



CITY OF WHITTIER

Final 2010

Urban Water Management Plan



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Chapter 1 INTRODUCTION

1.1 URBAN WATER MANAGEMENT PLAN

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.

This Urban Water Management Plan (Plan) was prepared in accordance with the California Urban Water Management Planning Act (Act)¹ which became effective on January 1, 1985. 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 acre-feet of water annually. The primary objective of the Act is to direct urban water suppliers to evaluate their existing water conservation efforts and, to the extent practicable, review and implement alternative and supplemental water conservation measures. **The Act is directed primarily at retail water purveyors where programs can be immediately affected upon the consumer.**

Sections 10610 through 10656 of the California Water Code (CWC), Urban Water Management Planning Act, were enacted in 1983. The Act, originally known as Assembly Bill (AB) 797, is included in Appendix A.

¹ Water Code Sections 10610 through 10656

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1.2 COORDINATION

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.*

The City of Whittier Water Utility Authority (hereinafter referred to as the City) is a retail water supplier that serves approximately 55 percent of the residents of the City of Whittier. The City has coordinated the preparation of the Plan with the City of Whittier City Clerk, Central Basin Municipal Water District (CBMWD), County of Los Angeles, Main San Gabriel Basin Watermaster (Main Basin Watermaster), and Upper San Gabriel Valley Municipal Water District (Upper District) (see Table 1). The City notified these agencies of the preparation of the 2010 Plan. These agencies were invited to participate in the development of the 2010 Plan by providing their comments. A copy of the notification letters sent to these agencies is located in Appendix B. The City did not receive any comments from any of these agencies.

The City water system operations are consistent with the Long Beach Judgment, Main San Gabriel Basin Judgment, Main Basin Watermaster Rules and Regulations, Main San Gabriel Basin Five-year Water Quality and Supply Plan, and Central Basin Judgment. These planning documents are described in Chapter 3 and are included in Appendices C, D, E, F, and G, respectively.

1.3 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 the City to maximize local resources and minimize the need to import water. These include Groundwater Basin Management Structure (Chapter 3), Demand Management Measures (DMMs) (Chapter 5), Potential Projects (Chapter 6), and Potential Recycled Water Use (Chapter 8).

1.4 CHANGES TO THE PLAN

Section 10621

- a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.*
- 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 notice pursuant to this subdivision.*
- 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).*

There have been many new amendments added to the Plan and some reorganization of the CWC Sections since the City's 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 of a public hearing on a Plan.
- AB 1420 – conditions State funding.

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- SB 7 – requires 20 percent reduction in urban per capita water use by 2020 (see Appendix A).

Section 10621 (a) of the CWC 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.” This 2010 Plan is an update to the City’s 2005 Plan.

This Plan was prepared consistent with the State of California, Department of Water Resources’ (DWR) 2010 Plan Guidebook. Included in this Plan is a checklist in Appendix H, organized by CWC Section, which summarizes response to requirements of the CWC.

1.5 PLAN ADOPTION AND IMPLEMENTATION

1.5.1 PUBLIC PARTICIPATION AND PLAN ADOPTION

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.

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.

The City provided a notice to the City of Whittier City Clerk and the County of Los Angeles that the City will be reviewing its Plan and considering amendments or changes

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to the Plan, at least 60 days prior to the public hearing. Copies of the notification letters sent to City of Whittier City Clerk and the County of Los Angeles are provided in Appendix B. The City made the draft 2010 Plan update available for public review at the office of the City of Whittier City Clerk and a public hearing was held on April 12, 2011 at 6:30 p.m. in the City Council Chamber located at 13230 Penn Street, Whittier, California. 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. The notice of public hearing was also provided to the City of Whittier City Clerk and the County of Los Angeles. A copy of the notice of the public hearing is provided in Appendix I.

The City held a public hearing on April 12, 2011 at 6:30 p.m. in the City Council Chamber located at 13230 Penn Street, Whittier, California. No comments were received from the public. Members of the public did not attend the public hearing. Therefore, no modifications were made to the draft Plan. City staff reviewed this Plan and comments from the review were incorporated into the final Plan. Following the public hearing, the City adopted the draft Plan on April 12, 2011 as its Plan. A copy of the resolution adopting the Plan is provided in Appendix J. The City sent a notice of intention to adopt its draft Plan to the City of Whittier City Clerk and County of Los Angeles.

1.5.2 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.

The City is committed to the implementation of this 2010 Plan in accordance with Section 10643 of the Act, including the water demand management measures (see Chapter 5) and water conservation requirements of SB 7 (see Chapter 10). The City's water conservation program will periodically be re-evaluated and modified to effect

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better methods or techniques as the need arises. The City reviewed implementation of its 2005 Plan and the Plan does not have any item requiring implementation by the City.

1.5.3 PLAN DISTRIBUTION

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.

A copy of the Plan will be filed with the DWR, the California State Library, City of Whittier City Clerk, and County of Los Angeles within 30 days of adoption of the Plan. Copies of the letters to DWR, State Library, and County of Los Angeles will be maintained in the City's file.

1.5.4 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 the 2010 Plan to DWR, the City will make the 2010 Plan available for public review at its office during normal business hours.

Chapter 2

DESCRIPTION OF SERVICE AREA

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.*

2.1 BACKGROUND

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

2.2 DESCRIPTION OF SERVICE AREA

The City's service area is located within Central Basin, approximately 15 miles southeast of the City of Los Angeles, as shown on Plate 1. The City's service area is bounded by the San Gabriel River on the west; Puente Hills to the north; and the City of La Habra Heights, City of La Habra, City of La Mirada, City of Santa Fe Springs, and unincorporated area within the County of Los Angeles to the east and south. Plate 2 shows the boundaries of the City's service area.

The City is a retail water company that serves approximately 55 percent of the residents of the City of Whittier. The City is a sub-agency of two wholesale water agencies, Upper District and CBMWD. The City is a local purveyor of water that serves

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retail water customers within the City of Whittier, with water supplied from local groundwater basins and irrigation water from wastewater reclamation plants. The City has the legal right to pump groundwater from both the Main San Gabriel Basin (Main Basin) and Central Basin.

The City owns and operates five active wells, Wells No. 13, No. 15, No. 16, No. 17, and No. 18 (Well No. 17 is currently out of service due to a physical problem), located within the Main Basin. In addition, the City operates the Whittier Narrows Operable Unit Groundwater Treatment Plant (WNOU-GTP) built by the United States Environmental Protection Agency (EPA) that treats groundwater from three EPA extraction wells located in the Main Basin (Wells EW4-5, EW4-6, and EW4-7). As part of the agreement with EPA, the City accepts treated water from the WNOU-GTP in lieu of producing the same quantity of water from City-owned wells in the Main Basin. The locations of the City's wells and EPA Wells EW4-5, EW4-6, and EW4-7 are shown on Plate 2.

The City owns and operates two wells, Wells No. 8 and No. 14, located within Central Basin (see Plate 2).

2.3 CURRENT AND PROJECTED POPULATION

Currently, the City serves approximately 55 percent of the City of Whittier residents, while Suburban Water Systems, California Domestic Water Company, and San Gabriel Valley Water Company serve the remaining 45 percent. The current population of the City of Whittier is approximately 87,700. Therefore, the City's service area has a current population of about 48,200 (55 percent of 87,700). Table 2 presents the current and projected population for the City of Whittier and the City's service area from 2010 to 2030. The projections were obtained from the Southern California Association of Governments (SCAG).

2.4 CLIMATE

Table 3 shows historical rainfall in the San Gabriel Valley. Table 4 shows the monthly average rainfall, monthly average temperature, and monthly average evapotranspiration in the San Gabriel Valley. Table 4 shows the average annual rainfall in the San Gabriel Valley is 17.8 inches, the average daily temperature is 63.8 degrees Fahrenheit (°F), and the average annual evapotranspiration is 55.1 inches. The climate is characterized by hot, dry summers and mild winters.

2.5 OTHER DEMOGRAPHIC FACTORS

There are no other demographic factors affecting the City's water management planning.

Chapter 3 SOURCES OF SUPPLY

3.1 EXISTING AND PLANNED SOURCES OF WATER SUPPLY

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).*

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

3.1.1 MAIN BASIN

The City pumps groundwater from the Main Basin from the City's five active wells located near Whittier Narrows Dam (Well No. 17 is currently out of service due to a physical problem). These wells are located within the Main Basin as shown on Plate 2 and have a combined capacity of about 18,100 gallons per minute (gpm). In addition, the City receives treated water from the WNOU-GTP in lieu of producing the same quantity of water from City-owned wells in the Main Basin. EPA's WNOU-GTP treats groundwater from EPA intermediate zone Wells EW4-5, EW4-6, and EW4-7 for potable use, with a combined extraction capacity of about 8,500 gpm. The City has the legal right to pump groundwater from the Main Basin. Although there is no limit on the quantity of water that may be extracted by Parties to the Main Basin Adjudication, including the City, groundwater production in excess of a Party's water right, or its proportional share (pumper's share) of the Operating Safe Yield,² requires purchase of untreated imported water to recharge the Main Basin. The City has a prescriptive

² 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.

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

3.1.2 CENTRAL BASIN

The City pumps groundwater from Central Basin through its two active wells, Wells No. 8 and No. 14, as shown on Plates 1 and 2. According to the Central Basin Adjudication, the City has an allowed pumping allocation of 895 acre-feet per year. The Central Basin Adjudication allows Parties to the Judgment to pump up to 20 percent more of its annual allowed pumping allocation plus any carry-over as described in Chapter 3.2.2.1. The Water Replenishment District of Southern California (WRD) is responsible for recharging Central Basin.

The City's past, and projected water demand from the Main Basin and Central Basin are shown on Table 5. The City pumps all of its water right from Central Basin and then pumps its additional water demand from the Main Basin.

3.1.3 RECYCLED WATER

In addition to groundwater, the City also has recycled water supplies from CBMWD. The City has seven recycled water service connections within its water system. In fiscal year 2008-09, the City delivered about 87 acre-feet of recycled water. The City's past and projected recycled water supply is shown on Table 5. Additional information on the City's recycled water supplies is provided in Chapter 8.

3.2 GROUNDWATER MANAGEMENT

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.*

3.2.1 MAIN BASIN GROUNDWATER MANAGEMENT

Management of the water resources in the San Gabriel Valley is based upon Watermaster Services under two Court Judgments: San Gabriel River Watermaster (River Watermaster)³ and Main Basin Watermaster.⁴ The City was a defendant in the Main Basin Judgment and as such had participation. The City also participates in the Main Basin management described in the Main Basin Watermaster document entitled “Five-Year Water Quality and Supply Plan.” These three basin management documents are described in the following sections.

3.2.1.1 LONG BEACH JUDGMENT

On May 12, 1959, the Board of Water Commissioners of the City of Long Beach, CBMWD and the City of Compton, as plaintiffs, filed an action against the San Gabriel Valley Water Company and 24 other producers of groundwater from the San Gabriel Valley as defendants. This action sought a determination of the rights of the defendants in and to the waters of the San Gabriel River system and to restrain the defendants from an alleged interference with the rights of plaintiffs and persons represented by the CBMWD in such waters. After six years of study and negotiation a Stipulation for Judgment was filed on February 10, 1965, and Judgment (Long Beach Judgment) was

³ Board of Water Commissioners of the City of Long Beach et al, v. San Gabriel Valley Water Company, et al, Los Angeles County Case No. 722647, Judgment entered September 24, 1965.

⁴ Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al, 924128, Judgment entered January 4, 1973.

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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, the boundary between San Gabriel Valley upstream and the coastal plain of Los Angeles County downstream. A copy of the Long Beach Judgment is located in Appendix C.

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 within CBMWD 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 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 require 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 CBMWD, and one jointly nominated by Upper District and CBMWD. This three-member board is known as the River Watermaster.

The River Watermaster meets periodically during the year to adopt a budget, to review activities affecting water supply in the San Gabriel River system area, to compile

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and review data, to make its determinations of usable water received by the Lower Area, and to prepare an annual report to the Court and to the Parties. The River Watermaster has rendered annual reports for the water years 1963-64 through 2008-09 and operations of the river system under the Long Beach Judgment and through the administration by the River Watermaster have been very 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.

3.2.1.2 MAIN BASIN JUDGMENT

Following the Long Beach Judgment, the Upper Area 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, including the City. After consideration by the Association membership, 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. In this Judgment, the City was included as a defendant. 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 Judgment (Main Basin Judgment) was entered on January 4, 1973. A copy of the Main Basin Judgment is located in Appendix D.

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

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location of these districts is shown on Plate 3. In the Main Basin, the City produces water from within Upper District's boundary.

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 Watermaster. Six of those members are nominated by water producers (producer members) and three members (public members) are nominated by the Upper District and SGVWMD, which overlies most of the Main 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 through the year. A copy of the Main Basin Watermaster's Rules and Regulations is located in Appendix E.

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.

The City's water rights are adjusted annually based on an Operating Safe Yield. If the City 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. As indicated in Chapter 3.1 above, the City has a prescriptive pumping right of 8,271 acre-feet and a pumper's share of 4.18519 percent of the Operating Safe Yield. The Operating Safe Yield for the Main Basin was 170,000 acre-

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feet in fiscal year 2009-10. Therefore, the City's allocation of its portion of the Operating Safe Yield was 7,114.82 acre-feet in fiscal year 2009-10.

In addition to Replacement Water Assessments, the Main Basin Watermaster levies an Administration Assessment to fund the administration of the Main Basin management program under the Main Basin Judgment, and a Make-Up Obligation Assessment in order to fulfill the requirements for any Make-Up Obligation under the Long Beach Judgment and to supply 50 percent of the administration costs of the River Watermaster service. The Main Basin Watermaster also 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 Main Basin 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 Well⁵ (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

⁵ The Baldwin Park 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.

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

3.2.1.3 OPERATIONS OF THE GROUNDWATER BASIN

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

Typically, water producers within Upper District rely upon groundwater from the Main Basin for their water supply. Imported water for groundwater replenishment is delivered to 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, utilizing imported water, is 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 the Metropolitan Water District of Southern of California (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 TVMWD and permits MWD to deliver and store 40,000 acre-feet for future Replacement Water use. The third is with SGVMWD and contains generally the same conditions as the agreement with MWD except that the stored quantity is not to exceed 40,000 acre-feet.

Imported Make-Up Water is often 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 reimbursing the Lower Area interests for their purchase of recycled water cannot fulfill the amount of Make-Up 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.

3.2.1.4 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 is 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.

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

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Region, and making it available for public review by November 1 of each year. A copy of the “Five-Year Water Quality and Supply Plan” is located in Appendix F.

The 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 the 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 Main Basin;
5. address perchlorate, N-nitrosodimethylamine (NDMA), and other emerging contaminants in the Main Basin;
6. develop a cleanup and water supply program consistent with the EPA plans for its San Gabriel Valley Superfund sites; and
7. coordinate and manage the design, permitting, construction, and performance evaluation of the Baldwin Park Operable Unit (BPOU) cleanup and water supply plan.

The Main Basin Watermaster, in coordination with Upper District, has worked with state and federal regulators, along with local water companies to clean up water supplies. Section 28 of the Main Basin Watermaster’s Rules and Regulations require all producers (including the City) to submit an application to 1) construct a new well, 2) modify an existing well, 3) destroy a well, or 4) construct a treatment facility. Main Basin Watermaster prepares a report on the implications of the proposed activity. As a Party

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

3.2.2 CENTRAL BASIN GROUNDWATER MANAGEMENT

Groundwater production in Central Basin is restricted to adjudicated rights fixed by the Central Basin Judgment and managed by a court-appointed Watermaster. The City was a defendant in Central Basin Judgment⁶ and as such had participation. The following section provides a historical overview based on the Central Basin Watermaster Annual Report.

3.2.2.1 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

⁶ 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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before Judge Edmund M. Moor. Following testimony on engineering, geology, hydrology, and safe yield of Central Basin and arguments on water right entitlement, the case was continued to August 25, 1965. Shortly thereafter, Judge Moor appointed DWR as Watermaster. The final Judgment was signed on October 11, 1965 and became affective on October 1, 1966.⁷ A copy of the Central Basin Judgment is located in Appendix G.

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 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 Watermaster (DWR), 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 in any year and an

⁷ Central and West Basin Water Replenishment District, etc. v. Charles E. Adams, et al, Los Angeles County Case No. 786,656.

adjustment is made the following year. In addition, water producers cannot carry over more than 20 percent of their water rights for use in the following year.

3.3 DESCRIPTION OF GROUNDWATER BASIN

Section 10631(b)

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.

3.3.1 MAIN SAN GABRIEL BASIN

The Main Basin is located within the San Gabriel Valley 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 the San Jose and Puente Hills, as shown on Plate 4.

The San Gabriel River and its tributary, the Rio Hondo, drain an area of about 490 square miles upstream of Whittier Narrows. Whittier Narrows is a low gap between the Merced and Puente Hills, just northwest of the City, 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. Of the approximately 490 square miles of drainage area upstream of Whittier Narrows, about 167 square miles are valley lands, and about 323 square miles are mountains and foothills.

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The Main Basin includes essentially the entire valley floor of San Gabriel Valley with the exception of the Raymond Basin and Puente Basin. The boundaries of the Main Basin are the Raymond Basin on the northwest, the base of the San Gabriel Mountains on the north, the groundwater divide between San Dimas and La Verne and the lower boundary of the Puente Basin on the east, and the common boundaries between Upper District and CBMWD 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 is a large groundwater basin replenished by stream runoff from the adjacent mountains and hills, by rainfall directly on the surface of the San Gabriel 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.

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 San Gabriel Valley. The greatest area of land use in the San Gabriel Valley is for residential and commercial purposes. DWR Bulletin 118 does not identify the Main Basin as currently being in overdraft.

3.3.1.1 GEOLOGY

The Main Basin consists of a roughly bowl-shaped depression in the bedrock, filled over millions of years with alluvial deposits. This bowl-shaped depression is relatively deep; the elevation of the base of the groundwater reservoir declines from about 800 feet above the 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*).⁸

Most of the alluvium deposited within this depression is debris from the San Gabriel Mountains, washed and blown from the side of the mountains over time. This process has also resulted in the materials within 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 feet to 300 feet in the northeastern portion of the Main Basin near the mountains to nearly 4,000 feet in the South El Monte area (*DWR, 1966*).

The soils overlying the Main Basin average about 6 feet in depth. Soil depths are generally greater at the perimeter of the valley and decrease toward the center along the San Gabriel River. These soils are residual, formed in place through chemical, mechanical and plant weathering processes. The infiltration rates of these soils are greater along the natural channels and their adjacent flood plains. Lower infiltration rates are found in the perimeter areas of the San Gabriel Valley. Since the San Gabriel Valley is mostly urbanized, a significant portion of the area has been paved and many

⁸ DWR, 1966. *Bulletin No. 104-2, Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geohydrology*. March 1966.

miles of stream channel have been lined for flood control purposes, thus decreasing infiltration of water through streambeds. More detailed Main Basin geology is discussed in the report entitled “Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geohydrology” (DWR, 1966).

3.3.1.2 HYDROGEOLOGY

The total fresh water storage capacity of the Main Basin is estimated to be about 9.5 million acre-feet. Of that, about 1,000,000 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 hydrograph of the Key Well is shown on Figure 1. The historical high groundwater elevation was recorded at over 329.1 feet in April 1916, at which time Main Basin storage was estimated to be about 8,700,000 acre-feet. The historical low was recorded in November 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 Main 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. The most recent groundwater contour map is 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.

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 to the movement of subsurface water. The Main Basin therefore operates as a single, unconfined aquifer. As previously mentioned, a thorough discussion of Main Basin hydrogeology is contained in the report "Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geohydrology" (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. Plate 4 shows the location of the sub-basins within the Main Basin.

3.3.1.3 HYDROLOGY

The major sources of recharge to the Main Basin are direct penetration of rainfall on the San Gabriel 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. Rainfall is also highly variable from year to year, as shown as Table 3. For example, in water year 2004-05, the total rainfall (four station average) was more than 45 inches, while in 2006-07, the total rainfall (four station average) was less than 5 inches, as shown on Table 3.

The magnitude of annual recharges 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 been estimated by River Watermaster. DPW maintains records on the amount of local and imported water conserved in water spreading facilities and stream channels.

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The Main Basin is bisected by the San Gabriel River. 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 (see Plate 4). The San Gabriel River flows southwesterly across the valley to Whittier Narrows, a distance of about 15 miles. It exits the 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. The Santa Anita Wash, Eaton Canyon Wash, Rubio Wash and Alhambra Wash all cross the Raymond Basin area before entering the Main Basin. The channel of the Rio Hondo passes through Whittier Narrows westerly of the San Gabriel River, and then flows southwesterly to join the Los Angeles River on the Coastal Plain.

To protect residents of the San Gabriel Valley from flooding that can result during periods of intensive rainfall, the DPW and the U.S. Army Corps of Engineers (Corps of Engineers) have constructed an extensive system of dams, debris basins, reservoirs and flood control channels. The dams and reservoirs also operate as water

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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 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 reduced 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 San Gabriel Valley along the stream channels. Generally, the Main Basin directs groundwater to the southwest through Whittier Narrows.

3.3.2 CENTRAL BASIN

Central Basin is located in Los Angeles County approximately 20 miles southeasterly of downtown Los Angeles, as shown on Plate 1. On its north, Central Basin is bounded by the Hollywood Basin, and that boundary runs through the City of Los Angeles. The remainder of the northern boundary of Central Basin extends along the Merced Hills, across Whittier Narrows, and then along Puente Hills. The northern Basin boundary terminates at the Orange County line, which forms the eastern boundary of the Central Basin. This boundary is a political and not a geologic one, and the aquifers in this area reach into the East Coastal Plan area of Orange County. The south-southwest boundary of the Central Basin is known as the Newport-Inglewood Uplift (NIU), separating Central and West Basin from Long Beach up to the Baldwin Hills just north of the City of Inglewood. DWR Bulletin 118 does not identify Central Basin as currently being in overdraft.

3.3.2.1 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 historic 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.

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

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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.

3.3.2.2 HYDROGEOLOGY

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

As the Rio Hondo and San Gabriel Rivers flow through the Upper San Gabriel Valley toward Whittier Narrows, much of their flow percolates into the Main Basin. This water crosses the Whittier Narrows and enters Central Basin as subsurface flow into the aquifers of Central Basin. At the same time, the surface flows of the Rio Hondo and the San Gabriel River percolate downward into the aquifers of Central Basin in the Montebello Forebay. In the Montebello Forebay, the underground aquifers merge and

are unconfined, and thus are capable of receiving large quantities of water from percolation through the sand and gravel surface of the forebay area.

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

Groundwater in the Central Basin provides a substantial portion of the water supply needed by residents and industries in the overlying area. Groundwater occurs in the pore spaces of the sediments in the basin. The major aquifers identified in Central Basin include the following, from shallowest to deepest: a) the 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 Figure 2. Aquifer depths can reach more than 2,000 feet in Central Basin although production wells generally do not need to be drilled this deep to tap sufficient water.

3.4 PAST AND PROJECTED LOCATION, AMOUNT AND SUFFICIENCY OF GROUNDWATER

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) 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*

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shall be based on information that is reasonably available, including, but not limited to, historic use records.

3.4.1 GROUNDWATER SOURCES IN MAIN BASIN

The City produces groundwater through its five active wells (Wells No. 13, No. 15, No. 16, No. 17, and No. 18; Well No. 17 is currently out of service due to a physical problem) in the Main Basin, as shown on Plate 2. In addition, the City receives treated water from the WNOU-GTP in lieu of producing the same quantity of water from City-owned wells in the Main Basin. The City's past groundwater supply pumped from the Main Basin over the past five years is shown on Table 5. The groundwater supply from the Main Basin is pumped to the reservoir storage facilities and then delivered to the City's customers.

As noted in Chapter 3.2, the Main Basin is managed by the Main Basin Watermaster. Section 42 of the Main Basin Judgment (Basin Operating Criteria) 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 since the Main Basin was adjudicated in 1973 and demonstrates that the Main Basin was generally operated between elevation 250 feet and 200 feet above MSL. Furthermore, at elevation 200 feet 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 Main Basin Judgment, significant drought events have occurred from 1969 to 1977, 1983 to 1991, 1998 to 2004, and 2006-07 to 2008-09. In each drought cycle, the Main Basin was managed to maintain its water levels. Historical data indicate the Main Basin has 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 the planned use of recycled water for groundwater replenishment. **Therefore, based on historical and on-going management practices, the groundwater supply**

in the Main Basin is deemed reliable and the City will be able to rely on the Main Basin for adequate supply over the next 20 years under single year and multiple year droughts. The groundwater projected to be pumped by the City from the Main Basin is shown on Table 5.

In regards to sufficiency of groundwater pumped, the City was able to rely on the Main Basin to meet its groundwater demand. Details on any changes or expansion planned for the groundwater supply is provided in Chapter 6.2 below.

3.4.2 GROUNDWATER SOURCES IN CENTRAL BASIN

The City also produces groundwater from the Central Basin. Location of the Central Basin wells (Wells No. 8 and No. 14) is shown on Plates 1 and 2. The City's past groundwater production in Central Basin over the past five years is shown on Table 5. According to the Central Basin Judgment, the City can produce up to 895 acre-feet each year from the Central Basin.

As discussed in Chapter 3.2, 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 Chapter 3.2.1.1), resulted in recovery of water levels in wells throughout the Central Basin. As shown on Figure 2, water levels have remained steady since then despite of several drought periods. Historical data indicate the Central Basin has 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 the planned use of recycled water for groundwater replenishment. **Therefore, based on historical and on-going management practices, the groundwater supply in the Central Basin is deemed reliable and the City will be able to rely on the Central Basin for adequate supply over the next 20 years under single year and multiple year droughts.**

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In regards to sufficiency of groundwater pumped, the City was able to rely on the Central Basin to meet its groundwater demand. Details on any changes or expansion planned for the groundwater supply is provided in Chapter 6.2 below.

3.5 VULNERABILITY TO SEASONAL OR CLIMATIC SHORTAGE

Section 10631(c)

- 1) *Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*
 - (A) *An average water year.*
 - (B) *A single dry water year.*
 - (C) *Multiple dry water years.*
- (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.*

As a result of the Main Basin and the Central Basin management, the City has not experienced water supply deficiencies. The management of both basins is based on their adjudications, which are described in Chapter 3.2.

Information regarding the reliability of the groundwater supplies from Main Basin and Central Basin is based on the 51-year rainfall data for the San Gabriel Valley (Table 3), and past data on the availability of water supply to meet demands during seasonal or climatic shortage. Table 3 summarizes the rainfall in the San Gabriel Valley from 1958-59 through 2008-09. According to the rainfall data for the San Gabriel Valley, the annual average rainfall is 17.8 inches. Therefore, 2005-06 represents an average water year for the City in which the total amount of rainfall was about 16.8 inches. A single dry year for the City was represented in 2006-07 in which the total amount of rainfall was about 4.9 inches. A multiple dry year sequence for the City is represented from 2006-07 to 2008-09, where the total amount of rainfall was about 4.9 inches, 16.4 inches, and 14.0 inches, respectively. Table 6 shows that during an average year, single dry year and multiple dry years, groundwater production for the City remained stable. A single dry year or multiple dry years did not compromise the City's ability to

provide a reliable supply of water to its customers. **Therefore, based on current management practices in the Main Basin and Central Basin, the minimum water supplies available at the end of an average water year, a single dry year, and multiple dry years would be at least equal if not greater than the City's water demand.**

3.6 EXCHANGES AND TRANSFERS

Section 10631

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

3.6.1 SHORT-TERM

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

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

3.6.2 LONG-TERM

The City has no long-term water exchange opportunities.

Chapter 4 PAST, CURRENT AND PROJECTED WATER DEMAND

4.1 PAST AND CURRENT 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*

The City is a retail water company that serves approximately 55 percent of the residents of the City of Whittier. The City's water supplies include groundwater pumped from the Main Basin and Central Basin, and recycled water. Currently, the City has 11,328 service connections, which serve five types of customers or water use sectors, as follows:

- Single-Family Residential – 8,696 Service Connections
- Multi-Family Residential – 1,743 Service Connections
- Commercial – 781 Service Connections
- Industrial – 25 Service Connections
- Landscape – 83 Service Connections.

In addition, the City provides recycled water for landscape irrigation through seven service connections. The City does not have historical data on the number of service connections by customer type or water use sector. The City does not have broken

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down water use records by customer type or water use sector. The City's water use records include only cumulative usage within the City's service area and recycled water use. Table 8 shows the past water use, including unaccounted water use, within the City's service area from fiscal years 1995-96 through 2008-09.

4.2 PROJECTED WATER DEMAND

Section 10631

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

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.*
- (b) *It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.*

The City's projected water demand is projected to follow the same trends as the increase in the City's service area population. As discussed in Chapter 2, the City serves approximately 55 percent of the residents of the City of Whittier. The current population of the City's service area is about 48,200. The projected population within the City's service area is not expected to increase significantly in the next 20 years; by an average rate of about 0.2 percent per year. Table 8 shows the projected water demand for the City for the next 20 years. The projected water demand is calculated based on the urban per capita water use target developed per SB 7 (see Chapter 10 below) and population projections (see Table 7). The City does not have data on projected water use for lower income households.

Chapter 5 DEMAND MANAGEMENT MEASURES

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.*
 - (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.*

Section 10631(j)

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

The City is a retail water company that provides water to 55 percent of the residents of the City of Whittier through groundwater pumping and recycled water. The City is committed to water conservation and encourages its customers to implement water-wise methods to decrease water waste and over-use. The City's commitment to

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water conservation is revealed through its continued efforts to address and comply with all DMMs described in the Act.

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

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

5.1 DEMAND MANAGEMENT MEASURES BEING IMPLEMENTED

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

The City implements a residential plumbing retrofit program through CBMWD. The program started in 1990. As a sub-agency of CBMWD, the City's customers can participate in CBMWD's residential plumbing retrofit programs which include the distribution of low-flow showerheads and faucet aerators. Additional information about CBMWD's residential plumbing retrofit is located in CBMWD's 2010 Plan, which is incorporated by reference. No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

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

In addition, the City has a computer-based billing system that conducts monthly checks of water production records to determine any unaccounted water losses within its water system. If unaccounted water losses are determined to be excessive (greater than 10 percent), a system wide leak detection is performed. During the past five years, overall losses for the City's distribution system have been approximately 10 percent of total production.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

The City's water distribution system is fully metered for all customer sectors, including separate meters for single-family residential, multi-family residential, commercial, large landscapes, and all institutional/governmental facilities. Additionally, within the City if there is new development, each unit is individually metered. The metering program started in calendar year 2000. Within the City's metered distribution system, the City provides commodity rates for its customers, as shown in Appendix K.

The City also implements a program for retrofitting older meters. If a water meter is rendered unserviceable through ordinary wear and tear, the City will repair or replace

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the meter at the City's expense. However, a customer is responsible for any meter readjustment or reinstallation fee, if a water meter is unserviceable through negligence or carelessness of that customer.

In addition to the City's availability charge by meter size, the City also implements commodity rates for potable water and recycled water. The City's billing unit is in hundreds of cubic feet (CCF). As shown in Appendix K, the City charges \$2.056 per CCF for potable water and \$1.643 per CCF for recycled water. Recycled water is offered by the City to some of its customers. The City's commodity rate program effectively promotes water conservation by providing financial incentives to those customers that choose to use recycled water over potable water.

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

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

The City's large landscape conservation and incentive program includes the use of recycled water for irrigating large landscape areas within the City's service area. The program started in 1990. Recycled water use within the City's service area reduces the demand on local water resources, the need for groundwater pumping, and provides financial incentives to the City's customers. As discussed in Chapter 5.1.3, the City charges a commodity rate of \$1.643 per CCF for recycled water compared to \$2.056 per CCF for potable water (as shown in Appendix K). Additional information regarding recycled water use within the City's service area is provided in Chapter 8 of this Plan.

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The City participates in CBMWD's large landscape conservation programs. CBMWD was allocated funding through MWD's Proposition 13 grant award for a new Weather-Based Irrigation Controller (WBIC) Program. Through this program, MWD along with its member agencies (including CBMWD) developed a Project Advisory Committee to work on developing the WBIC Program, which includes marketing, reporting, databasing, and implementing. The WBIC program consists of weather-based irrigation controllers that automatically adjust irrigation systems based on weather data, reducing the amount of water use during cooler months and increasing the amount of water use during warmer or summer months. CBMWD plans on using the new controllers in its service area that cannot benefit from recycled water.

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

Residents in the City's service area can also participate in CBMWD's Landscape Rotating Nozzles program that offers rebates through MWD's program for the purchase of landscape rotating nozzles for landscape irrigation. In addition, CBMWD's Synthetic Turf program offers rebates through MWD's program for replacement of the irrigated area with synthetic turf.

CBMWD also offers landscape classes to residences within its service area, including the City of Whittier, to teach residents about water conservation and to reduce urban run-off. Additional information on CBMWD's water conservation programs is available in CBMWD's 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

**5.1.5 HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS
[SECTION 10631 (F)(1)(F)]**

A high-efficiency washing machine rebate program is available to the City's customers through CBMWD's program. The program started in 1999. CBMWD, in partnership with MWD and DWR, offers a residential high-efficiency washing machine rebate program for residential dwellings (single-family homes, condominiums, townhouses, apartments or mobile homes) within its service area.

High-efficiency washing machines can use up to 50 percent less water and 60 percent less energy compared to standard-efficiency washing machines. Residences within CBMWD's service area that install a high-efficiency washing machine can receive up to a \$100 rebate for their water conservation measures. More information on CBMWD's high-efficiency washing machine rebate program can be found in CBMWD's 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

5.1.6 PUBLIC INFORMATION PROGRAMS [SECTION 10631 (F)(1)(G)]

As a member agency of CBMWD, the City participates in CBMWD's public information program. The program started in 2001. One aspect of CBMWD's public information program includes providing speakers at community events and private organizations that discuss water conservation, Central Basin projects, water quality standards and reliability of supply issues. CBMWD also posts "Water Saving Tips" on its website, www.centralbasin.org, that inform customers on water conservation

methods that can be practiced within a customer's home. Also, as discussed in Chapter 5.1.4, CBMWD offers public information classes on landscape conservation methods and water-efficient gardening. More information about CBMWD's public information program is provided in its 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

The City participates in CBMWD's school education program. The program started in 1990. CBMWD's school educational program includes a variety of elementary and high school programs within its service area, including the City. Schools located within CBMWD's service area can receive educational materials and handouts about water conservation and water awareness. CBMWD also provides information on its school education programs through its website links to the following programs:

1. **Sewer Science** – A hands-on laboratory program that teaches high school students in CBMWD's service area about wastewater treatment.
2. **Think Earth! It's Magic** – A collaborative education program between CBMWD, the Think Earth Environmental Education Foundation, and California State University's Environmental Education Department that uses an award-winning curriculum and magic shows to teach elementary school students about their environment.
3. **Think Water! It's Magic** – An environmental education program for students in extended daycare/after school programs. The program engages students in a fun way and teaches them about limited water availability on earth, the water cycle, water quality, and water recycling. The program also teaches students about the amount of water used during everyday tasks and how they can conserve water by just making some simple behavioral changes.
4. **Think Watershed** – A collaborative partnership of environmental stakeholders in southern California interested in creating and implementing a watershed education project. Its mission is to educate students about the watershed's

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impact on marine and aquatic environment and to inspire them to become stewards of the environment.

5. **Water Squad Investigation** – A collaborative environmental education program that joins CBMWD, County Sanitation Districts of Los Angeles County (CSDLAC), and Los Angeles County’s Whittier Narrows Center to provide students with a fun-filled day of water awareness. Participating students are provided trips to the San Jose Creek Water Reclamation Plant (SJCWRP) and Whittier Narrows Nature Center by CBMWD, where students are introduced to the concepts of water recycling and conservation through multimedia presentations, fun activity book exercises and guided tours of the facilities. The program allows students to gain a solid understanding of how water recycling can help conserve valuable drinking water and about the simple but effective ways they can conserve at home.

6. **Water Wandering** – A collaborative classroom visitation program between CBMWD and SEA Lab in Redondo Beach, a program of the Los Angeles Conservation Corps. This collaborative hands-on classroom program provides Grades 4 and 5 students on a journey through California’s water. The program allows students learn to appreciate California’s water as a scarce, valuable resource.

7. **Waterlogged** – A collaborative high school visitation program between CBMWD and Roundhouse Marine Studies Lab and Aquarium, an oceanographic teaching station. The program provides hands-on activities for students to learn more about the scientific method taught, habitats, and inhabitants of the Pacific Ocean, and the overall effect of unintended human impacts on the aquatic/marine environment.

A list of schools in the City’s service area that participated in CBMWD’s school education program is provided on Table 9. More information about CBMWD’s school education programs is provided in its 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

The City's water system is comprised mainly of residential customers. The City's commercial and industrial accounts comprise 781 accounts and 25 accounts, respectively, which is less than 10 percent of all the City's service connections. The City's commercial and industrial customers are encouraged to participate in conservation programs for commercial, industrial and institutional (CII) accounts offered by CBMWD. Central Basin's program started in 2002. CBMWD offers the following CII rebates, as indicated on its website:

- High-efficiency toilets
- Ultra low and zero water urinals
- Large rotary nozzles
- Weather-based and central computer
- Irrigation controllers
- Rotating nozzles for pop-up spray heads
- Water brooms.

Table 10 shows participation in CBMWD's program by CII customers in the City's service area. Additional information on CBMWD's CII program can be found in its 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

5.1.9 CONSERVATION PRICING [SECTION 10631 (F)(1)(K)]

The City may incorporate conservation pricing during emergencies by implementing an increasing rate structure during emergency drought situations for all

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customers sectors. During a Phase 4 emergency, City customers may have to pay up to 316 percent of the normal rate if that customer uses over 100 percent of its base year usage.

The City's water supply sources include both groundwater and recycled water. However, only some of the City's customers have the option of receiving recycled water. The City charges \$2.056 per CCF for potable water and \$1.643 per CCF for recycled water. City customers who are offered the option to use recycled water can choose to use recycled water for a fraction of the price of potable water, which promotes water conservation by decreasing the demand for potable water supplies.

The City provides sewer service to customers in its service area. The sewer user fee rates for residential and commercial/industrial users are set annually by City resolution. The current sewer user fee rates for fiscal year 2010-11 are as follows (see Appendix L):

- **Residential User** – \$0.395 for each unit of water, with a fee cap of \$119.08 per year.
- **Multi-Residential User** – \$0.395 for each unit of water, with a fee cap of \$71.45 per dwelling unit per year.
- **Commercial/Industrial User** – \$0.522 for each unit of water, with no maximum fee cap.
- **Qualifying Senior Citizen User** – \$0.214 for each unit of water, with a fee cap of \$119.08 per year.
- **Residential/Multi-Residential User in Private Developments with Private Sewer Mains** – \$0.214 for each unit of water, with a fee cap of \$119.08 per year.

At the present time, the City's sewer rates do not incorporate conservation pricing within the rate structure. However, City may incorporate conservation pricing in its sewer rate structure in the future when the need arises.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

5.1.10 WATER CONSERVATION COORDINATOR [SECTION 10631 (F)(1)(L)]

The City does not employ a water conservation coordinator. However, CBMWD's water conservation coordinator promotes conservation programs that are available to the residents of the City. CBMWD's program started in 2003. The conservation coordinator employed by CBMWD promotes CBMWD's water conservation programs and works directly with cities and water agencies like the City on enhancing water conservation efforts. In addition, CBMWD's water conservation coordinator does research on water management practices and looks for federal, state and local funding programs that CBMWD, cities or retail water purveyors may utilize. Additional information about CBMWD's water conservation coordinator is provided in its 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

5.1.11 WATER WASTE PROHIBITION [SECTION 10631 (F)(1)(M)]

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

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

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

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

The City's residential Ultra-Low-Flush (ULFT) toilet replacement program is implemented through CBMWD's program. CBMWD's ULFT distribution program started in 1991. CBMWD's ULFT Rebate Program offers residences within its service area a rebate to encourage the purchase of ULFTs in an effort to replace older, less-efficient toilets. More information about CBMWD's ULFT replacement programs is available in CBMWD's 2010 Plan, which is incorporated by reference.

No evaluation of the effectiveness of this DMM has been performed, and no estimate of water savings has been made.

5.2 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

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incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

- (1) Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.*
- (2) Include a cost-benefit analysis, identifying total benefits and total costs.*
- (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.*
- (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.*

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

The City does not currently implement a water survey program for single-family residential and multi-family residential customers because it is not economically viable. It is estimated that the cost of hiring an employee to conduct water surveys for the City's customers would be about \$70,000 per year, including salary and benefits. The City currently has 10,439 single-family residential and multi-family residential service connections within its distribution system. The City estimates it would take about four hours a day per customer to complete a water survey, including driving to a location, on-site work, and writing a report. On average, an employee could perform two water surveys a day, or about 400 surveys per year. At that rate it would require about 26 employees to survey all customers in a year. Using the City's current water rate of \$2.056 per CCF, the City would need to save about 80 acre-feet for those 400 customers (about 0.2 acre-foot per customer) above other DMMs described above, to make hiring a new staff member viable. Assuming an average City customer uses about 0.75 acre-foot per year (normal year demand of about 8,500 acre-feet divided by 11,328 total service connections), then a reduction of 0.2 acre-foot is equivalent to a reduction of 27 percent which would be difficult to achieve. Although implementation of water survey programs is an important part of water conservation measures, it is not economically feasible at the present time.

The City was not able to perform an evaluation of this DMM in terms of funding available and legal authority.

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

The City is a retail water supplier, therefore wholesale agency programs are not applicable to the City. However, as a member of CBMWD, the City participates in CBMWD's wholesale agency programs. CBMWD's 2010 Plan is incorporated by reference.

Chapter 6

WATER SUPPLY OPPORTUNITIES

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

The City relies on Upper District, a wholesale agency, for purchase of untreated imported water to recharge the Main Basin, in an amount equal to the City's groundwater production is in excess of its proportional share of the Operating Safe Yield. The City notified Upper District of the development of its 2010 Plan update and made a copy of its draft 2010 Plan available to Upper District.

6.2 FUTURE WATER SUPPLY 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.*

The City pumps groundwater from both the Main Basin and Central Basin and utilizes recycled water within its water system. The City has adequate groundwater

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supply sources due to the management structures of the groundwater basins, as described in Chapter 3. Currently, the City does not have plans for additional future water supply projects. Future recycled water projects are discussed in Chapter 8.

Moreover, the City operates the WNOU-GTP built by the EPA that treats groundwater from three EPA extraction wells located in the Main Basin (Wells EW4-5, EW4-6, and EW4-7). As part of the agreement with EPA, the City accepts treated water from the WNOU-GTP in lieu of producing the same quantity of water from City-owned wells in the Main Basin. The City's agreement is for an annual average of about 5,500 gpm (actual capacity of 6,000 gpm; assuming 10 percent down time) of treated water from the WNOU-GTP. Although receiving water from the WNOU-GTP does not increase the City's water supplies, this agreement provides the City with added reliability of its water supply.

6.3 DESALINATED WATER

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.

6.3.1 MAIN SAN GABRIEL 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 the City's Main Basin Wells is below its secondary MCL, based on 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, the City does not need to investigate the use of desalination to develop or reestablish a new long-term supply. However, there may be opportunities for use of desalinated

ocean water as a potential water supply source in the future, if needed, through coordination with other agencies that have ocean desalination programs.

6.3.2 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). The City's 2009 Annual Water Quality Report indicates TDS in its groundwater sources ranges from 460 mg/l to 590 mg/l. 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.

Chapter 7

URBAN WATER SHORTAGE CONTINGENCY ANALYSIS

Section 10632

The Plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

- (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.*
- (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.*
- (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.*
- (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.*
- (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.*
- (f) Penalties or charges for excessive use, where applicable.*
- (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.*
- (h) A draft water shortage contingency resolution or ordinance.*
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

7.1 STAGES OF ACTION

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.

The City has prepared a draft "Four Stage Rationing Plan" to implement during declared water shortages. This suggested rationing plan includes voluntary and mandatory rationing, which depends on the causes, severity, and anticipated duration of the water supply shortage, as presented on Table 11. The following provides a

description of the stages of action the City may implement during a declared water shortage.

- **Stage I Shortage – Voluntary Rationing Programs.** The City’s customers may adjust either interior or outdoor water use (or both), in order to meet voluntary water reduction goals.

- **Stage II and Stage III Shortages – Mandatory Rationing Programs.** The City may establish a recommended Health and Safety allotment of 68 gallons per capita per day (gpcd) for Stage II and 60 gpcd for Stage III. This amount of water is sufficient for essential interior water use with no or little water use habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 68 gpcd is sufficient to provide for limited non-essential (i.e. outdoor) uses.

- **Stage IV Shortage – Mandatory Rationing Program.** The City’s Health and Safety allotment will be reduced to 50 gpcd. This would require customers to make changes in their interior water use habits (for instance, not flushing the toilets unless “necessary” or taking less frequent showers). This is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster.

7.1.1 PRIORITY BY USE

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

- Minimum Health and Safety allocations for the interior residential needs (includes single-family, multi-family, hospitals and convalescent facilities,

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retirement and mobile home communities, student housing, fire fighting and public safety)

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

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

7.1.2 HEALTH AND SAFETY REQUIREMENTS

Table 12 indicates the per capita Health and Safety water requirements based on commonly accepted estimates of interior residential water use within the United States. In a **Stage I Shortage**, customers may adjust either interior or outdoor water use (or both) in order to meet the voluntary water reduction goal. However, under **Stage II, Stage III and Stage IV** mandatory rationing programs, the City has established a Health and Safety allotment of 68 gpcd. Under this Health and Safety allotment, customers will have sufficient essential interior water without water use habit changes or having to retrofit plumbing fixtures. If a customer chooses to change his/her water use habits or retrofit plumbing fixtures, 68 gpcd would be sufficient to provide limited non-essential (i.e. outdoor) uses. **Stage IV Shortage** mandatory rationing would require customers to make changes in their water use habits (for instance, not flushing the toilets unless “necessary” or taking less frequent showers).

7.2 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.

Table 13 presents an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historical sequence for the City's water supply. The information provided on Table 13 is based on the assumption of the City's available water supply during the driest three-year historical sequence, which was 2006-07 through 2008-09, with the normal year being 2005-06. During the driest three-year historical sequence of 2006-07 through 2008-09, the City had adequate water supply to meet its demands, as shown on Table 5. It is anticipated the City will be able to provide adequate water to its customers in the next three-year period.

7.3 CATASTROPHIC SUPPLY INTERRUPTION

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.

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

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

7.4 MANDATORY PROHIBITIONS, PENALTIES AND CHARGES

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

As indicated in Chapter 5 above, within Chapter 13.24.010 of Title 13 of the City of Whittier's Municipal Code are water restrictions during an emergency. The City's Municipal Code allows the City to restrict the use of water for sprinkling, wetting, irrigation or construction purposes during a water emergency, which would be equivalent to Stage IV (see Table 15):

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

The City currently does not impose any penalties or charges for excessive water use.

7.5 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.

The City must provide the minimum Health and Safety water needs (Chapter 7.1.2) to its customers at all times. The City's water shortage response is designed to provide a minimum of 50 percent of the "normal" water supply during a severe or extended water shortage. The rationing program triggering levels are designed to ensure this goal is met and are shown on Table 14. Rationing stages may be triggered by a shortage in one water source or a combination of sources. If more than one Stage is triggered due to shortage from a combination of sources, the more restrictive Stage is implemented. The consumption reduction methods are shown on Table 16.

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

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

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

7.6 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.

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

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

Stage I – no rate increase

Stage II – 25 percent increase over pre-shortage rates

Stage III – 50 percent increase over pre-shortage rates

Stage IV – 100 percent increase over pre-shortage rates

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

7.7 DRAFT WATER SHORTAGE CONTINGENCY RESOLUTION OR ORDINANCE

Section 10632

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

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

7.8 MECHANISMS FOR DETERMINING REDUCTIONS IN WATER USE

Section 10632

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

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

During **Stage I** and **Stage II** water shortage, daily production quantities would be reported to the Production Supervisor, who will compare the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports

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will be forwarded to the City Engineer, Public Works Director, and City Manager's Office. In addition, monthly reports would be sent to the City Council. If reduction goals are not met, the Director of Public Works would notify the City Council, so that appropriate actions could be taken.

During **Stage III** and **Stage IV** water shortage, the procedure listed above would be followed, with the addition of a daily production report to the City Engineer.

Chapter 8 RECYCLED WATER

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 shall include all of the following:

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*
- (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.*
- (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15 and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*
- (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.*
- (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.*

8.1 BACKGROUND

Reclamation of wastewater in the Main Basin has been extensively reviewed in both local and regional studies. In 1976, SGVMWD and Upper District completed a study entitled "Potential Use of Reclaimed Water for Groundwater Replenishment in the Main Basin." This study was updated at the request of Main Basin Watermaster in 1980 and again in 1987. In 1979, MWD completed a cooperative study and others entitled, "Orange and Los Angeles Counties Water Reuse Study." This study along with others, concluded water reuse could be feasible; however, the cost of utilizing recycled water

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varies widely with the quantity to be used and the distance required to transport the water from the treatment plant to the point of use.

CBMWD has historically made an effort to utilize recycled water to supplement the use of local water resources and to reduce the need for imported water. Since 1992, CBMWD has been involved with two main recycled water projects: the E. Thorton Ibbetson Century Water Recycling Project (Ibbetson Century Project) which began in 1992, and the Esteban Torres Rio Hondo Water Recycling Project (Torres Project) which began in 1994. The Torres Project serves the Cities of Bellflower, Bell Gardens, Commerce, Huntington Park, Montebello, Pico Rivera, Santa Fe Springs and Whittier. The Torres Project could benefit the City if it results in recycled water being used in place of potable water.

CBMWD is proceeding with the Southeast Water Reliability Project (SWRP), in an effort to reduce reliance on imported water and conserve regional groundwater. The SWRP will reduce current regional demand on imported water by 25 percent through delivery of more than 5 billion gallons of recycled water annually to the many large industrial and irrigation sites in the area. A 15-mile long pipeline will be constructed that extends from Pico Rivera through Montebello and southeast Los Angeles County, connecting to the existing system in Vernon. Besides providing regional water-saving benefits, the SWRP will enhance the operational reliability of the current system by completing an actual “loop” of existing pipelines. Construction of SWRP is divided into two phases, with Phase 1 extending from Pico Rivera to Bicknell Park in Montebello. Construction of Phase 1 began in early 2010. Information on Phase II is not yet available.

As a local water purveyor, the City delivers water to its customers from both its groundwater and recycled water supplies. The City currently has seven recycled water service connections within its water system. Table 8 summarizes past and projected recycled water use within the City from fiscal year 1994-95 to fiscal year 2029-30. The

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following sections provide a description of the City's current recycled water use and its plans to expand the use of recycled water as a source of water supply over the next 20 years.

8.2 WASTEWATER COLLECTION AND TREATMENT SYSTEMS

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.*

Wastewater from the City's service area is collected and treated in the CSDLAC's Los Coyotes Water Reclamation Plant (LCWRP) and Long Beach Water Reclamation Plant (LBWRP). The LCWRP and LBWRP also receive wastewater from other cities served by CSDLAC.

The LCWRP, which began operation in 1970, is located in Cerritos, California and has a current design capacity of 37.5 million gallons per day (MGD). The LCWRP plant serves a population of approximately 370,000 people. The LCWRP produced an average of 27.13 MGD (30,405 acre-feet per year) of coagulated, filtered, disinfected tertiary recycled water during fiscal year 2008-09. The volume of wastewater collected and treated is shown on Table 17. An average of 5.634 MGD (6,313 acre-feet per year), or 20.8 percent of the recycled water produced during fiscal year 2008-09 at the LCWRP was re-used, with the majority of the re-use for landscape irrigation. 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 Table 18).

The LBWRP, which began operation in 1973, is located in Long Beach, California and has a current design capacity of 25 MGD. The LBWRP plant serves a population of approximately 250,000 people. The LBWRP produced 18.04 MGD (20,211 acre-feet per year) of coagulated, filtered, disinfected tertiary recycled water in fiscal year 2008-

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09. The volume of wastewater collected and treated is shown on Table 17. An average of 5.771 MGD (6,467 acre-feet per year), or 32 percent of the recycled water produced during fiscal year 2008-09 at the LBWRP was re-used, with the majority of re-use for landscape irrigation and seawater intrusion barrier. The method of disposal when treated recycled water is not used (non-recycled) is discharge to Coyote Creek, a tributary of the San Gabriel River that flows to the ocean (see Table 18).

There is one water reclamation plant located in the City's service area, i.e., the SJCWRP that receives wastewater from other cities served by CSDLAC. The CSDLAC operates the SJCWRP. 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 population of approximately 1 million people, largely a residential population. The SJCWRP produced 71.05 MGD (79,615 acre-feet per year) of coagulated, filtered, disinfected tertiary recycled water in fiscal year 2008-09. The volume of wastewater collected and treated is shown on Table 17. An average of 26.23 MGD (29,392 acre-feet per year), 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 Table 18).

8.3 CURRENT AND PROJECTED USES OF RECYCLED WATER

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*
- (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*

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Recycled water use within the City of Whittier began in 1994 when CBMWD extended its recycled water system into the northern portion of CBMWD's service area. Recycled water delivered to the City of Whittier is part of the Torres Project, which delivers recycled water from the SJCWRP. The City has seven recycled water connections within its service area to deliver recycled water to its customers. Recycled water use within the City's service area is primarily for irrigation along the California Department of Transportation freeways and highways, in the City of Whittier parks (Founders Park [two connections] and Palm Park) and in schools (Dexter School, Orange Grove School, and Longfellow School). Current and projected recycled water demand within the City's service area is shown on Table 8. Projected recycled water use was estimated at a constant 90 acre-feet because historically, records show sporadic use trends, and the average use of recycled water from fiscal years 1995-96 through 2009-10 is approximately 90 acre-feet per year.

A comparison of the 2005 Plan projections with the actual 2005 use of recycled water is shown on Table 19.

8.4 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.

As a local retail water company, the City offers its customers with non-potable water demands the option of both potable and recycled water. These customers have the option to receive recycled water in lieu of potable water to use for irrigation. The City's potable water supply comes from wells located in the Main Basin and Central Basin. The City's recycled water supply is part of Central Basin's Torres Project and comes from SJCWRP. The City offers a commodity rate schedule in which customers are charged \$2.056 per CCF for potable water and \$1.643 per CCF for recycled water.

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This commodity rate schedule encourages customers with non-potable water demands to use recycled water.

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

The financial incentives discussed above (lower cost of recycled water compared to potable water, and financial assistance from CBMWD) have not resulted in significant increases in recycled water use. Based on past recycled water use, the City projected a constant recycled water use quantity over the next 20 years as shown on Table 8.

8.5 POTENTIAL RECYLED WATER USERS AND PLANS FOR OPTIMIZING RECYCLED WATER USE

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.*
- (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.*

In 2000, CBMWD 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. As indicated in Chapter 8.3 above, the City has seven recycled water connections within its service area to deliver recycled water to its customers. Recycled water use within the City's service area is primarily for irrigation

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along the California Department of Transportation freeways and highways, in the City of Whittier parks and in schools. Projected recycled water use within the City's service area is shown on Table 8.

The City's recycled water is provided by CBMWD. The City does not have a recycled water program but CBMWD's recycled water program is available to customers of the City. Additional details on CBMWD's recycled water program are available in CBMWD's 2010 Plan which is incorporated by reference.

Upper District is investigating the possibility of a recycled water project for groundwater replenishment of the Main Basin.

Chapter 9 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.

9.1 WATER QUALITY IN MAIN SAN GABRIEL BASIN

In the early 1980s, widespread contamination by VOCs associated with past industry practices was discovered in the Main Basin. In the late 1990s, groundwater contaminated with VOCs at concentrations below the MCL was found to have reached the City's production wells at its Whittier Narrows wellfield. The City's Whittier Narrows wellfield is located near the estimated leading edge of the contaminated groundwater plume of the WNOU. As part of the WNOU, EPA constructed the WNOU-GTP to treat contaminated groundwater from several extraction wells located in the vicinity of the City's Whittier Narrows wellfield. The WNOU-GTP consists of one dedicated granular-activated carbon treatment system to treat four shallow zone extraction wells (EW4-3, EW4-4, EW4-8, and EW4-9) and another dedicated granular-activated carbon treatment system to treat three intermediate zone extraction wells (EW4-5, EW4-6, and EW4-7).

In 2004, the City and EPA entered into an agreement for operation of the WNOU-GTP. Treated water from the shallow zone extraction wells is discharged to Legg Lake which percolates back into the groundwater basin. Treated water from the intermediate zone extraction wells is chlorinated and piped to the City's transmission for potable water supply. The City has an agreement to receive an annual average of about 5,500 gpm of treated water from the WNOU-GTP for potable use, in lieu of producing the same quantity of water from City-owned wells in the Main Basin. The City began receiving treated water from the WNOU-GTP in December 2005.

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The City owns and operates Wells No. 13, No. 15, No. 16, 17, and No. 18 in the Main Basin, as required to supplement the treated water from the WNOU-GTP. Groundwater from Wells No. 13 and No. 16 meets all CDPH standards for drinking water. Wells No. 15, No. 17, and No. 18 have a CDPH-approved blending plan for VOCs. Well No. 17 is currently out of service due to a physical problem. The WNOU-GTP together with the City's wells will provide a reliable water source for the City for the next 20 years.

9.2 WATER QUALITY IN CENTRAL BASIN

As indicated above, in the early 1980s, contaminants were detected in the Main Basin groundwater supply. Based on the contamination level, the EPA declared the area as a superfund site. The contaminant plume continued to travel south, passing through the Whittier Narrows into the Central Basin area and toward the Montebello Forebay, threatening the local groundwater supplies. A \$10-million project, federally funded by the United States Bureau of Reclamation, was constructed to prevent the contaminant plume from the Main Basin from spreading into the Central Basin's local groundwater supply. As part of the project, two wells were constructed in northern Pico Rivera that pump contaminated water to a treatment plant in the City of Whittier. The contaminated water is treated using a granular-activated carbon treatment system. In October 2004, CBMWD received its domestic drinking water permit from CDPH to distribute the water for potable use. The water was integrated back into the drinking water system beginning in December.

The City currently has two active wells, Wells No. 8 and No. 14, in the Central Basin. Well No. 8 has a CDPH-approved blending plan for manganese. Well No. 14 meets all CDPH standards for drinking water. The water supply from these wells will provide a reliable source of water for the City for the next 20 years.

**Chapter 10
WATER SUPPLY RELIABILITY**

10.1 SB 7 REQUIRED WATER USE PARAMETERS

Section 10608.20 (a)

- (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.*
- (2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.*

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.

Methodologies for calculating baseline and compliance 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.⁹ DWR's guidance document was used by the City to determine the required water use parameters which are discussed below.

10.1.1 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):

⁹ 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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- *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.*

The City's recycled water use is less than 10 percent of its 2007-08 retail water delivery. (Note: The City's water use data are reported on a fiscal year basis. Therefore, fiscal year 2007-08 data are used instead of calendar year 2008, as stated in the CWC.) Consequently, the first baseline period will consist of a continuous 10-year period that can be selected between 1995-96 and 2008-09.

- *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 2003-04 and 2008-09.

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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.

The 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.

The calculated gross water use, based on recorded groundwater use and excluding recycled water use, for each year in the baseline period is shown on Table 20.

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,

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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.

The City's service area population for each year in the baseline period was calculated using DOF data (see Table 20).

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 20.

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 20, with the highest value of 179 GPCD.

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The Baseline Daily Per Capita Water Use for the City was determined to be **179 GPCD**, based on the highest value calculated for a continuous 10-year period (first baseline period) between 1995-96 and 2008-09 (see Table 20).

10.1.2 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 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.*

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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 the City was calculated as **143 GPCD**, based on the City's Baseline Per Capita Daily Water Use of 179 GPCD.

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

Due to insufficient data, this method was not considered.

Method 3: Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's 20x2020 Water Conservation Plan.¹⁰

Based on the 20x2020 Water Conservation Plan, the City'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 the City was calculated as **142 GPCD**.

Method 4: Water Savings.

Due to insufficient data, this method was not considered.

¹⁰ 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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The City's Urban Water Use Target was determined to be **143 GPCD** for 2020, based on Method 1 above.

10.1.3 INTERIM URBAN WATER USE TARGET

Based on the City's Baseline Daily Per Capita Water Use of 179 GPCD and Urban Water Use Target of 143 GPCD, the City's Interim Urban Water Use Target for 2015 was calculated as **161 GPCD** (as determined in Section 10.1.5 below).

10.1.4 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 the City's 2015 Plan (interim compliance) and 2020 Plan (final compliance).

10.1.5 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:

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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 **160 GPCD** (see Table 20).

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.

This value was calculated as **152 GPCD**. The City's 2020 Urban Water Use Target was determined using Method 1 above to be 143 GPCD, which is lower than the value calculated in this step. Therefore, no adjustment is needed for the City's 2020 Urban Water Use Target of 143 GPCD.

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.

The City's 2015 Interim Urban Water Use Target is therefore set at **161 GPCD**, which is equivalent to a 10 percent reduction in a gross-based per capita by 2015.

Therefore, the City's 2015 Interim Urban Water Use Target of 161 GPCD and 2020 Urban Water Use Target of 143 GPCD meet the legislation's minimum water use reduction requirement per CWC Section 10608.22.

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10.1.6 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.

The City 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.

10.2 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.

10608.26

Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts.

The City is not an urban wholesale water supplier. Therefore, the requirement for an urban wholesale water supplier to provide an assessment of its present and proposed future measures, programs, and policies to help achieve the water use reductions required by the Water Conservation Bill of 2009 is not applicable to the City.

As an urban retail water supplier, the City will be investigating a tiered commodity water rate structure, if necessary, to assist the City in implementing its water use reduction plan and to address the requirements of the Water Conservation Bill of 2009. The City will encourage its customers to participate in water conservation programs offered by CBMWD (see Chapter 5, DMMs).

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As a result of this requirement, there will be an economic impact from the water use reduction plan, which includes lost revenues and increased expenses for the City in promoting water conservation.

The public hearing conducted by the City to discuss the draft Plan will include discussions of the City's urban water use targets, the need for water conservation to meet those targets, and consideration of economic impacts (see notice of public hearing in Appendix I).

10.3 ASSESSMENT OF THE RELIABILITY OF WATER SUPPLY

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 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 Section 10.1, the City applied Senate Bill No. 7 to estimate the City's 2015 Interim Urban Water Use Target of 161 GPCD and the City's 2020 Urban Water Use Target of 143 GPCD. These Urban Water Use Targets were then applied to estimate the City's projected normal year demands in 2015, 2020, 2025 and 2030, as shown in Table 8. The City's projected normal year supplies in 2015, 2020, 2025, and 2030 were based on the corresponding projected normal year demands, as shown on Table 5. The City will continue to use groundwater and recycled water as its future water supplies over the next 20 years. The following sections discuss the City's water service reliability assessment, which compares the City's supply and demand over the next 20 years during normal, dry and multiple dry years.

10.3.1 NORMAL WATER YEAR

As previously discussed, the City's projected normal water year demand over the next 20 years in five-year increments was based on the City's 2015 and 2020 Urban Water Use Targets of 161 GPCD and 143 GPCD, respectively. The City's projected supply was based on the projected demand, as shown on Table 5. The comparison of the City's projected supply and demand during a normal water year is shown on Table 21. As shown on Table 21, the City's supply can meet demands during a normal water year for the next 20 years.

10.3.2 SINGLE-DRY YEAR

As shown on Table 6, the City experienced a single-dry year during fiscal year 2006-07 and a normal water year during fiscal year 2005-06. The ratio between the normal water year and single-dry year was estimated for the City's supply and demand, as shown on Table 6. This ratio and the projected supply and demand during a normal water year from Table 21 was used to estimate the City's projected supply and demand during a single-dry year over the next 20 years in five-year increments. The comparison of the City's projected supply and demand during a single-dry year is shown on Table 22. As shown on Table 22, the City's supply can meet demands during a single-dry year for the next 20 years.

10.3.3 MULTIPLE DRY YEARS

As shown on Table 6, the City experienced multiple dry years during fiscal years 2006-07, 2007-08 and 2008-09. The ratio between the normal water year in 2005-06 and multiple dry years were estimated for the City's supply and demand, as shown on Table 6. This ratio and the projected supply and demand during a normal water year from Table 21 was used to estimate the City's projected supply and demand during multiple dry years over the next 20 years in five-year increments. The comparison of

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the City's projected supply and demand during multiple dry years is shown on Table 23. As shown on Table 23, the City's supply can meet demands during multiple dry years for the next 20 years.

10.3.4 GROUNDWATER RELIABILITY

The City obtains its water supply from groundwater wells located in the Main Basin and Central Basin, and from recycled water. Chapter 3 provides a description of the management of water resources in the Main Basin and Central Basin, as well as information on basin management. Chapter 3 also demonstrates the management structure of the Main Basin and Central Basin provides a reliable source of groundwater supply for the City 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 the planned use of recycled water for groundwater replenishment. Therefore, the groundwater supply in the Main Basin and Central Basin is deemed reliable.

10.4 RELIABILITY INFORMATION

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.

The City will provide a copy of the 2010 Plan to the following cities and counties no later than 60 days after submission of the 2010 Plan to DWR:

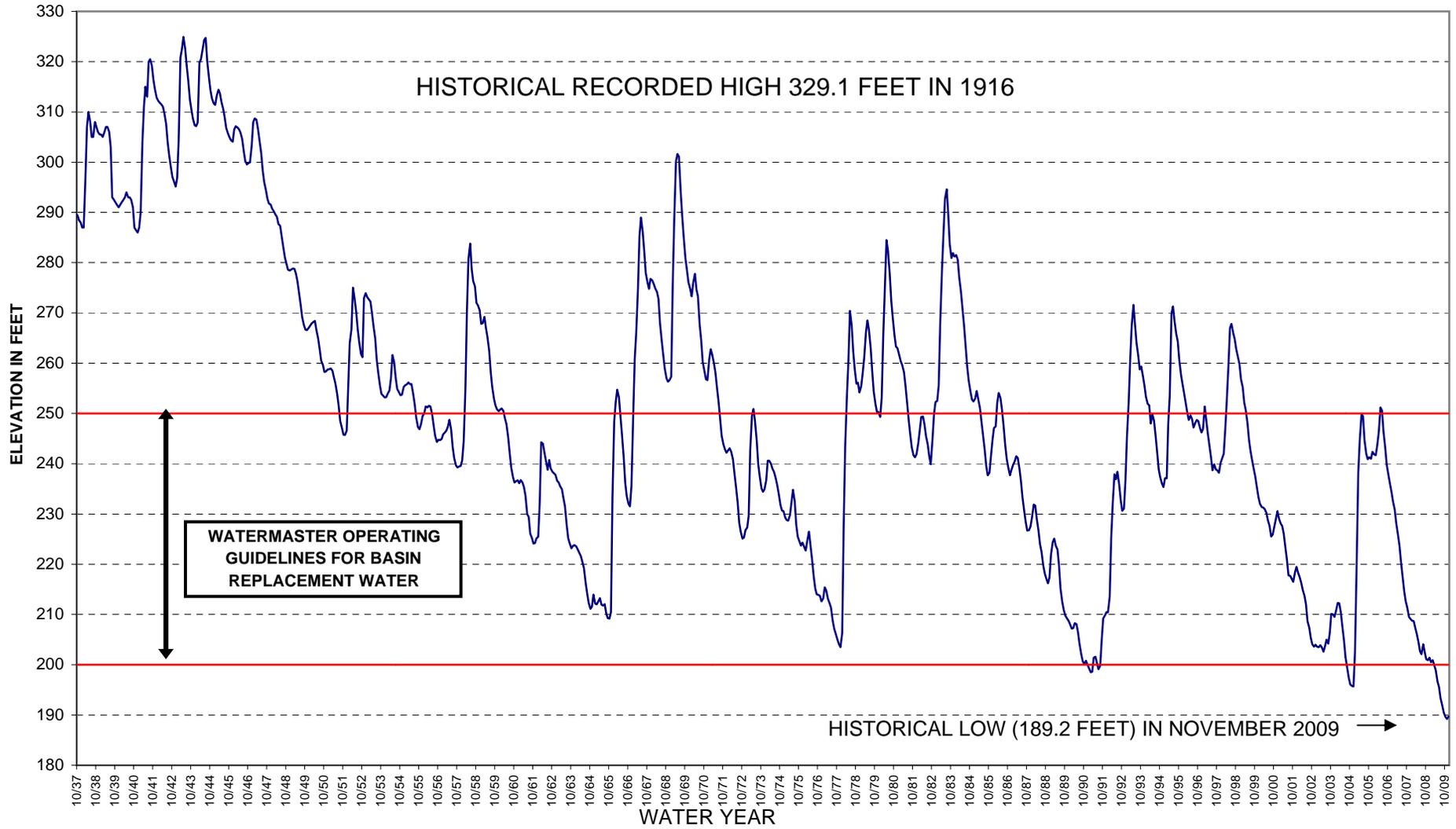
1. City of Whittier City Clerk
2. County of Los Angeles.

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A copy of the letter transmitting the 2010 Plan to the City of Whittier City Clerk and the County of Los Angeles will be maintained in the City's file to document compliance with this requirement.

J:\Jobs\2145\2010 Update\Whittier 2010 UWMP_Final.doc

FIGURES



STETSON ENGINEERS INC.

Covina, California

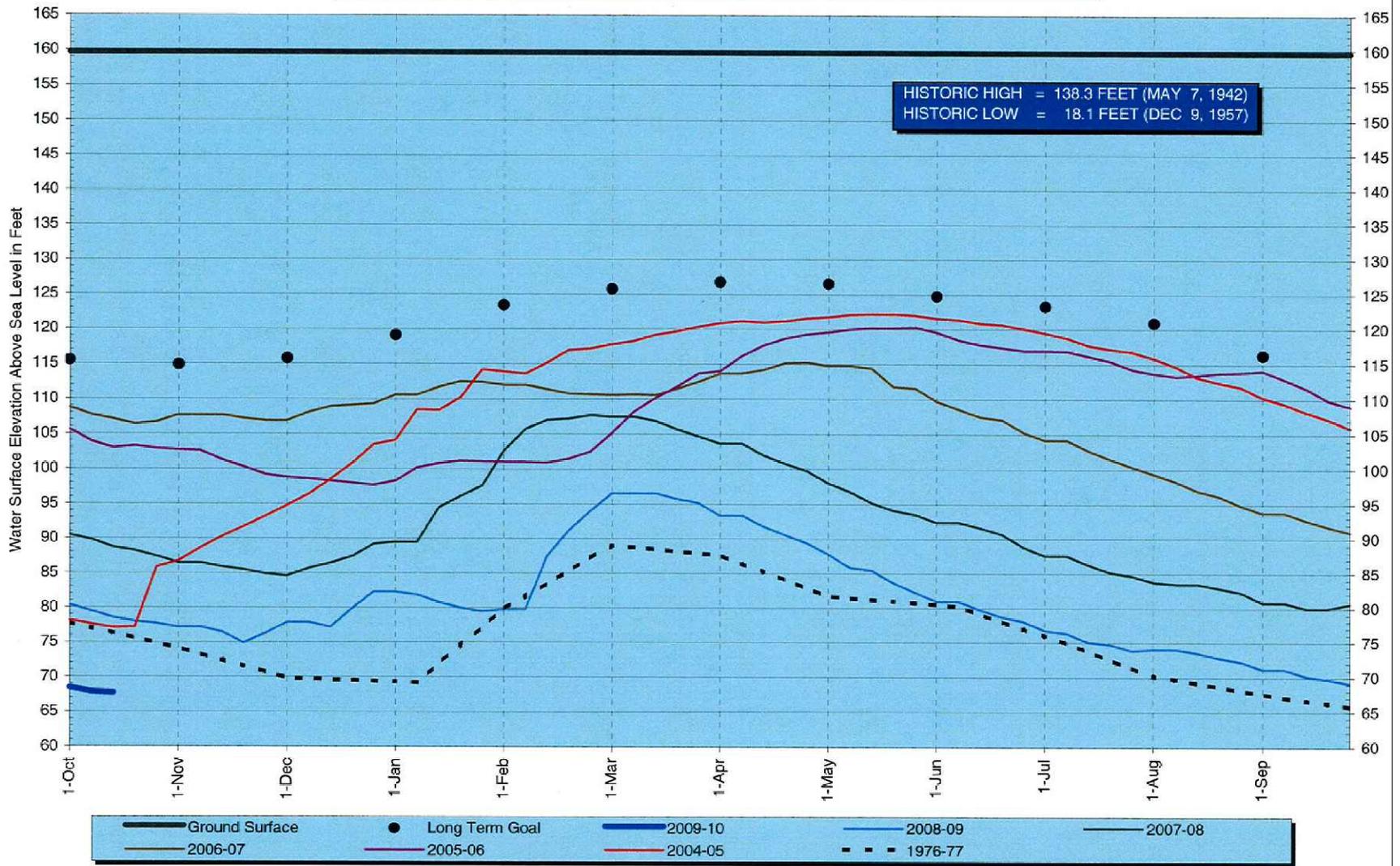
WATER RESOURCE ENGINEERS

CITY OF WHITTIER

HISTORICAL BALDWIN PARK KEY WELL ELEVATION

FIGURE 1

MONTEBELLO FOREBAY WELL 1601T GROUNDWATER SURFACE ELEVATION



Source : Water Replenishment District of Southern California



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

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

2651 W Guadalupe Rd., Suite A209
Mesa Arizona 85202

CITY OF WHITTIER

HISTORICAL CENTRAL BASIN GROUNDWATER LEVELS

TABLES

**TABLE 1
COORDINATION WITH APPROPRIATE AGENCIES**

Agencies	Participated in Developing the Plan	Commented on the Draft	Attended Public Meetings	Was Contacted for Assistance	Was Sent a Copy of the Draft Plan	Was Sent a Notice of Intent to Adopt	Not Involved/ No Information
1. City of Whittier City Clerk	x	x	x	x	x	x	
2. Central Basin Municipal Water District				x			
3. County of Los Angeles						x	
4. Main San Gabriel Basin Watermaster				x			
5. Upper San Gabriel Valley Municipal Water District				x			

**TABLE 2
CURRENT AND PROJECTED POPULATION**

Year	Population of the City of Whittier ⁽¹⁾	Population of the City's Service Area ⁽²⁾	Percent Average Annual Increase of the Population of the City's Service Area
2010	87,700	48,200	--
2015	89,000	49,000	0.3
2020	90,000	49,500	0.2
2025	90,900	50,000	0.2
2030	91,900	50,500	0.2

⁽¹⁾ Data from Southern California Association of Governments (SCAG)

⁽²⁾ The City of Whittier Water Utility Authority serves approximately 55 percent of the residents of the City of Whittier.

**TABLE 3
ANNUAL RAINFALL IN THE SAN GABRIEL VALLEY
FROM 1958-59 THROUGH 2008-09***

<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
TOTAL	907.8
51-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 4
CLIMATE**

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>Annual</u>
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 Los Angeles 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 5
WATER SUPPLIES – PAST, CURRENT AND PROJECTED
(ACRE-FEET)

Fiscal Year	Supply					
	Groundwater				Recycled Water	Total
	Main Basin	Central Basin	Main Basin and Central Basin Subtotal	Percent of Total Supply		
1995-96	7,928	873	8,801	98.9	94	8,895
1996-97	8,512	901	9,413	98.8	114	9,527
1997-98	9,044	1,044	10,088	99.2	82	10,170
1998-99	8,702	739	9,441	98.9	102	9,544
1999-00	8,952	896	9,848	98.6	136	9,984
2000-01	8,107	893	9,000	99.7	28	9,028
2001-02	8,116	979	9,095	99.2	77	9,172
2002-03	7,411	1,242	8,652	99.1	82	8,735
2003-04	8,021	1,213	9,234	98.9	98	9,333
2004-05	7,564	972	8,536	99.2	66	8,602
2005-06	7,741	658	8,399	99.3	61	8,460
2006-07	7,909	778	8,687	98.7	116	8,803
2007-08	7,060	841	7,901	98.7	108	8,009
2008-09	8,064	893	8,957	99.0	87	9,044
2009-10	6,482	897	7,379	99.1	69	7,448
2014-15 ⁽¹⁾	7,922	915	8,837	99.0	90	8,927
2019-20 ⁽¹⁾	7,108	821	7,929	98.9	90	8,019
2024-25 ⁽¹⁾	7,180	830	8,010	98.9	90	8,100
2029-30 ⁽¹⁾	7,252	838	8,090	98.9	90	8,180

⁽¹⁾ See Table 7 for Main Basin and Central Basin Subtotal; projected Main Basin and Central Basin supply based on average historical supply for the basins, which are follows:

Main Basin:	89.6
Central Basin:	10.4
TOTAL:	100.0

TABLE 6
SUPPLY RELIABILITY – HISTORICAL CONDITIONS
 (ACRE-FEET)

	Average/ Normal Water Year (2005-06)	Single Dry Water Year (2006-07)	Multiple Dry Water Years		
			Year 1 (2006-07)	Year 2 (2007-08)	Year 3 (2008-09)
Supply ⁽¹⁾	8,460	8,803	8,803	8,009	9,044
Percent of Normal Year Supply	--	104	104	95	107
Demand ⁽²⁾	8,460	8,803	8,803	8,009	9,044
Percent of Normal Year Demand	--	104	104	95	107

⁽¹⁾ See Table 5

⁽²⁾ See Table 7

TABLE 7
CALCULATION OF PROJECTED WATER DEMAND
(ACRE-FEET)

Fiscal Year	Projected Population (¹)	Urban Water Use Target (GPCD) (²)	Projected Water Demand (³)
2014-15	49,000	161	8,837
2019-20	49,500	143	7,929
2024-25	50,000	143	8,010
2029-30	50,500	143	8,090

⁽¹⁾ See Table 2

⁽²⁾ See Chapter 10 for urban water use target

⁽³⁾ (Projected population) x (Urban Water Use Target)

GPCD = gallons per capita per day

TABLE 8
WATER DEMANDS – PAST, CURRENT AND PROJECTED
(ACRE-FEET)

Fiscal Year	Groundwater			Recycled Water			TOTAL DEMAND
	Demand (1)	Sales	Unaccounted Use (2)	Demand (1)	Sales	Unaccounted Use (2)	
1995-96	8,801	8,016	785	94	94	0	8,895
1996-97	9,413	9,063	350	114	110	4	9,527
1997-98	10,088	9,532	556	82	82	0	10,170
1998-99	9,441	9,309	132	102	94	8	9,544
1999-00	9,848	9,355	493	136	136	0	9,984
2000-01	9,000	8,395	605	28	28	0	9,028
2001-02	9,095	8,326	770	77	75	1	9,172
2002-03	8,652	8,398	255	82	82	0	8,735
2003-04	9,234	8,452	782	98	98	1	9,333
2004-05	8,536	8,126	409	66	66	0	8,602
2005-06	8,399	8,010	389	61	61	0	8,460
2006-07	8,687	8,522	165	116	102	14	8,803
2007-08	7,901	7,901	0	108	108	0	8,009
2008-09	8,957	7,717	1,240	87	87	0	9,044
2009-10 ⁽³⁾	7,379	6,977	402	69	69	0	7,448
2014-15 ⁽⁴⁾	8,837	8,356	482	90	90	0	8,927
2019-20 ⁽⁴⁾	7,929	7,497	432	90	90	0	8,019
2024-25 ⁽⁴⁾	8,010	7,573	437	90	90	0	8,100
2029-30 ⁽⁴⁾	8,090	7,649	441	90	90	0	8,180

(1) See Table 5

(2) Historical unaccounted use = demand minus sales

(3) Actual groundwater and recycled water demand. Estimated sales and unaccounted use.

(4) Projected Total Demand from Table 7

GPCD = gallons per capita per day

**TABLE 9
PARTICIPATION IN CENTRAL BASIN MUNICIPAL WATER DISTRICT
SCHOOL EDUCATION PROGRAM**

Date	School Name	Grade Level	No. of Students
<u>Water Squad Investigations (2005 - 2009)</u>			
9/22/2005	Mill Elementary	4	35
11/30/2005	Telechron Elementary	3	35
12/1/2005	Mill Elementary	4	35
2/1/2006	Telechron Elementary	3	20
6/8/2006	Granada Middle	6	35
4/13/2007	Mill Elementary	4	35
5/4/2007	Hoover Elementary	4	35
11/9/2007	Mill Elementary	4	35
2/8/2008	Mill Elementary	4	35
4/4/2008	Hoover Elementary	4	35
10/10/2008	Mill Elementary	4	35
12/12/2008	Telechron Elementary	4	35
9/25/2009	McKibben Elementary	4	35
10/2/2009	Mill Elementary	4	35
10/9/2009	Mill Elementary	4	35
<u>Water Wanderings (2005 - 2010)</u>			
10/28/2005	McKibben Elementary	4-5	105
11/4/2005	McKibben Elementary	4-5	105
12/8/2005	Leffingwell Elementary	4-5	105
12/9/2005	Leffingwell Elementary	4-5	105
1/12/2006	Aeolian Elementary	4-5	105
2/10/2006	Hoover Elementary	4-5	105
2/16/2006	Sorenson Elementary	4-5	105
2/17/2006	Sorenson Elementary	4-5	105
2/23/2006	La Colima Elementary	4-5	105
2/24/2006	La Colima Elementary	4-5	105
3/16/2006	Carmela Elementary	4-5	105
11/16/2006	Laurel Elementary	4-5	105
11/17/2006	Laurel Elementary	4-5	105
12/14/2006	Mill Elementary	4-5	105
1/12/2007	Mill Elementary	4-5	105
1/18/2007	Lake Marie Elementary	4-5	105
1/25/2007	McKibben	4-5	105
2/22/2007	Telechron Elementary	4-5	105
2/23/2007	Telechron Elementary	4-5	105
9/27/2007	Carmela Elementary	4-5	105
9/28/2007	Carmela Elementary	4-5	105
1/31/2008	W. Whittier Elementary	4-5	105
10/10/2008	Sorenson Elementary	4-5	105
5/1/2009	Meadow Green Elem.	4-5	105
5/14/2009	Mill Elementary	4-5	105
3/11/2010	McKibben Elementary	4-5	105
3/12/2010	McKibben Elementary	4-5	105

**TABLE 9
PARTICIPATION IN CENTRAL BASIN MUNICIPAL WATER DISTRICT
SCHOOL EDUCATION PROGRAM**

Date	School Name	Grade Level	No. of Students
<u>Think Water, It's Magic (2009-2010)</u>			
3/31/2009	Telechron Elementary	K-5	103
4/17/2009	Lake Marie Elementary	K-5	95
5/1/2009	Carmela Elementary	K-5	90
5/5/2009	Nelson Elementary	K-5	95
10/9/2009	Loma Vista Elementary	K-5	100
4/30/2010	Aeolian Elementary	K-5	108
<u>Think Earth, It's Magic (2007- 2010)</u>			
3/8/2007	Telechron Elementary	K-5	336
3/30/2007	Mill Elementary	K-5	337
3/20/2009	Meadow Green Elem.	K-3	212
4/22/2009	La Colima Elementary	K-2	280
3/10/2010	Hoover Elementary	5	100
3/26/2010	Jordan Elementary	K-6	570
4/23/2010	Mill Elementary	K-5	393
<u>Think Watershed (2008 - 2010)</u>			
9/25/2008	Mill Elementary	4	70
10/22/2008	Ceres Elementary	4-5	70
11/12/2008	Loma Vista Elementary	4-5	70
12/9/2008	McKibben Elementary	5	70
1/16/2009	Ceres Elementary	4-5	70
1/30/2009	Loma Vista Elementary	5	70
3/9/2009	Carmela Elementary	6	30
3/10/2009	Carmela Elementary	6	70
5/19/2009	Carmela Elementary	5	35
9/25/2009	Mill Elementary	4	70
1/21/2010	Monte Vista Elementary	4-5	70
1/22/2010	Monte Vista Elementary	4-5	70
3/17/2010	Monte Vista Elementary	4-5	70
3/18/2010	Monte Vista Elementary	4-5	70
5/19/2010	Loma Vista Elementary	5	70
5/24/2010	Loma Vista Elementary	5	70
5/27/2010	Ceres Elementary	4	70
<u>Sewer Science (2008 - 2009)</u>			
5/26-30/08	La Serna High	9-12	70
2/23-27/09	St. Paul's High	9-12	175

**TABLE 10
PARTICIPATION IN CENTRAL BASIN MUNICIPAL WATER DISTRICT REBATE PROGRAM
FOR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL ACCOUNTS**

Date	Type of Facility	Device Type	Quantity
Mar-06	Hotel/Motel	ULFT Tank	49
Mar-06	Hotel/Motel	ULFT Tank	49
Mar-06	Apartment Laundry	High Efficiency Washer	1
Jun-06	Apartment Laundry	High Efficiency Washer	1
Jul-06	Apartment Laundry	High Efficiency Washer	1
Jul-06	Apartment Laundry	High Efficiency Washer	2
Jul-06	Apartment Laundry	High Efficiency Washer	1
Jun-07	Apartment Laundry	High Efficiency Washer	1
Sep-07	School	Conductivity Controller	1
Sep-07	City Facilities	Conductivity Controller	1
Sep-07	City Facilities	Conductivity Controller	1
Oct-07	Apartment Laundry	High Efficiency Washer	3
Oct-07	Apartment Laundry	High Efficiency Washer	1
Mar-08	Apartment Laundry	High Efficiency Washer	1
May-08	Apartment Laundry	High Efficiency Washer	1
Jun-08	Multi-Family - Apartment	Multi-Family HET	155
Jun-08	School	HET Tank	110
Aug-08	Multi-Family - Apartment	Multi-Family HET	75
Dec-08	Multi-Family - Apartment	Multi-Family HET	1
Jan-09	Multi-Family - Apartment	Multi-Family HET	34
Jan-09	Multi-Family - Duplex/triplex	Multi-Family HET	1
Jan-09	Multi-Family - Duplex/triplex	Multi-Family HET	1
May-09	Multi-Family - Mobile Home	Multi-Family HET	1
Jun-09	School	HET Tank	4
Jun-09	Multi-Family - Apartment	Multi-Family HET	38
Jun-09	Multi-Family - Apartment	Multi-Family HET	1
Jun-09	School	HET Tank	3
Jun-09	School	HET Tank	5
Sep-09	City Facilities	WBIC	8
Sep-09	City Facilities	WBIC	8
Sep-09	City Facilities	WBIC	12
Sep-09	City Facilities	WBIC	24
Sep-09	City Facilities	WBIC	8
Sep-09	City Facilities	WBIC	16
Sep-09	City Facilities	WBIC	8
Sep-09	City Facilities	WBIC	8
Sep-09	City Facilities	WBIC	12
Oct-09	Multi-Family - Mobile Home	Multi-Family HET	1
Nov-09	School	HET Tank	6
Nov-09	School	HET Tank	6
Nov-09	School	HET Tank	4
Nov-09	School	HET Tank	3
Nov-09	School	HET Tank	5
Nov-09	School	HET Tank	7
Nov-09	School	HET Tank	4
Nov-09	School	HET Tank	2
Nov-09	School	HET Tank	3
Nov-09	School	HET Tank	7
Nov-09	School	HET Tank	4
Nov-09	School	HET Tank	9

TABLE 10
PARTICIPATION IN CENTRAL BASIN MUNICIPAL WATER DISTRICT REBATE PROGRAM
FOR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL ACCOUNTS

Date	Type of Facility	Device Type	Quantity
Nov-09	School	HET Tank	6
Nov-09	School	HET Tank	3
Jan-10	Hospital	Zero Water Urinal Upgrade	23
May-10	MULTI-FAMILY - CONDO/TOWNHOUSE	WBIC	32
May-10	MULTI-FAMILY - CONDO/TOWNHOUSE	WBIC	4

ULFT = ultra-low-flush toilet

HET = high efficiency toilet

WBIC = weather-based irrigation controller

TABLE 11
WATER SHORTAGE CONTINGENCY –
RATIONING STAGES TO ADDRESS WATER SUPPLY SHORTAGES

Stage No.	Water Supply Condition	Percent Shortage
I	Voluntary Rationing	Up to 10%
II	Mandatory Rationing	Up to 20%
III	Mandatory Rationing	20 - 35%
IV	Mandatory Rationing	35 - 50%

**TABLE 12
PER CAPITA HEALTH AND SAFETY WATER REQUIREMENTS**

	Non-Conserving Fixtures		Habit Changes ⁽¹⁾		Conserving Fixtures ⁽²⁾	
Toilets	5 Flushes x 5.5 gpf ⁽³⁾	27.5	3 Flushes x 5.5 gpf	16.5	5 Flushes x 1.6 gpf	8.0
Shower	5 minutes x 4.0 gpm ⁽⁴⁾	20.0	4 minutes x 3.0 gpm	12.0	5 minutes x 2.0 gpm	10.0
Washer	12.5 gpcd ⁽⁵⁾	12.5	11.5 gpcd	11.5	11.5 gpcd	11.5
Kitchen	4 gpcd	4.0	4 gpcd	4.0	4 gpcd	4.0
Other	4 gpcd	4.0	4 gpcd	4.0	4 gpcd	4.0
Total (gpcd)		68.0		48.0		37.5
CCF Per Capita Per Year ⁽⁶⁾		33.0		23.0		18.0

⁽¹⁾ Reduced shower use results from shorter reduced flow. Reduced washer use results from fuller loads.

⁽²⁾ Fixtures include Ultra-Low-Flush toilets, 2.0 gpm showerheads and efficient clothes washers.

⁽³⁾ gpf = Gallons Per Flush

⁽⁴⁾ gpm = Gallons per Minute

⁽⁵⁾ gpcd = Gallons per Capita per Day

⁽⁶⁾ CCF = hundred cubic feet

TABLE 13
SUPPLY RELIABILITY – CURRENT WATER SOURCES
 (ACRE-FEET)

Sources of Supply	Normal Year (2005-06 ¹)	Multiple Dry Years		
		Year 2011 ²	Year 2012 ²	Year 2013 ²
Main Basin	7,741	7,909	7,060	8,064
Central Basin	658	778	841	893
Recycled Water	61	116	108	87
Total Supply	8,460	8,803	8,009	9,044

¹ See Table 5

² See Table 6 for percent of normal year applicable to total supply;
 percent of normal year for individual sources of supply calculated in a similar manner

**TABLE 14
SHORTAGE STAGES AND TRIGGERING MECHANISMS**

Condition	Stage I	Stage II	Stage III	Stage IV
Percent Reduction of Current Supply	Up to 10 percent supply reduction	10 to 20 percent supply reduction	20 to 35 percent supply reduction	35 to 50+ percent supply reduction
Carryover	At less than 3,000 acre-feet in the Main Basin	At less than 3,000 acre-feet in the Main Basin	At less than 3,000 acre-feet in the Main Basin	At less than 3,000 acre-feet in the Main Basin
Water Quality	Contamination of 10 percent of water supply (exceed primary drinking water standards) without supply replacement	Contamination of 20 percent of water supply (exceed primary drinking water standards) without supply replacement	Contamination of 30 percent of water supply (exceed primary drinking water standards) without supply replacement	Contamination of 40 percent of water supply (exceed primary drinking water standards) without supply replacement
Disaster Loss	Loss of 10 percent of water supply	Loss of 20 percent of water supply	Loss of 30 percent of water supply	Loss of 40 percent of water supply

TABLE 15
WATER SHORTAGE CONTINGENCY – MANDATORY PROHIBITIONS

Prohibition	Water Shortage Stage
Sprinkling	IV
Wetting	IV
Irrigation	IV
Construction	IV

TABLE 16
WATER SHORTAGE CONTINGENCY – CONSUMPTION REDUCTION METHODS

Consumption Reduction Method	Water Shortage Stage	Projected Reduction
Water Rationing	I, II, III, and IV	Up to 50 percent
Water Use Restriction	IV	Up to 50 percent

**TABLE 17
RECYCLED WATER – WASTEWATER COLLECTION AND TREATMENT**

Type of Wastewater	Wastewater Collection and Treatment (acre-feet)						
	1999-00	2004-05	2009-10 ⁽¹⁾	2014-15 ⁽²⁾	2019-20 ⁽²⁾	2024-25 ⁽²⁾	2029-30 ⁽²⁾
<u>Los Coyotes Water Reclamation Plant</u>							
Wastewater Collected and Treated	39,940	36,852	30,405	36,000	36,000	36,000	36,000
Volume that Meets Recycled Water Standards	39,940	36,852	30,405	36,000	36,000	36,000	36,000
<u>Long Beach Water Reclamation Plant</u>							
Wastewater Collected and Treated	20,200	20,747	20,211	20,000	20,000	20,000	20,000
Volume that Meets Recycled Water Standards	20,200	20,747	20,211	20,000	20,000	20,000	20,000
<u>San Jose Creek Water Reclamation Plant</u>							
Wastewater Collected and Treated	96,056	90,886	79,615	89,000	89,000	89,000	89,000
Volume that Meets Recycled Water Standards	96,056	90,886	79,615	89,000	89,000	89,000	89,000

⁽¹⁾ 2009-10 is represented by fiscal year 2008-09.

⁽²⁾ Projected – based on average of 1999-00, 2004-05, and 2009-10.

Source: Sanitation Districts of Los Angeles County's fiscal year "Status Report on Recycled Water."

**TABLE 18
RECYCLED WATER – NON-RECYCLED WASTEWATER DISPOSAL**

Method of Disposal	Treatment Level	Volume (acre-feet)					
		2004-05	2009-10 ⁽¹⁾	2014-15 ⁽²⁾	2019-20 ⁽²⁾	2024-25 ⁽²⁾	2029-30 ⁽²⁾
<u>Los Coyotes Water Reclamation Plant</u>							
Discharge to San Gabriel River	Disinfected Tertiary	31,811	24,092	28,000	28,000	28,000	28,000
<u>Long Beach Water Reclamation Plant</u>							
Discharge to Coyote Creek ⁽³⁾	Disinfected Tertiary	16,005	13,744	15,000	15,000	15,000	15,000
<u>San Jose Creek Water Reclamation Plant</u>							
Discharge to San Gabriel River	Disinfected Tertiary	66,378	50,223	58,000	58,000	58,000	58,000

⁽¹⁾ 2009-10 is represented by fiscal year 2008-09.

⁽²⁾ Projected – based on average of 2004-05 and 2009-10.

⁽³⁾ A tributary of San Gabriel River.

Source: Sanitation Districts of Los Angeles County's fiscal year "Status Report on Recycled Water."

TABLE 19
RECYCLED WATER – 2005 PLAN USE PROJECTION COMPARED TO 2010 ACTUAL
(ACRE-FEET)

Use Type	2010 Actual Use	2005 Projection for 2010
Landscape Irrigation	87	100

**TABLE 20
CALCULATION OF BASELINE DAILY PER CAPITA WATER USE**

Water Use			Service Area Population			Per Capita Water Use		
Fiscal Year	Recorded Groundwater Supply (acre-feet) ⁽¹⁾	Calculated Gross Water Use (gallons per day) ⁽¹⁾	Calendar Year	Population of the City of Whittier ⁽²⁾	Calculated Service Area Population ⁽³⁾	Calculated Daily Per Capita Water Use	Average Per Capita Water Use	
							10-Year Continuous ⁽⁴⁾	5-Year Continuous ⁽⁵⁾
1995-96	8,801	7,856,491	1996	80,586	44,322	177		
1996-97	9,413	8,402,786	1997	80,883	44,486	189		
1997-98	10,088	9,005,524	1998	81,550	44,853	201		
1998-99	9,441	8,428,084	1999	82,224	45,223	186		
1999-00	9,848	8,791,004	2000	83,639	46,001	191		
2000-01	9,000	8,034,144	2001	84,555	46,505	173		
2001-02	9,095	8,119,136	2002	85,485	47,017	173		
2002-03	8,652	7,723,705	2003	86,252	47,439	163		
2003-04	9,234	8,243,290	2004	86,809	47,745	173		
2004-05	8,536	7,619,672	2005	86,679	47,673	160	179	
2005-06	8,399	7,497,633	2006	86,576	47,617	157	177	
2006-07	8,687	7,754,725	2007	86,468	47,557	163	174	
2007-08	7,901	7,053,078	2008	86,452	47,549	148	169	160
2008-09	8,957	7,995,749	2009	86,788	47,733	168	167	159
10-Year Baseline Daily Per Capita Water Use =				179	gallons per capita per day. ⁽⁶⁾			
5-Year Baseline Daily Per Capita Water Use =				160	gallons per capita per day. ⁽⁷⁾			

⁽¹⁾ See Table 5.

⁽²⁾ Source: California Department of Finance.

⁽³⁾ The City of Whittier Water Utility Authority serves approximately 55 percent of the residents of the City of Whittier.

⁽⁴⁾ 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.

⁽⁵⁾ 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.

⁽⁶⁾ Highest value calculated for a 10-year continuous period between 1995-96 and 2008-09.

⁽⁷⁾ Highest value calculated for a 5-year continuous period between 2003-04 and 2008-09.

TABLE 21
SUPPLY AND DEMAND COMPARISON – NORMAL YEAR
 (ACRE-FEET)

	2015	2020	2025	2030
Supply Total ⁽¹⁾	8,927	8,019	8,100	8,180
Demand Total ⁽²⁾	8,927	8,019	8,100	8,180
Difference (Supply minus Demand)	0	0	0	0
Difference as Percent of Supply	0	0	0	0
Difference as Percent of Demand	0	0	0	0

⁽¹⁾ See Table 5, last column

⁽²⁾ Based on Urban Water Use Targets of 161 gallons per capita per day (GPCD) in 2015 and 143 GPCD in 2020. See Table 8

TABLE 22
SUPPLY AND DEMAND COMPARISON – SINGLE DRY YEAR
 (ACRE-FEET)

	2015	2020	2025	2030
Supply Total ⁽¹⁾	9,289	8,345	8,428	8,511
Demand Total ⁽²⁾	9,289	8,345	8,428	8,511
Difference (Supply minus Demand)	0	0	0	0
Difference as Percent of Supply	0	0	0	0
Difference as Percent of Demand	0	0	0	0

⁽¹⁾ Based on ratio between Normal Water Year with Single-Dry Year. See Tables 5 and 6

⁽²⁾ Based on ratio between Normal Water Year with Single-Dry Year. See Tables 6 and 8

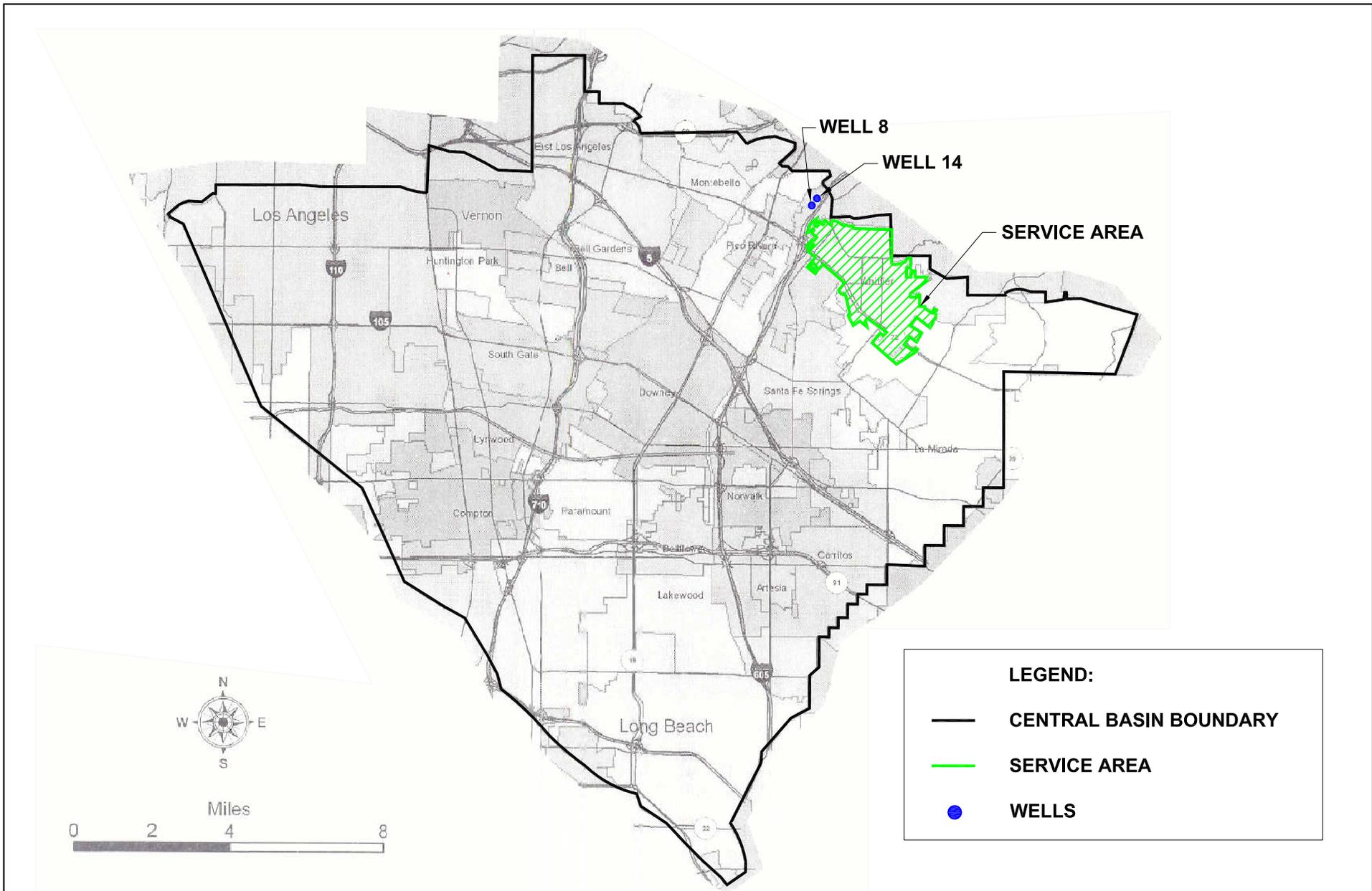
TABLE 23
SUPPLY AND DEMAND COMPARISON – MULTIPLE DRY-YEAR EVENTS
 (ACRE-FEET)

		2015	2020	2025	2030
Multiple-Dry Year First Year Supply	Supply Total ⁽¹⁾	7,750	9,289	8,345	8,428
	Demand Total ⁽²⁾	7,750	9,289	8,345	8,428
	Difference (Supply minus Demand)	0	0	0	0
	Difference as Percent of Supply	0	0	0	0
	Difference as Percent of Demand	0	0	0	0
Multiple-Dry Year Second Year Supply	Supply Total ⁽¹⁾	7,051	8,451	7,592	7,668
	Demand Total ⁽²⁾	7,051	8,451	7,592	7,668
	Difference (Supply minus Demand)	0	0	0	0
	Difference as Percent of Supply	0	0	0	0
	Difference as Percent of Demand	0	0	0	0
Multiple-Dry Year Third Year Supply	Supply Total ⁽¹⁾	7,962	9,544	8,573	8,659
	Demand Total ⁽²⁾	7,962	9,544	8,573	8,659
	Difference (Supply minus Demand)	0	0	0	0
	Difference as Percent of Supply	0	0	0	0
	Difference as Percent of Demand	0	0	0	0

⁽¹⁾ Based on ratio between Normal Water Year with Multiple Dry Years. See Tables 5 and 6

⁽²⁾ Based on ratio between Normal Water Year with Multiple Dry Years. See Tables 6 and 8

PLATES



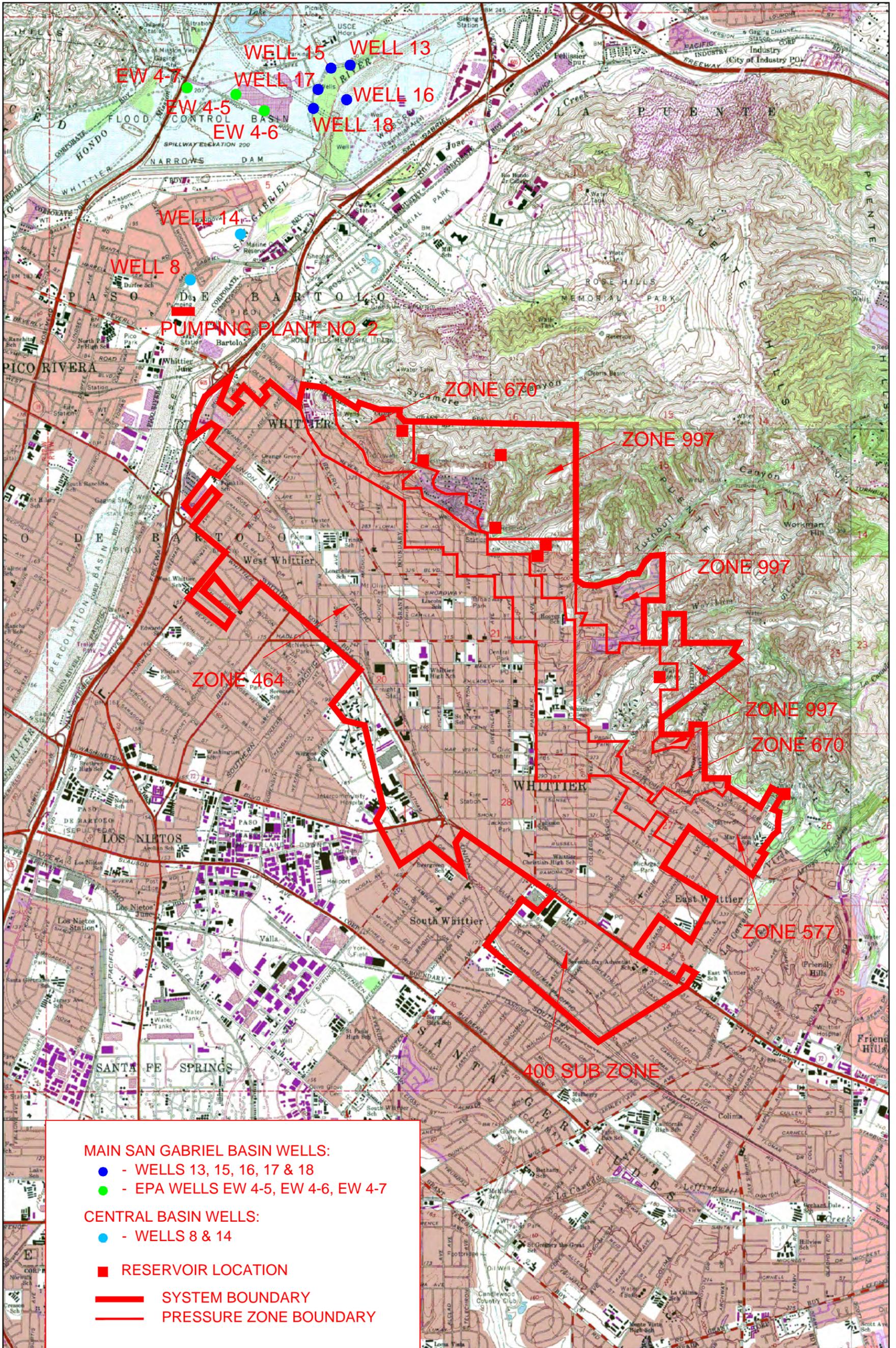
861 VILLAGE OAKS DRIVE, SUITE 100
 COVINA, CALIFORNIA 91724
 TEL: (818) 967-6202
 FAX: (818) 331-7065

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

2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202

CITY OF WHITTIER

**SERVICE AREA AND WELL LOCATION MAP
 CENTRAL BASIN**



- MAIN SAN GABRIEL BASIN WELLS:**
- - WELLS 13, 15, 16, 17 & 18
 - - EPA WELLS EW 4-5, EW 4-6, EW 4-7
- CENTRAL BASIN WELLS:**
- - WELLS 8 & 14
- RESERVOIR LOCATION
 - SYSTEM BOUNDARY
 - PRESSURE ZONE BOUNDARY



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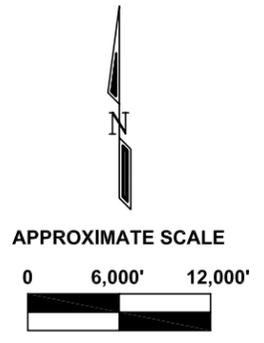
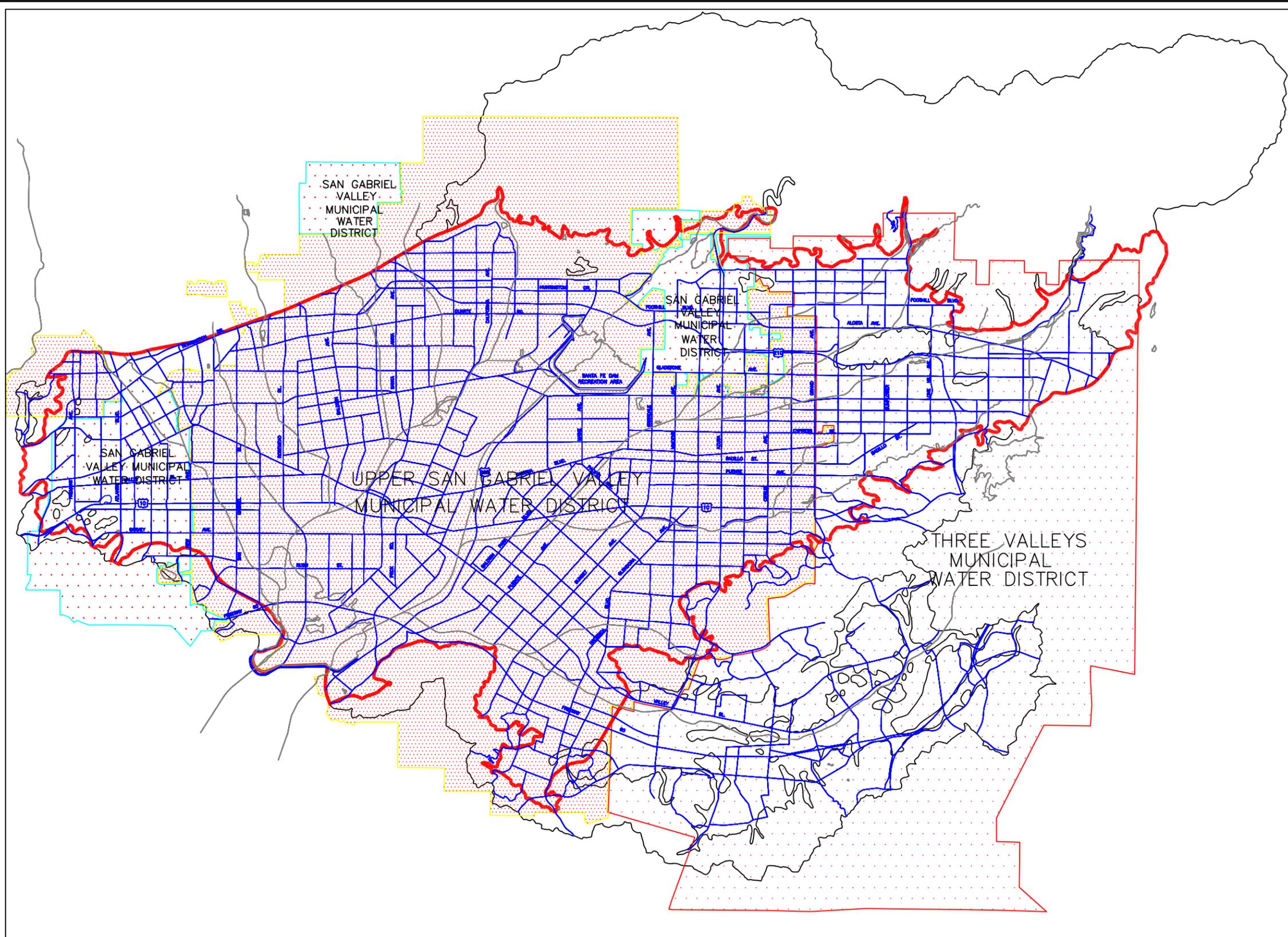
2651 W Guadalupe Rd., Suite A209
 Mesa Arizona 85202



APPROXIMATE SCALE:
 1400' 0 1400'

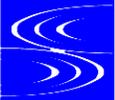
CITY OF WHITTIER

SERVICE AREA

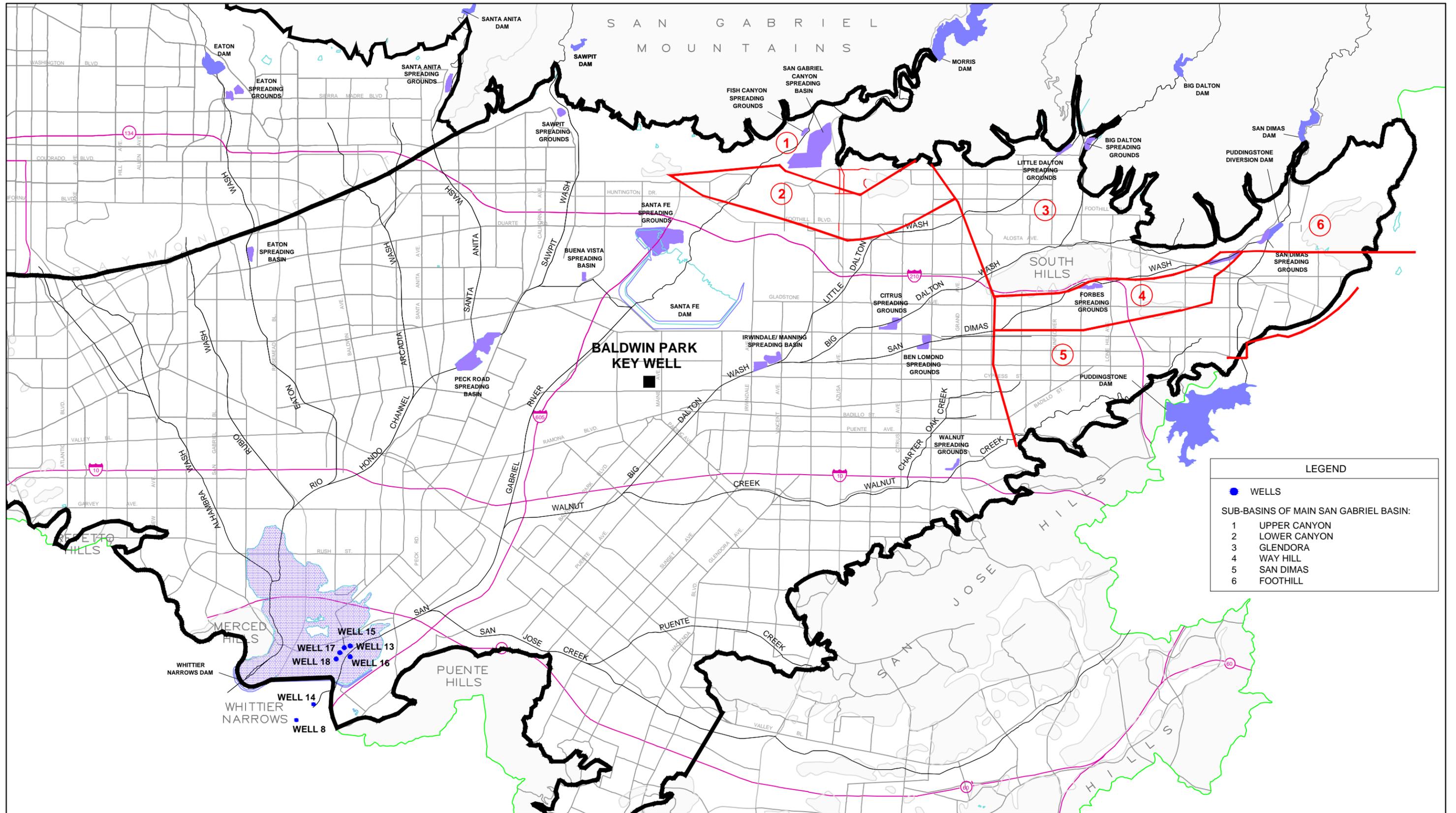


LEGEND

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


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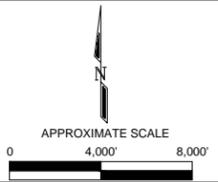
CITY OF WHITTIER
 WATER DISTRICT BOUNDARIES
 MAIN SAN GABRIEL BASIN



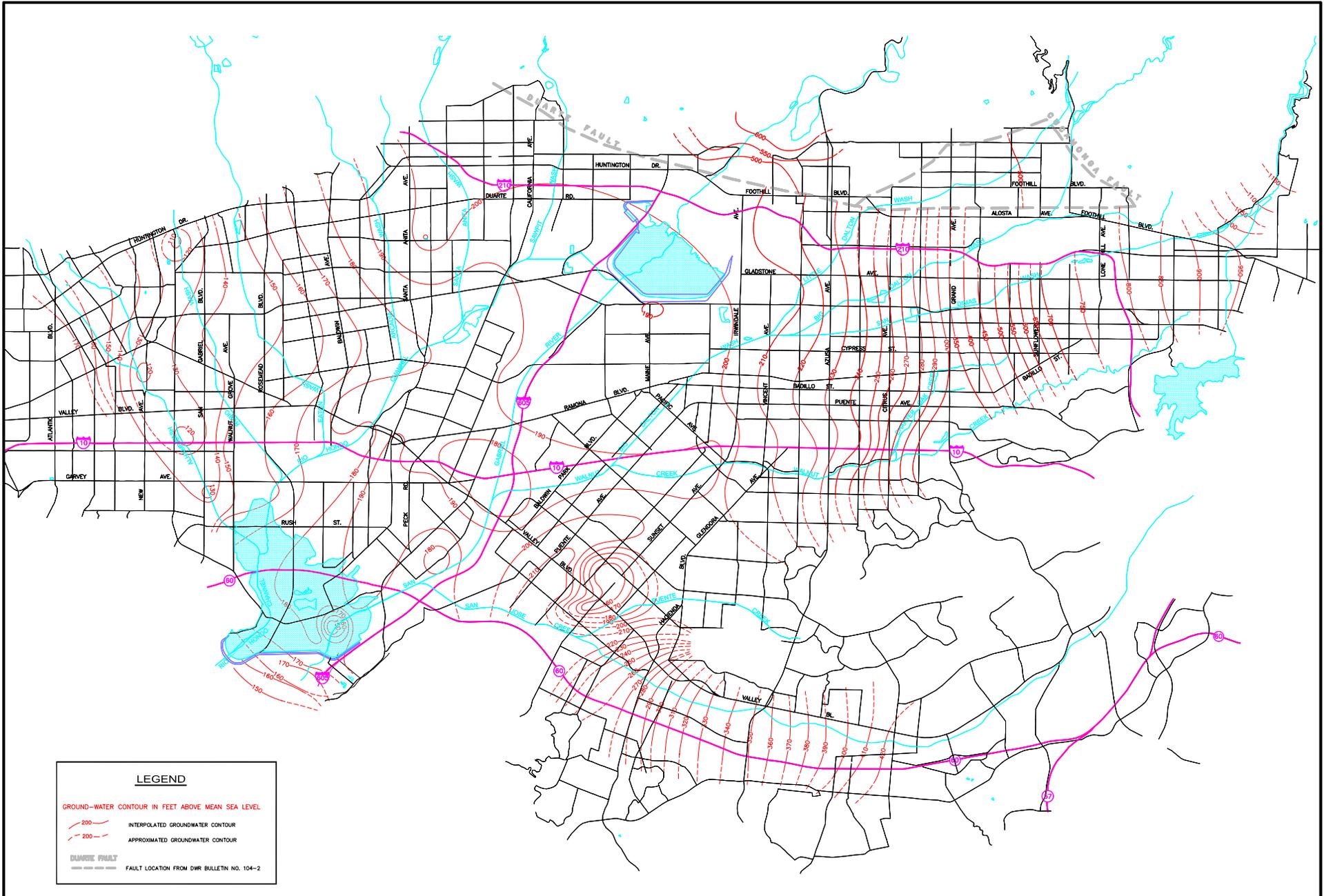
LEGEND	
●	WELLS
SUB-BASINS OF MAIN SAN GABRIEL BASIN:	
1	UPPER CANYON
2	LOWER CANYON
3	GLENDORA
4	WAY HILL
5	SAN DIMAS
6	FOOTHILL


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CITY OF WHITTIER
 LOCATION OF CITY WELLS, SPREADING GROUNDS AND WATER CHANNELS
 MAIN SAN GABRIEL BASIN



LEGEND

- GROUND-WATER CONTOUR IN FEET ABOVE MEAN SEA LEVEL
- 200 — INTERPOLATED GROUNDWATER CONTOUR
- - - 200 - - - APPROXIMATED GROUNDWATER CONTOUR
- DIAMOND SHAPE FAULT LOCATION FROM DWR BULLETIN NO. 104-2

CITY OF WHITTIER

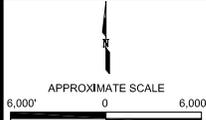
GROUNDWATER CONTOUR MAP FOR SAN GABRIEL BASIN - JULY 2009



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APPENDIX A
URBAN WATER MANAGEMENT PLANNING ACT
AND SENATE BILL 7

Section K: California Water Code, Division 6, Part 2.6: Urban Water Management Planning

The following sections of California Water Code Division 6, Part 2.6, are available online at <http://www.leginfo.ca.gov/calaw.html>.

Chapter 1. General Declaration and Policy	§10610-10610.4
Chapter 2. Definitions	§10611-10617
Chapter 3. Urban Water Management Plans	
Article 1. General Provisions	§10620-10621
Article 2. Contents of Plans	§10630-10634
Article 2.5. Water Service Reliability	§10635
Article 3. Adoption And Implementation of Plans	§10640-10645
Chapter 4. Miscellaneous Provisions	§10650-10656

Chapter 1. General Declaration and Policy

10610. This part shall be known and may be cited as the “Urban Water Management Planning Act.”

10610.2.

- (a) The Legislature finds and declares all of the following:
- (1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
 - (2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
 - (3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
 - (4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
 - (5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
 - (6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

- (7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
 - (8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
 - (9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.
- (b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

- (a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
- (b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- (c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. “Demand management” means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. “Customer” means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. “Efficient use” means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. “Person” means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. “Plan” means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. “Public agency” means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. “Recycled water” means the reclamation and reuse of wastewater for beneficial use.

10617. “Urban water supplier” means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

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.
- (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.

10621.

- (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.
- (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 notice pursuant to this subdivision.
- (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).

Article 2. Contents of Plans

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of 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.
- (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). 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.
 - (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) 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.
- (c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:
- (A) An average water year.
 - (B) A single dry water year.
 - (C) Multiple dry water years.
- (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.

- (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.
- (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).
- (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.
 - (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.
- (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 noneconomic factors, including environmental, social, health, customer impact, and technological factors.
 - (2) Include a cost-benefit analysis, identifying total benefits and total costs.
 - (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

- (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
- (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 use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, 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 the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
- (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.
- (j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.
- (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 or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

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.

- (b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.5.

- (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).
- (2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).
- (3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.
- (4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the

department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

- (B) For purposes of this paragraph, “not locally cost effective” means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.
- (b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:
- (A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.
 - (B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.
- (2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:
- (i) Compliance on an individual basis.
 - (ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

- (B) The department may require additional information for any determination pursuant to this section.
- (3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.
- (c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).
- (d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.
- (e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit annual reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.
- (f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the

Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

- (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
- (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.
- (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.
- (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.
- (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.
- (f) Penalties or charges for excessive use, where applicable.
- (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.
- (h) A draft water shortage contingency resolution or ordinance.
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water

supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.
- (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
- (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
- (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
- (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

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.

Article 2.5. Water Service Reliability

10635.

- (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand

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

- (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.
- (c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.
- (d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

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.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

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.
- (b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.
- (c)
 - (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.
 - (2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).
 - (3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

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.

Chapter 4. Miscellaneous Provisions

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

- (a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.
- (b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or

applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

Section L: California Water Code, Division 6, Part 2.55: Water Conservation

The following sections of California Water Code Division 6, Part 2.55, are available online at <http://www.leginfo.ca.gov/calaw.html>.

Chapter 1. General Declarations and Policy	§10608-10608.8
Chapter 2. Definitions	§10608.12
Chapter 3. Urban Retail Water Suppliers	§10608.16-10608.44

Legislative Counsel's Digest

Senate Bill No. 7

Chapter 4

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

[Approved by Governor November 10, 2009. Filed with Secretary of State November 10, 2009.]

Legislative Counsel's Digest

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions

eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December 31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009–10 7th Extraordinary Session of the Legislature are enacted and become effective.

The people of the State of California do enact as follows:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

Part 2.55. Sustainable Water Use and Demand Reduction

Chapter 1. General Declarations and Policy

10608. The Legislature finds and declares all of the following:

- (a) Water is a public resource that the California Constitution protects against waste and unreasonable use.
- (b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.
- (c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

- (d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.
- (e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.
- (f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.
- (g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.
- (h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.
- (i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

- (a) Require all water suppliers to increase the efficiency of use of this essential resource.
- (b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.
- (c) Measure increased efficiency of urban water use on a per capita basis.
- (d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.
- (e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

- (f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.
- (g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.
- (h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.
- (i) Require implementation of specified efficient water management practices for agricultural water suppliers.
- (j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.
- (k) Advance regional water resources management.

10608.8.

- (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.
 - (2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.
 - (3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.
- (b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.
 - (c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water

use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

- (d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2. Definitions

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

- (a) “Agricultural water supplier” means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the department.
- (b) “Base daily per capita water use” means any of the following:
 - (1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.
 - (2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.
 - (3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

- (c) “Baseline commercial, industrial, and institutional water use” means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.
- (d) “Commercial water user” means a water user that provides or distributes a product or service.
- (e) “Compliance daily per capita water use” means the gross water use during the final year of the reporting period, reported in gallons per capita per day.
- (f) “Disadvantaged community” means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.
- (g) “Gross water use” means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:
 - (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
 - (2) The net volume of water that the urban retail water supplier places into long-term storage.
 - (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
 - (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.
- (h) “Industrial water user” means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.
- (i) “Institutional water user” means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.
- (j) “Interim urban water use target” means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

- (k) “Locally cost effective” means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.
- (l) “Process water” means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.
- (m) “Recycled water” means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:
 - (1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:
 - (A) Metered.
 - (B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.
 - (C) Treated to a minimum tertiary level.
 - (D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.
 - (2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.
- (n) “Regional water resources management” means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:
 - (1) The capture and reuse of stormwater or rainwater.
 - (2) The use of recycled water.
 - (3) The desalination of brackish groundwater.

- (4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.
- (o) “Reporting period” means the years for which an urban retail water supplier reports compliance with the urban water use targets.
- (p) “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.
- (q) “Urban water use target” means the urban retail water supplier’s targeted future daily per capita water use.
- (r) “Urban wholesale water supplier,” means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3. Urban Retail Water Suppliers

10608.16.

- (a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.
- (b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.

- (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.
- (2) It is the intent of the Legislature that the urban water use targets described in subdivision (a) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.
- (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 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.
- (c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).
- (d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.
- (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.
- (f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.
- (g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).
- (h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:
- (A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.
- (B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.
- (2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies

available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

- (i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.
- (2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.
- (j) An urban retail water supplier shall be granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

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.

10608.24.

- (a) Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.
- (b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.
- (c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.
- (d) (1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

- (A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
 - (B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.
 - (C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.
- (2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.
- (e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.
- (f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.
- (2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.

- (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:
- (1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.
 - (2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

- (3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.
- (b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.
- (c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.
- (d)
 - (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.
 - (2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.

- (a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:
 - (1) Through an urban wholesale water supplier.
 - (2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).
 - (3) Through a regional water management group as defined in Section 10537.
 - (4) By an integrated regional water management funding area.

- (5) By hydrologic region.
 - (6) Through other appropriate geographic scales for which computation methods have been developed by the department.
- (b) A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

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.

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.

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in order to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for

commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

- (a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.
- (b) Evaluation of water demands for manufacturing processes, goods, and cooling.
- (c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.
- (d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.
- (e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use on facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

APPENDIX B
NOTIFICATION LETTERS



City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

TO: City of Whittier
Attn: City Clerk
13230 Penn Street
Whittier, CA 90602

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

The Urban Water Management Planning Act requires every “urban water supplier¹” to prepare and adopt an Urban Water Management Plan (UWMP) and periodically update that plan at least once every five years on or before December 31, in years ending in five and zero. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City of Whittier Water Utility Authority is currently in the process of updating our 2010 UWMP.

As an urban water supplier, the City of Whittier Water Utility Authority is required pursuant to Section 10620(d)(2) of the UWMP Act to coordinate with water management agencies, relevant public agencies and other water suppliers on the preparation of the UWMP. The City of Whittier Water Utility Authority will be reviewing the UWMP and will make amendments and changes, as appropriate. The City of Whittier Water Utility Authority invites you to submit comments in anticipation of the development of our 2010 UWMP.

Please provide written comments within the next 30 days to the City of Whittier Water Utility Authority 13230 Penn St. Whittier CA 90602 attention Dan Wall Assistant Director of Public Works.

¹Section 10617 of the Urban Water Management Planning Act states, “*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.



City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

TO: City of Pico Rivera
Attn: Al Cablay MS
6615 Passons Blvd
Pico Rivera CA 60660

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

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City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

TO: City of Sante Fe Springs
Attn: Donald K. Jensen P.E.
11710 Telegraph Road
Sante Fe Springs CA 90670

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

The Urban Water Management Planning Act requires every “urban water supplier¹” to prepare and adopt an Urban Water Management Plan (UWMP) and periodically update that plan at least once every five years on or before December 31, in years ending in five and zero. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City of Whittier Water Utility Authority is currently in the process of updating our 2010 UWMP.

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Please provide written comments within the next 30 days to the City of Whittier Water Utility Authority 13230 Penn St. Whittier CA 90602 attention Dan Wall Assistant Director of Public Works.

¹Section 10617 of the Urban Water Management Planning Act states, “*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.



City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

**TO: Central Basin Municipal Water District
6252 Telegraph Road
Commerce, CA 90040**

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

The Urban Water Management Planning Act requires every “urban water supplier¹” to prepare and adopt an Urban Water Management Plan (UWMP) and periodically update that plan at least once every five years on or before December 31, in years ending in five and zero. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City of Whittier Water Utility Authority is currently in the process of updating our 2010 UWMP.

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City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

TO: County of Los Angeles
Attn: Registrar – Recorder/County Clerk
12400 Imperial Highway
Norwalk, CA 90650

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

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City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

**TO: Main San Gabriel Basin Watermaster
Attn: Ms. Carol Williams
725 N. Azusa Avenue
Azusa, CA 91702**

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

The Urban Water Management Planning Act requires every “urban water supplier¹” to prepare and adopt an Urban Water Management Plan (UWMP) and periodically update that plan at least once every five years on or before December 31, in years ending in five and zero. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City of Whittier Water Utility Authority is currently in the process of updating our 2010 UWMP.

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City of Whittier

13230 Penn Street, Whittier, California 90602-1772
(562) 464-3510

**TO: Upper San Gabriel Valley Municipal Water District
Attn: Ms. Janet Garner
11310 Valley Boulevard
El Monte, CA 91731**

FROM: City of Whittier Water Utility Authority

SUBJECT: 2010 Urban Water Management Plan Update

DATE: April 14, 2010

The Urban Water Management Planning Act requires every “urban water supplier¹” to prepare and adopt an Urban Water Management Plan (UWMP) and periodically update that plan at least once every five years on or before December 31, in years ending in five and zero. The UWMP is a planning document and a source document to direct urban water suppliers to evaluate and compare their water supply and reliability to their existing water conservation efforts. The City of Whittier Water Utility Authority is currently in the process of updating our 2010 UWMP.

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APPENDIX C
LONG BEACH JUDGMENT

Superior Court of the State of California
For the County of Los Angeles

BOARD OF WATER COMMISSIONERS OF
THE CITY OF LONG BEACH, et al.,

Plaintiffs

vs.

SAN GABRIEL VALLEY WATER COMPANY,
et al.,

Defendants

No. 722647

**SETTLEMENT
DOCUMENTS**

STIPULATION FOR JUDGMENT
JUDGMENT
MAP OF WHITTIER NARROWS
ENGINEERING APPENDIX
REIMBURSEMENT CONTRACT

*Approved by Joint Negotiating
Committees July 6, 1964.*

EXHIBIT NO. 7

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SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY OF LONG BEACH, a municipal corporation;
CENTRAL BASIN MUNICIPAL WATER DISTRICT, a municipal water district; and CITY OF COMPTON, a municipal corporation,

Plaintiffs,

vs.

SAN GABRIEL VALLEY WATER COMPANY, a corporation; AZUSA AGRICULTURAL WATER COMPANY, a corporation; AZUSA VALLEY WATER COMPANY, a corporation; CALIFORNIA WATER & TELEPHONE COMPANY, a corporation; THE COLUMBIA LAND AND WATER COMPANY, a corporation; COVINA IRRIGATING COMPANY, a corporation; CROSS WATER COMPANY, a corporation; DUARTE WATER COMPANY, a corporation; EAST PASADENA WATER CO. LTD., a corporation; GLENDORA IRRIGATING COMPANY, a corporation; SAN DIMAS WATER COMPANY, a corporation; SOUTHERN CALIFORNIA WATER COMPANY, a corporation; SUBURBAN WATER SYSTEMS, a corporation; SUNNY SLOPE WATER CO., a corporation; VALLECITO WATER CO., a corporation; CITY OF ALHAMBRA, a municipal corporation; CITY OF ARCADIA, a municipal corporation; CITY OF AZUSA, a municipal corporation; CITY OF COVINA, a municipal corporation; CITY OF EL MONTE, a municipal corporation; CITY OF GLENDORA, a municipal corporation; CITY OF MONROVIA, a municipal corporation; CITY OF MONTEREY PARK, a municipal corporation; CITY OF SOUTH PASADENA, a municipal corporation; BALDWIN PARK COUNTY WATER DISTRICT, a county water district; and SAN GABRIEL COUNTY WATER DISTRICT, a county water district,

Defendants,

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER

NO. 722,647

STIPULATION FOR
JUDGMENT

1 DISTRICT, a municipal water district, and)
2 CALIFORNIA DOMESTIC WATER COMPANY, a)
3 corporation,)
4 Intervenor.)

5 Plaintiffs Central Basin Municipal Water District, a
6 municipal water district (herein sometimes referred to as Central
7 Municipal); City of Long Beach, a municipal corporation, acting
8 by and through the Board of Water Commissioners of the City of
9 Long Beach; and City of Compton, a municipal corporation; and
10 defendants City of Alhambra, a municipal corporation; City of
11 Arcadia, a municipal corporation; City of Azusa, a municipal
12 corporation; Azusa Agricultural Water Company, a corporation, sued
13 herein as DOE 1; Azusa Valley Water Company, a corporation, for
14 itself and as successor by merger to Azusa Irrigating Company, a
15 corporation; Baldwin Park County Water District, a county water
16 district; California Water and Telephone Company, a corporation;
17 Columbia Land and Water Company, a corporation; City of Covina, a
18 municipal corporation; Covina Irrigating Company, a corporation;
19 Cross Water Company, a corporation, sued herein as DOE 2; Duarte
20 Water Company (formerly Duarte Domestic Water Company), a corpora-
21 tion; East Pasadena Water Company, Ltd., a corporation, for itself
22 and as successor by merger to California-Michigan Land and Water
23 Company, a corporation; City of El Monte, a municipal corporation;
24 City of Glendora, a municipal corporation; Glendora Irrigating
25 Company, a corporation; City of Monrovia, a municipal corporation;
26 City of Monterey Park, a municipal corporation; San Dimas Water
27 Company, a corporation, sued herein as DOE 3; San Gabriel County
28 Water District, a county water district; San Gabriel Valley Water
29 Company, a corporation; Southern California Water Company, a cor-
30 poration; City of South Pasadena, a municipal corporation; Subur-
31 ban Water Systems, a corporation; Sunny Slope Water Company, a
32 corporation; and Vallecito Water Company, a corporation; and

1 intervening defendant Upper San Gabriel Valley Municipal Water
2 District, a municipal water district (herein sometimes referred
3 to as Upper District); and intervening defendant California
4 Domestic Water Company, a corporation; stipulate and agree as
5 follows:

6 1. A Judgment in the form attached hereto as Exhibit
7 I may be made and entered by the Court in the above-entitled
8 action.

9 2. The following facts, considerations and objectives,
10 among others, provide the basis for this Stipulation for
11 Judgment:

12 (a) By their complaint plaintiffs seek a
13 determination of the rights of the defendants,
14 other than Upper District, in and to the waters
15 of the San Gabriel River System and further
16 seek to restrain defendants, other than Upper
17 District, from an alleged interference with the
18 rights of plaintiffs and persons represented by
19 Central Municipal in and to said waters.

20 (b) At the present time, and for some time
21 prior to the commencement of this action, the
22 water supply of the San Gabriel River System has
23 been inadequate to supply the diversions and
24 extractions of both plaintiffs and defendants
25 other than Central Municipal and Upper District
26 but including the persons represented by Central
27 Municipal and by Upper District, and as a result
28 said diversions and extractions have exceeded,
29 and still exceed, the natural replenishment of
30 the water supply of the San Gabriel River System.

31 (c) The parties recognize and agree that
32 the natural outflow from the San Gabriel Valley

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to the Lower Area as defined in the Judgment has varied, and will vary from year to year, depending on the amount of precedent rainfall and other conditions.

(d) The parties recognize and agree that there is a need for a declaration of rights and a physical solution for the problems resulting from the inadequate and varying water supplies of the San Gabriel River System.

(e) The parties agree that the physical solution contained in said Judgment will bring about a fair division of the water of the San Gabriel River System as between plaintiffs and defendants other than Central Municipal and Upper District but including the persons represented by Central Municipal and by Upper District.

(f) The parties recognize that it may be necessary for defendants or some of them to use supplemental water in order to comply with the obligations imposed under said physical solution.

(g) Defendant Upper District is now a member unit of The Metropolitan Water District of Southern California, which will be supplied with water from sources in northern California under an existing contract with the State of California. Certain of the defendants not within the area of defendant Upper District are within the area of San Gabriel Valley Municipal Water District, which district also has contracted with the State of California for delivery of water from sources in northern California. It is anticipated that the

1 importation of this water will augment the natural
2 supply of ground water within Upper Area as defined
3 in the Judgment. Defendant Upper District intends
4 to replenish the San Gabriel Valley with
5 supplemental supplies.

6 3. The parties hereto hereby waive any and all Findings
7 of Fact, Conclusions of Law, and any and all notice of the making
8 or entry herein of the attached form of Judgment, and all rights
9 of appeal, if any, from such Judgment.

10 4. Plaintiffs and defendants agree that during the
11 period prior to entry of the attached form of Judgment, they will
12 cooperate in endeavoring to collect such information as the
13 Watermaster would obtain if the attached form of Judgment had
14 been entered and the Watermaster had been appointed by the Court
15 pursuant to paragraph 6 of the Judgment, which information is
16 herein referred to as "said information." To that end, the parties
17 hereto hereby agree that promptly following the complete
18 execution of this stipulation by all parties, Upper District and
19 Central Municipal shall each notify the other in writing as to
20 the identity of the person who it expects will be nominated as
21 the representative of Upper Area Parties or Lower Area Parties,
22 as the case may be, under paragraph 6 of the Judgment. Upon
23 receiving such notice, Upper District and Central Municipal shall
24 each instruct its designated nominee that until the attached form
25 of Judgment is entered and the Watermaster has been appointed
26 pursuant to paragraph 6 of the Judgment he shall in cooperation
27 with the other designated nominee do all things reasonably
28 necessary to obtain such of said information as is available from
29 the parties hereto or any public agency.

30 5. Judgment shall not be rendered pursuant hereto
31 unless and until the execution of this stipulation by Central
32 Basin Municipal Water District and by Upper San Gabriel Valley

1 Municipal Water District shall have been validated by a decree
2 or decrees rendered in a proceeding or proceedings instituted
3 in a court of competent jurisdiction of the State of California,
4 and either such decree or decrees shall have become final or
5 both of said Districts shall have further stipulated that said
6 Judgment shall be rendered.

7 6. This stipulation may be executed in counterparts
8 (each counterpart being an exact copy or duplicate of the
9 original) and all counterparts collectively shall be considered
10 as constituting one complete Stipulation for Judgment.

11 DATED: _____, 1964.

12
13 Attorneys
14 (for the respective party
15 listed opposite and to the
16 right of the respective
17 attorneys listed below)

Signature of Stipulating Party
and Its Designation of Mailing
Address

16 Leonard Putnam
17 City Attorney
18 Clifford E. Hayes
19 Principal Deputy City
20 Attorney
21 City of Long Beach

Board of Water Commissioners of
the City of Long Beach

By _____
Its _____ President

22 By _____

By _____
Its _____ Secretary

22 Burris & Lagerlof
23 Stanley C. Lagerlof
24 H. Jess Senecal
25 Jack T. Swafford

1800 East Wardlow Road
Long Beach 7, California

26 By _____

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Burris & Lagerlof
Stanley C. Lagerlof
H. Jess Senecal
Jack T. Swafford

By _____

Central Basin Municipal Water
District

By _____

Its President

By _____

Its Secretary

7439 East Florence Avenue
Downey, California

Lloyd A. Bulloch
City Attorney
City of Compton

City of Compton

By _____

Its Mayor

205 South Willowbrook Avenue
Compton, California

Burris & Lagerlof
Stanley C. Lagerlof
H. Jess Senecal
Jack T. Swafford

By _____

Don D. Bercu
City Attorney
City of Alhambra

City of Alhambra

By _____

Its Mayor

City Hall
111 South First Street
Alhambra, California

Taylor & Smith

By _____

1	James A. Nicklin	City of Arcadia
2	City Attorney	By _____
	City of Arcadia	
3	_____	Its Mayor
4	Surr & Hellyer	City Hall
5	By _____	Arcadia, California
6		
7	Clayson, Stark, Rothrock	
8	& Mann	
9	By _____	
10		
11	Harry C. Williams	City of Azusa
12	City Attorney	By _____
	City of Azusa	
13	_____	Its Mayor
14	Taylor & Smith	City Hall
15	By _____	213 East Foothill Boulevard
16		Azusa, California
17	Taylor & Smith	Azusa Agricultural Water Company
18	By _____	By _____
19		Its _____ President
20		By _____
21		Its _____ Secretary
22		18352 East Foothill Boulevard
23		Azusa, California
24	Surr & Hellyer	Azusa Valley Water Company
25	By _____	By _____
26		Its _____ President
27	Clayson, Stark, Rothrock	By _____
28	& Mann	
29	By _____	Its _____ Secretary
30		P. O. Box "W"
31		Azusa, California
32		

1	Surr & Hellyer	Baldwin Park County Water District
2	By _____	By _____
3		Its _____ President
4	Clayson, Stark, Rothrock & Mann	By _____
5	By _____	Its _____ Secretary
6		14521 East Ramona Boulevard
7		Baldwin Park, California
8		
9	Bacigalupi, Elkus & Salinger	California Water & Telephone Company
10	By _____	By _____
11		Its _____ President
12	Surr & Hellyer	By _____
13	By _____	Its _____ Secretary
14		300 Montgomery Street
15	Clayson, Stark, Rothrock & Mann	San Francisco, California
16	By _____	
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19	Allard, Shelton & O'Connor	Columbia Land & Water Company
20	By _____	By _____
21		Its _____ President
22	Surr & Hellyer	By _____
23	By _____	Its _____ Secretary
24	Clayson, Stark, Rothrock & Mann	P. O. Box 296
25		San Dimas, California
26	By _____	
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1	Allard, Shelton & O'Connor	City of Covina
2	By _____	By _____
3	Surr & Hellyer	Its Mayor
4	By _____	City Hall
5		Covina, California
6	Clayson, Stark, Rothrock	
7	& Mann	
8	By _____	
9	Kerckhoff & Kerckhoff	Covina Irrigating Company
10	By _____	By _____
11	Surr & Hellyer	Its ____ President
12	By _____	By _____
13	Clayson, Stark, Rothrock	Its _____ Secretary
14	& Mann	146 East College Street
15	By _____	Covina, California
16	George C. Gillette	Cross Water Company
17	_____	By _____
18		Its ____ President
19		By _____
20		Its _____ Secretary
21		15825 East Main Street
22		La Puente, California
23	Henry W. Shatford	Duarte Water Company
24	Shatford & Shatford	By _____
25	By _____	Its ____ President
26	Surr & Hellyer	By _____
27	By _____	Its _____ Secretary
28		1101 South Oak Avenue
29	Clayson, Stark, Rothrock	Duarte, California
30	& Mann	
31	By _____	
32		

1	Gray & Maddox	East Pasadena Water Company, Ltd.
2	By _____	By _____
3		Its _____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock	269 South Rosemead
7	& Mann	Pasadena, California
8	By _____	
9		
10	James A. Nicklin	City of El Monte
11	City Attorney	By _____
12	City of El Monte	Its Mayor
13	_____	City Hall
14	Surr & Hellyer	El Monte, California
15	By _____	
16	Clayson, Stark, Rothrock	
17	& Mann	
18	By _____	
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21	Leonard A. Shelton	City of Glendora
22	City Attorney	By _____
23	City of Glendora	Its Mayor
24	_____	City Hall
25	Surr & Hellyer	Glendora, California
26	By _____	
27	Clayson, Stark, Rothrock	
28	& Mann	
29	By _____	
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1	Allard, Shelton & O'Connor	Glendora Irrigating Company
2	By _____	By _____
3		Its _____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock & Mann	224 North Michigan Avenue Glendora, California
7	By _____	
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11	Homer H. Bell	City of Monrovia
12	City Attorney	By _____
13	City of Monrovia	Its Mayor
14	_____	
15	Surr & Hellyer	City Hall
16	By _____	Monrovia, California
17	Clayson, Stark, Rothrock & Mann	
18	By _____	
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22	Charles R. Martin	City of Monterey Park
23	City Attorney	By _____
24	City of Monterey Park	Its Mayor
25	_____	
26	Taylor & Smith	City Hall
27	By _____	320 West Newmark Avenue Monterey Park, California
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1	Allard, Shelton & O'Connor	San Dimas Water Company
2	By _____	By _____
3		Its ____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock & Mann	P. O. Box 181 San Dimas, California
7	By _____	
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10	Surr & Hellyer	San Gabriel County Water District
11	By _____	By _____
12		Its ____ President
13	Clayson, Stark, Rothrock & Mann	By _____
14	By _____	Its _____ Secretary
15		8229 East Las Tunas Drive San Gabriel, California
16		
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18	J. E. Skelton	San Gabriel Valley Water Company
19	_____	By _____
20		Its ____ President
21	Surr & Hellyer	By _____
22	By _____	Its _____ Secretary
23	Clayson, Stark, Rothrock & Mann	11142 Garvey Avenue El Monte, California
24	By _____	
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1	O'Melveny & Myers	Southern California Water Company
2	By _____	By _____
3		Its ____ President
4	Surr & Hellyer	By _____
5	By _____	Its _____ Secretary
6	Clayson, Stark, Rothrock & Mann	11911 South Vermont Avenue Los Angeles 44, California
7	By _____	
8		
9		
10	Charles R. Martin City Attorney City of South Pasadena	City of South Pasadena
11	_____	By _____
12		Its Mayor
13	Surr & Hellyer	825 Mission Street South Pasadena, California
14	By _____	
15		
16	Clayson, Stark, Rothrock & Mann	
17	By _____	
18		
19	Frank E. Gray	Suburban Water Systems
20	_____	By _____
21		Its ____ President
22	Surr & Hellyer	By _____
23	By _____	Its _____ Secretary
24	Clayson, Stark, Rothrock & Mann	16340 East Maplegrove Street La Puente, California
25	By _____	
26		
27	Hahn & Hahn	Sunny Slope Water Company
28	By _____	By _____
29		Its ____ President
30		By _____
31		Its _____ Secretary
32		1040 El Campo Drive Pasadena, California

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Surr & Hellyer
By _____
Clayson, Stark, Rothrock
& Mann
By _____

Stearns, Gross and Moore
By _____

Ralph B. Helm

Vallecito Water Company
By _____
Its ____ President
By _____
Its _____ Secretary

749 South Ninth Avenue
City of Industry, California

California Domestic Water Company
By _____
Its ____ President
By _____
Its _____ Secretary

P. O. Box 1026, Perry Annex
Whittier, California

Upper San Gabriel Valley
Municipal Water District
By _____
Its ____ President
By _____
Its _____ Secretary

11229 East Valley Boulevard
El Monte, California

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SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

BOARD OF WATER COMMISSIONERS OF THE CITY
OF LONG BEACH, a municipal corporation;
CENTRAL BASIN MUNICIPAL WATER DISTRICT,
a municipal water district; and CITY OF
COMPTON, a municipal corporation,

Plaintiffs,

vs.

NO. 722,647

SAN GABRIEL VALLEY WATER COMPANY, a cor-
poration; AZUSA AGRICULTURAL WATER
COMPANY, a corporation; AZUSA VALLEY
WATER COMPANY, a corporation; CALIFORNIA
WATER & TELEPHONE COMPANY, a corporation;
THE COLUMBIA LAND AND WATER COMPANY, a
corporation; COVINA IRRIGATING COMPANY, a
corporation; CROSS WATER COMPANY, a cor-
poration; DUARTE WATER COMPANY, a corpora-
tion; EAST PASADENA WATER CO. LTD., a
corporation; GLENDORA IRRIGATING COMPANY,
a corporation; SAN DIMAS WATER COMPANY, a
corporation; SOUTHERN CALIFORNIA WATER
COMPANY, a corporation; SUBURBAN WATER
SYSTEMS, a corporation; SUNNY SLOPE WATER
CO., a corporation; VALLECITO WATER CO.,
a corporation; CITY OF ALHAMBRA, a municip-
al corporation; CITY OF ARCADIA, a
municipal corporation; CITY OF AZUSA, a
municipal corporation; CITY OF COVINA, a
municipal corporation; CITY OF EL MONTE,
a municipal corporation; CITY OF GLENDORA,
a municipal corporation; CITY OF MONROVIA,
a municipal corporation; CITY OF MONTEREY
PARK, a municipal corporation; CITY OF
SOUTH PASADENA, a municipal corporation;
BALDWIN PARK COUNTY WATER DISTRICT, a
county water district; and SAN GABRIEL
COUNTY WATER DISTRICT, a county water
district,

Defendants,

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER

JUDGMENT

1 DISTRICT, a municipal water district, and)
2 CALIFORNIA DOMESTIC WATER COMPANY, a)
3 corporation,)
4 Intervenor.)

5 The original complaint herein was filed by Plaintiffs on
6 May 12, 1959, and an amended complaint was filed herein on June
7 8, 1961. Each Defendant in this action filed an answer to the
8 amended complaint denying the material allegations therein. On
9 _____, 1964, and _____, 1964,
10 respectively, Upper San Gabriel Valley Municipal Water District,
11 a municipal water district, and California Domestic Water
12 Company, a corporation, intervened in the action as Defendants.
13 On _____, 1964, there was filed herein a
14 Stipulation for Judgment signed by all of the parties to this
15 action.

16 After due examination and consideration of the
17 pleadings, said Stipulation for Judgment and other documents and
18 papers on file herein, it appears to the Court that:

19 (a) In bringing and maintaining this action, plaintiff
20 Central Basin Municipal Water District, a municipal water
21 district, has done so as a representative of and for the benefit
22 of all owners of water rights within, all owners of land within,
23 and all inhabitants of, the district, except to the extent that
24 defendant California Domestic Water Company is representing
25 itself.

26 (b) In intervening in this action, defendant Upper
27 San Gabriel Valley Municipal Water District, a municipal water
28 district, has done so as representative of and for the benefit
29 of all owners of water rights within, all owners of land within,
30 and all inhabitants of, the district, except to the extent that
31 other Defendants who are within the district are representing
32 themselves.

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(c) There is a need for a physical solution to the complex water problems which have given rise to this action.

(d) The physical solution embodied in this Judgment is a feasible, equitable and just resolution of the issues presented by the amended complaint and answers thereto on file herein, and it will bring about a fair division of the water supply of the San Gabriel River System between Upper Area and Lower Area, as those terms are hereinafter defined.

(e) On the basis of the Stipulation for Judgment filed herein and the consent of all Plaintiffs and Defendants it is in the interests of justice and in furtherance of the water policy of the State of California to proceed without trial and to make and enter this Judgment.

Now, therefore, it is hereby ORDERED, ADJUDGED AND DECREED:

JURISDICTION

1. The Court has jurisdiction of the subject matter of this action and of the Upper Area Parties and Lower Area Parties, as those terms are hereinafter defined.

EXHIBITS

2. The following Exhibits marked A and B, are attached to this Judgment and made a part hereof:

(a) Exhibit A -- Map entitled "Rio Hondo and San Gabriel River in Vicinity of Whittier Narrows Dam".

(b) Exhibit B -- Engineering Appendix.

DEFINITIONS

3. As used in this Judgment, the following terms shall have the meanings assigned to them:

(a) Central Municipal -- Central Basin Municipal Water District.

(b) Upper District -- Upper San Gabriel Valley Municipal Water District.

(c) Lower Area Parties -- the Plaintiffs, and

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all persons, firms and corporations, public or private, who are represented by Central Municipal.

(d) Upper Area Parties -- the Defendants, and all persons, firms and corporations, public or private, who are represented by Upper District.

(e) Upper Area -- the area (exclusive of the Raymond Basin and the portion of San Gabriel Mountains tributary thereto) wherein surface and subsurface waters are tributary to Whittier Narrows upstream from the common boundary of Upper District and Central Municipal through Whittier Narrows.

(f) Lower Area -- the area which lies downstream from the common boundary of Central Municipal and Upper District through Whittier Narrows and which is included within the incorporated limits of the Plaintiffs.

(g) Whittier Narrows -- a gap between Merced Hills and Puente Hills shown on Exhibit A.

(h) Montebello Forebay -- the area designated as such on Exhibit A.

(i) Export to Lower Area -- water diverted from surface streams in Upper Area or pumped or developed from underground sources in Upper Area, and in either case conveyed by conduit through Whittier Narrows.

(j) Subsurface Flow -- all water which passes as ground water through Whittier Narrows at the "narrowest section" as shown on Exhibit A.

1 (k) Surface Flow -- all water other than
2 Export to Lower Area and Subsurface Flow,
3 which passes from Upper Area to Lower Area
4 through Whittier Narrows.

5 (l) Usable Water -- all Surface Flow, Subsur-
6 face Flow and Export to Lower Area, but
7 excluding:

8 (1) that portion of Surface Flow, if any,
9 which crosses the southerly boundary of
10 Montebello Forebay as surface runoff less
11 the amount of Surface Flow which has been
12 caused to flow out of Montebello Forebay
13 as surface runoff by any spreading of
14 water in Montebello Forebay by or on behalf
15 of Lower Area Parties, or any of them;

16 (2) water imported by or on behalf of Lower
17 Area Parties from outside of the watershed
18 of the San Gabriel River System;

19 (3) Reclaimed Water, as defined in subpara-
20 graph (o) herein, provided, however, that
21 Reclaimed Water (other than that reclaimed
22 by or on behalf of Lower Area Parties)
23 which is percolated and commingled with
24 ground water in Upper Area shall be deemed
25 Subsurface Flow, Surface Flow, or Export to
26 Lower Area as the case may be, when and if
27 it passes through Whittier Narrows;

28 (4) that portion, if any, of Export to
29 Lower Area which in any Water Year after
30 September 30, 1966, exceeds 23,395 acre-
31 feet;

32 (5) Make-up Water, as defined in subpara-

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graph (m) herein; and
(6) any water whether flowing on the surface or beneath the surface of the ground which has passed any of the points of surface measurement in Whittier Narrows shown on Exhibit B and prior to its passing from Upper Area to Lower Area is intercepted and returned upstream by conduit or otherwise so that it could again pass any such points of measurement.

(m) Make-up Water -- water of usable quality for ground water recharge required to be delivered to Lower Area under terms of paragraph 5 of this Judgment.

(n) Water Year -- October 1 through the following September 30.

(o) Reclaimed Water -- water reclaimed from sewage generated in the watershed of the San Gabriel River System above Whittier Narrows.

DECLARATION OF RIGHT

4. Lower Area Parties have rights in the water supply of the San Gabriel River System. The nature and extent of such rights is not known; however, Lower Area Parties and all other persons downstream from Whittier Narrows who receive water from the San Gabriel River System or have rights in and to such water, shall have, as against Upper Area Parties and all other pumpers of water in the San Gabriel Valley, a right to receive from Upper Area an average annual usable supply of ninety-eight thousand four hundred fifteen (98,415) acre-feet of water over a long-term period of normal rainfall derived as set forth in Exhibit B, consisting

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of Surface Flow, Subsurface Flow, Export to Lower Area and Make-up Water. If in the future a court of competent jurisdiction shall decree that any person downstream from Whittier Narrows within Central and West Basin Water Replenishment District who is not bound by this Judgment, shall have, as against Upper Area Parties and substantially all other pumpers in the San Gabriel Valley, a right to receive from Upper Area a stated amount of usable supply consisting of Surface Flow, Subsurface Flow, Export to Lower Area or Make-up Water, which right arose out of and is based upon the ownership of land or the production of water downstream from Whittier Narrows and within Central and West Basin Water Replenishment District, then and in that event the stated amount of such right so decreed shall not increase the declared rights as set forth in this paragraph 4.

PHYSICAL SOLUTION

5. In recognition of the complexities of annual supply and demand and variations in the components thereof, the Court hereby declares the following physical solution to be a fair and equitable basis for satisfaction of the declared right set forth in paragraph 4 hereof. Compliance with this paragraph 5 shall constitute full and complete satisfaction of said declared right.

AVERAGE ANNUAL ENTITLEMENT

(a) It is determined that the amount of Lower Area average annual entitlement to Usable Water is ninety-eight thousand four hundred fifteen (98,415) acre-feet.

BASIS OF ANNUAL ENTITLEMENT

(b) The outflow of water from Upper Area through Whittier Narrows to Lower Area has

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varied from year to year and will vary from year to year in the future depending on changing conditions of supply and demand; and as to any Water Year, the average annual rainfall for the San Gabriel Valley during the ten (10) consecutive Water Years ending with that Water Year, is a reasonable basis for determining the entitlement of Lower Area to Usable Water for such Water Year.

DETERMINATION OF RAINFALL

(c) The rainfall in each Water Year for the San Gabriel Valley shall be determined by application of the procedures described in Exhibit B.

RAINFALL ADJUSTMENT TABLE

(d) The quantity of water which Lower Area is entitled to receive in any Water Year (hereinafter called Lower Area Annual Entitlement) shall be determined in accordance with the following table, except that no determination of Lower Area Annual Entitlement shall be made for the last year of any Long-term Accounting Period as hereinafter defined.

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TABLE A
LOWER AREA ANNUAL ENTITLEMENT
BASED ON 10-YEAR AVERAGE RAINFALL
FOR SAN GABRIEL VALLEY
(In Acre-feet)

Inches of Rain-fall	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
14	64,200	64,900	65,700	66,500	67,200	68,000	68,700	69,500	70,300	71,100
15	71,800	72,600	73,400	74,100	74,900	75,600	76,400	77,200	77,900	78,700
16	79,500	80,200	81,000	81,800	82,600	83,300	84,000	84,800	85,600	86,400
17	87,100	87,900	88,700	89,400	90,200	91,000	91,500	92,500	93,200	94,000
18	94,800	95,300	96,200	96,900	97,600	98,300	98,800	99,500	100,100	100,800
19	101,400	102,000	102,700	103,300	103,900	104,500	105,100	105,700	106,300	107,000
20	107,600	108,200	108,800	109,400	110,100	110,700	111,300	111,900	112,500	113,100
21	113,700	114,300	115,000	115,600	116,200	116,800	117,400	118,100	118,600	119,300
22	119,900	120,400	121,000	121,600	122,200	122,700	123,300	123,900	124,400	125,000
23	125,500	126,100	126,700	127,200	127,800	128,400	128,900	129,500	130,100	130,600
24	131,200	131,700	132,200	132,700	133,100	133,700	134,100	134,700	135,100	135,600

DETERMINATION
OF ACCRUED
DEBIT OR
CREDIT

(e) The difference between the aggregate of water entitlements determined as provided in this Judgment and the aggregate of Usable Water and delivered Make-up Water shall be computed as of the end of each Water Year. Any excess of water entitlements over the quantity of Usable Water and Make-up Water received by Lower Area after September 30, 1963, is hereinafter referred to as Accrued Debit of Upper Area. Any excess of Usable Water and Make-up Water received by Lower Area after September 30, 1963, over water entitlements, is hereinafter referred to as Accrued Credit of Upper Area.

1 ACCRUED
2 DEBIT

(f) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Debit of Upper Area, then Upper District shall cause Make-up Water to be delivered to Lower Area during the following Water Year in an amount not less than the sum of (1) one-third of such Accrued Debit of Upper Area, and (2) that portion, if any, of such Accrued Debit of Upper Area over 25,000 acre-feet which remains after deducting said one-third. If Upper District shall fail to deliver Make-up Water as next above provided and Plaintiffs shall have diligently pursued their legal and equitable remedies to cause Upper District to so deliver, and either: (1) it shall be finally determined that Upper District is not obligated to so deliver, or (2) it shall appear that Upper District will not thereafter deliver Make-up Water, then Defendants and any successor or successors in interest by title to a Defendant's water right in Upper Area shall be obligated to so deliver Make-up Water. The provisions of this paragraph are subject to the provisions of paragraph 5(h) below.

26 ACCRUED
27 CREDIT

(g) If at the end of any Water Year it is determined pursuant to subparagraph (e) of this paragraph 5 that there is an Accrued Credit of Upper Area, then there shall be no obligation to deliver Make-up Water to Lower Area during the following Water Year.

1 LONG-TERM
2 ACCOUNTING

3 (h) Following September 30, 1963, a Long-term
4 Accounting shall be made from time to time but
5 not sooner than at the end of 15 Water Years,
6 nor later than 25 Water Years after September
7 30, 1963, or after the last such accounting,
8 whichever is later. A Long-term Accounting
9 shall be made sooner than said 25-year period
10 whenever the average annual rainfall in the
11 San Gabriel Valley for a period of 15 Water
12 Years or more after September 30, 1963, or
13 after the last such accounting, whichever is
14 later, is at least 18 inches but not more than
15 19 inches.

16 In making such Long-term Accounting for any
17 such period (herein called Long-term
18 Accounting Period), the aggregate of all
19 Usable Water and Make-up Water received by
20 Lower Area during such period shall be deter-
21 mined and (a) there shall be deducted from said
22 aggregate the amount of Make-up Water, if any,
23 delivered during such period by reason of the
24 existence of an Accrued Debit of Upper Area
25 at the end of the immediately preceding Long-
26 term Accounting Period, or (b) there shall be
27 added to said aggregate the amount of any
28 Accrued Credit of Upper Area determined to
29 exist at the end of the immediately preceding
30 Long-term Accounting Period. The net
31 aggregate amount of Usable Water and Make-up
32 Water so computed shall be compared to the
result to be obtained by (1) multiplying the
98,415 acre-feet of water to be received by

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Lower Area as its average annual usable supply by the number of Water Years in the Long-term Accounting Period, and (2) adjusting the product by the percentage by which the average annual rainfall (to the nearest one hundredth of an inch) for the Long-term Accounting Period involved exceeds or is less than 18.52 inches. (i.e.:

$$98,415 \times (\text{number of Water Years in Period}) \times \frac{(\text{average rainfall for the Period})}{18.52}.)$$

If as a result of such comparison it is determined that there is a deficiency in the net aggregate amount of Usable Water and Make-up Water received during the Long-term Accounting Period, then such deficiency shall be compensated in the following Water Year by delivery of Make-up Water to Lower Area in the manner and by the means provided herein. If it is determined as a result of such comparison that there is an excess of net aggregate Usable Water and Make-up Water received, then the amount of such excess shall be carried forward as an Accrued Credit of Upper Area.

MAKE-UP
WATER
DELIVERY

(i) Make-up Water which Defendants are obligated to deliver through Upper District may be delivered by any one or more of the following means:

SURFACE FLOW DELIVERY

(1) By causing water other than Reclaimed Water to flow on the surface into Montebello Forebay by any means and from any source, provided that such deliveries shall

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be at such rates or flows and at such times as may be scheduled by the Watermaster.

RECLAIMED WATER CREDIT

(2) By paying to Central Municipal for the benefit of all Lower Area Parties the total amount or any portion of the total amount which Central and West Basin Water Replenishment District or any Plaintiff shall have expended in reclaiming water or for the purchase of Reclaimed Water in the preceding Water Year, and which water when so reclaimed or purchased shall have been passed through Whittier Narrows to Lower Area. Upon written request made by Upper District not later than three months after the end of a Water Year, Central Municipal shall give a written notice to Upper District and the Watermaster of the total number of acre-feet of such Reclaimed Water so reclaimed or purchased during the preceding Water Year and of the cost per acre-foot therefor at the existing Whittier Narrows Water Reclamation Plant for reclamation of waste water, and at any future additions thereto, and payment therefor at said cost, or costs, may be made not later than one year after receipt of such written notice. Such payment shall be made for the total production of Reclaimed Water from the existing plant in the preceding Water Year before Upper District shall be entitled to make payment for all, or any portion of,

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Reclaimed Water produced in that year by any future addition to that plant. Such payment by Upper District on behalf of Defendants shall be deemed a delivery of Make-up Water equal to the quantity of Reclaimed Water for which the expenditure of a like sum would have paid at the cost, or costs, per acre-foot so paid for such Reclaimed Water. In no event, however, shall any payment by Upper District under this subparagraph (i)(2) be deemed a delivery of Make-up Water in excess of 14,735 acre-feet in any Water Year during which the amount of Make-up Water required to be furnished by Upper Area is available to it at ground water replenishment rates for delivery to Lower Area, except with the prior written consent of Plaintiffs.

DIRECT DELIVERY

(3) By delivering, or causing to be delivered, water to any of Lower Area Parties with consent of Plaintiffs for use in Lower Area.

WATER RIGHTS BOUND

(j) It is further determined and adjudicated that the obligations provided above in subparagraphs (f) and (h) of this paragraph 5 for each Defendant shall constitute and be a servitude upon the existing water rights of each Defendant in and to the water supply of the San Gabriel River System upstream from Lower Area and shall run with and forever bind said water rights for the benefit of the water

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TRANSFER OF
WATER RIGHTS

rights of Lower Area Parties.

(k) If any Defendant, other than Upper District, shall desire to transfer all or any of its said water rights to a person, firm or corporation, public or private, who or which is not then bound by this Judgment as a Defendant, such Defendant shall as a condition to being discharged as hereinafter provided cause such transferee to appear in this action and file a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights. Such appearance and assumption of obligations shall include the filing of a designation of the address to which shall be mailed all notices, requests, objections, reports and other papers permitted or required by the terms of this Judgment.

If any Defendant shall have transferred all of its said water rights and each transferee not theretofore bound by this Judgment as a Defendant shall have appeared in this action and filed a valid and effective express assumption of the obligations imposed upon such Defendant under this Judgment as to such transferred water rights, such transferring Defendant shall thereupon be discharged from all obligations hereunder. If any Defendant other than Upper District shall cease to own any rights in and to the water supply of the San Gabriel River System upstream from Lower Area, and shall have caused the appearance