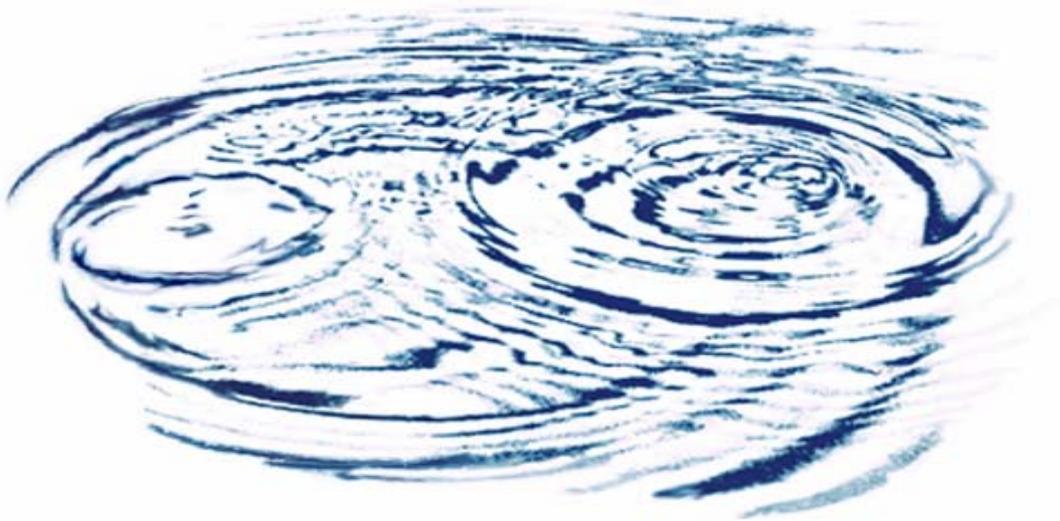


San Gabriel Valley Water Company

2010 Urban Water Management Plan



July 2011

Prepared for:

San Gabriel Valley Water Company
Los Angeles County Division



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Chapter 1 PLAN PREPARATION

1.1 BACKGROUND

Section 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.

Section 10620.

- (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).*
- (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.*
- (c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.*
- (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.
(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.*
- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.*

This Urban Water Management Plan (Plan) was prepared in accordance with the California Urban Water Management Planning Act (Act)¹ which was established in 1983. The 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

¹ Water Code Sections 10610 through 10656

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acre-feet of water annually. The primary objective of the 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 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 Act, originally known as Assembly Bill (AB) 797, is included in Appendix A.

There have been many new amendments added to the Plan and some reorganization of the California Water Code sections since San Gabriel Valley Water Company's Los Angeles County Division's (San Gabriel) 2005 Plan update. The additions and changes follow:

- Senate Bill (SB) 1087 – Requires reporting of water use projections for lower income households
- AB 1376 – Requires 60 days notice, prior to a public hearing, to any City or County within which the supplier provides water supplies notifying that San Gabriel is reviewing the Plan and is considering changes.
- AB 1420 – Conditions state funding
- SBX7-7 – Requires 20 percent reduction in per capita water use by 2020 (see Appendix B).

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 2010 Plans to July 1, 2011. This 2010 Plan is an update to San Gabriel's 2005 Plan.

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1.2 COORDINATION

1.2.1 COORDINATION WITH APPROPRIATE AGENCIES

Section 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.

Section 10621

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to 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. The urban water supplier may consult with, and obtain comments from, any city or county that receives notices pursuant to this subdivision.

San Gabriel is a retail water supplier that serves all or portions of the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, Whittier, and unincorporated areas of Los Angeles County including Hacienda Heights and South San Gabriel. San Gabriel has coordinated the preparation of its Plan with Amarillo Mutual Water Company, Central Basin Municipal Water District, Champion Mutual Water Company, County of Los Angeles, Del Rio Mutual Water Company, Hemlock Mutual Water Company, Industry Public Works, La Puente Valley County Water District, Main San Gabriel Watermaster, Rurban Homes Mutual Water Company, San Gabriel Basin Water Quality Authority, San Gabriel River Watermaster, Suburban Water Systems, Upper San Gabriel Valley Municipal Water District, Valley County Water District, and the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, and Whittier (see Table 1). San Gabriel notified these agencies of the preparation of its 2010 Plan and invited them to participate in the development of its 2010 Plan. San Gabriel notified these agencies at least 60 days prior to the public hearing. A copy of the notification memoranda sent to these agencies is

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located in Appendix C. Table 1 indicates whether comments were provided to San Gabriel regarding preparation of its 2010 Plan.

1.2.2 NOTICE OF PUBLIC HEARING

Section 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. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. 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. 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. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

Pursuant to Section 6066 of the Government Code, San Gabriel published notice of the public hearing through the newspaper during the week of June 13, 2011 and June 20, 2011. A notice of public hearing was also provided to Amarillo Mutual Water Company, Central Basin Municipal Water District, Champion Mutual Water Company, County of Los Angeles, Del Rio Mutual Water Company, Hemlock Mutual Water Company, Industry Public Works, La Puente Valley County Water District, Main San Gabriel Watermaster, Rurban Homes Mutual Water Company, San Gabriel Basin Water Quality Authority, San Gabriel River Watermaster, Suburban Water Systems, Upper San Gabriel Valley Municipal Water District, Valley County Water District, and the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, and Whittier. San Gabriel provided the 2010 draft Plan for review in its offices located at 11142 Garvey Avenue in El Monte, 14404 Valley Boulevard in Industry, 11579 Hadley Street in Whittier, and on the web at www.sgvwater.com. A copy of the notice of the public hearing is provided in Appendix D.

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1.2.3 PLAN DISTRIBUTION

Section 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 submission of its urban water management plan.

San Gabriel will provide a copy of its 2010 Plan to the cities, water management agencies, and relevant public agencies within its service area no later than 60 days after submission of its 2010 Plan to the California Department of Water Resources (DWR).

1.2.4 PUBLIC PARTICIPATION

Section 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. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. 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. 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. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

San Gabriel provided notice of a public hearing of its 2010 draft Plan by publishing a notice of public hearing through the newspaper during the week of June 13, 2011 and June 20, 2011. In the same newspaper notice, San Gabriel indicated its draft 2010 Plan update was available for public review at its offices located at 11142 Garvey Avenue in El Monte, 14404 Valley Boulevard in Industry, 11579 Hadley Street in Whittier, and on the web at www.sgvwater.com, as shown in Appendix D. Public notification of the hearing was made pursuant to Section 6066 of the Government Code. The notice of public hearing was published and distributed to allow involvement of social, cultural, and economic community groups. A copy of the notice of the public hearing is provided in Appendix D. San Gabriel also provided a notice of public hearing to Amarillo Mutual Water Company, Central Basin Municipal Water District, Champion

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Mutual Water Company, County of Los Angeles, Del Rio Mutual Water Company, Hemlock Mutual Water Company, Industry Public Works, La Puente Valley County Water District, Main San Gabriel Watermaster, Rurban Homes Mutual Water Company, San Gabriel Basin Water Quality Authority, San Gabriel River Watermaster, Suburban Water Systems, Upper San Gabriel Valley Municipal Water District, Valley County Water District, and the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, and Whittier, as show in Appendix D. San Gabriel held a public hearing located at its office at 11142 Garvey Avenue in El Monte on June 29, 2011 at 10:00 am. A copy of the public hearing presentation is provided in Appendix D.

1.3 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

1.3.1 SUBMITTAL OF AMENDED PLAN

Section 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).

If DWR requires significant changes to San Gabriel's Plan before it determines the Plan to be "complete," San Gabriel will submit an amended or revised Plan. The amended or revised Plan will undergo adoption by San Gabriel's governing board prior to submittal to DWR.

1.3.2 PLAN ADOPTION

Section 10642

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

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San Gabriel held a public hearing on June 29, 2011. Following the public hearing, San Gabriel adopted the draft Plan as of July 1, 2011 on July 5, 2011, as its Plan. A copy of the resolution adopting the Plan is provided in Appendix E.

1.3.3 PLAN IMPLEMENTATION

Section 10643

An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

San Gabriel is committed to the implementation of its 2010 Plan in accordance with Section 10643 of the Act, including the water demand management measures (DMMs) (see Chapter 6) and water conservation requirements of SBX7-7 (see Chapter 3). San Gabriel continues to be committed to the concept of good water management practices and intends to expand its water conservation programs as budgets and staffing allow. San Gabriel's water conservation program will periodically be re-evaluated and modified to give effect to better methods or techniques as the needs arise. In addition, San Gabriel has reviewed implementation of its 2005 Plan. Since adopting its 2005 Plan, San Gabriel has increased deliveries of recycled water within its service area. San Gabriel has also become a signatory to the California Urban Water Conservation Council and has continued to implement conservation programs. These items are discussed further in its 2010 Plan.

1.3.4 PLAN SUBMITTAL

Section 10644(a)

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

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Within 30 days after adoption of its Plan, San Gabriel will submit a copy of its Plan to DWR, the California State Library, the County of Los Angeles, and the cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, and Whittier.

1.3.5 PUBLIC REVIEW

Section 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 its 2010 Plan to DWR, San Gabriel will make its 2010 Plan available for public review at its office during normal business hours. San Gabriel will also post its 2010 Plan on its website at www.sgvwater.com

Chapter 2

SYSTEM DESCRIPTION

2.1 BACKGROUND

San Gabriel is an investor owned public utility water company subject to the regulatory jurisdiction of the California Public Utilities Commission (CPUC). San Gabriel provides public utility water service within its service area which includes all or portions of the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, Whittier, and unincorporated areas of Los Angeles County including Hacienda Heights and South San Gabriel. San Gabriel's CPUC-approved service area, which encompasses approximately 45 square miles, is shown in Plate 1. San Gabriel currently derives its groundwater supply from groundwater wells that produce water from two groundwater basins, the Main San Gabriel Basin and the Central Basin, with the Main San Gabriel Basin as San Gabriel's primary groundwater source. The locations of San Gabriel's service area and the Main San Gabriel Basin and the Central Basin are shown in Plate 2. San Gabriel's water supply sources also include recycled water and a standby connection with the Metropolitan Water District (MWD) of Southern California for delivery of treated water imported from the Colorado River and the State Water Project.

San Gabriel is a sub-agency of two wholesale water agencies, Upper San Gabriel Valley Municipal Water District (Upper District) and Central Basin Municipal Water District (Central District). Upper District and Central District have prepared 2010 Plans which are incorporated by reference. The locations of San Gabriel's service area, Upper District, and Central District are shown in Plate 3.

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2.2 SERVICE AREA PHYSICAL DESCRIPTION

Section 10631.

A plan shall be adopted in accordance with this chapter and shall do the following:

- a) *Describe the service area of the supplier; including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

2.2.1 SERVICE AREA

San Gabriel is located in the San Gabriel Valley area of Los Angeles County and overlies portions of the Main San Gabriel Basin (Main Basin) and Central Basin. San Gabriel's service area is about 45 square miles and includes all or portions of the Cities of Arcadia, Baldwin Park, El Monte, Industry, Irwindale, La Puente, Montebello, Monterey Park, Pico Rivera, Rosemead, San Gabriel, Santa Fe Springs, South El Monte, West Covina, Whittier, and unincorporated areas of Los Angeles County including Hacienda Heights and South San Gabriel, as shown in Plate 1. The service area of San Gabriel is largely urbanized consisting of mainly residential, light industrial and commercial uses.

San Gabriel is a retail water agency which is subject to the jurisdiction of the CPUC and currently serving a population of approximately 272,000 people (see Chapter 2.3 below). The service connections are primarily residential with some commercial/institutional, industrial and landscape irrigation users. San Gabriel estimates that the population it will serve in 2035 will be 303,000 (see Chapter 2.3 below). The projected water demand and number of service connections by user category are discussed in Chapter 3.

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2.2.2 CLIMATE

Historical rainfall in the San Gabriel Valley is shown in Table 2. Table 3 shows the monthly average rainfall, monthly average temperature and monthly evapotranspiration in the San Gabriel Valley. The historical average rainfall in the San Gabriel Valley is about 17.8 inches, as shown in Table 3. The annual rainfall in the San Gabriel Valley in water year 2009-10 was 20.2 inches, as shown in Table 2, which was 114 percent of the normal rainfall for the area. San Gabriel's service area in the San Gabriel Valley has a dry climate and summers can reach average daily temperatures in the high 70s. 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.

2.3 SERVICE AREA POPULATION

Section 10631.

A plan shall be adopted in accordance with this chapter and shall do the following:

- a) Describe the service area of the supplier; including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

2.3.1 POPULATION

San Gabriel provides water service in an area of about 45 square miles and has a current population of about 272,000. Current and projected populations served by San Gabriel were estimated in a March 1, 2011 Technical Memorandum prepared by DCSE (See Appendix F). Table 4 presents the current and projected population of the area encompassed by San Gabriel from 2010 to 2035. Projected populations in San Gabriel'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.

2.3.2 OTHER DEMOGRAPHIC FACTORS

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

Chapter 3 SYSTEM DEMANDS

3.1 WATER DEMANDS

3.1.1 PAST, CURRENT, AND PROJECTED WATER DEMAND

Section 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).

San Gabriel's water supply sources include water pumped from local groundwater basins, recycled water, and a standby connection with the MWD for delivery of treated water imported from the Colorado River and the State Water Project. San Gabriel's main source of water is groundwater pumped from both the Main Basin and the Central Basin. San Gabriel provides water service to the following water use sectors:

- Residential (Single-Family and Multi-Family)
- Commercial/Institutional
- Industrial

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- Landscape Irrigation.

Table 5 shows the historical, current, and projected water use, among water use sectors, within San Gabriel's service area. Table 6 shows the historical, current, and projected total water demand and unaccounted for water. The projected water use is calculated based on the urban per capita water use target developed per SBX7-7 (see Chapter 3.2 below) and population projections. Based on the projected water uses, San Gabriel does not anticipate any problem meeting the water demands.

3.1.2 PROJECTED WATER DEMAND FOR LOWER INCOME HOUSEHOLDS

Section 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.

As of January 2011, San Gabriel's records indicate that San Gabriel currently provides service to approximately 8,430 lower income households, which is approximately 20.3 percent of its total current number of residential meters. Based on a 20.3 percent use factor of total residential water demands, the projected water demand for lower income households is about 6,660 acre-feet per year by the year 2035, as shown on Table 6.

3.2 BASELINES AND TARGETS

Section 10608.20 (e)

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

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Methodologies for calculating baseline and compliance daily urban per capita water use for the consistent implementation of the Water Conservation Bill of 2009 have been published by DWR in its October 2010 guidance document.² DWR's guidance document was used by San Gabriel to determine the required water use parameters which are discussed below. San Gabriel developed the baselines and targets individually and not regionally.

3.2.1 BASELINE DAILY PER CAPITA WATER USE

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 are two different baseline periods for calculating Baseline Daily Per Capita Water Use, as follows (CWC Sections 10608.20 and 10608.22):

- *The first baseline period is a continuous 10- to 15-year period, and is used to calculate Baseline Per Capita Water Use per CWC Section 10608.20. The first baseline period is determined as follows:*
 - *If recycled water makes up less than 10 percent of 2008 retail water delivery, use a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
 - *If recycled water makes up 10 percent or more of 2008 retail water delivery, use a continuous 10- to 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*

² California Department of Water Resources, Division of Statewide Integrated Water Management, Water Use and Efficiency Branch. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. October 1, 2010.

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San Gabriel's recycled water use was less than 10 percent of its 2008 retail water deliveries. Consequently, San Gabriel's first baseline period will consist of a continuous 10-year period between 1995 and 2010.

- *The second baseline period is a continuous five-year period, and is used to determine whether the 2020 per capita water use target meets the legislation's minimum water use reduction per CWC Section 10608.22. The continuous five-year period shall end no earlier than December 31, 2007, and no later than December 31, 2010.*

The second baseline period consisting of a continuous five-year period can be selected between 2004 and 2010.

Unless the urban water retailer's five-year Baseline Daily Per Capita Water Use per CWC Section 10608.12(b)(3) is 100 GPCD or less, Baseline Daily Per Capita Water Use must be calculated for both baseline periods.

Calculation of the Baseline Daily Per Capita Water Use entails the following four steps:

- Step 1 Calculate gross water use for each year in the baseline period using Methodology 1 in DWR's guidance document. According to Methodology 1, gross water use is a measure of water supplied to the distribution system over 12 months and adjusted for changes in distribution system storage and deliveries to other water suppliers that pass through the distribution system. Recycled water deliveries are to be excluded from the calculation of gross water use. Water delivered through the distribution system for agricultural use may be deducted from the calculation of gross water use. Under certain conditions, industrial process water use also may be deducted from gross water use.*

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The calculated gross water use, based on San Gabriel's recorded groundwater use, local surface water use, and imported water supplies, for each year in the baseline period is shown on Table 7.

Step 2 Estimate service area population for each year in the baseline period using Methodology 2 in DWR's guidance document. To obtain an accurate estimate of GPCD, water suppliers must estimate population of the areas that they actually serve, which may or may not coincide with either their jurisdictional boundaries or with the boundaries of cities. According to Methodology 2, data published by the California Department of Finance (DOF) or the U.S. Census Bureau must serve as the foundational building block for population estimates. In some instances, data published by these two sources may be directly applicable. In other instances, additional refinements may be necessary. For example, to account for distribution areas that do not match city boundaries, customers with private sources of supply, or other unique local circumstances, water suppliers may have to supplement the above sources of data with additional local data sources such as county assessor data, building permits data, and traffic analysis zone data. These refinements are acceptable as long as they are consistently applied over time, and as long as they build upon population data sources of the DOF or the U.S Census Bureau.

San Gabriel's service area population for each year in the baseline period was calculated based on DCSE's March 1, 2011 Technical Memorandum (See Appendix F) and data from SCAG, DOF, and the US Census Bureau.

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Step 3 Calculate daily per capita water use for each year in the baseline period. Divide gross water use (determined in Step 1) by service area population (determined in Step 2).

The calculated daily per capita water use for each year in the baseline period is shown on Table 7.

Step 4 Calculate Baseline Daily Per Capita Water Use. Calculate average per capita water use by summing the values calculated in Step 3 and dividing by the number of years in the baseline period. The result is Baseline Daily Per Capita Water Use for the selected baseline period.

The average per capita water use calculated for a continuous 10-year baseline period (first baseline period) is shown on Table 7, with the highest value of 158 GPCD.

The Baseline Daily Per Capita Water Use for San Gabriel was determined to be **158 GPCD**, based on the highest value calculated for a continuous 10-year period (first baseline period) between 1995 and 2010 (see Table 7).

3.2.2 URBAN WATER USE TARGET

Section 10608.20 (b)

An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

- (1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.*
- (2) The per capita daily water use that is estimated using the sum of the following performance standards:*
 - (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.*
 - (B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with*

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Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

- (C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.*
- (3)** *Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.*
- (4)** *A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:*
 - (A) Consider climatic differences within the state.*
 - (B) Consider population density differences within the state.*
 - (C) Provide flexibility to communities and regions in meeting the targets.*
 - (D) Consider different levels of per capita water use according to plant water needs in different regions.*
 - (E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.*
 - (F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.*

The Urban Water Use Target is determined using one of the following methods:

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

Using this method, the Urban Water Use Target for San Gabriel was calculated as **127 GPCD**, based on San Gabriel's Baseline Per Capita Daily Water Use of 158 GPCD.

Method 2: Estimate using the sum of the specified three performance standards.

Due to insufficient data, this method was not considered.

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

Based on the 20x2020 Water Conservation Plan, San Gabriel's service area lies in DWR Hydrologic Region 4 (South Coast), with an established Baseline Per Capita Daily Water Use of 180 GPCD and a Target Per Capita Daily Water Use of 149 GPCD. Using this method, the Urban Water Use Target for San Gabriel was calculated as **142 GPCD**.

Method 4: Water Savings (Provisional)

Due to insufficient data, this method was not considered.

San Gabriel's Urban Water Use Target was initially determined to be **142 GPCD** for 2020, based on Method 3 above.

3.2.3 COMPLIANCE DAILY PER CAPITA WATER USE

Compliance Daily Per Capita Water Use is defined as the Gross Water Use during the final year of the reporting period, and reported in GPCD. The Compliance Daily Per Capita Water Use will be reported in San Gabriel's 2015 Plan (interim compliance) and 2020 Plan (final compliance).

³ 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.

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3.2.4 MINIMUM WATER USE REDUCTION REQUIREMENT

Section 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.

The following calculation is made because the five-year Baseline Per Capita Water Use per CWC Section 10608.12(b)(3) is greater than 100 GPCD. The calculation is used to determine whether the water supplier's 2015 and 2020 per capita water use targets meet the legislation's minimum water use reduction requirement per CWC Section 10608.22. The calculation entails three steps:

Step 1: Calculate Baseline Daily Per Capita Water Use using a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

This value was calculated as **150 GPCD** (see Table 7).

Step 2: Multiply the result from Step 1 by 0.95. The 2020 per capita water use target cannot exceed this value (unless the water supplier's five-year Baseline Per Capita Water Use is 100 GPCD or less). If the 2020 target is greater than this value, reduce the target to this value.

The value calculated for 95 percent of the five-year Baseline Per Capita Water Use is **142 GPCD**. San Gabriel's 2020 Urban Water Use Target was initially determined using Method 3 above to be 142 GPCD, which is equal to the value calculated in this step. Therefore, no adjustment is needed to San Gabriel's 2020 Urban Water Use Target of **142 GPCD**.

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Step 3: Set the 2015 target to mid-point between the 10- or 15-year Baseline Per Capita Water Use and the 2020 target determined in Step 2.

San Gabriel's 2015 Interim Urban Water Use Target is therefore set at **150 GPCD**, which is the mid-point between the 10-year Baseline Daily Per Capita Water Use of **158 GPCD** and the 2020 Urban Water Use Target of **142 GPCD**.

Therefore, San Gabriel's 2015 Interim Urban Water Use Target of 150 GPCD and 2020 Urban Water Use Target of 142 GPCD meet the legislation's minimum water use reduction requirement per CWC Section 10608.22. San Gabriel's water demand projections based on these targets, and the projected population from Table 4, are provided in Table 8.

3.3 WATER DEMAND PROJECTIONS

Section 10631(k)

Urban water suppliers that rely 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 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).

San Gabriel owns CENB-40 located at its M1 Plant in the City of Montebello through which San Gabriel can purchase and use treated imported surface water from MWD, through Central District. San Gabriel notified MWD and Central District of the development of its 2010 Plan and provided both with copies of the draft Plan. In addition, San Gabriel participated in Central District's development of its Urban Water Management Plan by providing data and attending meetings. MWD and Central District

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in turn provided San Gabriel with a copy of their draft 2010 Plan, which are incorporated by reference in this Plan.

3.4 WATER USE REDUCTION PLAN

10608.36.

Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

San Gabriel is not an urban wholesale water supplier. Therefore, this requirement is not applicable to San Gabriel.

3.5 PROGRESS REPORT

10608.40.

Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

San Gabriel will report to the DWR on its progress in meeting its urban water use targets, using a standardized form to be developed by the DWR, when the form becomes available.

Chapter 4

SYSTEM SUPPLIES

4.1 WATER SOURCES

Section 10631

A plan shall be adopted in accordance with this chapter and shall do the following:

- b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).*

San Gabriel's water supply sources include water pumped from local groundwater basins, treated imported surface water (MWD), and recycled water. San Gabriel's main source of water supply is groundwater pumped from both the Main San Gabriel Basin (Main Basin) and the Central Basin.

Groundwater

San Gabriel pumps groundwater from the Main Basin from 31 active wells, including Wells 1B, 1C, 1D, 1E, 2D, 2E, 2F, 8B, 8C, 8D, 8E, 8F, 11A, 11B, 11C, B5B, B5D, B5E, B6C, B6D, B7C, B7E, B9B, B11B, B24A, B24B, B25A, B25B, B26A, B26B, and G4A. These wells are located within the Main Basin, as shown on Plates 1 and 2, and have a combined capacity of about 63,000 gallons per minute (gpm). San Gabriel 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 San Gabriel, groundwater production in excess of a Party's water right, or its proportional share (pumper's share) of the Operating Safe Yield,⁴ requires purchase of replenishment water to recharge the Main Basin. San Gabriel has a prescriptive pumping right of about 20,070.05 acre-feet per year (AFY) and a

⁴ 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.

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pumper's share of 10.15514 percent of the Operating Safe Yield as of fiscal year 2009-10. If San Gabriel pumps more than its share of the Operating Safe Yield, San Gabriel must purchase replacement water to recharge the Main Basin.

San Gabriel pumps groundwater from Central Basin from four active wells, including Wells W1C, W1E, W6C, and W6D. These wells are located within the Central Basin, as shown on Plates 1 and 2, and have a combined capacity of about 10,500 gpm. The Court adjudication of the Central Basin in 1965 provides groundwater management that allows the use of basin storage to meet overlying water demands. According to the Central Basin Adjudication, San Gabriel has an allocated pumping right of 2,565.35 AFY as of fiscal year 2009-10. The Central Basin Adjudication allows a Party to the Judgment to pump up to 20 percent more than their annual entitlement plus any carry-over. The Water Replenishment District of Southern California (WRD) is responsible for recharging the Central Basin.

Treated Imported Surface Water

San Gabriel owns one (1) 15 cubic feet per second connection (CENB-40) located at its M1 Plant which can supply up to 6,735 gpm from MWD's Middle Feeder. Through CENB-40, San Gabriel can purchase and use treated imported water from MWD, through Central District. Treated imported water historically accounted for approximately 2 percent of San Gabriel's overall water supplies. San Gabriel plans to use treated imported water only as an emergency water supply source.

Recycled Water

San Gabriel has supplied recycled water to customers for non-potable irrigation uses since the mid 1990s. Recycled water users in San Gabriel's service area include several schools, landscape nurseries, the Whittier Narrows Recreation Area, Los Angeles County's Sorenson Park and Public Library, and portions of the Rio Hondo

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Community College and Rose Hills Memorial Park. Recycled water is produced by the Los Angeles County Sanitation District's (LACSD) San Jose Creek Water Reclamation Plant (SJCWRP) and Whittier Narrows Water Reclamation Plant (WNWRP). San Gabriel purchases recycled water supplies from Central District, LACSD, and Upper District. Use of recycled water allows San Gabriel to reduce the amount of groundwater production required from the Main San Gabriel and Central Basins and deliveries of imported water supplies.

Additional discussion of recycled water uses within San Gabriel's service area is provided in Section 4.5.

Total Water Supplies

San Gabriel's historical and projected water supplies from groundwater, imported surface water, and recycled water are shown on Table 9. Table 10 provides San Gabriel's projected water supplies during future single and multiple dry year conditions.

4.2 GROUNDWATER

Section 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:

- 1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.*
- 2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For 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.*

4.2.1.1 MAIN BASIN GROUNDWATER MANAGEMENT

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)⁵ and Main San Gabriel Basin Watermaster (Basin Watermaster)⁶. San Gabriel is a party to both Judgments and as such participates in these cases. San Gabriel also participates in the Main Basin management described in the Main Basin Watermaster document entitled "Five-Year Water Quality and Supply Plan." San Gabriel 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.

LONG BEACH JUDGMENT

On May 12, 1959, the Board of Water Commissioners of the City of Long Beach, the Central Basin Municipal Water District (Central District), and the City of Compton, as plaintiffs, filed an action against San Gabriel and 24 other producers of groundwater from the San Gabriel Valley as defendants. This action sought a determination of the rights of the defendants in and to the waters of the San Gabriel River system and to restrain the defendants from an alleged interference with the rights of plaintiffs and persons represented by the Central District in such waters. After six years of study and

⁵ Board of Water Commissioners of the City of Long Beach, et al., v. San Gabriel Valley Water Company, et al., Los Angeles County Case No. 722647, Judgment entered September 24, 1965.

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

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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.

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.

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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 2008-09 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 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

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(Main Basin Judgment) was entered on January 4, 1973. 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 overlies 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 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

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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 Main Basin Judgment provides that the Main Basin Watermaster will not allow imported water to be spread in the main part of the Main Basin when the groundwater elevation at the Baldwin Park Key Well⁷ (Key Well) exceeds 250 feet; and that the Main Basin Watermaster will, insofar as practicable, spread imported water in the Main Basin to maintain the groundwater elevation at the Key Well above 200 feet. One of the principal reasons for the limitation on spreading imported water when the Key Well elevation exceeds 250 feet is to reserve ample storage space in the Main Basin to capture native surface water runoff when it occurs and to optimize the conservation of such local water. 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.

⁷ The Baldwin Key Well is a water-level monitoring well located in the City of Baldwin Park used to determine when imported water may or may not be spread in the Basin.

OPERATIONS OF THE GROUNDWATER BASIN

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

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

Imported water for groundwater replenishment is delivered through the flood control channels and diverted and spread at spreading grounds through Main Basin Watermaster's agreement with 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 40,000 acre-feet for future Replacement Water use. The third is with San Gabriel Valley Municipal Water District (SGVMWD) and contains generally the same conditions as the agreement with MWD except that the

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stored quantity is not to exceed 40,000 acre-feet. As of the end of fiscal year 2009-10, San Gabriel has a cyclic storage account of 30,000 acre-feet with an ending balance of zero (0) acre-feet within cyclic storage.

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.

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

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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 its 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.

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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 San Gabriel) 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, San Gabriel reviews a copy of these reports and is provided the opportunity to submit comments on the proposed activity before the Main Basin Watermaster Board takes final action.

WATER QUALITY AUTHORITY 406 PLAN

The WQA was established by the State Legislature on February 11, 1993 to develop, finance and implement groundwater treatment programs in the Main Basin. Section 406 of the WQA Act requires the WQA "to develop and adopt a basinwide groundwater quality management and remediation plan" that is required to be consistent with the EPA's National Contingency Plan ("NCP") and Records of Decision ("ROD") and all requirements 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.

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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.

DESCRIPTION OF MAIN BASIN GROUNDWATER BASIN

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 2.

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

The Main Basin includes essentially the entire valley floor of the San Gabriel Valley with the exception of the Raymond Basin and Puente Basin. The boundaries of

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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 3.

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

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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

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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 4 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 December 2009 at 189.2 feet, at which time Main Basin storage was estimated to be about 7,600,000 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 5. 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.

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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 4 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. Table 2 shows historical annual rainfall, which is highly variable from year to year, in the San Gabriel Valley. In water year 2006-07 the total rainfall (four station average) was less than five inches, while in 2004-05 the total rainfall (four station average) was about 45 inches, as shown on Table 2.

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.

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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 4. The dams and reservoirs also

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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 4. 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 5. 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.

4.2.1.2 CENTRAL BASIN

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. San Gabriel was a defendant in Central Basin Judgment⁸ 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

⁸ Central and West Basin Water Replenishment District, etc. vs. Charles E. Adams etc., Los Angeles County Case No. 786,656, Judgment entered in 1965.

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case was continued to August 25, 1965. Shortly thereafter, Judge Moor appointed DWR as Watermaster. The final Judgment was signed on October 11, 1965 and became affective on October 1, 1966.⁹ 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.

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

⁹ Central and West Basin Water Replenishment District, etc. v. Charles E. Adams, et al, Los Angeles County Case No. 786,656.

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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.

DESCRIPTION OF CENTRAL BASIN GROUNDWATER BASIN

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 Plain 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.

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 Quaternary 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.

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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.

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

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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 Gaspur 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 Plate 6. 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.

4.2.2 LOCATION, AMOUNT AND SUFFICIENCY OF GROUNDWATER PUMPED FOR THE PAST FIVE YEARS

Section 10631(b)(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.

4.2.2.1 GROUNDWATER SOURCES IN MAIN BASIN

San Gabriel produces groundwater through its 31 active wells in the Main Basin, as discussed in Section 4.1. San Gabriel's historical groundwater production in the Main Basin over the past 15 years is shown on Table 9. The groundwater supply from the Main Basin is pumped to San Gabriel's storage reservoirs and then delivered to San Gabriel's customers. San Gabriel's groundwater production from the Main Basin from 2006 to 2010 has averaged approximately 38,500 AFY.

As noted in Section 4.2.1.1 the Main Basin is managed by the Main Basin Watermaster. Section 42, Basin Operating Criteria, of the Main Basin Judgment states in part "...Watermaster shall not spread Replacement Water when the water level at the Key Well exceeds Elevation two hundred fifty (250), and Watermaster shall spread Replacement Water, insofar as practicable, to maintain the water level at the Key Well above Elevation two hundred (200)." Figure 1 shows the historical fluctuation of the Key Well elevation and illustrates since the Main Basin was adjudicated in 1973, it generally operated between an elevation 250 feet and 200 feet above MSL. Furthermore, at elevation 200 feet above MSL at the Key Well, the Main Basin has about 7,600,000 acre-feet of available storage. During the period of management under the Judgment, significant drought events have occurred from 1969 to 1977, 1983 to 1991, 1998 to 2004, and 2006 to 2009. In each drought cycle the Main Basin has been managed to maintain water levels. **Therefore, based on historical and on-going management**

practices, San Gabriel will be able to rely on the Main Basin for adequate supply over the next 25 years under single year and multiple year droughts.

4.2.2.2 GROUNDWATER SOURCES IN CENTRAL BASIN

San Gabriel also produces groundwater through its four active wells in the Central Basin, as discussed in Section 4.1. San Gabriel's historical groundwater production in Central Basin over the past 15 years is shown on Table 9. According to the Central Basin Judgment, San Gabriel can produce up to 2,565.35 acre-feet each year from the Central Basin. San Gabriel's groundwater production from the Central Basin from 2006 to 2010 has averaged approximately 2,260 AFY.

As discussed in Section 4.2.1.2, 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. As shown on Plate 6, water levels have remained steady since then despite several drought periods. **Therefore, based on historical and on-going management practices, San Gabriel will be able to rely on the Central Basin for adequate supply over the next 25 years under single year and multiple year droughts.**

4.2.3 LOCATION, AMOUNT AND SUFFICIENCY OF GROUNDWATER PROJECTED TO BE PUMPED

Section 10631(b)(4)

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.

4.2.3.1 GROUNDWATER SOURCES IN MAIN BASIN

As noted in Section 4.2.1.1 the Main Basin is managed by the Main Basin Watermaster. During the period of management under the Judgment, significant drought events have occurred from 1969 to 1977, 1983 to 1991, 1998 to 2004, and 2006 to present. In each drought cycle the Main Basin has been managed to maintain water levels. **Therefore, based on historical and on-going management practices, San Gabriel will be able to rely on the Main Basin for adequate supply over the next 25 years under single year and multiple year droughts.**

4.2.3.2 GROUNDWATER SOURCES IN CENTRAL BASIN

As discussed in Section 4.2.1.2, 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. **Therefore, based on historical and on-going management practices, San Gabriel will be able to rely on the Central Basin for adequate supply over the next 25 years under single year and multiple year droughts.**

4.3 TRANSFER OPPORTUNITIES

Section 10631(d)

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

4.3.1 SHORT-TERM

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

- City of Arcadia (two way)
- City of Montebello (two way)
- City of Pico Rivera (two way) (two connections)
- City of Santa Fe Springs (one way to San Gabriel)
- Suburban Water Systems (two way) (three connections)
- Suburban Water Systems (one way to San Gabriel)
- Valley County Water District (two way)
- City of Whittier (two way)

In addition, Upper District and Central District describe transfer opportunities within their respective 2010 Plans, which are incorporated by reference. As a member

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agency to both Upper District and Central District, San Gabriel may benefit from these water transfer opportunities.

4.3.2 LONG-TERM

San Gabriel is under agreement to treat groundwater produced from the City of Industry's (COI) Well No. 5. An equal amount of treated water is sent through San Gabriel's distribution system to supply COI. During calendar year 2010, San Gabriel treated approximately 2,050 AF of water for COI. The amount of water treated by San Gabriel for COI is accounted for under COI's Main Basin water rights. San Gabriel can use any additional water produced by COI's Well No. 5 which is not required by COI.

In addition, Upper District and Central District describe transfer opportunities within their respective 2010 Plans, which are incorporated by reference. As a member agency to both Upper District and Central District, San Gabriel may benefit from these water transfer opportunities.

4.4 DESALINATED WATER OPPORTUNITIES

Section 10631(i)

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

4.4.1 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 average TDS value for San Gabriel's Main Basin Wells is below its secondary MCL, based on

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recent data. The California Department of Public Health (CDPH) 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, San Gabriel does not need to investigate the use of desalination to develop or reestablish a new long-term supply. However, there may be opportunities for use of desalinated ocean water as a potential water supply source in the future, if needed, through coordination with other agencies that have ocean desalination programs.

4.4.2 CENTRAL BASIN

The average TDS concentrations for the Central Basin groundwater is less than its secondary MCL, based on most recent available data published by DWR for the period 2001-02 through 2005-06 in its annual reports as Central Basin Watermaster (data not available in the annual reports from 2006-07 through 2008-09). 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.

4.5 RECYCLED WATER OPPORTUNITIES

4.5.1 RECYCLED WATER AND POTENTIAL FOR USE

Section 10633

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

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Achieving maximum use of all available recycled water is one of San Gabriel's water management goals. Recycled water could be used for groundwater recharge and storage as well as direct use by customers who are equipped and able to use recycled water. San Gabriel strongly supports the use of recycled water provides recycled water to customers in its service area who are able to use it, when it is made available. In fact, San Gabriel, presently serves recycled water to numerous customers in the Main San Gabriel Basin and Central Basin in Los Angeles County where San Gabriel has the ability to deliver up to 7,000 acre feet per year to customers in its service area (See Tables 5, 9, and 10).

4.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

Section 10633

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*

There are two water reclamation plants in the Basin; the WNWRP and the SJCWRP. The LACSD operates both of these facilities. The method of disposal when treated recycled water is not used (non-recycled) is discharge to the San Gabriel River/Rio Hondo and eventually flows to the ocean.

The WNWRP, which began operation in 1962, was the first reclamation plant built by the LACSD. It has a treatment capacity of about 15 MGD and provides coagulated, filtered and disinfected tertiary effluent. The WNWRP serves a population of approximately 150,000 people. The WNWRP produced 6.04 MGD (6,769 acre-feet) of coagulated, filtered, disinfected tertiary recycled water in fiscal year 2008-09. The volume of wastewater collected and treated is shown in Appendix L. An average of 5.901 MGD (6,613 acre-feet), or 97.7 percent of the recycled water produced during fiscal year 2008-09 at the WNWRP was re-used for landscape/plant irrigation and

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groundwater replenishment. 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 (see Appendix L).

The SJCWRP, which began operation in 1971, currently has a treatment capacity of about 100 MGD. The treatment level is coagulation, filtration and disinfection tertiary effluent. The SJCWRP has room for an expansion of an additional 25 MGD, although there is no schedule for such an expansion. The SJCWRP plant serves a largely residential population of approximately 1 million people. The SJCWRP produced 71.05 MGD (79,615 acre-feet) of coagulated, filtered, disinfected tertiary recycled water in fiscal year 2008-09. The volume of wastewater collected and treated is shown in Appendix L. An average of 26.23 MGD (29,392 acre-feet), or 36.9 percent of the recycled water produced during fiscal year 2008-09 at the SJCWRP was re-used for landscape irrigation, agricultural irrigation, industrial use, impoundment, and groundwater replenishment. 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 (see Appendix L).

4.5.3 CURRENT RECYCLED WATER USE

Section 10633

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

San Gabriel has supplied recycled water to customers for non-potable irrigation uses since the mid 1990s. Recycled water users within San Gabriel's service area include several schools, landscape nurseries, the Whittier Narrows Recreation Area, Los Angeles County's Sorenson Park and Public Library, and portions of the Rio Hondo Community College and Rose Hills Memorial Park. Recycled water supply is produced by LACSD's SJCWRP and WNWRP. San Gabriel purchases recycled water supplies

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from Central District, LACSD, and Upper District. Use of recycled water allows San Gabriel to reduce the amount of groundwater production required from the Main San Gabriel and Central Basins and from imported water purchases. The amount of recycled water supplied by San Gabriel is provided in Table 9.

4.5.4 POTENTIAL USES OF RECYCLED WATER

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.

Based on Central District's 2005 Urban Water Management Plan (UWMP), Central District anticipates that recycled water sales will increase from 3,150 AF (in 2005) to 15,500 AF (by 2030) within its service area, which includes a portion of San Gabriel's service area. The UWMP anticipates recycled water uses for landscape irrigation (i.e. landscapes, nurseries, cemeteries, parks, medians, and schools) and industrial purposes (i.e. cooling towers, concrete mixing, and textiles). Central District has recently partnered with Upper District to provide recycled water service outside of Central District's service area, including Rose Hills. Central District is currently constructing the Southeast Water Reliability Project (SWRP) which involves construction of an approximately 15 mile recycled water pipeline in the northern portion of Central District's service area. The SWRP will enhance recycled water deliveries and reliability within Central District's service area. The SWRP includes the cities of Montebello and Pico Rivera, which are within or near San Gabriel's service area. San Gabriel and Central District are working in concert to assure additional recycled water supplies in the future from the SWRP for San Gabriel's connections in Pico Rivera, Montebello, and unincorporated County areas. San Gabriel and Central District are also working in concert to construct a joint recycled water reservoir to serve additional recycled water customers in the Montebello Hills area (including the Montebello Hills

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development and other customers on the north side of the Montebello Hills). In addition, additional recycled water supplies are available in the future based on Central District's UWMP.

Upper District is currently conducting a phased recycled water project which will ultimately supply up to approximately 15,100 AFY of recycled water to customers within Upper District's service area. San Gabriel, which is also located within Upper District's service area, could potentially receive additional recycled water supplies from Upper District's project. Phase I of Upper District's recycled water project currently provides recycled water service to San Gabriel's customers in the City of Industry, City of Whittier, and unincorporated areas of Los Angeles County near the City of Whittier. Phase IIA of Upper District's recycled water project currently provides recycled water service to San Gabriel's customers in the South El Monte and Whittier Narrows area. An extension to the existing Phase IIA system is currently being constructed and will provide recycled water service to San Gabriel's customers in the City of Rosemead. Phase IIB includes providing recycled water (delivery pipelines, booster pumping stations, storage reservoirs and system appurtenances) to the City of Industry, Rowland Water District, Suburban Water Systems and the Walnut Valley Water District.

In addition to Phase IIA, there has been preliminary analysis conducted regarding Upper District's delivery of recycled water from LACSD's WNWRP to the City of Arcadia's service area. A pipeline delivering the proposed recycled water supply to the City of Arcadia would likely be routed through San Gabriel's service area. San Gabriel would thereby have access to additional recycled water supplies from the proposed pipeline.

San Gabriel and Central District have concluded preliminary investigations regarding the use of additional recycled water in the Montebello and Whittier portions of San Gabriel's service area. As part of Central District's SWRP, which includes a new pipeline to be constructed in Lincoln Avenue in Montebello, approximately 1,100 AF of

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additional recycled water can be supplied to San Gabriel for identified landscaping purposes (including schools, parks, a golf course, a cemetery, and landscape nursery) in San Gabriel's service area in Montebello. Additional recycled water deliveries would require the construction of pipelines, booster pumps, and storage reservoirs to accommodate additional recycled water deliveries.

Based on a June 13, 2006 "Agreement between Upper District, San Gabriel, and the County of Los Angeles Department of Parks and Recreation (LADPR)", San Gabriel can purchase up to 4,675 AFY of recycled water from LACSD, through Upper District. In addition, LADPR is allowed to purchase up to 2,900 AFY of this recycled water from San Gabriel. Purchase of recycled water by LADPR would be used for irrigation in the Whittier Narrows Recreation Area, which is located within San Gabriel's service area.

4.5.5 PROJECTED RECYCLED WATER USE

Section 10633

(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

Although recycled water use projections in San Gabriel's service area were not quantified in San Gabriel's 2005 Urban Water Management Plan, the 2005 Plan projects that recycled water projects in the Main Basin and Central Basin will utilize over 74,000 AFY of recycled water for industrial, irrigation, and groundwater replenishment purposes.

Based on planning documents prepared by Upper District and projected Central District recycled water use in San Gabriel's service area, including the SWRP, the total recycled water demand in San Gabriel's service area by the year 2015 is estimated to be approximately 3,000 AFY. Additional recycled water projections are provided in

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Table 9 and Table 10. As discussed previously, San Gabriel can purchase this projected recycled water amount from LACSD, Upper District, and Central District.

4.5.6 ENCOURAGING USE OF RECYCLED WATER

Section 10633

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

Central Basin provides financial assistance for plumbing retrofit necessary to receive recycled water. Central Basin advances funds for plumbing retrofit expenses. The funds are reimbursed on a monthly basis through direct billings from Central Basin. The retrofit costs are amortized over a period of time of up to ten years at Central Basin's cost of funds. In addition, Central Basin offers recycled water at a rate lower than potable water and this rate structure is passed on to San Gabriel's customers. Central Basin also promotes the use of recycled water within its system as a more reliable water source than imported water.

4.5.7 PLAN FOR OPTIMIZING USE OF RECYCLED WATER

Section 10633

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

4.5.7.1 CENTRAL BASIN RECYCLED WATER PROGRAM MASTER PLAN

In 2000, Central Basin completed a Recycled Water Program Master Plan to optimize the use of recycled water. This plan identified potential customers that could

benefit from recycled water within its distribution system, and projected recycled water use will continue to increase in the future. Currently, Central Basin's regional water recycling program includes a 50-mile pipeline system which delivers approximately 3,100 acre-feet of recycled water annually to more than 210 industrial, commercial and landscape irrigation sites, including San Gabriel.

4.5.7.2 UPPER DISTRICT RECYCLED WATER PROJECTS

Upper District is investigating the expansion of its existing recycled water program, including expansion of its existing Phase I project which will result in an additional 530 acre-feet per year of recycled water deliveries to San Gabriel customers in the City of Industry, City of Whittier, and unincorporated areas of Los Angeles County near the City of Whittier. Upper District is also investigating other extensions of its recycled water program in the near future which can result in additional availability of recycled water supplies within San Gabriel's service area.

Upper District is investigating the possibility of a potential recycled water project for groundwater replenishment that will provide recycled water for replenishment of the Main Basin of up to 10,000 acre-feet per year. The initial phase of the project will produce about 5,000 acre-feet per year for groundwater replenishment of the Main Basin. Subsequent phases will produce about an additional 5,000 acre-feet per year of recycled water for groundwater replenishment of the Main Basin.

As a sub-agency of Central Basin and Upper District, San Gabriel benefits from the results of Central Basin's Master Plan and Upper District's recycled water projects. In the future, San Gabriel expects to increase the number of recycled water users within its service area.

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4.6 FUTURE WATER PROJECTS

Section 10631

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water uses as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of 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.

San Gabriel obtains water from local groundwater, recycled water, and imported surface water supply sources. Although these water supply sources allow San Gabriel to provide sufficient water service, currently and in the future, there are various opportunities that may allow San Gabriel to enhance and augment existing water supplies. These opportunities may increase San Gabriel's water supply reliability and create new water supply sources. In addition, these opportunities may decrease vulnerability of water outages during drought periods and other emergency water supply situations.

4.6.1 CENTRAL BASIN RECYCLED WATER PROGRAM MASTER PLAN

As discussed previously, Central Basin completed a Recycled Water Program Master Plan in 2000 to optimize the use of recycled water. This plan identified potential customers that could benefit from recycled water within its distribution system, and projected recycled water use will continue to increase in the future. Currently, Central Basin's regional water recycling program includes a 50-mile pipeline system which delivers approximately 3,100 acre-feet of recycled water annually to more than 210 industrial, commercial and landscape irrigation sites, including San Gabriel.

4.6.2 EMERGENCY INTERCONNECTIONS

In addition to existing emergency interconnections, opportunities for additional interconnections may exist with additional local water producers near San Gabriel's service area (such as Golden State Water Company, California American Water Company, and San Gabriel County Water District). Existing one-way emergency interconnections San Gabriel has could be modified to allow San Gabriel to receive as well as send water. Potential water distribution interconnections with additional local agencies may increase water supply reliability further and decrease vulnerability during emergency water supply shortages.

Chapter 5
WATER SUPPLY RELIABILITY AND WATER SHORTAGE
CONTINGENCY PLANNING

5.1 WATER SUPPLY RELIABILITY

5.1.1 WATER MANAGEMENT TOOLS

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.

This Plan describes water management tools and options used by San Gabriel to maximize local resources and minimize the need to import water. These include Groundwater Basin Management Structure (Chapter 4.2), Recycled Water Opportunities (Section 4.5), Future Water Projects (Chapter 4.6), and DMMs (Chapter 6).

5.1.2 SUPPLY INCONSISTENCY

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.

San Gabriel has not experienced water supply deficiencies. Management of San Gabriel's primary groundwater supplies is based on adjudications, which are described in Chapter 4.2.

5.2 WATER SHORTAGE CONTINGENCY PLANNING

5.2.1 CATASTROPHIC INTERRUPTION OF WATER SUPPLIES

Section 10632

(c) 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.

During an acute and severe water shortage caused by a disaster (including, but not limited to, a regional power outage, an earthquake, or other disaster), San Gabriel production figures will be reported to San Gabriel's General Superintendent hourly or as the General Superintendent directs, and to San Gabriel's Vice President-Engineering and Operations and President daily. Reports will also be provided to the respective County Office of Emergency Service, if requested.

5.2.2 MANDATORY PROHIBITIONS

Section 10632

(d) 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.

During the drought period, 1987 through 1992, San Gabriel adopted a Voluntary Conservation Program (Conservation Program) which was approved by the CPUC in February 1991. Implementation of the Conservation Program began in March 1991. Elements of the Conservation Program consisted of a voluntary reduction of water use of at least 10 percent by all customers and prohibition of wasteful water practices. A letter explaining the Conservation Program and asking for at least 10 percent voluntary reduction and a list of conservation measures was sent to all customers in San Gabriel's service area. Also, each customer's monthly water bill showed the customer's water conservation goal for the ensuing month and showed the consumption during the same billing period of the previous year. The Conservation Program was successful and

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resulted in a reduction of approximately 15 percent in 1991. San Gabriel still encourages its customers to practice water conservation measures and promotes the wise and efficient use of water.

CPUC RULE NO. 14.1

The CPUC has set forth specific guidelines regarding Mandatory Water Conservation and Rationing in its Rule No. 14.1 which San Gabriel has adopted (see Appendix M). In the event water supplies are projected to be insufficient to meet customer demand, San Gabriel may invoke Rule No. 14.1 after notifying the CPUC of San Gabriel's plans to implement mandatory conservation and rationing. San Gabriel's Contingency Plan would be implemented pursuant to that rule. Major elements of the CPUC Rule No. 14.1 include:

A. Conservation – Nonessential or Unauthorized Water Use

No customer shall use utility-supplied water for non-essential or unauthorized uses as defined below:

1. Use of water through any connection when the utility has notified the customer in writing to repair broken or defective plumbing, sprinklers, or watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.
2. Use of water which results in flooding or run-off in gutters, waterways, patios, driveways, or streets.
3. Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shutoff nozzle on the outlet end of the hose, except for the washing of vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.

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4. Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive runoff or waste.
5. Use of water for watering streets with trucks, except for initial washdown for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
6. Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
7. Use of water for more than minimal landscaping in connection with any new construction.
8. Use of water for outside plants, lawn, landscape and turf areas more often than every other day, with even numbered addresses watering on even numbered days of the month and odd numbered addresses watering on the odd numbered days of the month, except that this provision shall not apply to commercial nurseries, golf courses and other water dependent industries.
9. Use of water for outside plants, lawn, landscape and turf areas during certain hours if and when specified in Tariff Schedule No. 14.1 when the schedule is in effect.
10. Use of water for watering outside plants and turf areas using a hand held hose without a positive shut-off valve.
11. Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.
12. Use of water for the filling or refilling of swimming pools.
13. Service of water by any restaurant except upon the request of a patron.

B. Rationing of Water Usage

In the event the conservation measures required by Section A (above) are insufficient to control the water shortage, San Gabriel will, upon CPUC approval, impose

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mandatory conservation and rationing. The water allocated for each customer, the time period during which rationing shall be in effect, and any additional conditions, are set forth in Tariff Schedule No. 14.1, which will be implemented for this purpose at the time such rationing is approved by the CPUC. Before rationing is authorized by the CPUC, San Gabriel will hold public meetings and take all other applicable steps required by Sections 350 through 359 of the California Water Code.

5.2.3 CONSUMPTION REDUCTION METHODS

Section 10632

(e) 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.

Individual customer allotments will be based on the same billing period for the prior year or such other base period as San Gabriel deems appropriate. San Gabriel will classify customers and calculate each customer's allotment according to the severity of the water shortage and the Contingency Plan Stage of Action which is to be implemented. Customers will be notified of their classification and allotments by mail with their water bills. New customers will be notified of their allotments at the time service commences.

In the event of an unexpected water shortage caused by a disaster, prior notice of allotment may not be possible. In that case, notice will be provided as soon as practical. Any customer may appeal San Gabriel's classification on the basis of use or allotment.

5.2.4 PENALTIES OR CHARGES FOR EXCESSIVE USE

Section 10632

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

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1. The water use restrictions of the conservation program in Section 5.2.2 become mandatory when the rationing program goes into effect. These restrictions are applicable whether or not the customer exceeds the monthly water allocation.
2. Upon inception of the mandatory provisions, San Gabriel may, after one verbal and two written warnings, install a flow-restricting device on the service line of any premises where San Gabriel personnel observe water being used for any nonessential or unauthorized use.
3. A flow restrictor shall not restrict water delivery by greater than 50 percent of normal flow and shall provide the premises with a minimum of 600 cubic feet per month. The restrictor may be removed only by San Gabriel, after a three-day period has elapsed, and upon payment of the appropriate removal charge as set forth in Tariff Schedule No. 14.1.
4. After the removal of a restricting device, if any nonessential or unauthorized use of water continues, San Gabriel may install another flow-restricting device. This device will remain in place until rationing is no longer in effect and until the appropriate charge for removal has been paid to San Gabriel.
5. Each customer's water allocation shall be shown on the water bill. Water allocations may be appealed in writing. If a customer uses water in excess of the allocated amount, San Gabriel may charge the excess usage penalty in Tariff Schedule No. 14.1.

5.2.5 REVENUE AND EXPENDITURE IMPACTS

Section 10632

- (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), 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.*

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Balancing accounts record variances between water supply costs reflected in San Gabriel's water rates and the water supply costs actually incurred by San Gabriel. Any recorded variances are eligible for later rate recovery by the San Gabriel.

At least 50 percent of San Gabriel's fixed costs must be recovered through its water consumption charges. When sales are reduced below the authorized level on which the water rates were determined, San Gabriel does not fully recover its fixed costs. However, the CPUC has developed more accurate sales forecasts and has authorized a Revenue Adjustment Mechanism which helps to alleviate this problem.

5.2.6 DRAFT WATER SHORTAGE CONTINGENCY RESOLUTION OR ORDINANCE

Section 10632

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

In the event San Gabriel finds it necessary to implement any part of San Gabriel's Contingency Plan (discussed in Section 5.4.2), it will notify customers and hold public hearings, if required, concerning the water supply situation, in accordance with Chapter 3, Water Shortage Emergencies, Section 350 through 359, of the California Water Code, and pursuant to the CPUC requirements. San Gabriel will also provide each customer with the applicable requirements of the Contingency Plan by means of billing inserts or special mailings. Notifications will take place prior to imposing any penalty associated with excessive water use under the Contingency Plan. In addition, San Gabriel shall provide customers with periodic updates regarding San Gabriel's and its customers' water conservation efforts. Updates may be by bill insert, special mailing, poster, flyer, newspaper, television or radio spot/advertisement, community bulletin board, or other appropriate method. San Gabriel has adopted a water shortage

contingency resolution (See Appendix P) which could be used to implement the Contingency Plan.

5.3 WATER QUALITY

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.

5.3.1 GROUNDWATER FROM MAIN BASIN

San Gabriel supplies groundwater to its customers from 31 active wells in the Main Basin as described in Chapter 3, including Wells 1B, 1C, 1D, 1E, 2D, 2E, 2F, 8B, 8C, 8D, 8E, 8F, 11A, 11B, 11C, B5B, B5D, B5E, B6C, B6D, B7C, B7E, B9B, B11B, B24A, B24B, B25A, B25B, B26A, B26B, and G4A. San Gabriel monitors required constituents in the groundwater from San Gabriel's wells to meet all CDPH standards for drinking water. Groundwater from San Gabriel's wells have been impacted by perchlorate, trichloroethylene (TCE), tetrachloroethylene (PCE), carbon tetrachloride (CTC), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1-dichloroethylene (1,1-DCE), 1,2-dichloroethane (1,2-DCA), nitrate, 1,4-Dioxane, and NDMA. The wells impacted by these constituents include:

- Water from Well 1B has exceeded the MCL for PCE in the past. Although PCE in Well 1B has not exceeded the MCL in recent years, water produced from Well 1B is blended with water produced from Wells 1C, 1D, and 1E.
- Water produced from Wells 8B, 8C, 8D, and 8E currently exceeds the MCL for PCE. Water produced from these wells is treated by air stripping and polished by a liquid phase granular activated carbon adsorption system.

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- Water produced from Well 11B has exceeded the MCL for PCE in the past. Water produced from Well 11B is treated by air stripping and then blended with water produced from Wells 11A and 11C.
- Water produced from wells B5B, B5D and B5E at Plant B5 are treated by liquid phase granular activated carbon adsorption system at the Plant B5 Treatment facility to remove TCE, PCE, CTC, chloroform, and 1,2-DCA. The water is also treated using advanced oxidation with peroxide injection and ultraviolet light to remove 1,4-Dioxane and NDMA. Water from wells B5B and B5E exceeds the perchlorate MCL. The B5 Treatment facility utilizes fixed bed ion exchange treatment technology to remove perchlorate. The water from Well B5B exceeds the nitrate MCL. The nitrate is treated by blending with water from Wells B5E and B5D.
- The water produced from onsite Wells B6C and B6D and offsite Wells B25A, B25B, B26A, and B26B is treated at the Plant B6 Water Treatment Facility. Water produced from Wells B6C, B25A, and B26A exceeds the MCLs for TCE, PCE, CTC, 1,2-DCA, perchlorate, and nitrate. Water produced from Well B6D exceeds the MCLs for TCE, PCE CTC, 1,2 DCA and perchlorate. Water produced from Well B25B exceeds the MCLs for TCE, PCE CTC, and perchlorate. Water produced from Wells B26B exceeds the MCLs for TCE, CTC, 1,2-DCA, and perchlorate. The Plant B6 Water Treatment Facility utilizes packed tower aeration to remove the VOCs as well as advanced oxidation with peroxide injection and ultraviolet light to remove 1,4-Dioxane and NDMA. The Plant B6 Water Treatment Facility also uses Ion Separation Exchange Process (ISEP) Units to remove perchlorate. The nitrate contamination is currently treated by blending and by partial nitrate removal which is incidental to the operation of the ISEP units.
- Water produced from Well B7C currently exceeds the MCL for PCE, and has exceeded the MCLs for TCE and 1,1-DCE. Water produced from Well B7C is treated by air stripping.

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- Water produced from Well B11B currently exceeds the MCLs for PCE, TCE, and 1,1-DCE. Water produced from Well B11B is treated by air stripping.
- Water produced from Well G4A currently exceeds the MCL for PCE. Water from Well G4A is treated by a liquid phase granular activated carbon treatment system.

San Gabriel implements CDPH approved treatment and blending systems to remove regulated constituents from the groundwater in its wells as mentioned above. As a result of San Gabriel's CDPH approved treatment and blending activities, San Gabriel's wells will provide a reliable water source from the Main Basin to San Gabriel's customers for the next 25 years

5.3.2 GROUNDWATER FROM CENTRAL BASIN

San Gabriel supplies groundwater to its customers from four active wells in the Central Basin as described in Chapter 3, including Wells W1C, W1E, W6C, and W6D. San Gabriel monitors required constituents in the groundwater from San Gabriel's wells to meet all CDPH standards for drinking water. Groundwater quality from Wells W1C, W6C, and W6D currently meets all CDPH standards for drinking water. Water from Well W1E contains manganese and iron. San Gabriel operates a treatment system to treat water from Well W1E to remove manganese and iron. As a result of treatment, San Gabriel's wells will provide a reliable water source from the Central Basin to San Gabriel's customers for the next 25 years.

5.4 DROUGHT PLANNING

5.4.1 RELIABILITY OF SUPPLY AND VULNERABILITY TO SEASONAL OR CLIMATIC SHORTAGE

Section 10631(c)(1)

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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, San Gabriel has not experienced water supply deficiencies. The management of both basins is based on their adjudications, which are described in Section 4.2. Based on current court supervised 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 to or greater than San Gabriel's water demand.

Information regarding the reliability of the groundwater supplies from the Main Basin and Central Basin is based on the 52-year rainfall data for the San Gabriel Valley (Table 2), and past data on the availability of water supply to meet demands during seasonal or climatic shortage. Table 2 summarizes the rainfall in the San Gabriel Valley from water year 1958-59 through water year 2009-10. According to historical rainfall data for the San Gabriel Valley, the annual average rainfall is 17.8 inches. Therefore, water year 2005-06 (or calendar year 2006) represents an average water year for San Gabriel in which the total amount of rainfall was about 16.8 inches. A single dry year for San Gabriel was represented in water year 2006-07 (or calendar year 2007) in which the total amount of rainfall was about 4.9 inches. A multiple dry year sequence for San Gabriel is represented from water year 2006-07 to water year 2008-09 (or from calendar years 2007 to 2009), where the total amount of rainfall was about 4.9 inches, 16.4 inches, and 14.0 inches, respectively. Table 9 shows that during an average year, single dry year and multiple dry years, groundwater production for San Gabriel remained stable. A dry year or multiple dry years will not compromise San Gabriel's ability to provide a reliable supply of water to its customers.

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Based on current basin wide court supervised groundwater management practices, San Gabriel will be able to rely on the Main Basin and the Central Basin for adequate supply over the next 25 years under single year and multiple year droughts.

5.4.2 STAGES OF ACTION IN RESPONSE TO WATER SUPPLY SHORTAGES

Section 10632

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

San Gabriel has prepared and adopted a Water Shortage Contingency Plan (“Contingency Plan”) pursuant to the requirements of Assembly Bill No. 11X which became effective as of October 13, 1991. Information from the Contingency Plan has been incorporated into this 2010 Urban Water Management Plan.

San Gabriel is a public utility water company regulated by the CPUC. In the event a water shortage is declared, San Gabriel would request CPUC authorization to implement the Mandatory Water Conservation and Rationing Plan as set forth in CPUC Rule No. 14.1 (see Appendix M).

In the event of a declared water shortage, San Gabriel would, to the extent necessary and appropriate, coordinate the implementation of this Contingency Plan with the agencies, cities, and counties within its service area, MWD, County of Los Angeles, Upper District, Central District, Main Basin Watermaster, WRD, San Gabriel Valley Water Association, and Central Basin Water Association.

San Gabriel has a legal responsibility to provide water utility services, including water for residential, commercial, industrial, public authority, and for public fire hydrants and private fire services. In order to minimize the adverse impacts of water shortages,

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San Gabriel will manage water supplies prudently. San Gabriel's Contingency Plan is designed to provide a minimum of 50 percent of normal supply during a severe or extended water shortage. Contingency Plan trigger levels have been established to ensure that this policy is implemented.

The following provides a description of the stages of action which may be triggered by a shortage in one or more of San Gabriel's water supply sources, depending on the severity of the shortage and its anticipated duration:

Stage 1 Shortage

A Stage 1 shortage occurs when San Gabriel experiences water supply shortage conditions up to 15 percent. During this stage, San Gabriel will implement a voluntary reduction goal of 15 percent.

Stage 2 Shortage

A Stage 2 shortage occurs when San Gabriel experiences water supply shortage conditions between 15 and 25 percent. During this stage, San Gabriel will implement a voluntary reduction goal of 25 percent.

Stage 3 Shortage

A Stage 3 shortage occurs when San Gabriel experiences water supply shortage conditions between 25 and 35 percent. During this stage, San Gabriel will implement a mandatory reduction goal of 35 percent.

Stage 4 Shortage

A Stage 4 shortage occurs when San Gabriel experiences water supply shortage conditions between 35 and 50 percent. During this stage, San Gabriel will implement a mandatory reduction goal of at least 50 percent.

5.4.3 THREE YEAR MINIMUM WATER SUPPLY

Section 10632

(b) 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.

Over the past 20 years, the driest three-year sequence (multiple dry years) in San Gabriel's service area occurred from water year 2006-07 (or 2007) to water year 2008-09 (or 2009), as shown in Table 2. Although additional water supplies were available to San Gabriel during the driest three-year sequence, Table 11 shows the minimum supplies needed by San Gabriel to meet actual demands during these years. The ratio between the normal water year in 2005-06 (or 2006) and multiple dry years (2007 to 2009) was estimated for San Gabriel's supply, as shown on Table 11. This ratio from Table 11 was used to estimate the minimum water supply available during each of the next three years (from 2011 to 2013) based on the driest three-year historical sequence for San Gabriel's water supply (see Table 12).

5.4.4 WATER USE REDUCTION MEASURING MECHANISM

Section 10632

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

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Under normal water supply conditions, production figures are recorded daily. Totals are reported weekly to San Gabriel's General Superintendent. Totals are reported monthly to the Vice President-Engineering and Operations and incorporated into San Gabriel's water supply report.

During a Stage 1 or 2 water shortage, daily production figures are reported to the General Superintendent. The General Superintendent compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are forwarded to the Vice President-Engineering and Operations. Monthly reports are sent to the Water Resources Manager. If reduction goals are not met, San Gabriel's Water Resources Manager will make recommendations as to what further action should be taken.

During a Stage 3 or 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Vice President-Engineering and Operations.

As discussed in Section 5.2.1, during an acute and severe water shortage caused by a disaster, production figures will be reported to the General Superintendent hourly or as the General Superintendent directs, and to the Vice President-Engineering and Operations and President daily. Reports will also be provided to the respective County Office of Emergency Service, if requested.

5.4.5 ASSESSMENT OF THE RELIABILITY OF WATER SERVICE

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 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 year water year, and multiple dry water years. The water

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service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

As previously discussed in Chapter 3.2, San Gabriel applied SBX7-7 to estimate San Gabriel's 2015 Interim Urban Water Use Target of 150 GPCD and San Gabriel's 2020 Urban Water Use Target of 142 GPCD. These Urban Water Use Targets were then applied to estimate San Gabriel's projected normal year demands in 2015, 2020, 2025, 2030, and 2035, as shown on Table 8. San Gabriel will continue to use groundwater and recycled water as its future water supplies over the next 25 years. The following sections discuss San Gabriel's water service reliability assessment, which compares San Gabriel's supply and demand over the next 25 years during normal, dry and multiple dry years.

5.4.5.1 NORMAL WATER YEAR

As previously discussed, San Gabriel's projected normal water year demand over the next 25 years in five-year increments was based on San Gabriel's 2015 and 2020 Urban Water Use Targets of 150 GPCD and 142 GPCD, respectively. San Gabriel's projected supply was based on the minimum supplies needed by San Gabriel to meet projected demand, as shown on Table 8. The comparison of San Gabriel's projected supply and demand during a normal water year is shown on Table 13. As shown on Table 13, San Gabriel's supply can meet demands during a normal water year for the next 25 years.

5.4.5.2 SINGLE-DRY YEAR

As shown on Table 2, San Gabriel experienced a single-dry year during water year 2006-07 (or 2007) and a normal water year during water year 2005-06 (or 2006). The ratio between the normal water year and single-dry year was estimated for San Gabriel's supply and demand, as shown on Table 11. This ratio and the projected

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supply and demand during a normal water year from Table 13 was used to estimate San Gabriel's projected supply and demand during a single-dry year over the next 25 years in five-year increments. San Gabriel's projected dry year water supplies over the next 25 years were based on the minimum supplies needed by San Gabriel to meet projected single-dry year demands. The comparison of San Gabriel's projected supply and demand during a single-dry year is shown on Table 14. As shown on Table 14, San Gabriel's supply can meet demands during a single-dry year for the next 25 years.

5.4.5.3 MULTIPLE DRY YEARS

As shown on Table 2, San Gabriel experienced multiple dry years between water year 2006-07 and water year 2008-09) or from 2007 to 2009). The ratios between the normal water year in 2005-06 (or 2006) and multiple dry years were estimated for San Gabriel's supply and demand, as shown on Table 11. This ratio and the projected supply and demand during a normal water year from Table 13 was used to estimate San Gabriel's projected supply and demand during multiple dry years over the next 25 years in five-year increments. San Gabriel's projected multiple dry year water supplies over the next 25 years were based on the minimum supplies needed by San Gabriel to meet projected multiple dry year demands. The comparison of San Gabriel's projected supply and demand during multiple dry years is shown on Table 15. As shown on Table 15, San Gabriel's supply can meet demands during multiple dry years for the next 25 years.

5.4.5.4 GROUNDWATER RELIABILITY

San Gabriel obtains its water supply from groundwater wells located in the Main Basin and Central Basin. Chapter 4 provides a description of the management of water resources in the Main Basin and Central Basin, as well as information on basin management. Chapter 4 also demonstrates the management structure of the Main Basin and Central Basin provides a reliable source of groundwater supply for San

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Gabriel in an average, single-dry and multiple-dry water years. Historical data indicate the Main Basin and Central Basin have been well managed for over 40 years of adjudication, resulting in a stable and reliable water supply. There are no contemplated basin management changes, other than increasing direct use of recycled water and the planned use of recycled water for groundwater replenishment in the Main Basin. Therefore, the groundwater supply in the Main Basin and Central Basin is deemed reliable.

Chapter 6

DEMAND MANAGEMENT MEASURES

San Gabriel is a member of the California Urban Water Conservation Council (CUWCC). As a member of the CUWCC, San Gabriel signed a Memorandum of Understanding (MOU) pledging to implement “Best Management Measures”, which are cost-effective conservation programs. CUWCC amended its MOU in December 2008. San Gabriel plans on submitting its first biennial Best Management Practices report to the CUWCC in June 2011. The 14 Best Management Practices (BMPs) have now been organized into five categories. Two categories are Utility Operations and Education, which are referred to as “Foundational BMPs.” The other three categories are referred to as “Programmatic BMPs” and are Residential, Commercial/Industrial/Institutional, and Landscape.

San Gabriel is an investor owned public water utility regulated by the CPUC. Under its regulatory authority, the CPUC has established a conservation goal for San Gabriel and all other Class A Water Companies to reduce annual consumption by one (1) percent to two (2) percent. The CPUC’s goal, as outlined in its Water Action Plan adopted in 2005 and subsequently updated in October 2010 requires public water utilities to strengthen their water conservation programs to a level comparable to energy utilities. The CPUC’s conservation goal compliments the statewide mandate that requires water utilities to reduce per capita consumption by 20 percent by 2020. In response to these mandates and with CPUC approval, San Gabriel has implemented a number of conservation programs including conservation pricing (tiered rates), cost effective BMP programs including programs for public information and education and annual reporting requirements.

In addition, San Gabriel is a member agency of both Upper District and Central District, which are both also members of CUWCC. As members of CUWCC, Upper

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District and Central District have implemented BMPs in their respective service areas. Upper District and Central District have completed the 2010 Urban Water Management Plan providing a description of the implemented BMPs. Conservation measures from the Upper District and Central District Urban Water Management Plans are included within this Plan and are incorporated by reference.

For purposes in this Plan, the BMPs are equivalent to Demand Management Measures (DMM). A description of San Gabriel's conservation measures and DMMs follow in addition to the new BMP category referred under the CUWCC MOU.

Water conservation measures are a vital part of San Gabriel's overall plan to achieve, reliable, high quality, and cost-effective water supply for its customers. San Gabriel has implemented a number of water conservation measures that include, but are not limited to the following: public information outreach, water conservation kits, residential water use surveys, high efficiency toilet distribution, Water2Save device incentive rebate programs, and water conservation partnerships. Additional information regarding San Gabriel's conservation activities is provided in Appendix N.

6.1 DEMAND MANAGEMENT MEASURES BEING IMPLEMENTED

Section 10631

(f) Provide a description of the supplier's water demand management measures.

This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

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- (H) School education programs.*
 - (I) Conservation programs for commercial, industrial, and institutional accounts.*
 - (J) Wholesale agency programs.*
 - (K) Conservation pricing.*
 - (L) Water conservation coordinator.*
 - (M) Water waste prohibition.*
 - (N) Residential ultra-low-flush toilet replacement programs.*
- (2) A schedule of implementation for all water demand management measures proposed or described in the plan.*
 - (3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.*
 - (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.*

6.1.1 WATER SURVEY PROGRAMS FOR SINGLE-FAMILY RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL CUSTOMERS [SECTION 10631 (f)(1)(A)]

The CUWCC refers to this BMP as “Programmatic: Residential.” San Gabriel conducts water survey programs for residential customers to assist customers looking for help to reduce indoor and outdoor water use. San Gabriel sends survey request forms to customers through bill inserts. San Gabriel also schedules appointments for surveys with customers by phone. San Gabriel's water survey is designed to identify potential leaks, recommend water conserving devices, assess irrigation efficiency, and determine proper landscape watering schedule to San Gabriel's customers. In addition, San Gabriel has mailed over the 3,450 survey forms to customers through bill inserts. Among the survey forms mailed out, only 2 percent of customers replied requesting a survey. San Gabriel’s Conservation Coordinator called all the survey respondents to schedule an appointment. Among those contacted about half agreed to have the survey conducted. In addition to mailed request surveys, San Gabriel also offers to conduct residential survey in response to high water use inquires. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

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In addition, Upper District encourages its member agencies, including San Gabriel, to implement water survey programs. In addition, Upper District supports its member agencies' efforts by offering workshops to train staff on how to conduct residential water surveys.

6.1.2 RESIDENTIAL PLUMBING RETROFIT [SECTION 10631 (F)(1)(B)]

The CUWCC refers to this BMP as “Programmatic: Residential – Residential Assistance Program.” San Gabriel implements a residential plumbing retrofit program through its basic water conservation kits to San Gabriel's customers. The water conservation kits consist of a 1.5 gpm massage showerhead, a 1.5 gpm flow dual spray kitchen aerator, and a 1 gpm aerator. San Gabriel offers water conservation kits for free after San Gabriel has verified customers' water bills during conservation events or after a residential audit has been conducted at the customers' home. An evaluation of the water conservation savings of this program is included in Appendix O.

In addition, Upper District's residential plumbing retrofit program consist of rebate programs for high- efficiency clothes washer, high-efficiency toilets, rotating nozzles for sprinklers, weather-based irrigation controllers, and synthetic turf. Information and water conservation savings regarding these programs are located in MWD's draft 2010 Regional Urban Water Management Plan (RUWMP) which is incorporated by reference.

6.1.3 SYSTEM WATER AUDITS, LEAK DETECTION, AND REPAIR
[SECTION 10631 (F)(1)(C)]

The CUWCC refers to this BMP as “Foundational: Operations Practices - Water Loss Control.” San Gabriel implements a system water audit, leak detection and repair program within its service area. San Gabriel's water system is completely metered and San Gabriel staff conducts water audits, leak detection and repair on its distribution system. San Gabriel conducts monitoring and repair of system leaks as an integral part

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of maintenance activities. San Gabriel receives reports of leaks in its distribution system from customers, field crews, and other agencies. Upon receipt of such a report, San Gabriel's Central Control Operator generates a repair routine and dispatches a field crew to investigate and make repairs. San Gabriel promptly repairs distribution mains, services and other appurtenances.

San Gabriel offers free residential water surveys to residential customers to provide assistance in reducing water use. The San Gabriel water survey consists of identification of potential leaks, recommendation of water conserving devices, assessment of irrigation efficiency, and determination of landscape watering schedule. Also, San Gabriel conducts residential audits to high water use customers. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

In addition, Upper District is a member agency of MWD which conducts various system audits and leak detection program for its entire system. Additional information regarding system water audits, leak detection, repair, and water conservation savings can be found in MWD's draft 2010 RUWMP, which is incorporated by reference.

**6.1.4 METERING WITH COMMODITY RATES FOR ALL NEW
CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS**
[SECTION 10631 (F)(1)(D)]

The CUWCC refers to this BMP as "Foundational: Operations Practices - Metering." All of San Gabriel's accounts are metered and billed by volume of use (with the exception of services which have a flat fee charged for availability). Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC. Upper District, in

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coordination with MWD, meters all water sales for direct use, groundwater replenishment, make-up water, and separately recycled water.

6.1.5 LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES [SECTION 10631 (F)(1)(E)]

The CUWCC refers to this BMP as “Programmatic: Landscape.” San Gabriel implements a Large Landscape audit program to commercial and industrial institutional (CII) customers with landscapes of one acre or larger. The Large Landscape audit program provides San Gabriel's CII customers with system reviews and identifies necessary irrigation system repairs. San Gabriel's CII customers under the Large Landscape audit program can track repairs through follow-up reviews and surveys. San Gabriel can provide incentives such as rebates to CII customers to promote water saving measurements in the Large Landscape audit program. San Gabriel contracted with Water2Save to implement a pilot project to reduce water needed to irrigate large landscape areas within the service area. The pilot project provides for the installation of wireless irrigation management systems to assist CII customers with monitoring their irrigation systems. Water2Save has contracted with three of San Gabriel's customers for participation in the program. To date, the program has surpassed Water2Save's projected water savings for each site. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

Upper District's large landscape conservation program includes the Synthetic Turf Grant School Program. The goal of the Synthetic Turf Grant School Program is to assist schools with funding for retrofitting large landscape areas with synthetic turf. Through this program, Upper District offers grants of up to \$75,000 per site to assist with the cost of installing synthetic turf. Since the start of the program in fiscal year 2005-06, five schools have participated in this program. Based on estimated service life of 10 years for synthetic turf, the total annual water savings for the 5 synthetic turf programs is estimated at 53 acre-feet.

In addition, Central District's large landscape conservation program includes:

- A District-wide large landscape managed Irrigation program incorporating maintenance, monitoring and tracking of individual property water savings
- Federal and State grants providing over 2,000 Smart Controllers to residential and commercial customers
- A city partnership program to install Smart Irrigation Controllers in parks and street medians
- A Commercial Landscape research grant to Improve water use efficiency at schools, parks and open public spaces

6.1.6 HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS
[10631(F)(1)(F)]

The CUWCC refers to this BMP as "Programmatic: Residential." San Gabriel offers a high-efficiency washing machine rebate program to its customers. San Gabriel offers a rebate of \$250 to residential customers to replace an old washer unit for a high-efficiency washing machine. A high-efficiency washing machine can save an average family approximately 7,208 gallons a year in place of an old washer. To date, San Gabriel has distributed a total of 841 high-efficiency clothes washer rebates. An evaluation of the water conservation savings of this program is included in Appendix O.

Upper District, in partnership with MWD, State Department of Water Resources, CalFed Bay Delta program and the U.S. Bureau of Reclamation, offers a residential high-efficiency clothes washer rebate program. Residential dwellings (single-family homes, condominiums, townhouses, apartments or mobile homes) that are located within Upper District's service area can install a high-efficiency washing machine in place of standard-efficiency washing machine for a rebate. Residences that install a high-efficiency washing machine could receive a rebate of \$200 per washer as of fiscal year 2008-09. The program began in fiscal year 2002-03. Since the program began, a

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total of 6,656 rebates have been provided. Metropolitan states that this program saves about 10,000 gallons per year per washer over a conventional top loading washer. Based on an estimated service life of 15 years for each washer, the total annual water savings for 6,656 washers is estimated at 160 acre-feet. Additional information on the high-efficiency washing machine rebate program can be found in Upper District's 2010 Plan, incorporated by reference.

In addition, Central District implements region-wide rebate programs through MWDs Save-A-Buck and SoCal WaterSmart rebate programs. Central District adds additional funding to qualifying washing machine devices and receives supplementary funding from participating retail agencies.

6.1.7 PUBLIC INFORMATION PROGRAMS [10631(F)(1)(G)]

The CUWCC refers to this BMP as “Foundational: Education Programs – Public Information Programs.” San Gabriel participates in numerous public information programs primarily to promote water conservation. San Gabriel promotes water conservation through numerous local public events by providing water conservation materials and information to the general public. San Gabriel has participated in the following list of public events:

1. April 14, 2009, Los Angeles County Sanitation Districts 2010 Earth Day Event
2. July 2009, El Monte Rockin Wednesday Summer Concerts
3. September 16, 2009, El Monte Adult School Health Fair
4. October 3, 2009, Montebello Fall Festival
5. October 17, 2009, Upper District Water Fest 2009
6. October 31, 2009, Upper District HET Distribution
7. February 6, 2010, Upper District HET Distribution

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8. April 1, 2010, Montebello Business Expo
9. City of Rosemead Annual Concert in the Park Summer Series
10. Montebello Chamber of Commerce Taste of the Town
11. El Monte/South El Monte Chamber of Commerce Profile Display

During these events San Gabriel distributes conservation materials such as sponges, pens, pencils, erasers, rulers, recycle bags, hoses nozzles, conservation kits, and brochures for adults and children. These conservation materials and devices distributed to customers to encourage the efficient use of water.

San Gabriel representatives are available to speak to local schools, civic organizations, and groups of concerned citizens wanting information on topics of water conservation and water quality. Water conservation and water quality literature, videotapes on wiser water use and water savings tips, posters, and displays are utilized in various presentations. San Gabriel also promotes water conservation paid advertising, and residential customer bill inserts. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

Upper District promotes water conservation through its many public information programs. Upper District offers conservation brochures and posters, activity booklets, public outreach displays, oral presentations, and workshops to inform the public of conservation efforts. Upper District also raises awareness about water conservation through paid advertising, press releases, news ads, media events, and through the Speaker's Bureau. Annually, Upper District hosts a water awareness festival (Water Fest) to raise public awareness about water conservation, water quality, and other water-related issues. Water conservation savings are not available for this BMP. Additional information regarding Upper District's public information programs can be found in Upper District's 2010 Plan.

In addition, Central District public information efforts consist of a variety of programs and practices that are used to educate the public about water conservation. Conservation literature is provided to the public at various one-day programs and at community events. Central District also provides the community with a Speakers Bureau to promote conservation. Additionally, Central District provides education through a website and various publication materials.

6.1.8 SCHOOL EDUCATION PROGRAMS [SECTION 10631 (F)(1)(H)]

The CUWCC refers to this BMP as “Foundational: Education Programs – School Education Programs.” San Gabriel participates in school education programs to work with school districts and private schools to provide instructional assistance, educational materials, and classroom presentations. San Gabriel provides an educational outreach program through a presentation by National Theatre for Children (NTC) to schools within the San Gabriel service area to promote water conservation. The presentation provides water conservation information and materials to students and teachers to share with family members about ways to use water efficiently. A total of 24 NTC presentations were completed for the 2008-09 school year and 25 NTC presentations were completed for school year 2009-10. The program receives much praise from the teachers and students alike. This educational outreach program reached approximately 8,978 students and teachers in school year 2008-09 and 12,047 students and teachers in school year 2009-10 with a water conservation message and materials to be shared with family member about ways to use water efficiently. Information on water conservation savings, cost-benefit analysis, and water costs is provided in Appendix O.

Upper District directly offers school education programs in an effort to raise awareness of water issues. Upper District started its school education programs in September 1992 and the materials and presentations meet state education framework requirements. The following is a list of Upper District’s school educational programs:

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- Water Awareness Art Contests
- Solar Cup Competition
- Water Education Grant Program
- Annual Art Poster Contest for grades K through 3rd and 4th through 6th
- T-shirt Art Contest for grades 7th through 12th
- Water Educational Posters
- Water Resource Library

Upper District also participates in additional educational school programs through MWD, which has extensive educational programs that includes schools within Upper District's boundaries. MWD's educational programs meet state education framework requirements. A list of MWD's school education programs and water conservation savings is included in MWD's draft 2010 RUWMP, which is incorporated by reference.

In addition, Central District directly offers school education programs in an effort to raise awareness of water issues. The following is a list of Central District's school educational programs:

- Water Squad Investigations (Grades 4— 12)
- Water Wanderings (Grades 4—5)
- Think Watershed (Grades 4 —6)
- Think Earth! It's Magic (Grades K — 5)
- Think Water! It's Magic (After School Program for Grades K — 5)
- "Water is Life" Poster Contest (Grades 4 —8)
- Waterlogged (Grades 9 — 12)
- Sewer Science (Grades 9-12)
- Conservation Connection: Water & Energy in Southern California (Grades 5— 8)
- Water for the City: Southern California Urban Water Cycle (Grades 4—8)

6.1.9 CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL ACCOUNTS [10631(F)(1)(I)]

The CUWCC refers to this BMP as “Programmatic: Commercial, Industrial, and Institutional.” San Gabriel’s “Save-A-Buck Program” is a conservation program which includes a rebate program for commercial, industrial, and institutional (CII) customers. The rebate items include: weather-based irrigation controller, central computer irrigation controller, large rotary nozzles, rotating nozzles for pop-up-spray heads, high efficiency toilets, zero water urinals, ultra low water urinals, pH-cooling tower conductivity controller, dry-vacuum pump, connectionless food steamers, ice-making machines and water brooms. San Gabriel also offers conservation programs for CII customers relative to Large Landscape audit reports. San Gabriel implements a Large Landscape audit program to CII customers with landscapes of one acre or larger. The Large Landscape audit program provides San Gabriel's CII customers with system reviews and identifies necessary irrigation system repairs. Outdoor irrigation leaks and inefficient water fixtures contribute to wasting of large amounts of water. The audit report will be provided to CII customers that participate in the program and will recommend cost effective measures to save water. San Gabriel's CII customers under the Large Landscape audit program can track repairs through follow-up reviews and surveys. To date, a total of 11 CII audit reports were conducted at various elementary and middle schools in San Gabriel’s service area. San Gabriel can provide incentives such as rebates to CII customers to promote water saving measurements in the Large Landscape audit program. The program will provide funding to CII customers (school districts and municipalities) to offset the cost of implementing changes recommended in the audit report. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

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Upper District offers a conservation program for CII facilities. Upper District's program offers CII facilities rebates for retrofitting existing high water-use fixtures with efficient water-use fixtures. The CII program includes the following fixtures:

1. Commercial High Efficiency Toilet (includes flushometer, tank, and dual flush)
2. Commercial High Efficiency Toilet (new construction)
3. Ultra Low Water Urinal (less than 0.25 gallons per flush (gpf) and Zero Water Urinals
4. Ultra Low Water Urinal and Zero Water Urinals Upgrade or New Construction
5. Water Broom
6. Connectionless Food Steamer
7. Ice Making Machine Tier III standard
8. Dry Vacuum Pump
9. Cooling Tower Conductivity Controller
10. pH Cooling Tower Controller
11. Weather-Base Irrigation Controller and Central Computer Irrigation Controller
12. Rotating Nozzles for Pop-up Spray Head Retrofits
13. Large Rotary Nozzles

The program began in fiscal year 2000-01. A total of 10,568 rebates have been received through this program. Based on an estimated weighted service life of 19 years for CII rebate programs items, the total annual water savings for the 10,568 rebate program items is estimated at 490 acre-feet.

In addition, Central District participates in MWD's region-wide commercial "Save A Buck" rebate program, which provides water conservation devices to be utilized in commercial, industrial and institutional facilities and settings. The devices include but are not limited to High-Efficiency Toilets, Ultra Low and Zero Water Urinals, Weather-based Irrigation Controllers, Nozzles, Water Brooms and various industrial process devices. Central Basin distributed conservation Water Brooms to all 31 Los Angeles

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County Fire Stations within the District's service area. In addition, 49 brooms were distributed to local municipalities, and 30 brooms to schools. Water Brooms provide an estimated 150 gallons of water savings with each cleaning. Central District has implemented Commercial, Industrial and Institutional direct installation programs through grant programs and local water retail agency partnerships. Central District has also partnered with local agencies to install Smart Irrigation Controllers in parks, street medians and local facilities.

6.1.10 CONSERVATION PRICING [10631(F)(1)(K)]

The CUWCC refers to this BMP as "Foundational: Operations Practices – Retail Conservation Pricing." San Gabriel complies with this BMP. San Gabriel implemented a two-tier conservation pricing rate structure on July 2, 2010 for its San Gabriel service area. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

Upper District implements conservation pricing to encourage sub-agencies to conserve water. Additional information regarding Upper District's conservation pricing can be found in its 2010 Plan incorporated by reference.

In addition, Central District employs a rate structures to encourage customers to use less water. Central District employs a two-tier rate structure in which cities and agencies are invited to enter into 5-year "purchase agreements.' The agreements provide Central District with a longer term guarantee of water sales while providing the city or agency access to a discounted imported water rate.

6.1.11 WATER CONSERVATION COORDINATOR [10631(F)(1)(L)]

The CUWCC refers to this BMP as “Foundational: Operations Practices – Conservation Coordinator.” San Gabriel employs a conservation coordinator to promote water conservation and works with customers within San Gabriel's service area on improving water conservation efforts. San Gabriel's water conservation coordinator conducts surveys to customers to identify potential leaks, recommends water conserving devices, assesses irrigation efficiency, and determines proper landscape watering schedule. San Gabriel's water conservation coordinator also conducts audits to high water use customers. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

The water conservation coordinator employed by Upper District promotes water conservation issues and programs. The position was created in 1992 as a full-time position. The water conservation coordinator does research on water managements practices and advises the Upper District Board Members and its subagencies, including San Gabriel, on water conservation matters. More information about Upper District's conservation coordinator can be found in its 2010 Plan, which is incorporated by reference.

In addition, Central Basin employs one full-time Conservation Coordinator who works throughout the District's service area to promote water conservation. The coordinator also works with cities and water agencies to promote and implement various conservation programs.

6.1.12 WATER WASTE PROHIBITION [10631(F)(1)(M)]

The CUWCC refers to this BMP as “Foundational: Operations Practices – Water Waste Prevention.” San Gabriel is governed by the laws and rulings of the CPUC. In

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compliance with the CPUC's request, San Gabriel adopted Rule 14.1 "Water Conservation and Rationing Plan" in August of 2008. Although San Gabriel does not have the legal authority to enact an "Ordinance" as does a City municipality, if water supplies warrant the need to implement mandatory water conservation, Rule 14.1 would suffice (San Gabriel would be able to encourage its customers to conserve by enforcing the rules listed therein). In addition San Gabriel will continue to support local legislation and regulations that prohibit water waste. Information on water conservation savings, cost-benefit analysis, and water costs is being continuously collected and will be reported once every two years to the CUWCC.

Upper District passed Resolution 6-90-266 in 1990 to reduce water demands within Upper District's service area. In addition, Upper District has prepared a draft Urban Water Shortage Contingency Resolution that may be adopted in case of an emergency which will require mandatory reductions in water use within Upper District's service area. Water conservation savings is not available for this BMP.

In addition, Central Basin created a Water Use Efficiency Ordinance Task Force, comprised of members from surrounding cities and retail agencies, to reach out to the District's cities and unincorporated communities. In addition, each city was provided with a Water-Use Efficiency Ordinance Tool Kit, compliments of Central Basin.

**6.1.13 RESIDENTIAL ULTRA-LOW FLUSH TOILET REPLACEMENT
PROGRAMS [10631(F)(1)(N)]**

The CUWCC refers to this BMP as "Programmatic: Residential." A high-efficiency toilet rebate program is available to San Gabriel's customers. San Gabriel is currently working with WaterWise, a regional water conservation device distributor and installer, Upper District, and Central District on High Efficiency Toilet (HET) distribution programs. San Gabriel's residential customers are eligible to receive two HETs per household. San Gabriel also offers rebates to residential customers to replace an old toilet unit for a high-efficiency toilet. An HET can save an average family approximately 15,698 gallons

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a year in place of an old toilet. To date, San Gabriel has distributed a total of 2,496 HET rebates. An evaluation of the water conservation savings of this program is included in Appendix O.

Upper District provides HETs for free to qualifying residents. The cost of the HET is funded by Upper District and MWD. MWD can only provide funding for HETs (1.28 gallons per flush or less), which use 20 percent less than Ultra-Low Flush Toilets (ULFTs) (1.6 gallons per flush). A total of 26,960 HETs/ULFTs have been provided through this program since it first began in fiscal year 1992-93. Based on an estimated service life of 20 years for each HET, the total annual savings for the 26,960 HETs/ULFTs is estimated at 1,005 acre-feet. More information regarding the residential ultra-low-flush toilet replacement program is located in MWD's 2010 RUWMP, which is incorporated by reference.

In addition, Central District continues to hold HET Distribution events which provide thousands of free toilets to local residents throughout Central District's service area. The District's HET programs have been initiated through various partnerships and grant programs, and have been made available throughout Central District's service area. Since 2005, Central District has completed more than 5,000 HET direct installations in single family, multifamily, and commercial, industrial and institutional facilities throughout Central District's service area.

6.2 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.

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- (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.*

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

The CUWCC refers to this BMP as “Foundational: Operations Practices – Wholesale Assistance Programs.” San Gabriel is a retail water supplier, therefore wholesale agency programs are not applicable to the San Gabriel. However, San Gabriel is a member of Upper District, a wholesaler which has a number of conservation programs including large landscape conservation programs, public information programs, school education programs, conservation programs for commercial, industrial, and institutional accounts, and others. Detailed information on the Upper District’s conservation programs can be found in its 2010 Plan incorporated by reference.

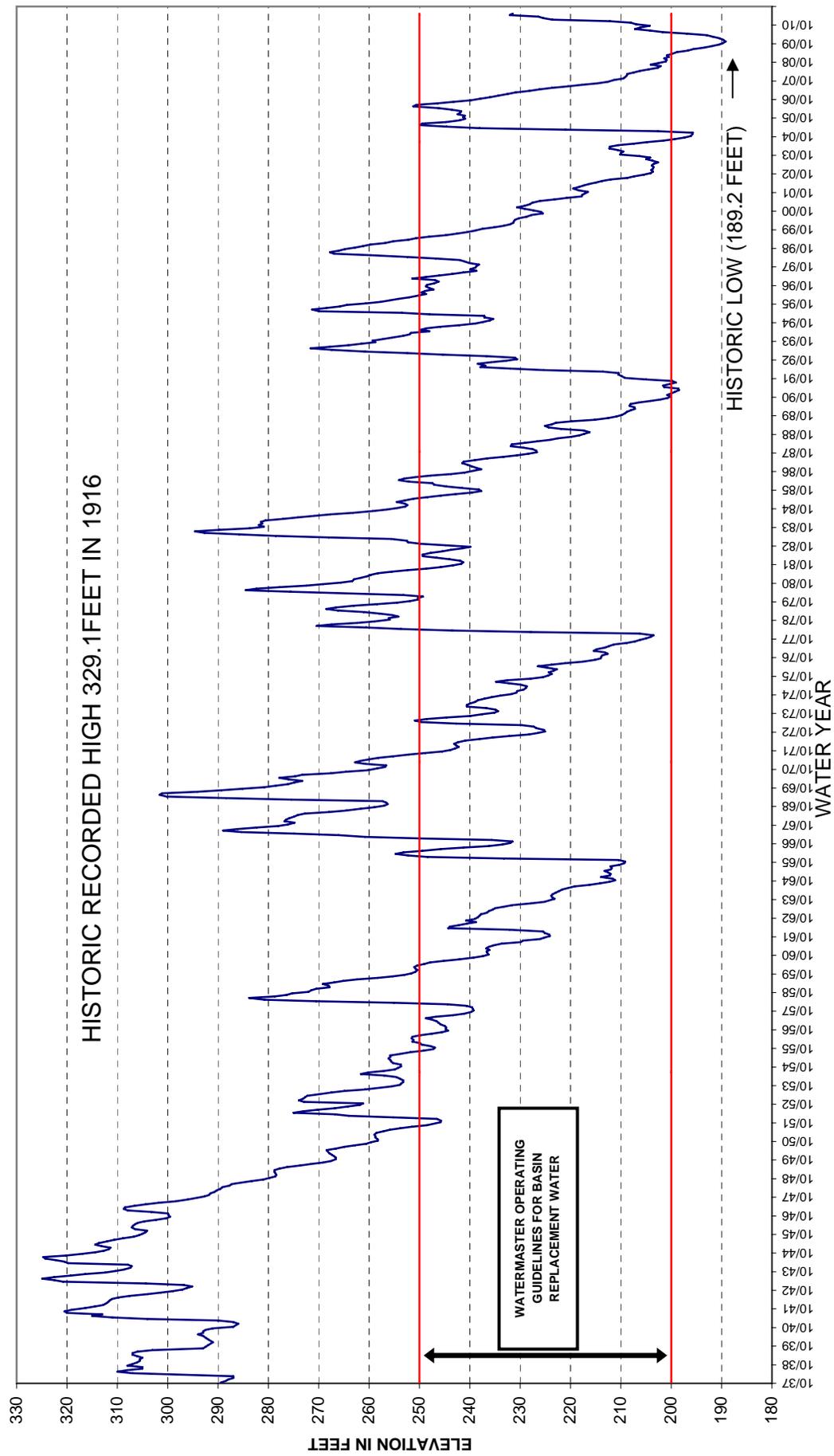
Chapter 7

COMPLETED URBAN WATER MANAGEMENT CHECKLIST

A completed Plan checklist, with page information indicating where the required element can be found within the Plan, is provided in Appendix Q.

FIGURES

FIGURE 1



SAN GABRIEL VALLEY WATER COMPANY

HISTORICAL BALDWIN PARK KEY WELL ELEVATION

STETSON ENGINEERS INC.
Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

TABLES

TABLE 1
COORDINATION WITH APPROPRIATE AGENCIES

Agency	Was Sent a Notice of Intent to Adopt	Was Contacted for Assistance	Participated in Developing the Plan	Was Sent a Copy of the Draft Plan	Commented on the Draft	Attended Public Meeting	Not Involved/ No Information
Amarillo Mutual Water Company	X		X	X			
Central Basin Municipal Water District	X	X	X	X			
Champion Mutual Water Company	X		X	X			
City of Arcadia	X		X	X			
City of Baldwin Park	X		X	X			
City of El Monte	X		X	X			
City of Industry	X		X	X			
City of Irwindale	X		X	X			
City of La Puente	X		X	X			
City of Montebello	X		X	X			
City of Monterey Park	X		X	X			
City of Pico Rivera	X		X	X			
City of Rosemead	X		X	X			
City of San Gabriel	X		X	X			
City of Santa Fe Springs	X		X	X			
City of South El Monte	X		X	X			
City of West Covina	X		X	X			
City of Whittier	X		X	X			
County of Los Angeles	X		X	X			
Del Rio Mutual Water Company	X		X	X			
Hemlock Mutual Water Company	X		X	X			
Industry Public Works	X		X	X			
La Puente Valley County Water District	X		X	X			
Main San Gabriel Watermaster	X		X	X			
Rurban Homes Mutual Water Company	X		X	X			
San Gabriel Basin Water Quality Authority	X		X	X			
San Gabriel River Watermaster	X		X	X			
Suburban Water Systems	X		X	X			
Upper San Gabriel Valley Municipal Water District	X	X	X	X			
Valley County Water District	X		X	X			

TABLE 2
ANNUAL RAINFALL IN THE SAN GABRIEL VALLEY
FROM 1958-59 THROUGH 2009-10*

<u>WATER YEAR</u>	<u>RAINFALL IN INCHES</u>
1958-59	8.5
1959-60	10.6
1960-61	5.9
1961-62	22.4
1962-63	12.3
1963-64	9.4
1964-65	15.2
1965-66	19.6
1966-67	25.0
1967-68	15.0
1968-69	30.5
1969-70	11.1
1970-71	13.3
1971-72	8.5
1972-73	22.4
1973-74	16.8
1974-75	14.9
1975-76	12.1
1976-77	14.5
1977-78	38.4
1978-79	23.9
1979-80	34.8
1980-81	10.3
1981-82	18.9
1982-83	39.3
1983-84	10.6
1984-85	14.6
1985-86	22.0
1986-87	9.1
1987-88	14.9
1988-89	11.2
1989-90	12.4
1990-91	15.1
1991-92	22.8
1992-93	35.9
1993-94	11.6
1994-95	30.4
1995-96	15.6
1996-97	17.5
1997-98	36.1
1998-99	8.6
1999-00	14.4
2000-01	15.5
2001-02	6.4
2002-03	19.4
2003-04	12.7
2004-05	45.3
2005-06	16.8
2006-07	4.9
2007-08	16.4
2008-09	14.0
2009-10	20.2
TOTAL	928.0
52-YEAR AVERAGE	17.8

*Annual rainfall determined as the average of rainfall at San Dimas (station 95), Pomona[†] (station 356C), El Monte (station 108D), and Pasadena (station 610B).

[†]Pomona (station 356C) replaced Walnut (station 102D) in 2000-01.

**Table 3
Climate**

	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Average Rainfall (in.)	3.6	5.5	1.9	1.2	0.5	0.1	0.0	0.0	0.2	1.0	1.4	2.4	17.8
Average Temperature (°F)	54	54	56	59	61	69	72	77	76	70	61	57	63.8
Evapotranspiration (in.)	2.2	2.8	4.0	5.1	5.9	6.6	7.4	6.8	5.7	4.0	2.7	1.9	55.1

Source: Rainfall data from average of four LA County Department of Public Works rainfall stations. Temperature data from www.city-data.com for San Gabriel Valley. Evapotranspiration data from California Irrigation Management Information System.

**TABLE 4
CURRENT AND PROJECTED POPULATION**

Year	Estimated Population within San Gabriel's Service Area ⁽¹⁾	Percent Average Annual Population Increase
2010	271,817	--
2015	271,817	0.00
2020	279,602	0.57
2025	287,387	0.56
2030	295,172	0.54
2035	302,956	0.53

⁽¹⁾ Based on DCSE's Technical Memorandum, March 1, 2011. Incorporates data from the Southern California Association of Governments, Department of Finance, and US Census Bureau

**TABLE 5
PAST, CURRENT, AND PROJECTED WATER DELIVERIES**

Year	Description	Water Use Sectors						Sub Total	System Losses	Total
		Residential	Commercial / Institutional	Industrial	Recycled Water	Agricultural Irrigation	Other			
2005	No. of Metered Accounts	41,110	4,967	38	13	1	384	46,513	2,847	46,513
	Metered Deliveries (AF)	26,774	9,025	2,359	98	0	2,576	40,831		43,678
	No. of Unmetered Accounts	0	0	0	0	0	1,065	1,065		1,065
2010	No. of Metered Accounts	41,417	4,977	49	17	0	400	46,860	2,340	46,860
	Metered Deliveries (AF)	21,177	7,354	2,297	2,018	0	2,290	35,136		37,476
	No. of Unmetered Accounts	0	0	0	0	0	1,137	1,137		1,137
2015	No. of Metered Accounts	42,185	5,104	51	28	0	415	47,784	2,657	47,784
	Metered Deliveries (AF)	21,392	6,366	2,003	3,000	0	2,543	35,303		37,961
	No. of Unmetered Accounts	0	0	0	0	0	1,209	1,209		1,209
2020	No. of Metered Accounts	42,923	5,210	52	33	0	421	48,640	3,341	48,640
	Metered Deliveries (AF)	26,411	7,859	2,473	4,500	0	3,140	44,383		47,723
	No. of Unmetered Accounts	0	0	0	0	0	1,281	1,281		1,281
2025	No. of Metered Accounts	43,661	5,317	54	37	0	427	49,496	3,445	49,496
	Metered Deliveries (AF)	26,996	8,034	2,527	5,000	0	3,210	45,767		49,212
	No. of Unmetered Accounts	0	0	0	0	0	1,353	1,353		1,353
2030	No. of Metered Accounts	44,399	5,423	56	41	0	433	50,352	3,566	50,352
	Metered Deliveries (AF)	27,405	8,155	2,566	6,000	0	3,258	47,383		50,950
	No. of Unmetered Accounts	0	0	0	0	0	1,425	1,425		1,425
2035	No. of Metered Accounts	45,137	5,529	57	45	0	439	51,208	3,688	51,208
	Metered Deliveries (AF)	27,813	8,277	2,604	7,000	0	3,307	49,000		52,688
	No. of Unmetered Accounts	0	0	0	0	0	1,497	1,497		1,497

AF = Acre-Feet

Number of metered accounts and deliveries between 2005 and 2010 were based on data provided by San Gabriel.

Number of metered accounts from 2015 to 2035 were based on percentage increase factors from San Gabriel's "Water System Master Plan Update", June 2010

Deliveries from 2015 to 2035 were based on San Gabriel's Demands (See Table 8), average percent use within customer classes, and 7 percent system losses (San Gabriel's "Water System Master Plan Update", June 2010)

TABLE 6
HISTORICAL AND PROJECTED WATER DEMAND
 (ACRE-FEET)

Year	Total Demands (1)	Metered Deliveries (2)	Unaccounted Use (3)	Projected Water Demand for Lower Income Households (4)	Urban Water Use Target (5) (GPCD)
2005	43,678	40,831	2,847		
2006	44,285	42,594	1,691		
2007	46,167	44,130	2,038		
2008	43,903	41,339	2,565		
2009	40,540	38,038	2,502		
2010	37,476	35,136	2,340		
2015	37,961	35,303	2,657	4,352	150
2020	47,723	44,383	3,341	5,374	142
2025	49,212	45,767	3,445	5,493	142
2030	50,950	47,383	3,566	5,576	142
2035	52,688	49,000	3,688	5,659	142

(1) See Table 7 for 2005 to 2010; Projected water demands based on Urban Water Use Target and populations (Table 4). Includes recycled water deliveries.

(2) See Table 5

(3) Historical unaccounted use is equal to demand minus delivery ; Projected unaccounted use is based on 7 percent system losses (San Gabriel's "Water System Master Plan Update", June 2010)

(4) Included in "Total Demands" ; Lower income demands are approximately 20.3 percent of total residential demands

(5) See Chapter 3.2.2 and 3.2.3 for urban water use target and interim urban water use target,

**TABLE 7
CALCULATION OF BASELINE DAILY PER CAPITA WATER USE**

Year	Total Water Supply (Excluding Recycled Water (in Service Area (AF)	Calculated Gross Water Use (gallons per day)	Population within Los Angeles County Division ⁽¹⁾	Calculated Daily per Capita Use (gpcd)	Average Per Capita Water Use	
					10-Year Continuous ⁽²⁾ (gpcd)	5-Year Continuous ⁽³⁾ (gpcd)
1995	43,315	38,669,740	248,759	155		
1996	45,519	40,636,827	249,197	163		
1997	46,796	41,777,373	250,002	167		
1998	41,517	37,064,198	250,627	148		
1999	44,843	40,032,982	251,385	159		
2000	46,084	41,140,970	252,724	163		
2001	42,898	38,296,938	253,744	151		
2002	45,780	40,869,557	254,430	161		
2003	45,820	40,905,999	255,707	160		
2004	47,196	42,133,614	258,408	163		
2005	43,544	38,874,161	261,109	149	158	
2006	43,580	38,905,595	263,251	148	157	
2007	44,144	39,409,211	265,392	148	155	
2008	42,237	37,707,110	267,534	141	154	150
2009	39,341	35,121,413	269,675	130	151	143
2010	35,461	31,657,360	271,817	116	147	137
10-Year Baseline Daily Per Capita Water Use=				158	gallons per capita per day. ⁽⁴⁾	
5-Year Baseline Daily Per Capita Water Use=				150	gallons per capita per day. ⁽⁵⁾	

⁽¹⁾ Based on DCSE's Technical Memorandum, March 1, 2011. Incorporates data from the Southern California Association of Governments, Department of Finance, and US Census Bureau

⁽²⁾ Average per capita water use for first base period of 10-year continuous, ending no earlier than December 31, 2004 and no later than December 31, 2010.

⁽³⁾ Average per capita water use for second base period of 5-year continuous, ending no earlier than December 31, 2007 and no later than December 31, 2010.

⁽⁴⁾ Highest value calculated for a 10-year continuous period between 1995 and 2009.

⁽⁵⁾ Highest value calculated for a 5-year continuous period between 2004 and 2009.

**TABLE 8
PROJECTED WATER DEMANDS BASED ON URBAN WATER USE TARGETS
(ACRE-FEET)**

Year	Population ⁽¹⁾	Urban Water Use Target ⁽²⁾ (gpcd)	San Gabriel's Projected Daily Per Capita Use ⁽³⁾ (gpcd)	Total Potable Demands (gpd)	Total Potable Demands (AF)	Total Additional Recycled Water Demands ⁽⁴⁾ (AF)	Total Demands (AF)
2015	271,817	150	116	31,657,360	35,461	2,500	37,961
2020	279,602	142	142	39,703,484	44,473	3,250	47,723
2025	287,387	142	142	40,808,954	45,712	3,500	49,212
2030	295,172	142	142	41,914,424	46,950	4,000	50,950
2035	302,956	142	142	43,019,752	48,188	4,500	52,688

⁽¹⁾ See Table 4

⁽²⁾ See Table 7

⁽³⁾ San Gabriel's projected daily per capita use in 2015 is based on San Gabriel's daily per capita use in 2010.

⁽⁴⁾ San Gabriel's current base additional demand from recycled water use is approximately 2,000 AFY. Approximately 50 percent of any future recycled water demands exceeding 2,000 AFY has been estimated to result from new recycled water customers and usage. The remaining 50 percent of recycled water demands has been estimated to offset potable water supplies. See Table 9 for projected total recycled water demands.

**TABLE 9
HISTORICAL AND PROJECTED WATER SUPPLIES (NORMAL YEAR)
(ACRE-FEET)**

Year	Groundwater Supplies			Percentage Groundwater of Total Supply	Imported Water Supplies		Recycled Water Supplies		Total ⁽¹⁾
	Main Basin	Central Basin	Sub Total Groundwater		MWD	Recycled			
<u>Historical</u>									
1995	38,212	4,268	42,480	97.9%	835		87	43,402	
1996	40,288	4,303	44,591	97.7%	927		131	45,650	
1997	41,275	4,576	45,851	97.7%	945		156	46,952	
1998	36,472	4,201	40,673	97.7%	844		125	41,642	
1999	39,151	4,758	43,910	97.6%	933		163	45,005	
2000	40,195	4,960	45,155	97.6%	928		174	46,257	
2001	39,534	2,483	42,017	97.6%	881		158	43,056	
2002	42,364	2,484	44,849	97.6%	931		157	45,937	
2003	42,883	2,080	44,963	97.8%	857		172	45,992	
2004	44,021	2,241	46,262	97.7%	934		171	47,367	
2005	41,448	1,236	42,684	97.7%	861		133	43,678	
2006	40,458	2,199	42,658	96.3%	922		706	44,285	
2007	41,202	2,938	44,141	95.6%	3		2,024	46,167	
2008	41,144	1,094	42,237	96.2%	0		1,666	43,903	
2009	36,667	2,673	39,341	97.0%	0		1,199	40,540	
2010	33,060	2,400	35,461	94.6%	0		2,015	37,476	
<u>Projected (Normal Year)</u>									
2015	32,396	2,565	34,961	92.1%	0		3,000	37,961	
2020	40,658	2,565	43,223	90.6%	0		4,500	47,723	
2025	41,647	2,565	44,212	89.8%	0		5,000	49,212	
2030	42,385	2,565	44,950	88.2%	0		6,000	50,950	
2035	43,123	2,565	45,688	86.7%	0		7,000	52,688	

⁽¹⁾ See Table 8 for total projected normal year demands. In 2010, San Gabriel produced 35,110.57 AF from the Main Basin. However, under agreement with City of Industry (COI), San Gabriel provided 2050.16 AFY of this amount to COI. The amount San Gabriel provided to COI is accounted for under COI's Main Basin water rights.

**TABLE 10
PROJECTED WATER SUPPLIES (SINGLE AND MULTIPLE DRY YEARS)
(ACRE-FEET)**

Year	Groundwater Supplies			Imported Water Supplies	Recycled Water Supplies	Total ⁽¹⁾			
	Main Basin	Central Basin	Sub Total Groundwater				Percentage Groundwater of Total Supply	MWD	Recycled
<u>Projected (Single Dry Year)</u>									
2015	34,009	2,565	36,574	0	3,000	39,574			
2020	42,687	2,565	45,252	0	4,500	49,752			
2025	43,738	2,565	46,303	0	5,000	51,303			
2030	44,550	2,565	47,115	0	6,000	53,115			
2035	45,362	2,565	47,927	0	7,000	54,927			
<u>Projected (Multiple Dry Year 1)</u>									
2015	34,009	2,565	36,574	0	3,000	39,574			
2020	42,687	2,565	45,252	0	4,500	49,752			
2025	43,738	2,565	46,303	0	5,000	51,303			
2030	44,550	2,565	47,115	0	6,000	53,115			
2035	45,362	2,565	47,927	0	7,000	54,927			
<u>Projected (Multiple Dry Year 2)</u>									
2015	32,068	2,565	34,633	0	3,000	37,633			
2020	40,247	2,565	42,812	0	4,500	47,312			
2025	41,222	2,565	43,787	0	5,000	48,787			
2030	41,946	2,565	44,511	0	6,000	50,511			
2035	42,669	2,565	45,234	0	7,000	52,234			
<u>Projected (Multiple Dry Year 3)</u>									
2015	29,185	2,565	31,750	0	3,000	34,750			
2020	36,622	2,565	39,187	0	4,500	43,687			
2025	37,485	2,565	40,050	0	5,000	45,050			
2030	38,076	2,565	40,641	0	6,000	46,641			
2035	38,667	2,565	41,232	0	7,000	48,232			

⁽¹⁾ See Table 14 and Table 15 for total projected single dry and multiple dry year demands

TABLE 11
SUPPLY RELIABILITY - HISTORICAL CONDITIONS
 (ACRE-FEET)

	Average/ Normal Year (2006)	Single Dry Year (2007)	Multiple Dry Years		
			Year 1 (2007)	Year 2 (2008)	Year 3 (2009)
San Gabriel Water Production	44,285	46,167	46,167	43,903	40,540
Percent of Normal Year Supply		104.3%	104.3%	99.1%	91.5%

See Table 9 for historical production

TABLE 12
SUPPLY RELIABILITY - THREE-YEAR ESTIMATED MINIMUM
 (ACRE-FEET PER YEAR)

Sources of Supply	Normal Year (2006) ⁽¹⁾	Multiple Dry Years		
		Year 2011 ⁽²⁾	Year 2012 ⁽²⁾	Year 2013 ⁽²⁾
Total Supply	44,285	46,167	43,903	40,540

⁽¹⁾ See Table 9 (Based on year 2006)

⁽²⁾ See Table 9 (Years 2011, 2012, and 2013 based on years 2007, 2008, and 2009, respectively)

TABLE 13
PROJECTED NORMAL WATER YEAR SUPPLY AND DEMAND COMPARISON
(ACRE-FEET)

	2015	2020	2025	2030	2035
<u>Projected Normal Water Year Supply</u>					
Total Supply ⁽¹⁾	37,961	47,723	49,212	50,950	52,688
<u>Projected Normal Water Year Demand</u>					
Demand ⁽²⁾	37,961	47,723	49,212	50,950	52,688
<u>Projected Normal Year Supply and Demand Comparison</u>					
Difference (Supply minus Demand)	0	0	0	0	0

⁽¹⁾ See Table 9.

⁽²⁾ See Table 8.

TABLE 14
PROJECTED SINGLE-DRY WATER YEAR SUPPLY AND DEMAND COMPARISON
(ACRE-FEET)

	2015	2020	2025	2030	2035
<u>Projected Single-Dry Year Water Supply</u>					
Total Supply ⁽¹⁾	39,574	49,752	51,303	53,115	54,927
<u>Projected Single-Dry Year Water Demand</u>					
Demand ⁽²⁾	39,574	49,752	51,303	53,115	54,927
<u>Projected Single-Dry Year Water Supply and Demand Comparison</u>					
Difference (Supply minus Demand)	0	0	0	0	0

⁽¹⁾ See Table 10.

⁽²⁾ Based on ratio between Normal Water Year with Single-Dry Year. See Tables 8 and 11.

TABLE 15
PROJECTED MULTIPLE-DRY YEAR WATER SUPPLY AND DEMAND COMPARISON
 (ACRE-FEET)

Multiple Dry Year 1	2015	2020	2025	2030	2035
<u>Projected Multiple-Dry Year Water Supply</u> Supply ⁽¹⁾	39,574	49,752	51,303	53,115	54,927
<u>Projected Multiple-Dry Year Water Demand</u> Demand ⁽²⁾	39,574	49,752	51,303	53,115	54,927
<u>Projected Multiple-Dry Year Water Supply and Demand Comparison</u> Difference (Supply minus Demand)	0	0	0	0	0

Multiple Dry Year 2	2015	2020	2025	2030	2035
<u>Projected Multiple-Dry Year Water Supply</u> Supply ⁽¹⁾	37,633	47,312	48,787	50,511	52,234
<u>Projected Multiple-Dry Year Water Demand</u> Demand ⁽²⁾	37,633	47,312	48,787	50,511	52,234
<u>Projected Multiple-Dry Year Water Supply and Demand Comparison</u> Difference (Supply minus Demand)	0	0	0	0	0

Multiple Dry Year 3	2015	2020	2025	2030	2035
<u>Projected Multiple-Dry Year Water Supply</u> Supply ⁽¹⁾	34,750	43,687	45,050	46,641	48,232
<u>Projected Multiple-Dry Year Water Demand</u> Demand ⁽²⁾	34,750	43,687	45,050	46,641	48,232
<u>Projected Multiple-Dry Year Water Supply and Demand Comparison</u> Difference (Supply minus Demand)	0	0	0	0	0

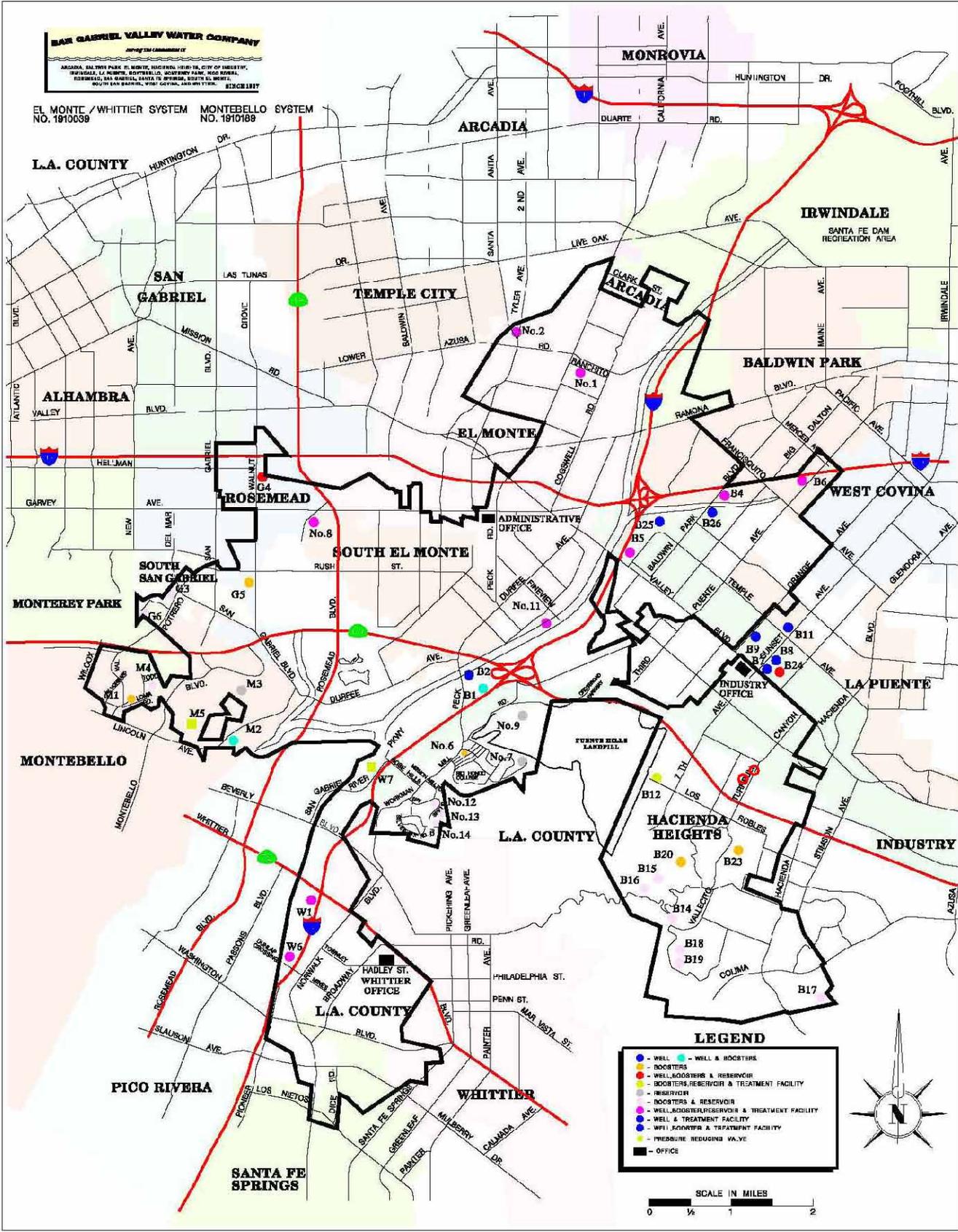
⁽¹⁾ See Table 10.

⁽²⁾ Based on ratio between Normal Water Year with Multiple Dry Years. See Tables 8 and 11.

PLATES

SAN GABRIEL VALLEY WATER COMPANY
 A DIVISION OF THE COMMUNITY OF
 SACRAMENTO, CALIFORNIA

EL MONTE / WHITTIER SYSTEM NO. 1910039 MONTEBELLO SYSTEM NO. 1910189



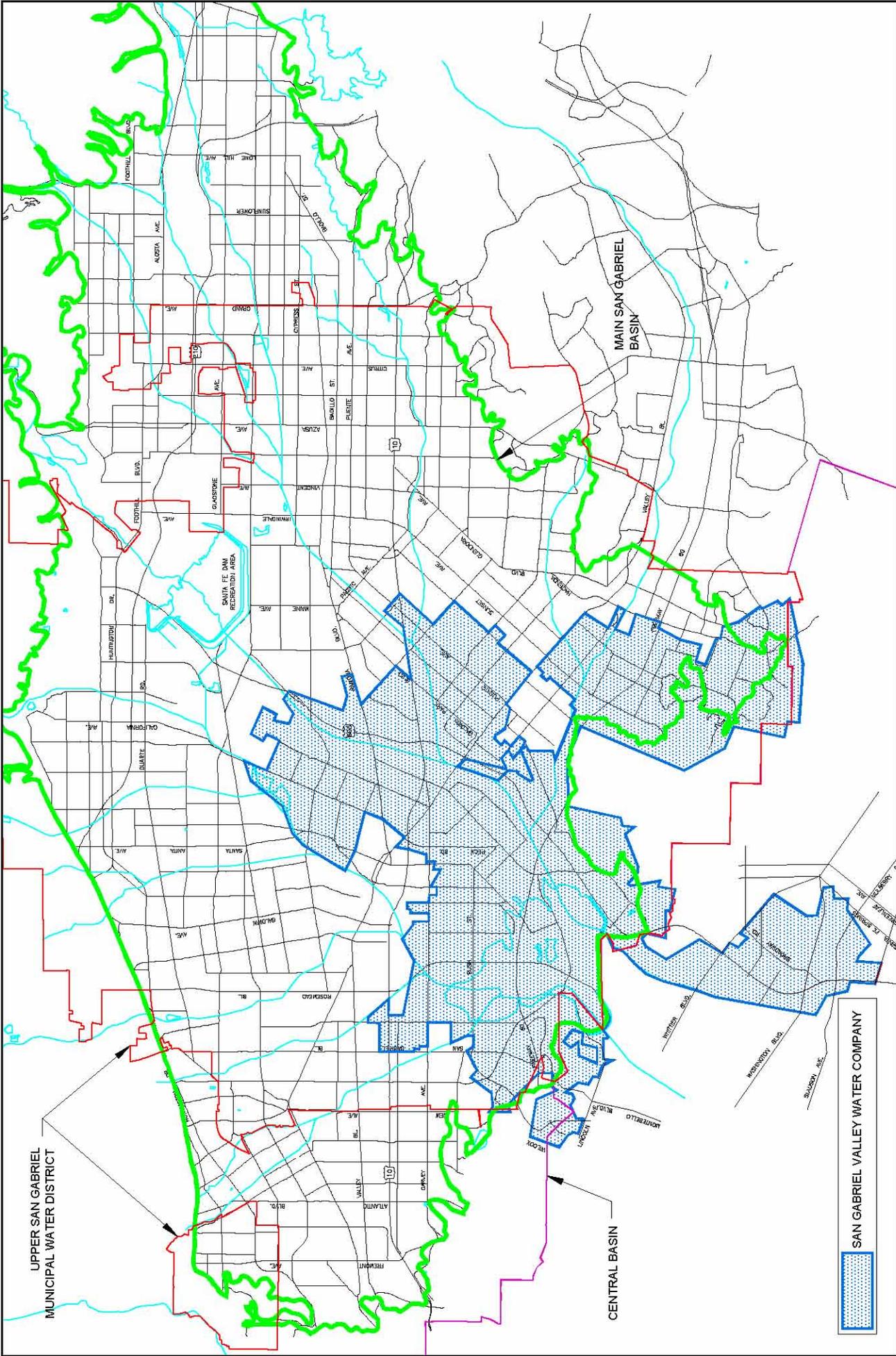
861 VILLAGE OAKS DRIVE, STE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 967-6202
 FAX: (626) 331-7065

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

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

SAN GABRIEL VALLEY WATER COMPANY

SERVICE AREA



SAN GABRIEL VALLEY WATER COMPANY

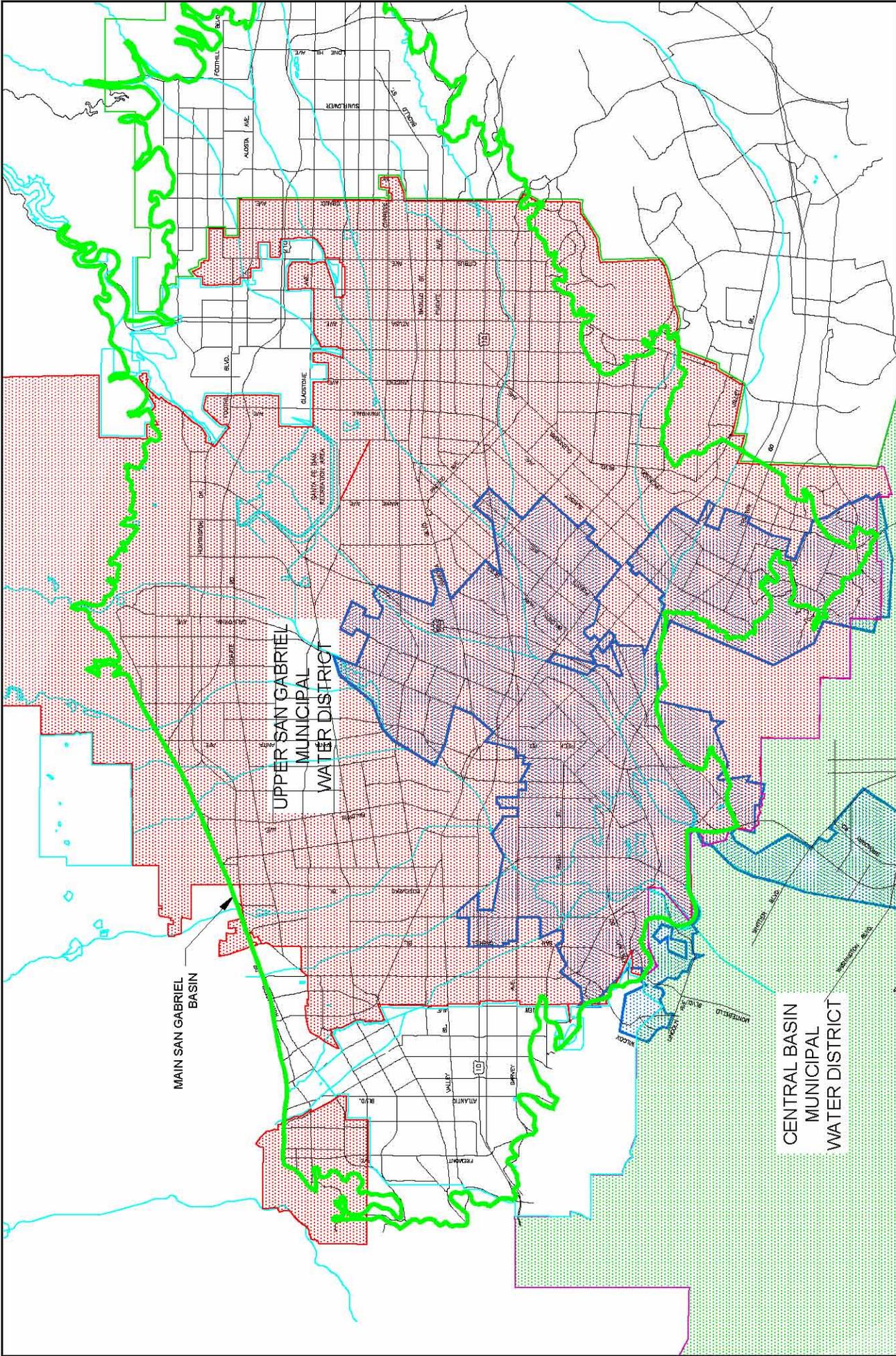
SERVICE AREA WITHIN MAIN SAN GABRIEL BASIN AND CENTRAL BASIN

SAN GABRIEL VALLEY WATER COMPANY

861 VILLAGE OAKS DRIVE, SUITE 100
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3651 W. Oculofelus Rd., Suite A209
Mesa Arizona 85202





SAN GABRIEL VALLEY WATER COMPANY

MUNICIPAL WATER DISTRICT BOUNDARIES

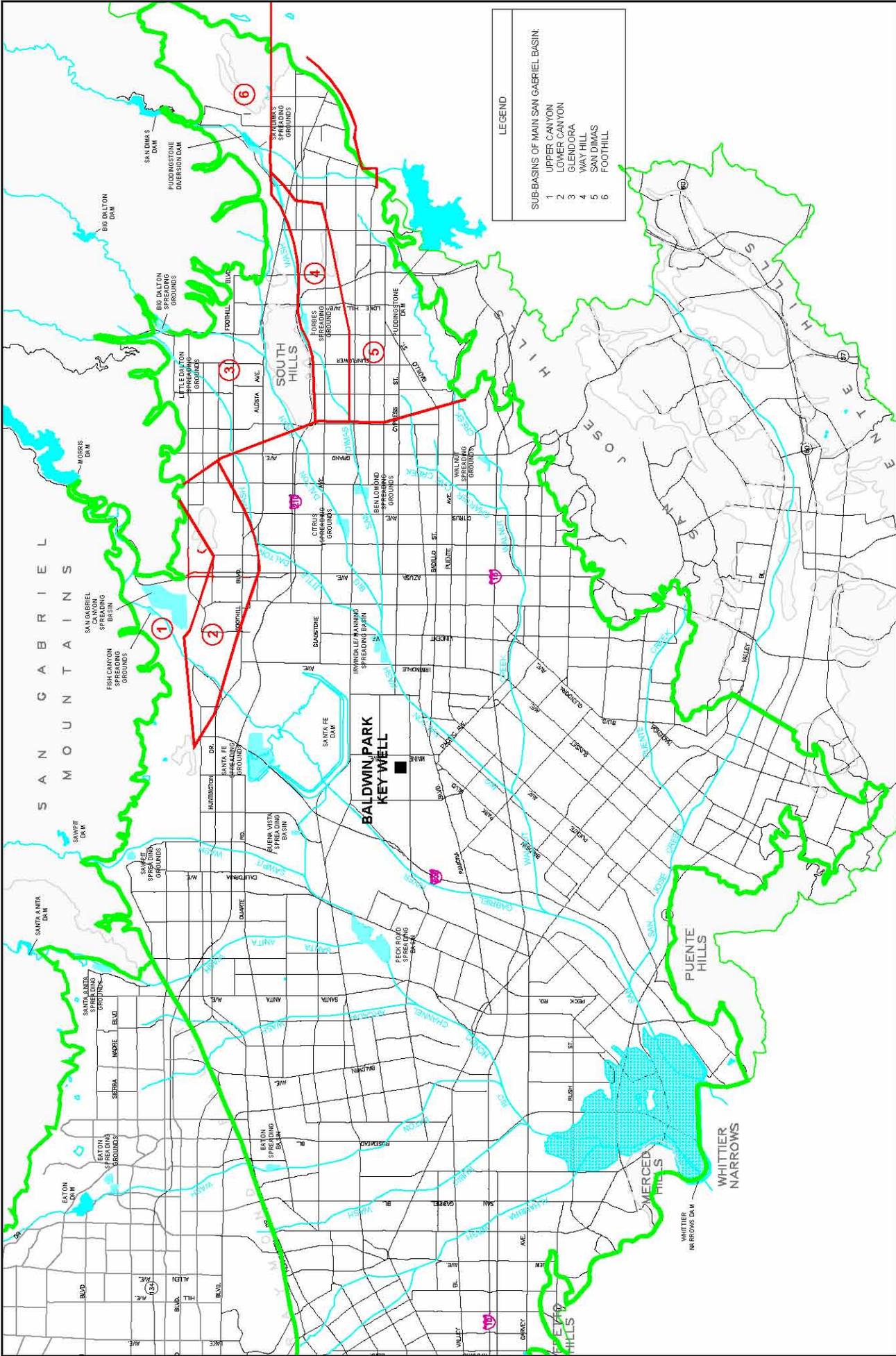
861 VILLAGE OAKS DRIVE, SUITE 100
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 Mesa Arizona 85202



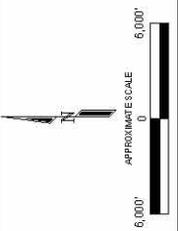
F:\JOBSC343\Plate3\PLATE3.DWG
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6,000'
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 6,000'
 APPROXIMATE SCALE



SAN GABRIEL VALLEY WATER COMPANY

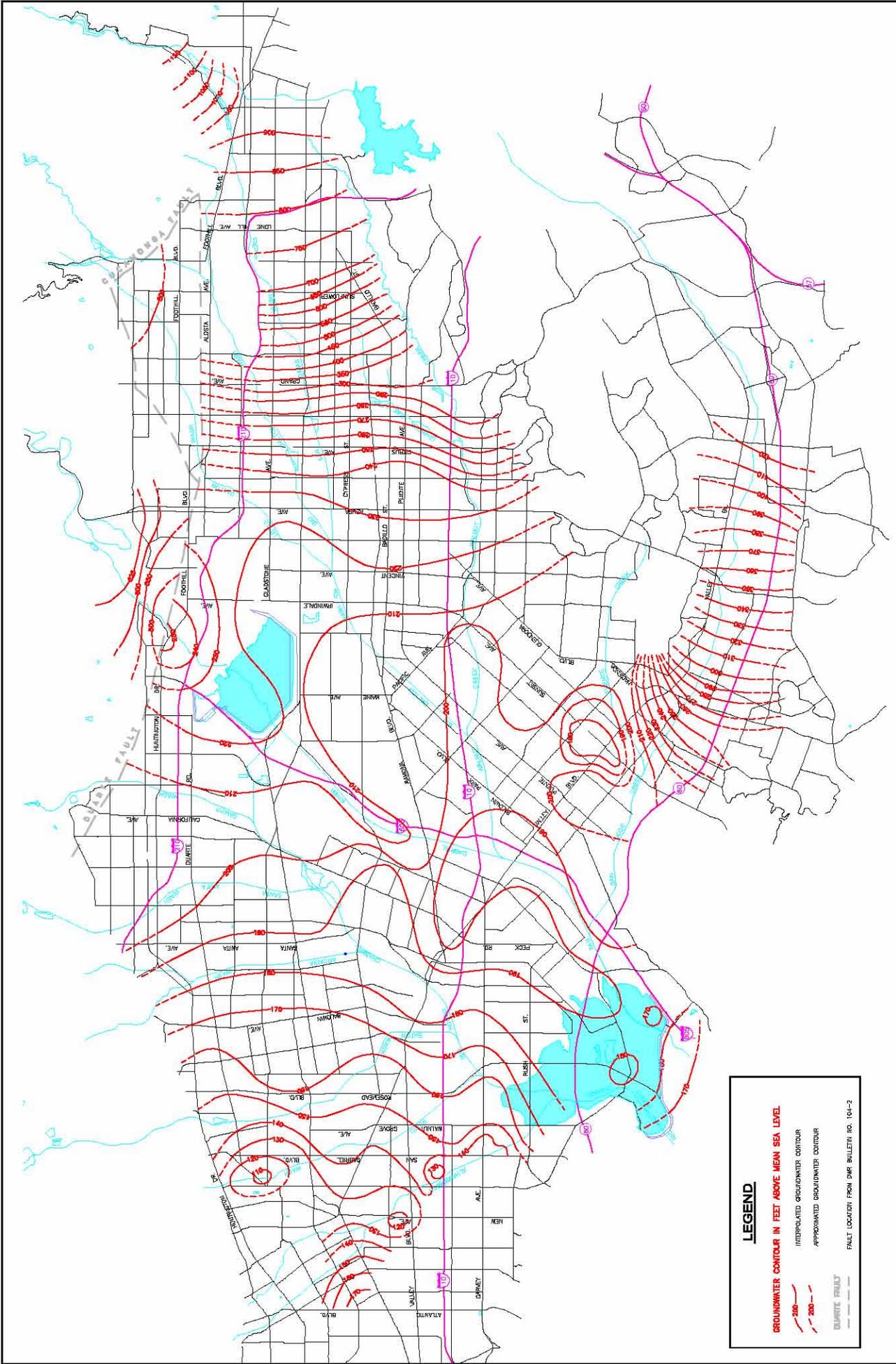
**LOCATION OF SPREADING GROUNDS AND WATER CHANNELS
IN MAIN SAN GABRIEL BASIN**



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Mesa Arizona 85202





LEGEND

- GROUNDWATER CONTOUR IN FEET ABOVE MEAN SEA LEVEL
- INTERPOLATED GROUNDWATER CONTOUR
- APPROXIMATED GROUNDWATER CONTOUR
- DUARTE FAULT
- FAULT LOCATION FROM DMR BULLETIN NO. 104-2

861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (626) 331-7050
 FAX: (626) 331-7055

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STETSON ENGINEERS INC.

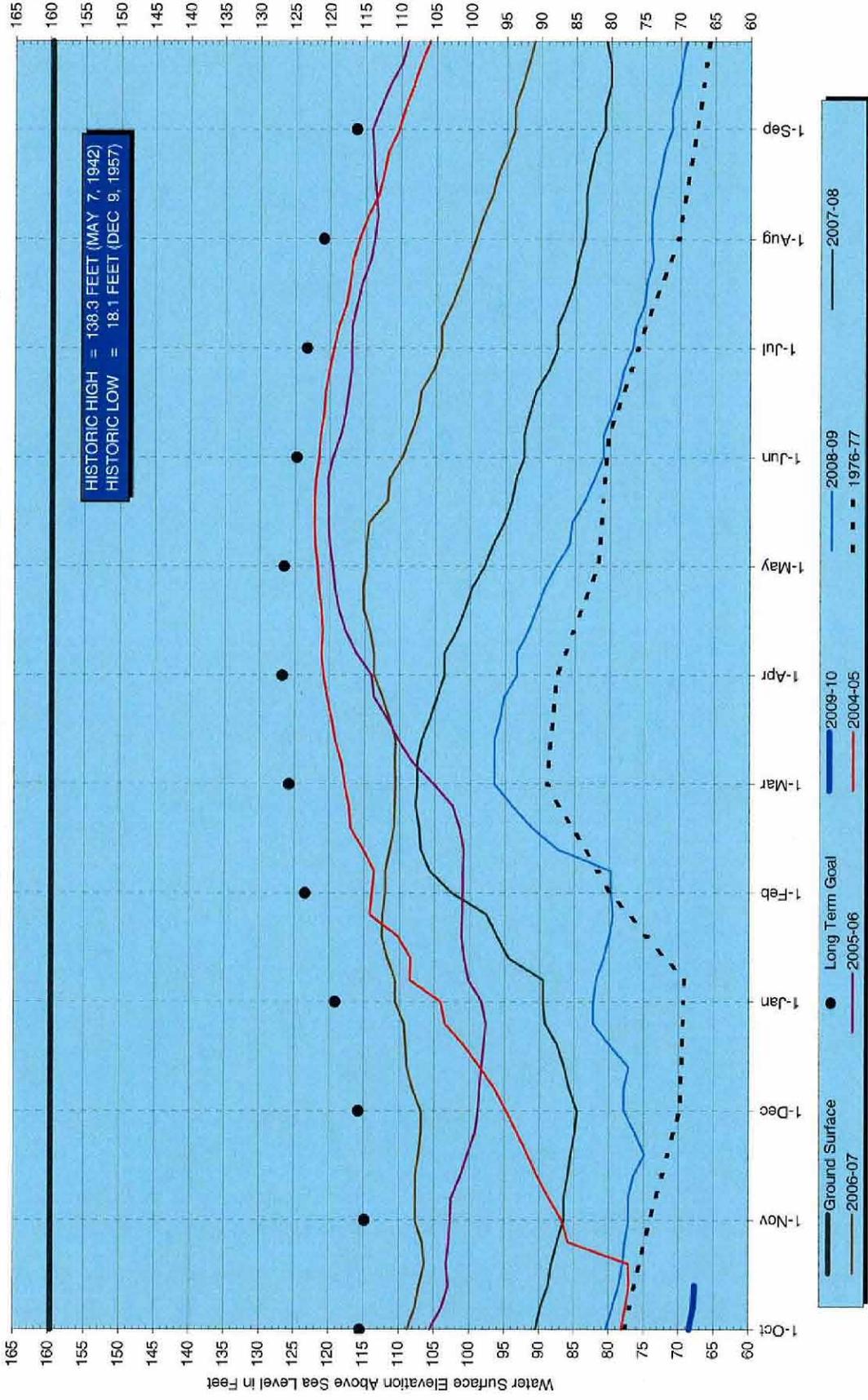
APPROXIMATE SCALE 6,000'

0 6,000'

SAN GABRIEL VALLEY WATER COMPANY

GROUNDWATER CONTOURS MAP FOR SAN GABRIEL BASIN - JULY 2010

MONTEBELLO FOREBAY WELL 1601T GROUNDWATER SURFACE ELEVATION



Source : Water Replenishment District of Southern California

SAN GABRIEL VALLEY WATER COMPANY

HISTORICAL CENTRAL BASIN GROUNDWATER LEVELS

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