to shortage from a combination of sources, the more restrictive Stage is implemented. The consumption reduction methods are shown on Table 8-3.

The City has established the following allocation method for each customer type.

- Single-family and multi-family residential – Hybrid of per-capita and percentage reduction
- Commercial – Percentage reduction
- Industrial – Percentage reduction
- Institutional/ governmental – Percentage reduction
- Landscape/ Recreational – Percentage reduction (vary by efficiency)
- Agricultural (Permanent) – Percentage reduction (vary by efficiency)
- Agricultural (Annual) – Percentage Reduction (vary by efficiency)
- New Customers – Per-capita (no allocation for new landscaping during a declared water shortage).

The current and projected customer demand indicates the water allocated to each customer type by priority and rationing stage during a declared water shortage. The City's Director of Public Works shall classify each customer and calculate each customer's allotment according to established allocation method and the allotment shall reflect seasonal patterns. Customers shall be notified of their classification and allotment by mail before the effective date of the Water Shortage Emergency. New customers shall be notified at the time of applying for new service. In the event of a disaster not occurring during a declared water shortage, notice of allotment will be provided in accordance with the City's ERP.



8.5 DETERMINING WATER SHORTAGE REDUCTIONS

Section 10632(a)

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

Potable water production quantities are recorded daily and are reported to the City's Water Production Supervisor. Total water production is reported monthly to the City Engineer and incorporated into an annual water supply report.

The City measures and determines reductions in water use by using the State Water Resources Control Board's Drought Response Tool. Beginning October 15, 2014, urban water suppliers must estimate and report the number of gallons of water per person per day used by residential customers it serves using the tool for submitting monthly water production data. It calculates Residential GPCD on a monthly basis and compares to the City's baseline year 2013, which is set by the State Water Resources Control Board. The City's average monthly savings since 2013 when compared to 2015, is about 20 percent.

8.6 REVENUE AND EXPENDITURE REPORTS

Section 10632(a)

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.



A reduction in water use due to a water shortage will lead to a reduction in revenues. No analysis has been done on the impacts of the actions and conditions, associated with water shortage, on the revenues and expenditures of the City.

Revenues in excess of expenses are used to fund the Rate Stabilization Fund, conservation, recycling and other capital improvements. The establishment of an Emergency Fund could mitigate financial impacts and rate increases during a water shortage. The goal for the Emergency Fund is to maintain the fund at 75 percent of normal City revenue. The Emergency Fund could be used to stabilize rates during periods of water shortages or disasters affecting the water supply; therefore, the City will not be forced to increase its rates during a shortage. However, even with the Emergency Fund, rate increases will be necessary during a prolonged or severe water shortage. When a water shortage emergency is declared, the supply shortage will trigger the appropriate rationing stage and rate increase, as follows.

Stage I – no rate increase

Stage II – 25 percent increase over pre-shortage rates

Stage III – 50 percent increase over pre-shortage rates

Stage IV – 100 percent increase over pre-shortage rates

End of the Water Shortage Emergency – 15 percent increase over pre-shortage rates (This rate increase should be re-evaluated every two years).

8.7 RESOLUTION OR ORDINANCE

Section 10632(a)

(8) A draft water shortage contingency resolution or ordinance.



The City currently does not have a water shortage contingency resolution. However, the City's Ordinance No. 2509 (An Ordinance of the City Council of Whittier, County of Los Angeles State of California, Establishing Temporary Regulations on Water Wastage and Voluntary 10 Percent Reduction in Consumption), that was issued in 1990 but later repealed, may serve as a draft water shortage contingency resolution or ordinance that could be used in the future, if needed (see Appendix O).

On May 15, 2015, the Director of Public Works for the City executed "Temporary Water Restrictions" due to the Governor of California issuing a proclamation of a state of emergency based on drought conditions on January 17, 2014, as shown in Appendix M. Under the executed Temporary Water Restrictions, customers were restricted to use water for sprinkling, wetting, irrigation or construction purposes.

8.8 CATASTROPHIC SUPPLY INTERRUPTION

Section 10632(a)

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

The City prepared an Emergency Response Plan (ERP), which describes the actions the City will take during a catastrophic interruption of water supplies including, natural disasters (such as a fire, earthquake, flood, storm, or other natural disasters), major accidents (such as industrial, transportation, or other major accidents), and terrorism/vandalism. Included in the ERP are items such as requests for mutual aid once local resources have been exhausted, description of emergency interconnection resources, description of emergency water connections with other water suppliers,



public notification procedures, and criteria for emergency use of alternate sources of water supply.

The City's office and field personnel have had ERP training and are aware of their duties and responsibilities in the event of an emergency. The City's operation managers are also trained in the Standard Emergency Management System to coordinate with the local water agencies, fire and police departments, as well as with surrounding agencies in the event of any major disaster.

8.9 MINIMUM SUPPLY NEXT THREE YEARS

Section 10632(a)

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

8.9.1 THREE YEAR MINIMUM WATER SUPPLY

The City's driest three-year period was fiscal years 2011-12, 2012-13, and 2013-14. During those years, the City's demand was 7,265, 8,039, and 8,837 acre-feet per year, respectively, as shown on Table 8-4. The City had adequate water supply from groundwater and recycled water to meet its demands, as shown on Figures 1 and 2. Based on Ordinance No. 2509, the executed "Temporary Water Restrictions" and historical data of meeting its demands during multiple dry year periods, it is anticipated the City will be able to provide adequate water to its customers in the next three-year period. Based on the City's demand during the three-year period of fiscal years 2011-



12, 2012-13, and 2013-14, the estimated three-year minimum water supply available to the City is 7,265, 8,039, and 8,837 acre-feet per year from groundwater in the Main Basin and Central Basin and recycled water supplies. Consequently, the City will have adequate supply in an average, single-dry and multiple dry year sequence.



CHAPTER 9

DEMAND MANAGEMENT MEASURES

The City is a retail water company that provides water to 65 percent of the residents of the City of Whittier through groundwater pumping and recycled water. The City is committed to water conservation and encourages its customers to implement water-wise methods to decrease water waste and over-use. The City's commitment to water conservation is revealed through its continued efforts to address and comply with all DMMs described in the Act.

The City is not a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California and is therefore not a member of the California Urban Water Conservation Council (CUWCC). However, Upper District and CBMWD are both members of the CUWCC. The City is a sub-agency of both Upper District and CBMWD; however, the City participates in the conservation measures implemented by CBMWD because the City's service area is located entirely within CBMWD's service area.

CBMWD has been a member of the CUWCC since 1991 and its commitment to water conservation is demonstrated through the implementation of projects that conserve water and increase the public's awareness of conservation and other water-related issues. The following sections describe the DMMs the City implements, and provide information on the DMMs not economically viable for the City to implement.



9.1 DEMAND MANAGEMENT MEASURES FOR WHOLESALE AGENCIES

Section 10632(a)

(f) *Provide a description of the (wholesale) 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, (provide) 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 City is not a wholesale agency and is not required by DWR to complete Section 9.1.

9.2 DEMAND MANAGEMENT MEASURES FOR RETAIL AGENCIES

Section 10631(f)

(A) The narrative shall describe the water demand management measure 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

[SECTION 10631 (f)(1)(b)(i)]

The City implements the City of Whittier Municipal Code which includes water restriction. The program started in 1990. Within Chapter 13.24.010 of Title 13 of the City of Whittier's Municipal Code are water restrictions during an emergency. The City's Municipal Code states "*Upon notice published in a daily paper in the city, the director of public services shall have the right to restrict the use of water for sprinkling, wetting, irrigation or construction purposes to such hours and for such time as may be deemed advisable.*"

The City of Whittier Municipal Code Chapter 13.42 establishes standards and procedures for the design, installation and management of water-conserving landscapes in order to utilize available plant, water and land resources to avoid excessive water demands while ensuring high quality landscape design. These requirements are applicable to new and rehabilitated landscaping for industrial, commercial, office and institutional developments; to parks and other public recreational areas; to multifamily (two or more units) residential and Planned Unit Development (PUD) common areas; to model home complexes; and to city road medians and corridors.



On May 15, 2015, the Director of Public Works for the City executed “Temporary Water Restrictions” due to the Governor of California issuing a proclamation of a state of emergency based on drought conditions on January 17, 2014, as shown in Appendix M. Under the executed Temporary Water Restrictions, customers were restricted to use water for sprinkling, wetting, irrigation or construction purposes.

9.2.2 METERING

[SECTION 10631 (f)(1)(b)(ii)]

CWC 526

- (a) *Notwithstanding any other provisions 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 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 City’s water distribution system is fully metered for all customer sectors, including separate meters for single-family residential, multi-family residential, commercial, large landscapes, and all institutional/governmental facilities. Additionally, within the City if there is new development, each unit is individually metered. Within the City’s metered distribution system, the City provides commodity rates for its customers, as shown in Appendix N.



The City also implements a program for retrofitting older meters. If a water meter is rendered unserviceable through ordinary wear and tear, the City will repair or replace the meter at the City's expense. However, a customer is responsible for any meter readjustment or reinstallation fee, if a water meter is unserviceable through negligence or carelessness of that customer.

In addition to the City's availability charge by meter size, the City also implements commodity rates for potable water and recycled water. The City's billing unit is in hundreds of cubic feet (CCF). As shown in Appendix N, the City charges \$1.76 per CCF for potable water and \$1.50 per CCF for recycled water. Recycled water is offered by the City to its customers which have non-potable demands. The City's commodity rate program effectively promotes water conservation by providing financial incentives to those customers that choose to use recycled water over potable water.

The City will continue to install meters on all new services, and will continue to conduct meter calibrations and implement its meter retrofitting program. In addition, the City implements a commodity rate schedule for all new and existing connections and for potable water versus recycled water.

9.2.3 CONSERVATION PRICING

[SECTION 10631 (f)(1)(b)(iii)]

The City may incorporate conservation pricing during emergencies by implementing an increasing rate structure during emergency drought situations for all customers sectors. During a Phase 4 emergency, City customers may have to pay up to 316 percent of the normal rate if that customer uses over 100 percent of its base year usage.



Starting in fiscal year 2015-16, the City implemented a new water rate schedule which includes tiered rates, as shown in Appendix N. Under the first tier, customers would pay \$1.76/ccf. Under the second tier, customers would pay \$2.50/ccf. This new tiered water rate schedule would help maximize conservation.

The City's water supply sources include both groundwater and recycled water. However, only some of the City's customers have the option of receiving recycled water. The City \$1.76 per CCF for potable water and \$1.50 per CCF for recycled water. City customers who are offered the option to use recycled water can choose to use recycled water for a fraction of the price of potable water, which promotes water conservation by decreasing the demand for potable water supplies.

9.2.4 PUBLIC EDUCATION AND OUTREACH

[SECTION 10631 (f)(1)(b)(iv)]

In July 2015, the City implemented its Water Conservation Communications Plan, as shown in Appendix P. In order for the City to reach its goal of 20 percent reduction of its water demand, the City implemented its Water Conservation Communications Plan designed to inform water users through public education and outreach such as:

- Mailings to homes and businesses
- Website information with an icon that stays on the front web page
- Social media outreach occasionally on Twitter and Facebook
- Media coverage (print and electronic)
- Street banners



- Community event outreach (Founders Day, Health Faire, park concerts, etc)
- Print flyers, postcards, and brochures in English and Spanish

The City participates in CBMWD's school education program. The program started in 1990. CBMWD's school educational program includes a variety of elementary and high school programs within its service area, including the City. Schools located within CBMWD's service area can receive educational materials and handouts about water conservation and water awareness. CBMWD also provides information on its school education programs through its website links. A list of schools in the City's service area that participated in CBMWD's school education program is provided on Appendix Q. More information about CBMWD's school education programs is provided in its 2015 Plan, which is incorporated by reference.

9.2.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

[SECTION 10631 (f)(1)(b)(v)]

The City implements a system water audit, leak detection and repair program within its service area. The program started in 2001. The City's water system is completely metered and City staff conducts water audits, leak detection and repair on its distribution system.

In addition, the City has a computer-based billing system that conducts monthly checks of water production records to determine any unaccounted water losses within its water system. If unaccounted water losses are determined to be excessive (greater than 10 percent), a system wide leak detection is performed. Based on the AWWA



Water Audit, the City's distribution system water loss over the most recent 12-month period available, from July 2014 to June 2015, was 519 acre-feet, as shown in Table 4-4. This is about a 7 percent water loss from water supplied. A copy of the AWWA water system balance calculation for the City's distribution system water loss is provided in Appendix C.

9.2.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

[SECTION 10631 (f)(1)(b)(vi)]

As previously discussed in Section 9.2.4, the City implemented its Water Conservation Communications Plan, as shown in Appendix P. Part of the Water Conservation Communications Plan was to hire Water Ambassadors to attend community functions with brochures and education material to advocate water conservation.

In addition, CBMWD's water conservation coordinator promotes conservation programs that are available to the residents of the City. CBMWD's program started in 2003. The conservation coordinator employed by CBMWD promotes CBMWD's water conservation programs and works directly with cities and water agencies like the City on enhancing water conservation efforts. In addition, CBMWD's water conservation coordinator does research on water management practices and looks for federal, state and local funding programs that CBMWD, cities or retail water purveyors may utilize. Additional information about CBMWD's water conservation coordinator is provided in its 2015 Plan, which is incorporated by reference.



9.2.7 OTHER DEMAND MANAGEMENT MEASURES

[SECTION 10631 (f)(1)(b)(vii)]

Residential Plumbing Retrofit Program

The City implements a residential plumbing retrofit program through CBMWD. As a sub-agency of CBMWD, the City's customers can participate in CBMWD's residential programs which include turf removal, High-Efficiency Clothes Washers, weather based irrigation controllers, High-Efficiency Toilets, rain barrels, rotating nozzles for pop-up spray heads, and soil moisture sensor systems.. Additional information about CBMWD's residential plumbing retrofit is located in CBMWD's 2015 Plan, which is incorporated by reference.

Large Landscape Conservation Program

The City's large landscape conservation and incentive program includes the use of recycled water for irrigating large landscape areas within the City's service area. The program started in 1990. Recycled water use within the City's service area reduces the demand on local water resources, the need for groundwater pumping, and provides financial incentives to the City's customers. As discussed in Chapter 5.1.3, the City charges \$1.76 per CCF for potable water and \$1.50 per CCF for recycled water (as shown in Appendix N). Additional information regarding recycled water use within the City's service area is provided in Chapter 6 of this Plan.

The City participates in CBMWD's large landscape conservation programs. CBMWD was allocated funding through MWD's Proposition 13 grant award for a new Weather-Based Irrigation Controller (WBIC) Program. Through this program, MWD along with its member agencies (including CBMWD) developed a Project Advisory Committee to work on developing the WBIC Program, which includes marketing, reporting, databasing, and implementing. The WBIC program consists of weather-based



irrigation controllers that automatically adjust irrigation systems based on weather data, reducing the amount of water use during cooler months and increasing the amount of water use during warmer or summer months. CBMWD plans on using the new controllers in its service area that cannot benefit from recycled water.

Residents in the City's service area can participate in CBMWD's High-Efficiency Living Program for Landscapes that was developed in partnership with MWD to offer irrigation systems for residences throughout CBMWD's service area that currently do not have irrigation systems installed. Qualified residents will receive irrigation kits, landscape training, and participate in outdoor water use studies.

Residents in the City's service area can also participate in CBMWD's Landscape Rotating Nozzles program that offers rebates through MWD's program for the purchase of landscape rotating nozzles for landscape irrigation.

CBMWD also offers landscape classes to residences within its service area, including the City of Whittier, to teach residents about water conservation and to reduce urban run-off. Additional information on CBMWD's water conservation programs is available in CBMWD's 2015 Plan, which is incorporated by reference.

9.3 IMPLEMENTATION OVER THE PAST FIVE YEARS

CWC 10631

(f) 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.



9.3.1 WATER WASTE PREVENTION ORDINANCES

Since 1990, the City continued to implement the City of Whittier Municipal Code which includes water restriction. On May 15, 2015, the Director of Public Works for the City executed “Temporary Water Restrictions” due to the Governor of California issuing a proclamation of a state of emergency based on drought conditions on January 17, 2014. Under the executed Temporary Water Restrictions, customers were restricted to use water for sprinkling, wetting, irrigation or construction purposes.

9.3.2 METERING

Over the past five years, the City continued to meter all water sales to its customers. The City does not have any unmetered accounts. Additionally, within the City if there is new development, each unit is individually metered.

9.3.3 CONSERVATION PRICING

Starting in fiscal year 2015-16, the City implemented a new water rate schedule which includes tiered rates, as shown in Appendix N. Under the first tier, customers would pay \$1.76/ccf. Under the second tier, customers would pay \$2.50/ccf. This new tiered water rate schedule would help maximize conservation.

9.3.4 PUBLIC EDUCATION AND OUTREACH

In July 2015, the City implemented its Water Conservation Communications Plan, as shown in Appendix P. In order for the City to reach its goal of 20 percent reduction of its water demand, the City implemented its Water Conservation



Communications Plan designed to inform water users through public education and outreach.

Since 1990, the City continued to participate in CBMWD's school education program. A list of schools in the City's service area that participated in CBMWD's school education program is provided on Appendix Q.

9.3.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

Since 2001, the City continued to implement a system water audit, leak detection and repair program within its service area. The City's water system is completely metered and City staff conducts water audits, leak detection and repair on its distribution system.

9.3.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

In July 2015, the City implemented its Water Conservation Communications Plan, as shown in Appendix P. Part of the Water Conservation Communications Plan was to hire Water Ambassadors to attend community functions with brochures and education material to advocate water conservation. Historically, the City did not have staffing for Water Conservation Programs. This will be the first year (2015) the City hired two part-time staff members for this program.

9.3.7 OTHER DEMAND MANAGEMENT MEASURES

Over the past five years, the City continued to implement the Residential Plumbing Retrofit Program and the Large Landscape Conservation Program through



CBMWD. The City's large landscape conservation and incentive program includes the use of recycled water for irrigating large landscape areas within the City's service area.

9.4 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

CWC 10631

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

(1)(A) ...The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

As previously discussed in Section 9.2.4, the City implemented its Water Conservation Communications Plan, as shown in Appendix P. In order for the City to reach its goal of 20 percent reduction of its water demand, the City implemented its Water Conservation Communications Plan designed to inform water users through public education and outreach. The City's 2015 Interim Target was 145 GPCD and the confirmed 2020 Target is 134 GPCD. The City's actual water use during 2015 was 124 GPCD. Consequently, the City is in compliance with the 2015 Interim Target and the confirmed 2020 Target. Although the City does not need to implement additional DMMs to achieve its confirmed 2020 Target, the City will continue to enforce its Water Conservation Communications Plan, Ordinance No. 2509, and the executed "Temporary Water Restrictions" to prevent future water waste and continue to meet its water use targets.



9.5 MEMBERS OF THE CALIFORNIA URBAN WATER CONSERVATION COUNCIL

CWC 10631

- (i) *For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.*
-

The City is not a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California and is therefore not a member of the California Urban Water Conservation Council (CUWCC).

9.6 DEMAND MANAGEMENT MEASURES NOT IMPLEMENTED

Section 10631

- (g) *An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:*
- (1) *Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.*
 - (2) *Include a cost-benefit analysis, identifying total benefits and total costs.*
 - (3) *Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.*
 - (4) *Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.*
-



WHOLESALE AGENCY PROGRAMS [10631(F)(1)(J)]

The CUWCC refers to this BMP as “Foundational: Operations Practices – Wholesale Assistance Programs.” The City is a retail water supplier, therefore wholesale agency programs are not applicable to the City.



CHAPTER 10

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

10.1 INCLUSION OF ALL 2015 DATA

The data provided in the City's 2015 Plan is provided on a fiscal year basis through June 30, 2015 (as discussed in Section 2.4.2).

10.2 NOTICE OF PUBLIC HEARING

10.2.1 NOTICE TO CITIES AND COUNTIES

CWC 10621.

(b) Every urban water supplier required to prepare a plan shall... at least 60 days prior to the public hearing on the plan ... notify any city or county within which the supplier provides waters 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 hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area...

As discussed in Section 2.5.2. the City of Whittier coordinated the preparation of the Urban Water Management Plan with the CBMWD, the County of Los Angeles, the



Main San Gabriel Basin Watermaster, the Upper San Gabriel Valley Municipal Water District, and the City of Whittier. The City notified these agencies and Whittier residents at least sixty (60) days prior to the public hearing of the preparation of the 2015 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 B.

Additionally, a notice of public hearing was sent to CBMWD, the County of Los Angeles, Main Basin Watermaster, Upper District, and the City of Whittier. Copies of the notice of the public hearing are provided in Appendix R.

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

10.2.2 NOTICE TO THE PUBLIC

CWC 10642.

...Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection...Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code...

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 City of Whittier 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 City published a notice of public hearing in the newspaper during the weeks of May 13, 2016 and May 20, 2016. A notice of public hearing was also provided to the City Clerk's office and on the City's website. To ensure that the plan was available for review, the City placed a copy of the 2015 draft Plan at the City Clerk's Office located at City Hall and made a copy available for review on its website.

10.3 PUBLIC HEARING AND ADOPTION

CWC 10642.

...Prior to adopting a plan, the urban water supplier shall hold a public hearing 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.*

Prior to adopting the 2015 Plan, the City held a public hearing on May 24, 2016 which included input from the community regarding the City's draft 2015 Plan. As part of the public hearing, the City made available to the public information on determination of its water use targets (see Section 5.7.1), economic impacts (see Section 8.6) and DMMs (see Chapter 9).



The City is committed to the implementation of the 2015 Plan in accordance with Section 10643 of the Act, including the water demand management measures (DMMs) (see Section 9) and water conservation requirements of SBX7-7 (see Section 5). The City continues to be committed to the concept of good water management practice and intends to expand its water conservation program as budgets and staffing allow. The City's water conservation program will periodically be re-evaluated and modified to institute additional methods or techniques as the need arises. The City reviewed implementation of its 2010 Plan and incorporated changes to create the 2015 Plan.

10.3.1 ADOPTION

CWC 10642.

...After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

Following the public hearing, the City adopted the draft Plan as its 2015 Plan on [DATE]. A copy of the resolution adopting the 2015 Plan is provided in Appendix S.

10.4 PLAN SUBMITTAL

CWC 10621.

(d) An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

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.

(b) 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.

10.4.1 SUBMITTING A UWMP TO DWR

Within 30 days of adoption of the 2015 Plan by the City Council and by July 1, 2016, the City of Whittier will submit the adopted 2015 Plan to DWR. The 2015 Plan will be submitted through DWR's "Water Use Efficiency (WUE) Data Online Submittal Tool" website.

DWR developed a checklist for an Urban Water Management Plan to ensure it has addresses the requirements of the California Water Code. The City has completed the DWR checklist by indicating where the required CWC elements can be found within the City's 2015 Plan (See Appendix T).

10.4.2 ELECTRONIC DATA SUBMITTAL

Within 30 days of adoption of the 2015 Plan, the City will also submit all data tables associated with the 2015 Plan through DWR's "Water Use Efficiency (WUE) Data Online Submittal Tool" website.



10.4.3 SUBMITTING A UWMP TO THE CALIFORNIA STATE LIBRARY

Within 30 days of adoption of the 2015 Plan by the City Council, a copy (CD or hardcopy) of the 2015 Plan will be submitted to the State of California Library. A copy of the letter to the State Library will be maintained in the City's file. The 2015 Plan will be mailed to the following address if sent by regular mail:

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

The 2015 Plan will be mailed to the following address if sent by courier or overnight carrier:

California State Library
Government Publications Section
914 Capitol Mall
Sacramento, CA 95814

10.4.4 SUBMITTING A UWMP TO CITIES AND COUNTIES

Within 30 days of adoption of the 2015 Plan by the City Council, a copy of the 2015 Plan will be submitted to the County of Los Angeles Registrar / Records office and the City Clerk's Office. A copy of the letter to the County of Los Angeles will be maintained in the City's file.



10.5 PUBLIC AVAILABILITY

CWC 10645.

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.

Within 30 days after submittal of the 2015 Plan to DWR, the City will make the 2015 Plan available at the City Clerk's Office located at City Hall during normal business hours and on the City's website.

10.6 AMENDING AN ADOPTED UWMP

CWC 10621.

(c) 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) 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.

If the City amends the adopted 2015 Plan, the amended Plan will undergo adoption by the City's governing board. Within 30 days of adoption, the amended Plan will then be submitted to DWR, the State of California Library, the County of Los Angeles Registrar / Records office, and the City Clerk's Office.

TABLES

Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA1910173	City of Whittier Water Dept.	11,352	7,904
TOTAL		11,352	7,904

NOTES:

Table 2-2: Plan Identification

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		

NOTES:

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables Are in Calendar Years
<input checked="" type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

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 CWC 10631.

Wholesale Water Supplier Name *(Add additional rows as needed)*

Upper San Gabriel Valley Municipal Water District

Central Basin Municipal Water District

NOTES:

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040(opt)	2041(opt)
	56,200	56,900	57,600	58,200	58,800	59,500	60,000

NOTES:

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

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family		Drinking Water	3,757
Multi-Family		Drinking Water	2,197
Commercial	Commercial/Institutional	Drinking Water	1,291
Industrial		Drinking Water	27
Landscape		Drinking Water	211
Other		Drinking Water	81
Losses		Drinking Water	259
TOTAL			7,823
NOTES:			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>					
<u>Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt	2041-opt
Single Family		3,592	3,712	3,768	3,804	3,840	3,847
Multi-Family		2,101	2,171	2,204	2,225	2,246	2,250
Commercial	Commercial/Institutional	1,234	1,275	1,295	1,307	1,319	1,322
Industrial		25	26	27	27	27	27
Landscape		202	209	212	214	216	216
Other		77	80	81	82	82	82
Losses		248	256	260	262	265	265
TOTAL		7,479	7,729	7,847	7,921	7,995	8,009
NOTES:							

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 (opt)	2041 (opt)
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	7,823	7,479	7,729	7,847	7,921	7,995	8,009
Recycled Water Demand* <i>From Table 6-4</i>	81	90	90	90	90	90	90
TOTAL WATER DEMAND	7,904	7,569	7,819	7,937	8,011	8,085	8,099

**Recycled water demand fields will be blank until Table 6-4 is complete.*

NOTES:

Table 4-4 Retail: 12 Month Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2014	582

** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*

NOTES:

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

<p>Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i></p>	<p>Yes</p>
<p>If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.</p>	<p>Sections 7.3, 8.2, 8.5</p>
<p>Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i></p>	<p>Yes</p>
<p>NOTES:</p>	

Table 5-1 Baselines and Targets Summary*Retail Agency or Regional Alliance Only*

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1996	2005	155	145	134
5 Year	2004	2008	141		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD					2015 GPCD* (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Enter "0" if no adjustment is made <i>Methodology 8</i>						
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
124	145	0	0	0	0	124	124	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES:

Table 6-1 Retail: Groundwater Volume Pumped

☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
<i>Add additional rows as needed</i>						
Alluvial Basin	Main San Gabriel Basin	6,138	4,972	3,575	4,466	4,792
Alluvial Basin	Central Basin	891	2,238	4,395	4,280	3,031
TOTAL		7,029	7,210	7,970	8,746	7,823
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

<input type="checkbox"/> There is no wastewater collection system. The supplier will not complete the table below.						
Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>						
Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>						
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
County Sanitation District of Los Angeles County	Estimated	5,036	County Sanitation District of Los Angeles County	Los Coyotes Water Reclamation Plant and Long Beach Water Reclamation Plant	No	No
Total Wastewater Collected from Service Area in 2015:		5,036				

NOTES:

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

<input checked="" type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
Total							0	0	0	0
NOTES:										

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

<input type="checkbox"/> 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 Agency Producing (Treating) the Recycled Water:			San Jose Creek Water Reclamation Plant						
Name of Agency Operating the Recycled Water Distribution System:			Central Basin Municipal Water District						
Supplemental Water Added in 2015									
Source of 2015 Supplemental Water									
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)	2041 (opt)
Agricultural irrigation									
Landscape irrigation (excludes golf courses)	Irrigation along highways/freeways, parks and schools	Tertiary	81	90	90	90	90	90	90
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)*									
Surface water augmentation (IPR)*									
Direct potable reuse									
Other (Provide General Description)									
Total:			81	90	90	90	90	90	90
*IPR - Indirect Potable Reuse									
NOTES:									

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

□	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)	90	81
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	<i>Type of Use</i>	
Total	90	81

NOTES:

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

<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
pg. 6-33 to 6-35	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Total			0
NOTES:			

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

<input type="checkbox"/>	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.					
<input type="checkbox"/>	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.					
Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Agency <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
Water Lease	No		City has a lease with the City of Commerce for 3,000 AF of water rights. City will gain 3,000 AF of water supply for FY 2016-17.	FY 2016-17	All Year Types	3,000
NOTES:						

Table 6-8 Retail: Water Supplies — Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
<i>Add additional rows as needed</i>				
Groundwater	Main Basin	4,792	Drinking Water	9,599
Groundwater	Central Basin	3,031	Drinking Water	4,301
Recycled Water		81	Recycled Water	
Total		7,904		13,900
NOTES:				

Table 6-9 Retail: Water Supplies — Projected													
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>											
		2020		2025		2030		2035		2040 (opt)		2041 (opt)	
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		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)	Reasonably Available Volume	Total Right or Safe Yield (optional)
		<i>Add additional rows as needed</i>											
Groundwater	Main Basin	8,287	8,287	8,287	8,287	8,287	8,287	8,287	8,287	8,287	8,287	8,287	8,287
Groundwater	Central Basin	895	895	895	895	895	895	895	895	895	895	895	895
Recycled Water		90		90		90		90		90		90	
	Total	9,272	9,182	9,272	9,182	9,272	9,182	9,272	9,182	9,272	9,182	9,272	9,182
NOTES:													

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	2005-06	8,460	100%
Single-Dry Year	2013-14	8,837	104%
Multiple-Dry Years 1st Year	2011-12	7,265	86%
Multiple-Dry Years 2nd Year	2012-13	8,039	95%
Multiple-Dry Years 3rd Year	2013-14	8,837	104%
Multiple-Dry Years 4th Year <i>Optional</i>			
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			

Agency 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 an agency 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.

NOTES:

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

	2020	2025	2030	2035	2040 (Opt)	2041 (Opt)
Supply totals (autofill from Table 6-9)	9,272	9,272	9,272	9,272	9,272	9,272
Demand totals (autofill from Table 4-3)	7,569	7,819	7,937	8,011	8,085	8,099
Difference	1,703	1,453	1,335	1,261	1,187	1,173

NOTES: Assumes an Operating Safe Yield of 198,000 AFY in the Main Basin.

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

	2020	2025	2030	2035	2040 (Opt)	2041 (Opt)
Supply totals	7,906	8,166	8,289	8,366	8,444	8,460
Demand totals	7,906	8166.113	8,289	8,366	8,444	8,460
Difference	0	0	0	0	0	0

NOTES: Assumes an Operating Safe Yield of 150,000 AFY in the Main Basin and historical conditions in the Main Basin and Central Basin during a single-dry year.

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

		2020	2025	2030	2035	2040 (Opt)	2041 (Opt)
First year	Supply totals	6,499	6,713	6,814	6,878	6,942	6,955
	Demand totals	6,499	6,713	6,814	6,878	6,942	6,955
	Difference	0	0	0	0	0	0
Second year	Supply totals	7,192	7,429	7,541	7,611	7,682	7,696
	Demand totals	7,192	7,429	7,541	7,611	7,682	7,696
	Difference	0	0	0	0	0	0
Third year	Supply totals	7,906	8,166	8,289	8,366	8,444	8,460
	Demand totals	7,906	8,166	8,289	8,366	8,444	8,460
	Difference	0	0	0	0	0	0
Fourth year <i>(optional)</i>	Supply totals						
	Demand totals						
	Difference	0	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals						
	Demand totals						
	Difference	0	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals						
	Demand totals						
	Difference	0	0	0	0	0	0

NOTES: Assumes an Operating Safe Yield of 150,000 AFY in the Main Basin and historical conditions during multiple dry years in the Main Basin and Central Basin.

**Table 8-1 Retail
Stages of Water Shortage Contingency Plan**

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1	Up to 10%	Voluntary Rationing Programs. The City's customers may adjust either interior or outdoor water use (or both), in order to meet voluntary water reduction goals.
2	Up to 20%	Mandatory Rationing Programs. The City may establish a recommended Health and Safety allotment of 68 gallons per capita per day (gpcd) for Stage II and 60 gpcd for Stage III. This amount of water is sufficient for essential interior water use with no or little water use habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 68 gpcd is sufficient to provide for limited non-essential (i.e. outdoor) uses.
3	20-35%	Mandatory Rationing Programs. The City may establish a recommended Health and Safety allotment of 68 gallons per capita per day (gpcd) for Stage II and 60 gpcd for Stage III. This amount of water is sufficient for essential interior water use with no or little water use habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 68 gpcd is sufficient to provide for limited non-essential (i.e. outdoor) uses.
4	35-50%	Mandatory Rationing Program. The City's Health and Safety allotment will be reduced to 50 gpcd. This would require customers to make changes in their interior water use habits (for instance, not flushing the toilets unless "necessary" or taking less frequent showers). This is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster.

¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

NOTES:

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
1-4	Landscape - Restrict or prohibit runoff from landscape irrigation		No
4	Landscape - Other landscape restriction or prohibition	During and within 48 hrs after measurable rainfall	No
4	Landscape - Prohibit certain types of landscape irrigation	Irrigation of ornamental turf	No
4	Landscape - Prohibit certain types of landscape irrigation	Irrigation of newly constructed homes or buildings	No
4	Landscape - Prohibit certain types of landscape irrigation	Outdoor Irrigation of ornamental turf	No
4	Landscape - Prohibit all landscape irrigation	On Fridays	No
4	Landscape - Limit landscape irrigation to specific days	Governmental Parks limited to irrigation 3 days a week	No
1-4	CII - Restaurants may only serve water upon request		No
1-4	CII - Lodging establishment must offer opt out of linen service		No
1-4	Water Features - Restrict water use for decorative water features, such as fountains		No
1-4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		No
1-4	Other - Prohibit use of potable water for washing hard surfaces		No
NOTES:			

**Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
1-4	Expand Public Information Campaign	
1-4	Other	Increased Water Conservation Budget and Personnel
1-4	Other	City's Parks Division installed water smart irrigation controllers

NOTES:

Table 8-4 Retail: Minimum Supply Next Three Years

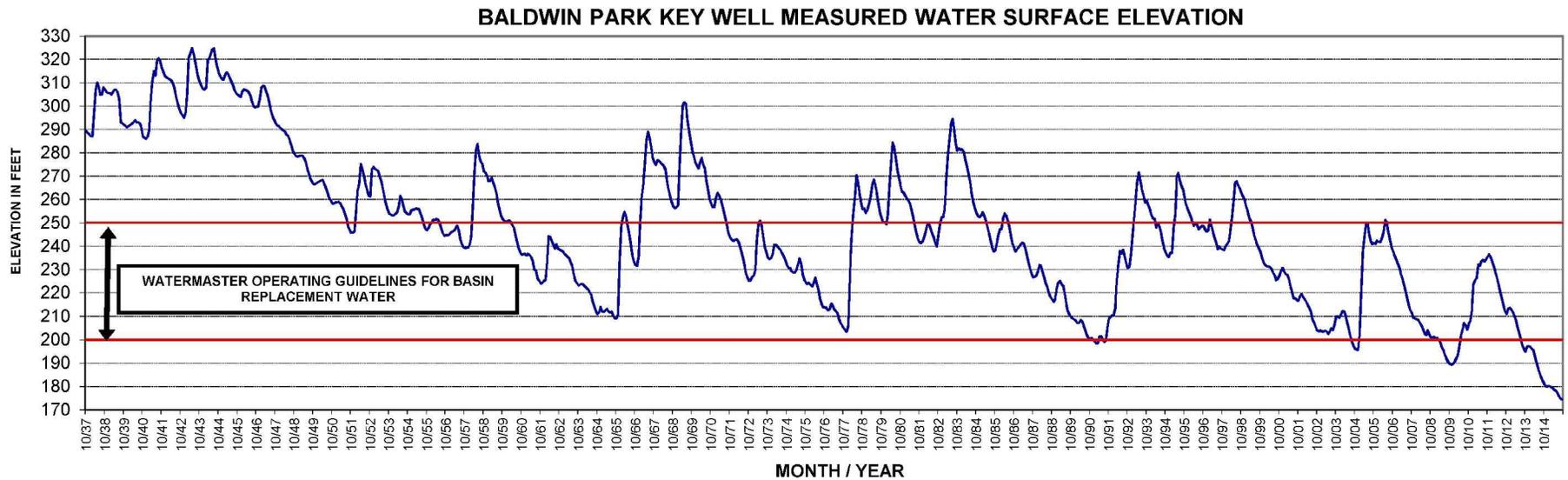
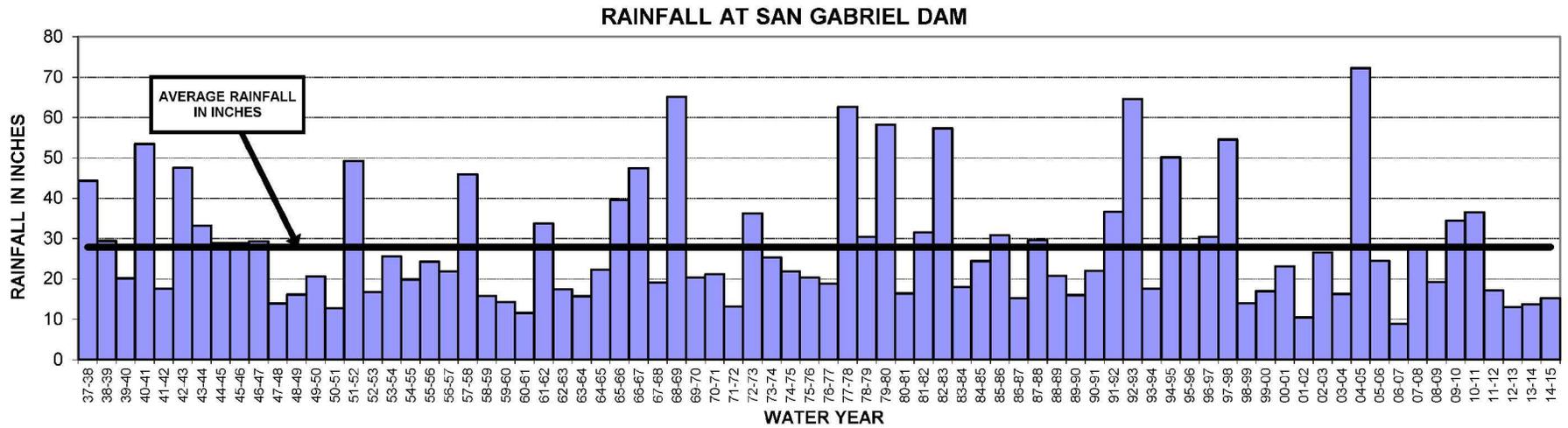
	2016	2017	2018
Available Water Supply	7,265	8,039	8,837

NOTES:

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Whittier	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Los Angeles County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

FIGURES



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

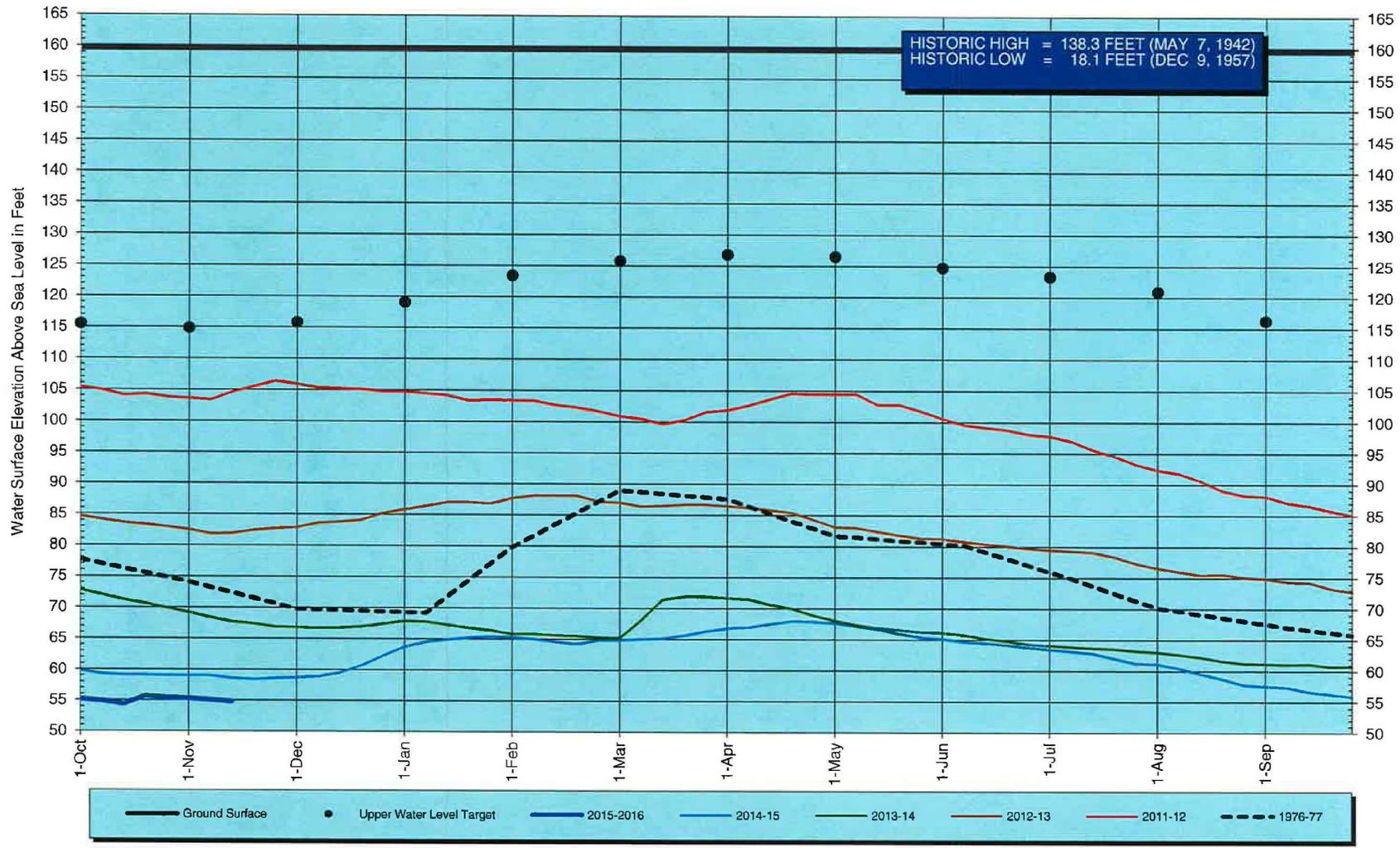
2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

HISTORICAL BALDWIN PARK KEY WELL ELEVATIONS AND SAN GABRIEL DAM RAINFALL

MONTEBELLO FOREBAY WELL 1601T GROUNDWATER SURFACE ELEVATION



Source : Water Replenishment District of Southern California



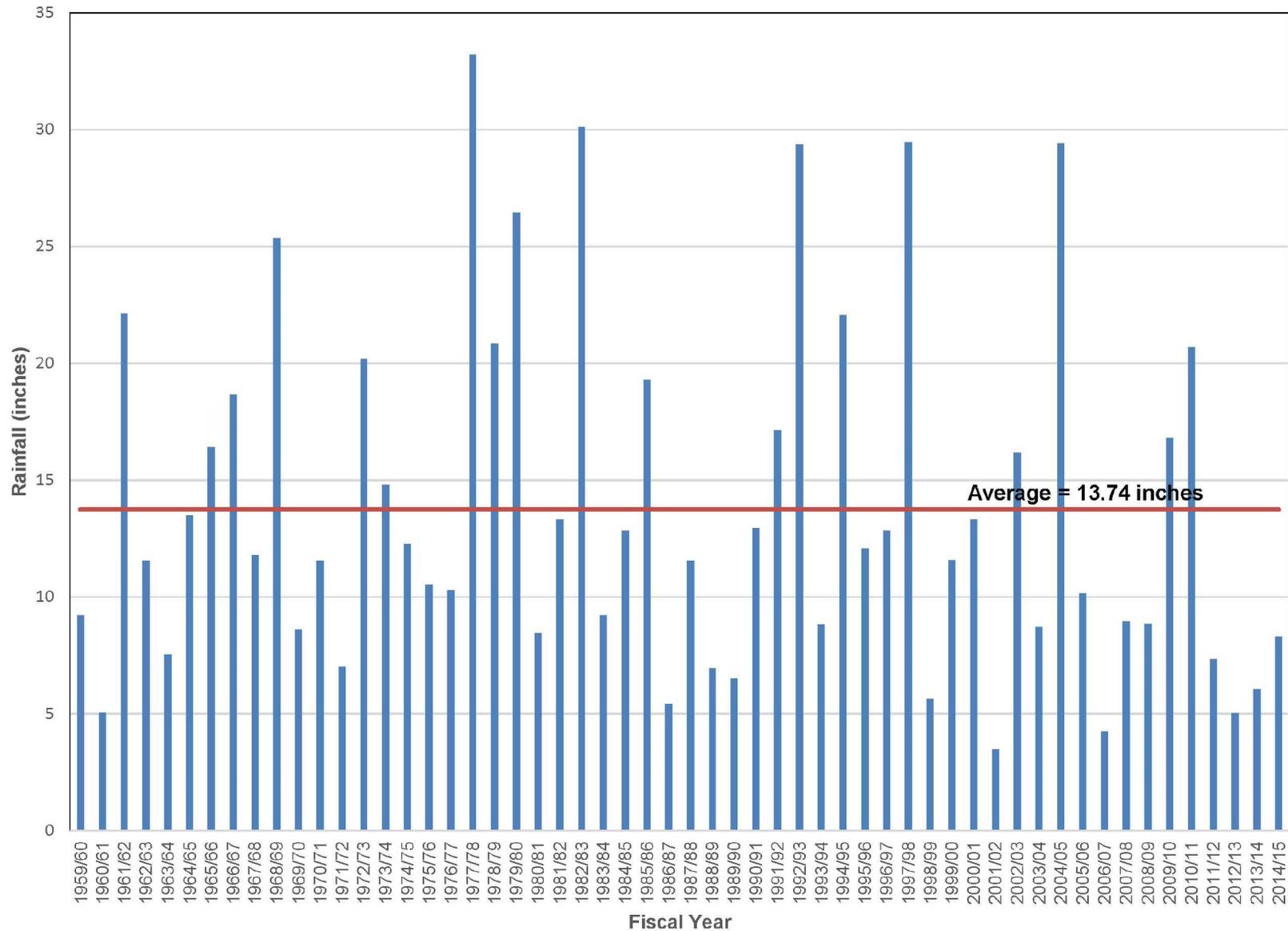
861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

HISTORICAL CENTRAL BASIN GROUNDWATER ELEVATION



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

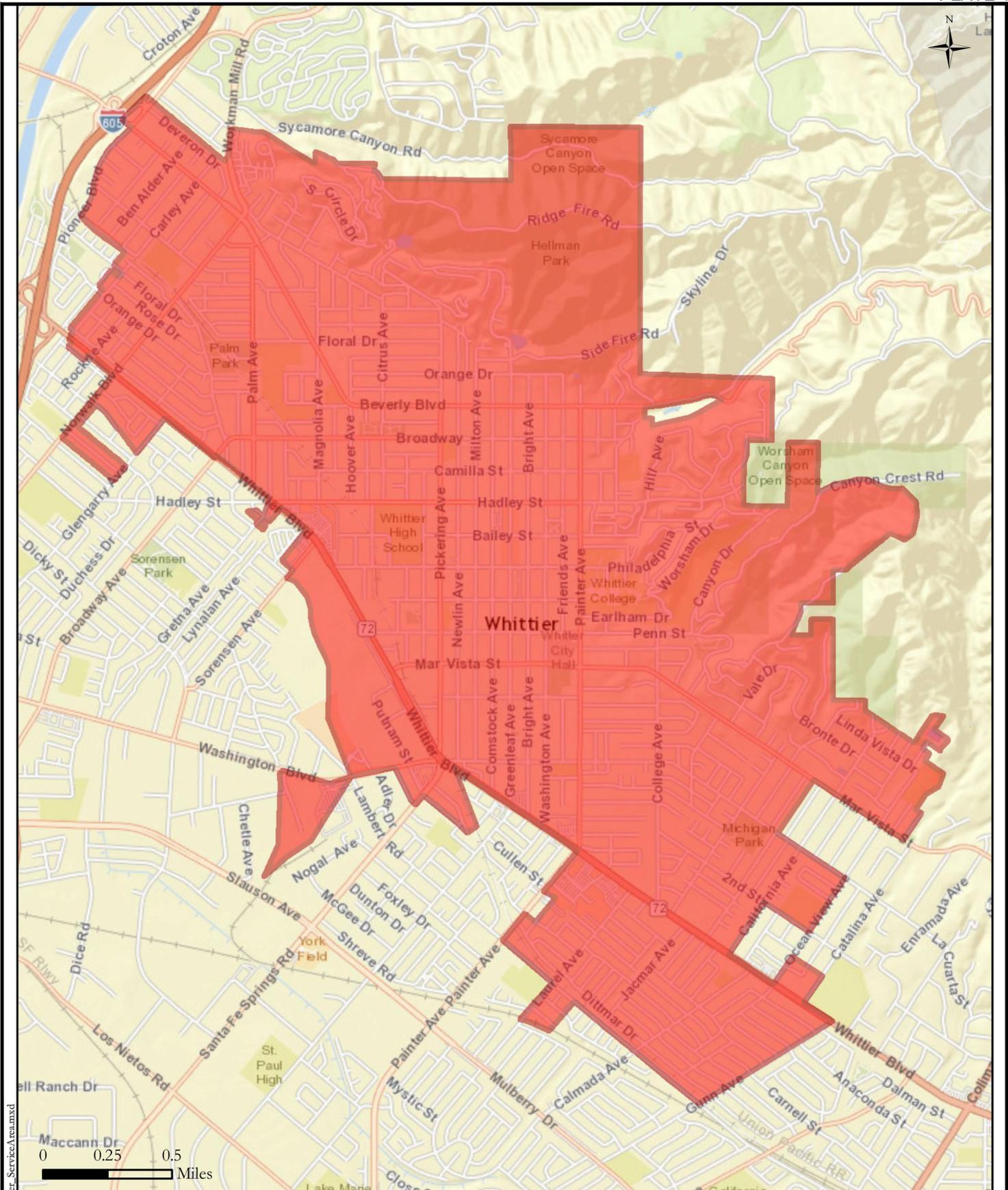
2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

HISTORICAL RAINFALL IN CITY OF WHITTIER

FIGURE 3

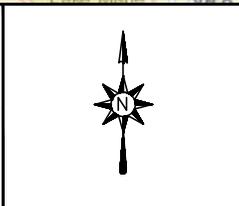
PLATES



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

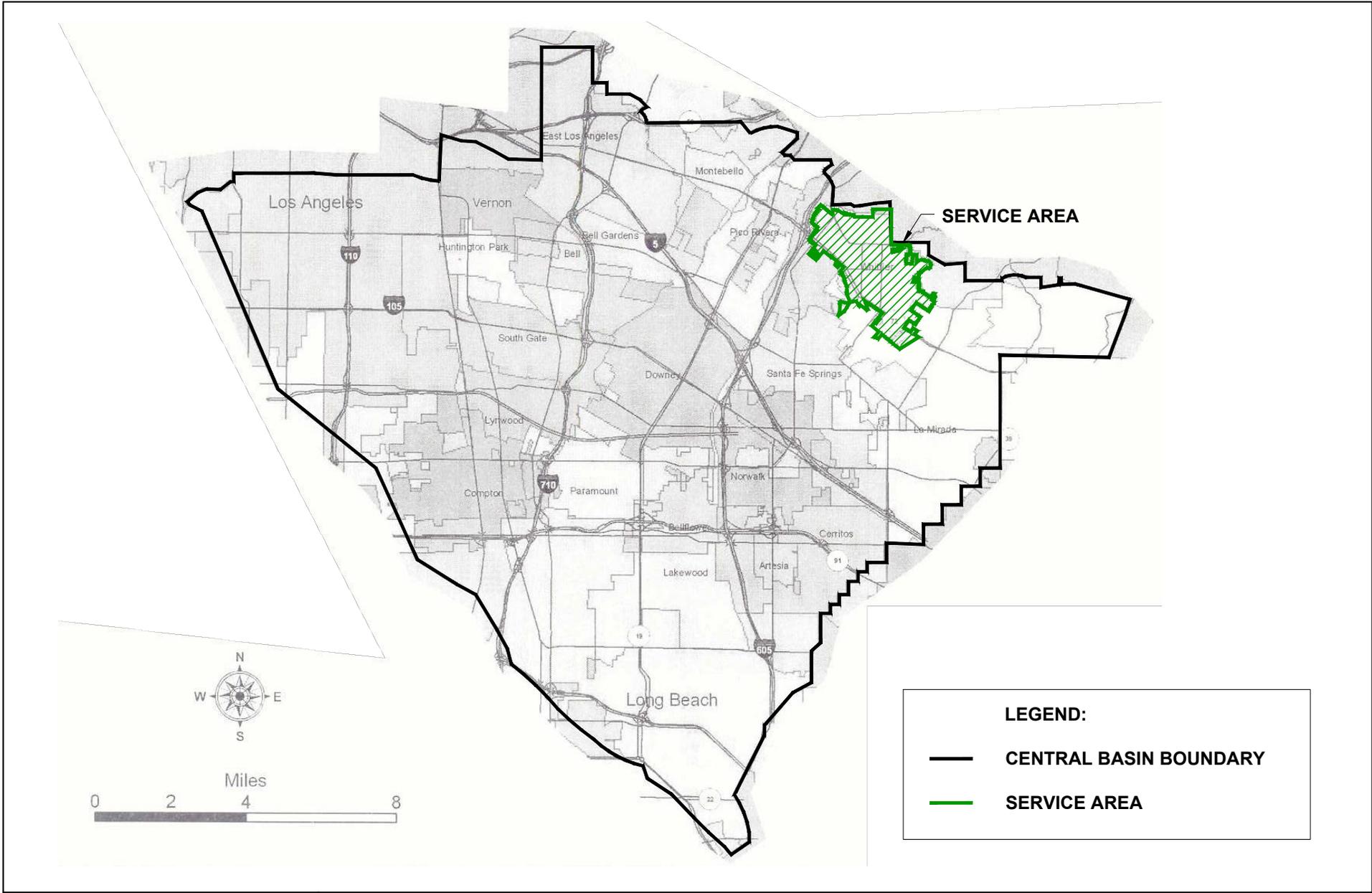
2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

WATER SERVICE AREA BOUNDARY



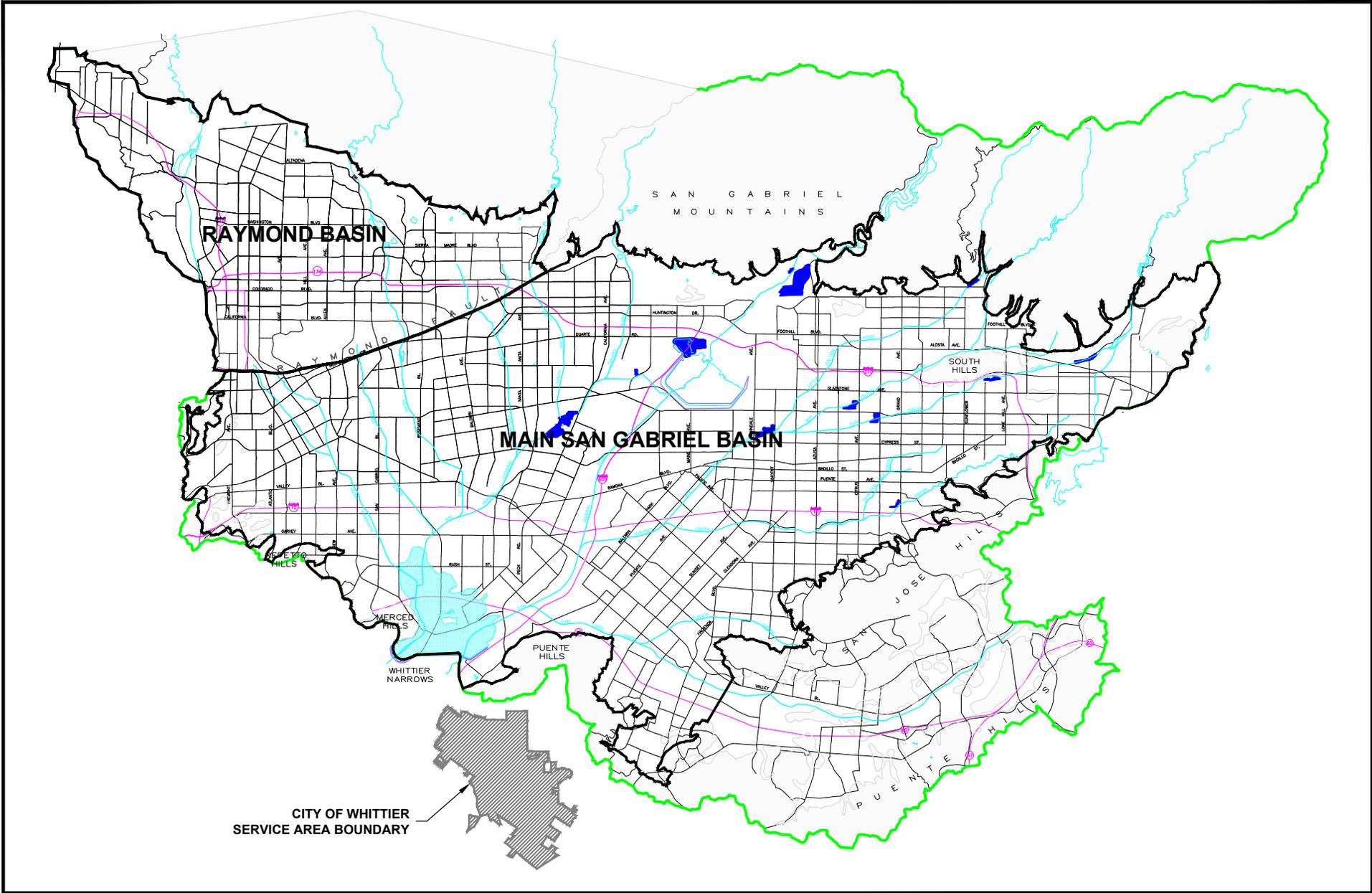
861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (818) 967-6202
 FAX: (818) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

SERVICE AREA AND CENTRAL BASIN BOUNDARY



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

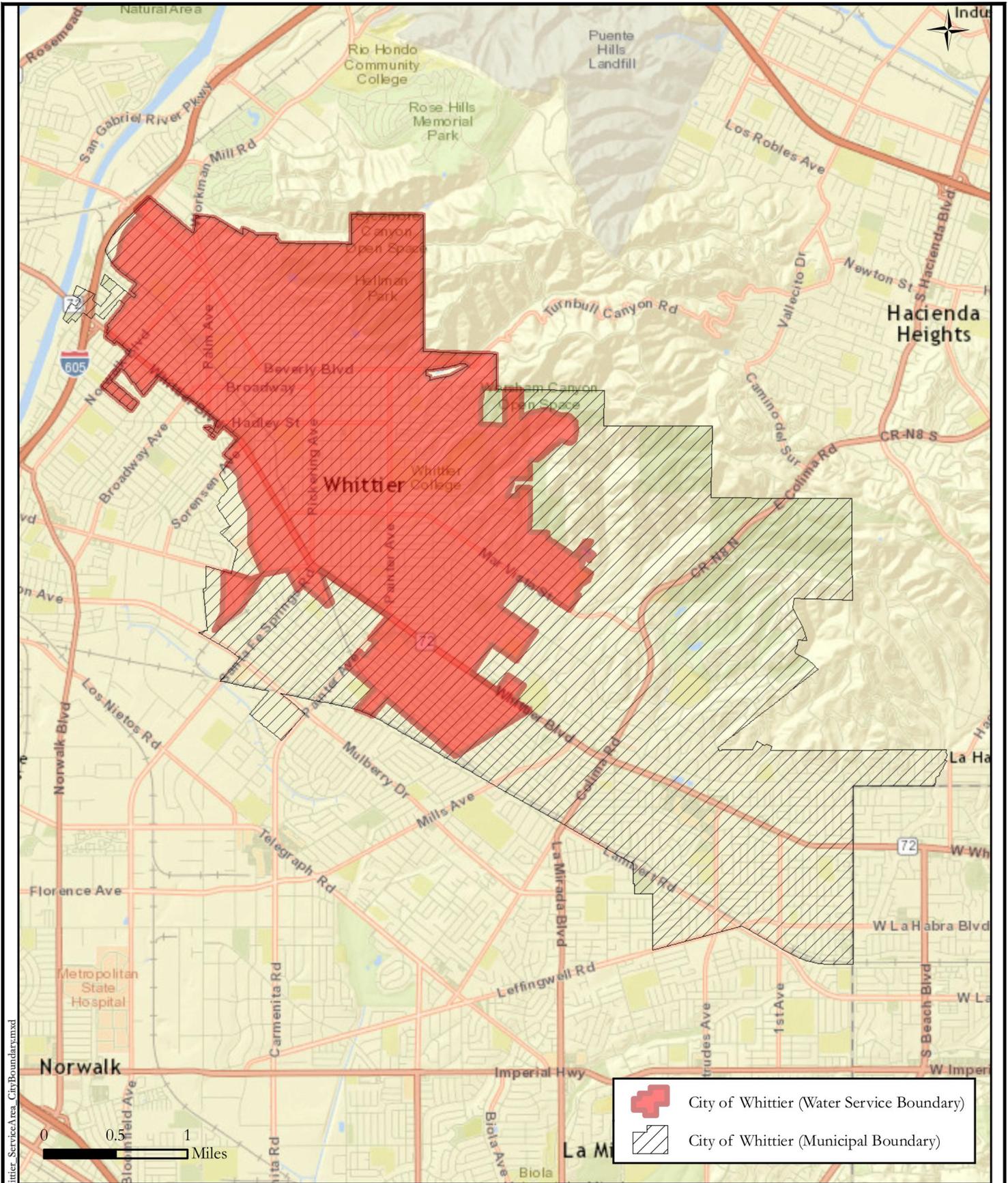
2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



N.T.S.

CITY OF WHITTIER

MAIN BASIN LOCATION MAP



	City of Whittier (Water Service Boundary)
	City of Whittier (Municipal Boundary)

861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

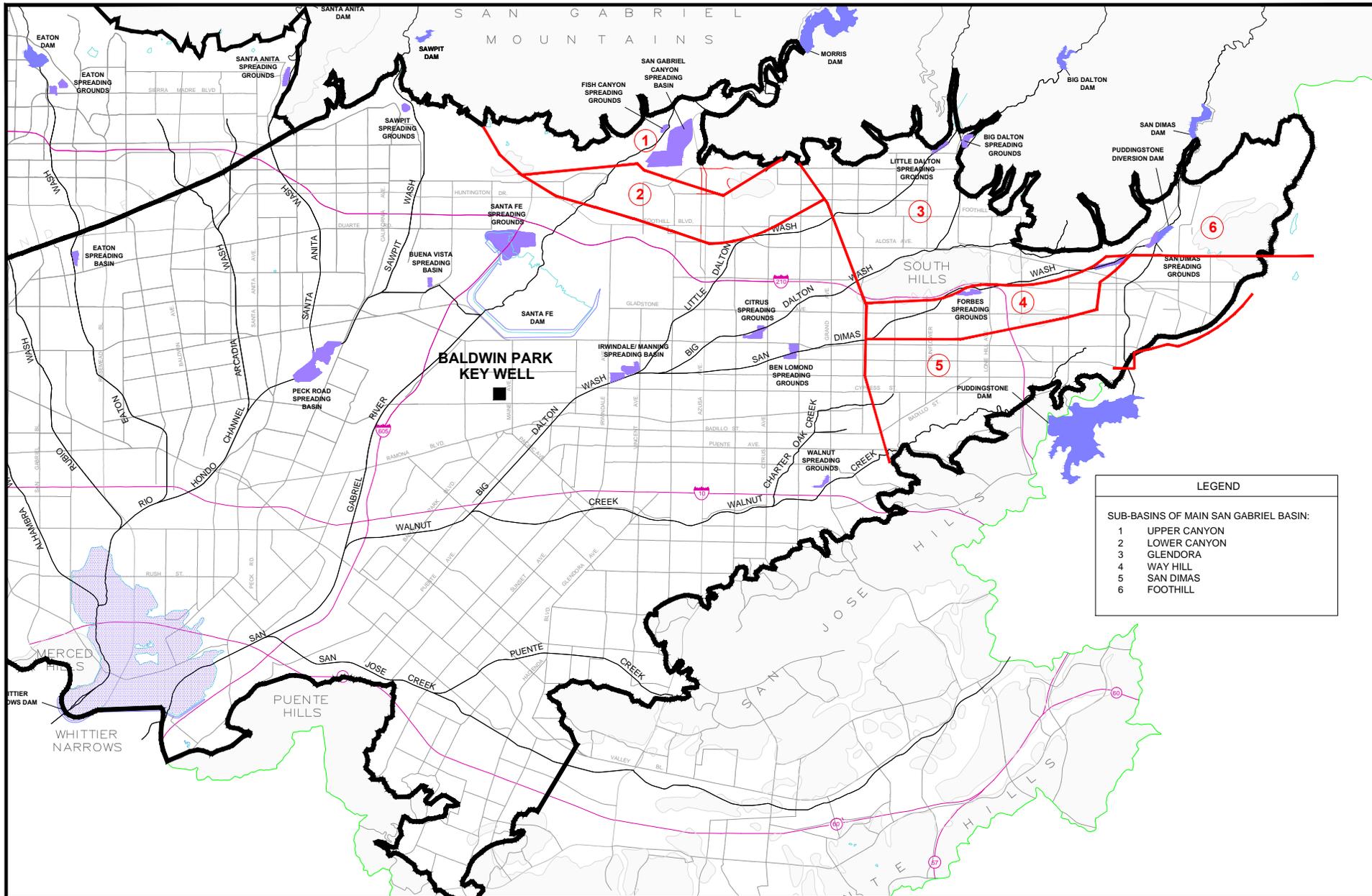
2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



CITY OF WHITTIER

WATER SERVICE AREA AND MUNICIPAL BOUNDARIES



LEGEND	
SUB-BASINS OF MAIN SAN GABRIEL BASIN:	
1	UPPER CANYON
2	LOWER CANYON
3	GLENDORA
4	WAY HILL
5	SAN DIMAS
6	FOOTHILL



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

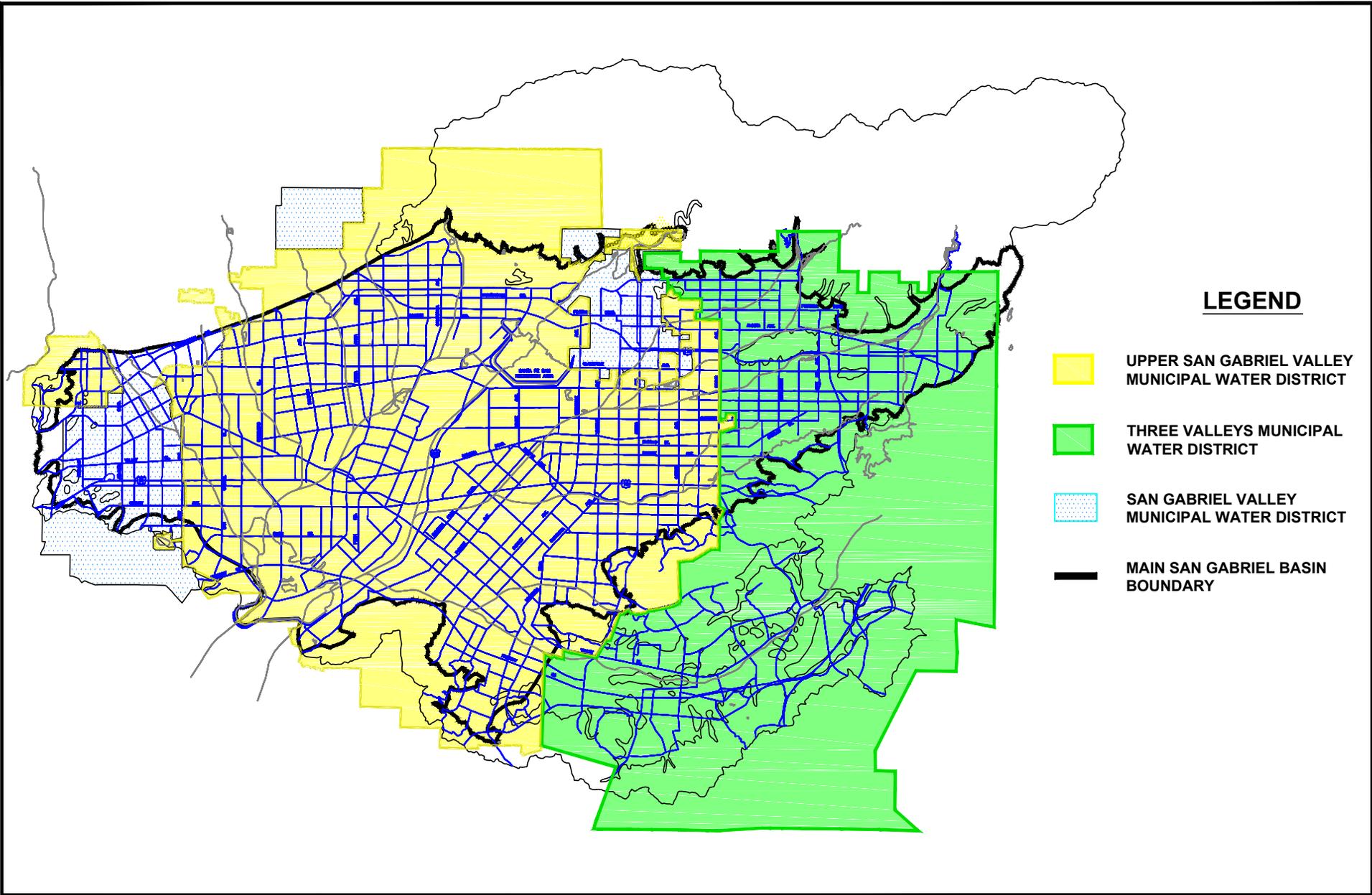
2171 E Francisco Blvd., Suite K
 San Rafael California 94901
 2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



N.T.S.

CITY OF WHITTIER

**LOCATION OF KEY WELL, SPREADING GROUNDS AND WATER CHANNELS
 MAIN SAN GABRIEL BASIN**



LEGEND

-  UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
-  THREE VALLEYS MUNICIPAL WATER DISTRICT
-  SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
-  MAIN SAN GABRIEL BASIN BOUNDARY



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

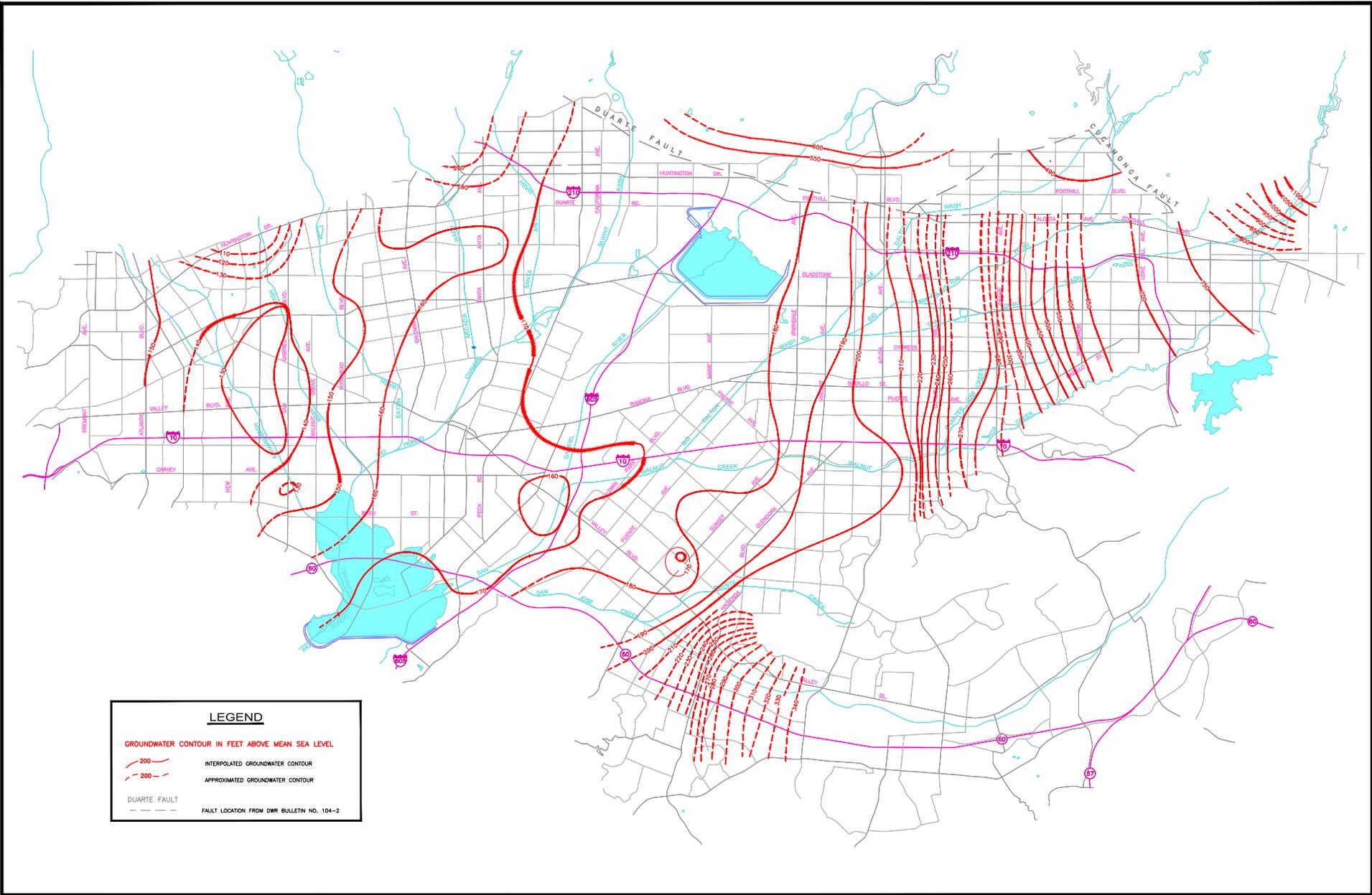
2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



N.T.S.

CITY OF WHITTIER

MUNICIPAL WATER DISTRICT BOUNDARIES



LEGEND

GROUNDWATER CONTOUR IN FEET ABOVE MEAN SEA LEVEL

— 200 — INTERPOLATED GROUNDWATER CONTOUR

- - - 200 - - - APPROXIMATED GROUNDWATER CONTOUR

DUARTE FAULT

- - - - - FAULT LOCATION FROM DWR BULLETIN NO. 104-2



861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
 San Rafael California 94901

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



N.T.S.

CITY OF WHITTIER

**GROUNDWATER CONTOURS MAP
 MAIN SAN GABRIEL BASIN - JULY 2015**