RESOLUTION NO. 7614

CITY OF SOUTH GATE
LOS ANGELES COUNTY, CALIFORNIA

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOUTH GATE ADOPTING THE CITY'S 2010 URBAN WATER MANAGEMENT PLAN, AMENDED FEBRUARY 3, 2014 (AMENDED PLAN), TO COMPLY WITH THE WATER CODE

WHEREAS, the Urban Water Management Planning Act (California Water Code Division 6, Part 2.6, Sections 10610 through 10656) requires that all urban water suppliers providing water for municipal purposes must prepare and submit an urban water management plan (UWMP) at least every five years; and

WHEREAS, in 2011, the City prepared its 2010 UWMP as a coordinated plan to ensure the availability and reliability of the City's water supplies through the year 2035; and

WHEREAS, the City Council adopted Resolution No. 7432 adopting the 2010 UWMP (Plan) on June 14, 2011; and

WHEREAS, in January 2014, the City received comments from the Department of Water Resources (DWR) stating that the Demand Management Measures (e.g. water management, reduction in water consumption and water conservation, etc.) identified in the Plan did not fully describe the measures to be used to promote water efficiency; and

WHEREAS, the City deemed it necessary to amend the adopted Plan and consider adopting the Revised Plan to ensure DWR regulations are fully satisfied; and

WHEREAS, consistent with Section 6066 of the Government Code, said plan was made available for public review, and notice of the Public Hearing was published in *The Press* and posted on the City's Website; and

WHEREAS, the City Council held a Public Hearing on the Amended Plan on July 8, 2014;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SOUTH GATE DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The above recitals are all true and correct.

SECTION 2. The City Council of the City of South Gate hereby adopts the City's Urban Water Management Plan, amended February 3, 2014 (Amended Plan) attached hereon as Exhibit A as promulgated by the DWR as the Urban Water Management Plan for the City of South Gate in accordance with Section 10642 of the California Water Code.

SECTION 3. The City Clerk is hereby directed to make a copy of the Revised Plan available for public review at the City Clerk's office no later than 30 days after submittal to the DWR and the California State Library in accordance with Section 10645 of the California Water Code.

SECTION 4. The City Clerk shall certify to the adoption of this Resolution which shall be effective upon its adoption.

PASSED, APPROVED and **ADOPTED** this 8th day of July 2014.

CITY OF SOUTH GATE

Henry C. Gonzalez, Mayor

ATTEST:

Carmen Avalos, City Clerk
(SEAL)

APPROVED AS TO FORM:

Raul F. Salinas, City Attorney

Exhibit A

City of South Gate

2010 Urban Water Management Plan

Prepared by

Integrated Resource Management, LLC

Adopted

June 14, 2011

Amended

February 3, 2014

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List of Abbreviations

AF	Acre-Foot or -Feet (i.e., 1 acre x 1 foot deep)
AFY	Acre-Feet per Year
AWWARF	American Water Works Association Research Foundation
BMP	Best Management Practice
CARA	California Rivers Assessment
CBMWD	Central Basin Municipal Water District
ccf	Hundred Cubic Feet
CCR	Consumer Confidence Report
CEQA	California Environmental Quality Act
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure (used by CUWCC)
DOST	DWR Online Submittal Tool
DWR	California Department of Water Resources
ET	Evapotranspiration
°F	Degrees Fahrenheit
FY	Fiscal Year
GPM	Gallons per Minute
MAF	Million Acre-Feet
MBR	Membrane Biological Reactors
mgd	Million Gallons Per Day
MLSS	Mixed Liquor Suspended Solids
MOU	Memorandum of Understanding
MWD	Metropolitan Water District
PEIR	Program Environmental Impact Report
psi	Pounds Per Square Inch
PWS	Public Water System
RO	Reverse Osmosis
RWQCP	Regional Water Quality Control Plant
SB	Senate Bill
SCAG	Southern California Association of Governments
SOP	Standard Operating Procedures
SWP	State Water Project
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
WSIP	Water System Improvement Program

Contact Sheet

Date plan to be submitted to the Department of Water Resources: **July 14, 2011**

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Executive Summary

The City of South Gate 2010 Urban Water Management Plan has been prepared under contract by Integrated Resource Management, Inc in response to the California Urban Water Management Planning Act. The Act requires all publicly and privately owned urban water suppliers that either have 3,000 or more customers or provide over 3,000 acre-feet (acre-foot = amount of water required to cover one acre one foot deep) of water annually to prepare an updated Urban Water Management Plan (UWMP) by the end of the calendar years that end in five or zero. The Act requires that UWMPs describe the suppliers' service area, water use by customer class, water supply and demand, water service reliability and shortage response options, water transfer and exchange opportunities, water recycling efforts, and conservation measures. A municipal urban water supplier's UWMP is to be adopted by City Council resolution and submitted to the California Department of Water Resources (DWR) within thirty (30) days of adoption. A UWMP can be a condition of eligibility for state grant funds and other drought assistance allocations. The city invited the involvement of local agencies, community organizations and the general public in the development of this plan through mailed notifications, newspaper advertisements, draft availability and a public hearing which was held on June 14, 2011. The City Council adopted the UWMP following the public hearing on June 14, 2011.

Incorporated in 1923, the City of South Gate has grown to a City with approximately 100,000 people. It is mostly a City of families and is strongly Latino. Located in Los Angeles County, it is expected to have only small growth in future years and there is little room for development.

The water system has developed reliable sources. The City has an adjudicated water right of 11,183 AFY. This water is access via water wells pumping from the Central Basin. In addition, the City has interconnections with other agencies and two connections with MWD to purchase water if needed. The City has not needed to purchase water in recent years and has been able to lease the unused water rights they own. Those additional sources are available for when the City does exceed it current water rights and may need to supplement with purchased water.

The most significant aspect of the 2010 UWMP process, state-wide, is conservation. Due to the recent drought conditions, increased usage, and fewer source waters, California has mandated a reduction in water use. Most agencies are required to reduce by 20%. There are also regional targets including the 142 gallons-per-capita-per-day (gpcd) goal for the region that includes South Gate.

South Gate's average usage over the last ten years has been 97gpcd. As this is less than 100 gpcd, they are not required to reduce further and 97 gpcd will be the target through 2020. This low usage factor demonstrated the already efficient water use by the residents and businesses of South Gate. In 2010, the usage was only 72 gpcd so there is potential that the City will be substantially lower without utilizing further conservation measures.

The following table summarizes the recent and projected demands as well as the expected supply sources through 2035.

	2005	2010	2015	2020	2025	2030	2035
Demand (AFY)	10,745	8,402	11,582	11,939	12,257	12,576	12,894
Groundwater Supply(AFY)	10,745	8,402	11,183	11,183	11,183	11,183	11,183
MWD Supply (AFY)	0	0	399	756	1,074	1,393	1,711

The DWR guidelines also requires discussion of several Demand Management Measures (DMM). Due to the City's low usage rates, the City will not develop programs for many of them. It is not economically feasible to implement these DMM's particularly when the usage is already substantially below the regional targets.

A water shortage contingency plan is also required. The City has already adopted such a plan that implements mandatory usage reductions in the presence of certain water shortage situations. The current plan has stages for 10%, 15%, and 40%. The third stage will be amended for a 50% reduction to comply with this requirement. However, as the City's main source of water is an adjudicated water right that does not vary with climate conditions, this situation is unlikely.

Recycled water is currently being used in South Gate but on a limited basis. This water is available through the Central Basin MWD and from recycling efforts by the Sanitation Districts of Los Angeles County. There are additional supplies available however infrastructure would have to be installed to utilize this recycled water in other parts of the City.

The City of South Gate has an efficient, reliable system that is already well-ahead of many state guidelines for reduction. By maintaining the current distribution and production systems, they meet and exceed the goals of lower water use per person throughout the State.

1.0 Introduction

The City of South Gate is pleased to present to the general public its 2010 Urban Water Management Plan (UWMP). Although a previous UWMP was completed in 2007, this will be the first plan completed per the new state standards. The State of California Department of Water Resources (DWR) issued a new guidebook for 2010 UWMPs in February 2011.

An Urban Water Management Plan, as defined by the California Legislature in the California Urban Water Management Planning Act of 1983 (last updated in 2009—attached to this plan as Appendix A), informs residents, neighboring agencies and local community groups on how an urban water agency will provide a safe, secure water supply in the short and long term. The following plan attempts to look 25 years into the future to project what the City of South Gate's water supply will look like in 2035. Included in that long-term projection are predictions concerning future water demand, conservation planning, contingency planning in case of short- or long-term droughts and other catastrophes, and potential strategies to enhance and diversify South Gate's water portfolio.

Overall, this plan was developed to be used as a tool to recognize, protect and enhance the value of South Gate's water resources. This is a living document that will be updated periodically as needed by the City and as required by the State in five year increments

The City of South Gate is located in the urbanized area of southern Los Angeles, just 12 miles south of Los Angeles. The City is bordered by the cities of Huntington Park, Cudahy, Bell and Bell Gardens to the north; by Downey to the east, by Lynwood to the south, and by Paramount to the southeast. The City was incorporated in 1923 and is the sixteenth largest city in Los Angeles County, encompassing 7.5 square miles.

The City currently meets all of its water needs from its groundwater wells and adjudicated pumping rights. There are two MWD connections for purchased water that can be used but this has not been necessary since 1999 and not since 1990 have they been used on a regular basis. There are also several connections with other agencies that can be used in an emergency.

1.1 Urban Water Management Act

The City of South Gate 2010 Urban Water Management Plan has been prepared under contract by Integrated Resource Management, LLC in response to the California Urban Water Management Planning Act (Water Code Division 6, Part 2.6, Sections 10610-10656—included as Appendix A). The Act requires all publicly and privately owned urban water suppliers that either have 3,000 or more customers or provide over 3,000 acre-feet (acre-foot = amount of water required to cover one acre one foot deep) of water annually to prepare an updated Urban Water Management Plan (UWMP) by the end of the calendar years that end in five or zero. For 2010, an extension to July 1, 2011 was implemented by SBX7-7 to meet the requirements for adoption of a UWMP. A water supplier can also periodically review and adopt changes or amendments to its UWMP in intervening years.

The Act requires that UWMPs describe the suppliers' service area, water use by customer class, water supply and demand, water service reliability and shortage response options, water transfer and exchange opportunities, water recycling efforts and conservation measures. The state also expects the 2010 plans to reflect changes to the UWMP Act since the last round of UWMP updates in 2005 (see Section 1.1.1).

Overall, the UWMP requirements for 2010 reflect a heightened interest in water conservation. Additionally, recent litigation has added significant weight to documents like UWMPs which provide legal and authoritative assessments of water supply and environmental impacts. Urban planning managers are expected to use UWMPs to determine future development goals as well as vulnerabilities in security infrastructure.

This 2010 Urban Water Management Plan was prepared in compliance with the requirements of the current Urban Water Management Act and under the guidance provided by the California Department of Water Resources.

A municipal urban water supplier's UWMP is to be enacted by City Council resolution and submitted to the California Department of Water Resources (DWR) within thirty (30) days of adoption. The DWR reviews the UWMP for completion.

The City of South Gate prepared a UWMP in 2007.

1.1.1 Changes in the Act Since 2005

Since 2005, several amendments have been added to the Act. Some of the amendments provided for eligibility for state water management grants or loans, reporting on lower income and affordable household water projections, reporting on the feasibility of serving recycled water demands as well as Senate Bill 7 (also known as SBX7-7 or the Water Conservation Bill of 2009). The following is a summary of the significant changes in the Act that have occurred from 2005 to the present:

- Every urban water supplier preparing a plan must give at least 60 days advance notice to any city and county prior to the public hearing on the UWMP within which the supplier provides water supplies to allow opportunity for consultation on the proposed plan (Water Code § 10621(b)).

- Deems water suppliers that are members of the California Urban Water Conservation Council and comply with the CUWCC's Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) (Water Code § 10631.5(a)) dated December 10, 2008, as it may be amended, to be in compliance with the requirement to describe the supplier's water demand management measures in its urban water management plan (Water Code § 10631(j)).

- Requires plan by retail water suppliers to include water use projections for single family and multifamily residential housing needed for lower income and affordable households to assist the water supplier in complying with the existing requirement under Section 65589.7 of the Government Code that suppliers grant a priority for the provision of service to housing units affordable to lower income households (Water Code § 10631.1).

- Conditions eligibility for a water management grant or loan made after January 1, 2009 to an urban water supplier and awarded or administered by DWR, the State Water Resources Control Board, or the California Bay-Delta Authority or its successor agency on the implementation of water demand management measures, including consideration of the extent of compliance with the conservation measures described in the MOU.

- Requires DWR, in consultation with other agencies and public input, to develop eligibility requirements for meeting compliance with DMM implementation. (Water Code § 10631.5(b)).

- Exempts projects funded by the American Recovery and Reinvestment Act of 2009 from the conditions placed on state funding for water management to urban water suppliers (Water Code § 10631.5(a)(2)).

- Repeals existing grant funding conditions of state water management grants or loans on July 1, 2016 if the UWMP is not extended or altered prior to this date (Water Code § 10631.5(f)).

- Required DWR, in consultation with the California Urban Water Conservation Council, to convene a technical panel, no later than January 1, 2009, to provide information and recommendations to the Department and the Legislature on new demand management measures, technologies, and approaches. The panel and DWR were to report to the Legislature on their findings no later than January 1, 2010 and each five years thereafter (Water Code § 10631.7).

- Clarifies that "indirect potable reuse" of recycled water should be described and quantified in the plan, including a determination with regard to the technical and economic feasibility of serving those uses (Water Code § 10633(d)).

- Requires DWR to recognize exemplary efforts by water suppliers by obligating DWR to identify and report to the technical panel, described above, any "exemplary elements" of individual water suppliers' plans, meaning any water demand management measures adopted and implemented by specific urban water suppliers that achieve water savings significantly above the levels required to meet the conditions to state grant or loan funding (Water Code § 10644(c)).

- SBX 7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent goal by 2020, and an interim urban water reduction target by 2015. The bill specifically includes reporting requirements in the upcoming UWMPs. Specifically, urban retail water suppliers must include in their 2010 UWMPs the following information from its target setting process: (1) baseline daily per capita water use; (2) urban water use target; (3) interim water use target; and (4) compliance daily per capita water use, including technical bases and supporting data for those determinations. An urban retail water supplier may update its 2020 urban water use target in its 2015 UWMP (Water Code § 10608.20). SBX7-7 grants an extension for submission of UWMPs due in 2010 to July 1, 2011.

1.2 Regional Coordination

The City of South Gate welcomed local and regional involvement in the development of this plan.

The City of South Gate coordinated with the agencies listed in Table 1. The City's major water supply is provided via groundwater wells utilizing allocated pumping rights from the Central Basin. There are two connections with MWD although they have not been used in over ten years. The City also has emergency interconnections with several other water agencies.

The City of South Gate conveys its wastewater to the Sanitation Districts of Los Angeles County (LACSD). LACSD functions on a regional scale and consists of 23 independent special districts serving about 5.7 million people in Los Angeles County. The service area covers approximately 820 square miles and encompasses 78 cities and unincorporated territory within the county. LACSD was notified of the City's intention to prepare the UWMP. Although the City may not develop their own recycling program, additional recycling opportunities are expected to be available through CBMWD. Their programs are discussed in more detail in Section 7.0.

See the "Contacts" section of this plan (starting on page 62) for a list of local and regional entities that received these notifications, and Appendix H for a sample notification.

Table 1 lists those agencies and organizations that were involved and/or actively participated in the development of the plan:

Table 1: Coordination with Appropriate Agencies and Organizations

	Contacted for Assistance	Participated in Plan Development	Attended Public Meetings	Requested/ Received Copy of Draft	Commented on Draft
Los Angeles County	√				
Golden State Water Company	√				
Metropolitan Water District	√				
Sanitation Districts of Los Angeles County.	√			√	√
Central Basin Municipal Water District	√				
Water Replenishment District	√				
City of Downey	√				
City of Lynwood	√				
Southern California Association of Governments	√	√			
Walnut Park Mutual Water Company	√				
City of Huntington Park	√				
Gateway Authority	√	√			

1.3 Public Participation and Plan Adoption

The City of South Gate sought a wide range of involvement in the development of this plan, including direct public involvement. Public participation in the development of the UWMP was encouraged.

The city ran a 1.5"x2" advertisement in the March 3, 2011 and March 10, 2011 editions of the *Los Angeles Wave* announcing the initiation of plan preparation (see Appendix H for proof of publication).

Drafts of the plan were made available for public inspection at the City of South Gate's City Hall and May 26, 2011 before the public hearing which began prior to the City Council Meeting on June 14, 2011. The draft of the plan was also made available on the City's website beginning on June 1, 2011. All local cities, counties, water and planning agencies and community organizations were notified by mail of the availability of the plan for public inspection and the time and location of the public hearing.

Comments on the draft were collected and either incorporated into the plan or responded to in Appendix I.

1.4 Adoption Of 2010 Urban Water Management Plan

The City of South Gate's City Council adopted the 2010 Urban Water Management Plan at its regular meeting on June 14, 2011 after a public hearing. In late 2013 DWR requested some clarification to the document text. This Amendment to the UWMP was adopted by the City on <insert final date at final>. Following adoption, the Amended RUWMP was submitted to DWR, the California State Library, and the County of Los Angeles within 30 days of Board approval. Resolutions adopting the Amended RUWMP are provided in Appendix C.

2.0 System Description

The South Gate water system serves the entire City with the exception of a portion of the Hollydale area, south of Gardendale Avenue, which is served by Golden State Water Company. Currently, the City potable water demand is served by eight active wells. Three additional wells are currently inactive, two due to ground water contamination and the other to excessive sand production. All wells draw water from the Central Groundwater Basin. Treated Colorado River water is available for purchase from the Metropolitan Water District through two turnouts within the City. The purchased MWD water can serve as an emergency water source during system or operations failure. The City also has five additional interconnections with surrounding water purveyors including the City of Downey, the City of Lynwood, City of Huntington Park, the Walnut Park Mutual Water Company, and Golden State Water Company in Hollydale.

The City of South Gate operates a municipal water utility located in an adjudicated water basin (the Court retains jurisdiction to assure a balanced Central Basin aquifer through a Judgment awarding groundwater pumping rights to water producers and the Court appointed Watermaster – the Department of Water Resources – assists the Court in the administration and enforcement of the Judgment). The Utility has annual pumping rights of 11,183 acre-feet of water. The City manages and operates wells, conduits, pipes, fire hydrants, and reservoirs. The water system in South Gate is regulated through federal law, state law, the South Gate Municipal Code, and court decisions. The exception is the Hollydale area which is served by Golden State Water Company, an investor-owned water utility. As of 2010, the City has a total of 15,555 metered connections. Seventy-five percent of water is used by residential users, nine percent commercial, fifteen percent industrial, and one percent other users.

2.1 City of South Gate

2.1.1 History

The Tongva tribe and other Native American tribes were the original inhabitants of the entire Los Angeles coastal area around South Gate. The vast Rancho San Antonio – stretching from the eastern boundary of the pueblo of Los Angeles to the San Gabriel River – was granted to Spanish settlers by the King of Spain in 1810, and South Gate grew up around the literal "south gate" of this Rancho. Before the end of the 1870's, much of the Rancho had been divided into 40-acre tracts, and by 1880 agriculture had replaced cattle ranching as the area's primary industry. In 1918, the Rancho was further subdivided and sold to 125 pioneering homeowners. This unincorporated community known as "Southgate Gardens" included some of the City's earliest streets, running east from Long Beach Boulevard to Otis Street and south from Santa Ana Street to Independence Avenue. Post Street, State Street, and Victoria Avenue were also designated as the "business district."

When the City was incorporated in 1923, it had a population of around 2,500, but as California – and particularly nearby Los Angeles – boomed in the 1920s, 1930s, 1940s, and 1950s, so did South Gate. Major manufacturers such as Ameron, Firestone Tires, General Motors, Purex, the Star Roofing Company (now U.S. Gypsum,) and the Weiser Hardware Company flourished in the new city, and the population increased. Most of the housing in South Gate was built between 1920 and 1970 to house blue collar and industrial workers in and around the City. Los Angeles' intense post-WWII urban sprawl eventually surrounded the once rural South Gate and brought it into the center of one of the United States' largest metropolitan areas (around 17 million people live in the greater Los Angeles area today)[1].

The City of South Gate is poised for positive change over the next 20 years – change that will simultaneously transform the landscape of the City and yet maintain the small town quality and characteristics cherished by residents and respected by neighbors.

[1] City of South Gate, www.cityofsouthgate.org/theearlyyears.htm

In many ways, South Gate is grappling with similar issues and forces facing many other cities in Southern California. The City's industrial job base – historically driven by such major employers as Firestone Tires and General Motors but now dominated by warehouse, distribution and small-scale manufacturing – is being forced to transform itself and provide 21st century technologies and jobs. As with built-out "inner ring" suburbs, there is almost no undeveloped land in the City for development or parks, and most new housing and jobs must come from redevelopment, infill, densification, or adaptive building reuse. South Gate is also grappling with developing a multi-modal, 21st century transportation system that enhances access and mobility for all residents. Demographically, South Gate's large Latino population, where many residents are first or second generation immigrants from Central and South America, reflects the demographic shifts occurring in the country at-large and, more specifically, in Southern California. And like many cities, South Gate is largely defined by the nature of its neighborhoods – most of which are stable, high-quality building blocks for community.

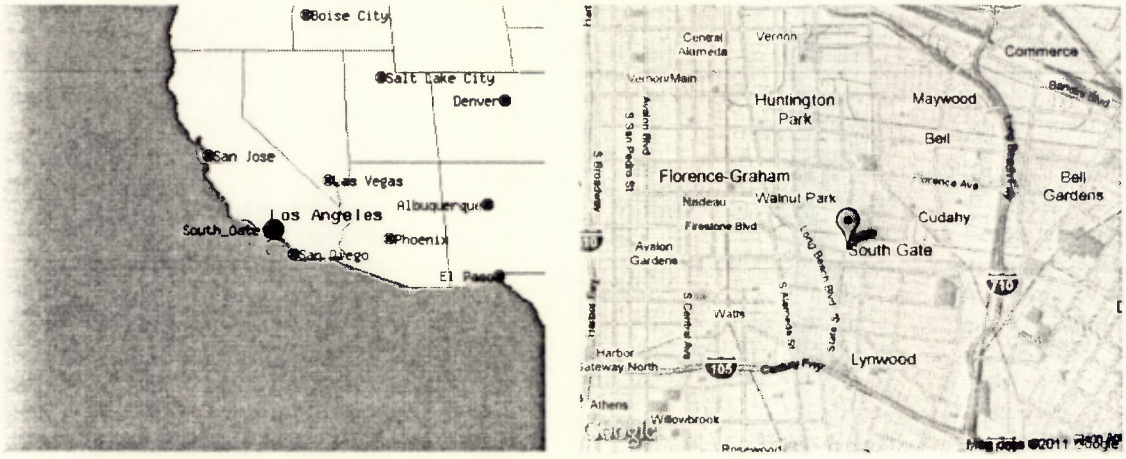
2.1.2 Location

The City of South Gate is located in the urbanized area of southern Los Angeles County, a few miles south of downtown Los Angeles. The City of South Gate covers approximately 7.5 square miles of the south-central area of Los Angeles County. The City is bounded by an unincorporated area of Los Angeles County known as Walnut Park; cities of Huntington Park, Cudahy, Bell, and Bell Gardens, Downey, Lynwood, and Paramount. The City is located in the coastal plain at the confluence of the Los Angeles River and Rio Hondo. The terrain is gently sloping, ranging from 80 to 135 feet in elevation above sea level.

The City provides water service to most of the area within the city limits. However, water service to one section, Hollydale, is provided by Golden State Water Company (See Figure 4). Sewer collection and storm drainage is provided for all areas within the City limits. The City manages the sewer system and is maintained by the LACSD. The Los Angeles County Department of Public Works provides storm drain management. All sewage is carried away to be treated at the County's treatment plant.

The topography of South Gate is dominated by the Los Angeles River (LA River) and Rio Hondo River. The LA River divides the City into eastern and western sections. Land west of the LA River gently slopes to the river. Land east of the river slopes toward the LA River or Rio Hondo. There are no significant hills or known faults within the City. The Newport-Inglewood fault is located about three miles to the southwest, the Whittier-Elsinore fault is about ten miles to the east, and the San Andreas fault is located about 40-miles to the northeast.

Figure 1: Location of South Gate



Source: South Gate, California Profile, 2011. http://www.idcide.com.

Figure 2: Location of South Gate

Source: City of South Gate General Plan, December 2009

Figure 3: City of South Gate City Limits

Source: City of South Gate General Plan, December 2009

2.1.3 Climate

The City of South Gate is located in the desert climate of Southern California in the County of Los Angeles. South Gate has a semiarid Mediterranean climate with mild winters and hot, dry summers. Temperatures range from a low of 40 °F to a high of 110 °F. The average daily temperatures range from 54 °F to 83 °F. The average annual precipitation is 14.3 inches per year with most occurring between November and April.

Table 2 gives data on the climate of the region as it impinges on its water supplies, including average rainfall, average temperature, and average rate of evapotranspiration (ET—i.e., the rate that water either evaporates or is expired by vegetation into the atmosphere).

Table 2: Climate

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Rainfall (inches)	3.40	3.23	2.33	1.03	0.18	0.06	0.02	0.09	0.19	0.42	1.42	1.97	**14.34**
Average Temperature (°F)	64.3	*	54.5	63.8	64.3	77.7	82.3	83.1	80.0	73.0	64.9	60.5	**69.8**
Average ET (inches per month)	1.65	2.15	3.59	4.77	5.12	5.71	5.93	5.91	4.39	3.22	2.18	1.68	**46.30**

Sources: Monthly Average ETo Report (No. 174, Long Beach, Los Angeles Basin Region), CIMIS, Department of Water Resources, Office of Water Use Efficiency, Accessed March 6, 2011; Western Regional Climate Center, 1906-2010. Downey, California (Station 042494) http://www.wrcc.dri.edu.(February data was insufficient)

2.1.4 Population

By 2000, South Gate was home to an estimated 96,375 people, double what it was in 1960 and 10% more than in 1990. The actual current population may be 10-20% higher than that estimate because of the large immigrant and undocumented population in the City. Having fully transitioned away from its beginnings as a small agricultural outpost, South Gate can now be characterized as a increasingly urbanized city in greater Los Angeles that still retains a "small-town" identity, with a continued but diminishing manufacturing and industrial presence, and a still prevalent Spanish and Latino heritage.

Population figures were provided and developed from multiple sources and provided for the City of South Gate and the South Gate water service area. The City population was provided by the 2000 Census and from the Southern California Association of Governments (SCAG) projections. The service area population was developed by utilizing Appendix A in the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use Handbook.

South Gate's population since 2000 has grown by less than 1 percent per year and it expected to continue at that rate as the City has been mostly built out. Redevelopment of the vacant industrial areas are the most likely locations for additional population growth. By 2035 South Gate's population is expected to reach 119,247.

SCAG has prepared population projections for the City of South Gate as well as other cities and counties throughout southern California. SCAG's population calculations are for the entire City of South Gate and they do differ slightly from the populations as calculated by the methodology of the UWMP. However, the percentage growth they determine can be used in confidence. The SCAG projections began with a 2008 total population of 102, 498 and then projected a 2020 population of 110,412 and a 2035 population of 119,247. The numbers were then prorated to determine the projections from 2010-2035.

The City of South Gate's water service area does not mirror the city boundaries. Therefore the population estimates must be adjusted accordingly for the Hollydale area, south of Gardendale Avenue, which is served by the Golden State Water Company within the city limits. The growth rate as determined by SCAG was then used to adjust the service area population as compared to the overall City population.

Table 3 gives the current and projected population for the City of South Gate's Water Utility service area:

Table 3: Population – Current and Projected

	2010	2015	2020	2025	2030	2035
City of South Gate Population*	103,817	107,115	110,412	113,357	116,302	119,247
Service Area Population	102, 832	106,099	109,365	112,282	115, 199	118.116

**SCAG RTP 2012 Growth Forecast*

2.1.5 Socioeconomic Conditions

At its core, South Gate is a city of families and neighborhoods. In 2000, 86% of all households in the City were made up of families (couples with or without children or single people living with children), an increase from 82% in 1990. Many families are young. More than one third of the population is 18 years old or younger, the City's median age is 27, and the 27-54 year old demographic is by far the fastest growing age group. Many of these young families live in single family residential homes, which are the most common type of housing found in most residential neighborhoods. The City is also strongly Latino. Many residents are first or second generation immigrants, and 92% of residents were identified as Hispanic in the 2000 census.

South Gate residents are about as likely to be renters as to be owners. According to the 2000 Census, approximately 47% of South Gate's housing units are owner-occupied and 53% are renter-occupied. In 2009 South Gate's vacancy rate were below five percent for rental housing and below two percent for ownership housing. These numbers point to a very tight rental and housing ownership market.

South Gate has a strong and active workforce. In 2000, 5.5% of South Gate residents were unemployed, significantly lower than Los Angeles County's unemployment rate of 8.2%. Those who were employed primarily worked in production (33%) and sales (28%) occupations that paid low wages, and the median household income was $35,695. By 2005, unemployment in South Gate had increased to 6.5%, even though the countywide rate had dropped to 5.3%. There are fewer jobs in South Gate city limits (19,960 in 2003)[1] than housing units (24,411 in 2005)[2], and many residents that cannot find suitable jobs within city limits commute elsewhere for work. The jobs that exist in South Gate city limits are primarily in the industrial sector, with a low number of office or service jobs.[3]

South Gate's economy is supported by approximately 17,700 jobs, as reported by the Employment Development Department (EDD)1 in 2007. The manufacturing sector provides 30 percent of these jobs, the largest share of any industry. Many direct and indirect manufacturing businesses are located in the City, taking advantage of its proximity to Downtown Los Angeles, one of the largest economic centers in the nation in addition to the Ports of Los Angeles, Long Beach and the Alameda Corridor.

Between 1996 and 2006, South Gate's economy grew, especially in relation to Los Angeles County's economy as a whole. South Gate's moderate annual job growth of 5.27 percent was well above Los Angeles County's average annual growth of 0.86 percent.

Retail trade is one of the fastest growing industries in the City. Between 1996 and 2006 South Gate saw a 12.4 percent growth in retail industry jobs. Much of the City's retail growth is occurring along Firestone Boulevard. Currently, Firestone is home to many new and used auto dealerships, which provide substantial taxable annual sales for the City. Other major commercial districts in the City include Tweedy Mile, Hollydale Business District, State Street, Paramount Boulevard, Long Beach Boulevard and El Paseo. Most areas of the City have experienced some growth in locally-based retailers but have not been able to consistently attract national credit-tenants. The

[1] Southern California Association of Governments estimate, 2003.
[2] California Department of Finance, 2006.
[3] South Gate General Plan 2035

El Paseo Shopping Center, a 300,000 square foot regional retail center developed in 2000, signals a change in this trend. El Paseo not only attracts South Gate residents, but also brings patrons from Downey, Lynwood, Huntington Park and other nearby cities. The South Gate Towne Center is a 175,000 square foot retail center adjacent to the El Paseo. It also draws retail patrons to the City with the presence of a Sam's Club Warehouse and numerous inline retail stores and restaurants. The establishment of South Gate as a regional retail destination will be furthered by the anticipated El Portal retail center, at the intersection of Firestone Boulevard and Atlantic Avenue. El Portal will bring approximately 600,000 additional square feet of national-brand and local retailers to South Gate, providing an estimated $1.93 million in annual sales tax revenue. Transportation and warehousing is a high-potential and high-growth industry attracted by South Gate's convenient location and proximity to major transportation nodes. Between 1996 and 2006 this sector grew 11 percent, resulting in an additional 668 jobs within the City.[1]

Commercial establishments in South Gate are located mainly along major arterials such as Firestone Boulevard, Atlantic Avenue, Tweedy Boulevard, and Long Beach Boulevard. The section of Tweedy Boulevard between Long Beach Boulevard and Hunt Avenue is considered the central business district of South Gate. In recent years, the number of commercial establishments has increased as development occurs and industrially zoned land is converted to commercial uses.[2]

South Gate is currently home to a number of major industries including Schultz Steel, Saputo Cheese, U.S. Gypsum, Armstrong World, Philadelphia Quartz Industry, and Koos' Manufacturing.

In the 1980's, South Gate's industrial base changed as General Motors and Firestone Rubber closed manufacturing plants in the City. The City is updating the General Plan and industrial land use designations are not expected to change.

In the past, South Gate was a predominantly agricultural area until the mid-1930, when urban growth replaced much of the farm land. Currently, there is very little land dedicated to agricultural

production. Remaining agricultural land is located along the transmission utility right-of-way (owned by the Los Angeles Department of Water and Power and the Southern California Edison Company) adjacent to the Los Angeles and Rio Hondo Rivers and along a portion of Southern Avenue near Atlantic Avenue. The updated General Plan studies do not expect this agriculture use will change.[1]

The discussions above were included in either the 2005 water master plan or the General Plan completed in 2009. The economic downturn of the recent years will have an effect on the socioeconomic conditions. Those exact effects will not be known until the next similar study.

2.1.6 Land Use

Land use categorized as residential, commercial, industrial, and public/institutional comprise approximately 82% of the City's total land area of 3,739 acres. The remaining land consists of public parks, freeways, flood control right-of-ways, and railroad right-of-ways. Almost all of South Gate is developed, with less than 60 acres remaining undeveloped or vacant. The composition of existing land use in South Gate by user category is shown on Table 4.

[1] South Gate General Plan 2035
[2] 2005 City of South Gate Water Master Plan

Table 4: Existing Land Use by Category

Land Use	Number of Parcels	Acres	Percent Acreage
Single-Family Residential	10,348	1,374	36.7%
Multi-Family Residential	3,718	570	15.2%
Residential Landscaping	1	6	0.2%
Commercial 1	335	114	3.0%
Commercial 2	598	228	6.1%
General Industrial	467	719	19.2%
Railroad	48	72	1.9%
Flood Control District Easement	69	158	4.2%
Easement/Powerline R/W	129	86	2.3%
Civic/Institutional	127	73	2.0%
Public Works	8	10	0.3%
Schools	96	72	1.9%
Schools with Green Areas	37	69	1.8%
Parks	46	128	3.4%
Vacant	191	60	1.6%
Totals	16,218	3,739	100%

**2005 City of South Gate Water Master Plan*

Commercial land use includes neighborhood, community, and regional shopping centers; commercial sales and service; general office; medical office; and lodging. Commercial development is located primarily on commercial strips located adjacent to major arterials such as Firestone Boulevard, Long Beach Boulevard and Tweedy Boulevard. The central business district is the section of Tweedy Boulevard between Long Beach Boulevard and Hunt Avenue.

Commercial land uses account for approximately 9.1% of the City's total land area. The commercial parcels within the City showed a wide range of demand characteristics. In order to more effectively allocate water system demands, commercial land use was separated into Commercial 1 and Commercial 2. Commercial 1 is categorized as users with a daily average consumption of approximately 1200 gallons. Commercial 2 is categorized as users with a daily average consumption of approximately 4500 gallons. These categorizations are based purely on demand characteristics for the purposes of this master plan.

Industrial land uses are concentrated in the northeastern, eastern and extreme western parts of the City. The southwestern industrial sites are currently occupied by warehousing and distribution sites. The northwestern industrial sites are currently occupied by a variety of industrial users, including light manufacturing and mineral processing sites.

In the ultimate land use scenario, 376 parcels totaling 160 acres change land use with respect to current land use. The 160 acre total represents 60 acres of vacant land that are developed to the ultimate allowable land use and 100 acres that are redeveloped from existing land use. The large areas of concentrated redevelopment include two areas of new schools in the eastern/southeastern areas of the City.

There are three major parks and a number of smaller parks located throughout the City. Athletic fields and picnic areas are available at both South Gate Park and Hollydale Park. The City owns and maintains a 9 hole, par-3 golf course, and a recreation center equipped with a swimming pool at the South Gate Park. In addition, there are ten elementary schools, two junior high schools and two senior high schools located in the City. There are playgrounds and recreation programs at the elementary schools and athletic fields are available for public use at the junior and senior high schools.

2.1.7 System Description

The system consists of one pressure zone with 50-70 pounds per square inch (PSI) being maintained at all times. The distribution system consists mostly of cement-lined cast iron piping, includes some asbestos-cement pipes, steel, polyvinylchloride pipe (PVC) and ductile iron piping in the system. There are about 20 dead-ends equipped with blow-off valves and the system is flushed as needed. The system has about 130 miles of main lines. About 24 miles of this consist of 4-inch unlined pipes and these are being gradually replaced by 6" ductile iron pipes. As part of an improvement project, the system has completed approximately 8 miles of piping replacement work already.

There are three booster pump stations in the system. One of them containing four booster pumps rated at 150 HP each, is located at Firestone Boulevard and I-710 Freeway adjacent to the Hawkins reservoirs. These booster pumps can provide 2,800 GPM each. They pressurize the water from the Hawkins Reservoir. Wells No. 24 and 25 are also located here. There is also a 750 kilowatt (kW) diesel generator for emergency power interruptions to operate these boosters. There is another booster pump station at the South Gate Park Reservoir site which has four vertical turbine pumps. These are rated at 150 HP each and can pump 2,200 GPM each and pump water from this reservoir into the distribution system. There is also a 1,000 kW generator for auxiliary/emergency power at this site.

The third booster pump station is located on Tweedy Boulevard between Well No. 26 (2541 Tweedy Boulevard) and Well No. 27 (2645 Tweedy Boulevard). This booster pump station is equipped with four variable speed vertical turbine pumps. These are capable of producing 2,500 GPM each and they pump water from the reservoir into the distribution system. There is also a 1,000 kW generator for auxiliary/emergency power at this site.

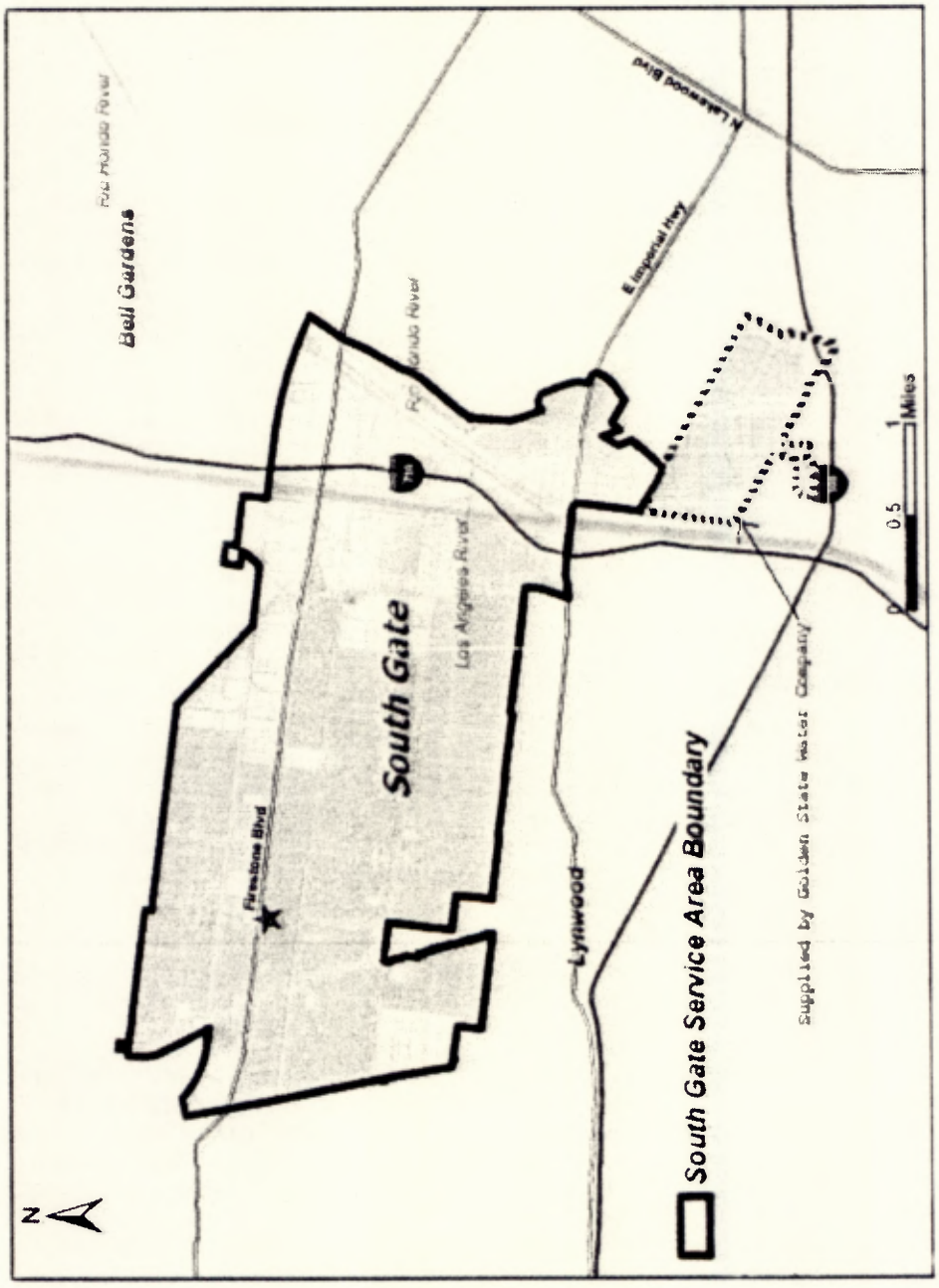
The City treats the water pumped from Wells No. 13, 14, 18, and 19 to meet the requirements of the State Department of Health Services. The water from Wells No. 13, 14, 18, and 19 is treated by a 5,000 gallons per minute (GPM) spray aeration facility inside the 4 million gallon (MG) underground reservoir located in South Gate Park. In the past, these wells contain tetrachloroethylene (PCE) and have exceeded the maximum contaminant level (MCL). This water is also chlorinated before being pumped into the system. The two chlorine injection points are located on the common well discharge header prior to the reservoir and on the booster pump discharge header downstream of the reservoir. The chlorine residual analyzer is located near the latter injection point.

There are two elevated tanks, four ground level tanks and one underground concrete tank. Storage facilities are made of steel except for the buried reservoir in the South Gate Park which is made of steel-reinforced concrete:

The elevated tanks on the distribution system are the Santa Fe Avenue (0.5 MG) and Salt Lake Avenue tanks (0.5 MG). Two ground-level steel tanks are located at Firestone Boulevard and the I-710 Freeway, referred to as the Hawkins Reservoirs and are rated at 2.5 MG each. There is also a pump station at this site which boosts the water from these tanks. All tanks were inspected and recoated in 2003. An additional two ground level tanks are located at Tweedy Boulevard between Well No. 26 and Well No. 27 and these are rated at 1.8 MG each. A booster pump station is located at this site which boosts the water from these tanks as well as auxiliary power supply in the event of an electrical power outage.[1]

[1] 2005 City of South Gate Urban Water Management Plan

Figure 4: City of South Gate Water Service Area



Source: City of South Gate Water Master Plan, August 2005

3.0 System Demands

This section provides an overview of water usage in the City of South Gate. It includes an overview of the system demands as well as the past, current and projected usage numbers, including water sales to other agencies and unaccounted-for water system losses, for the City of South Gate through 2035.

Analysis of present water use determines the make-up of the City's current water users, and the magnitude of consumption by these users. From this analysis, water use by customer class can be determined. Historical and present water use, in conjunction with planning information, is the basis for projecting future water demand.

Water production for South Gate is equal to the groundwater withdrawn by City wells plus any imported water purchased from MWD and interconnections with adjacent cities. It is the total amount of water introduced into the distribution system. Water produced by City wells and MWD connections are recorded by meters located at each production facility. Water consumption reflects water consumed by City customers as recorded by customer water meters. The difference between water production and water consumption is represented by unaccounted-for water.

Water demand is projected water consumption but not necessarily available. During a period of adequate supply, the amount of water that is desired will be consumed. During a period of restricted water availability, such as a drought, water consumption may be less than desired water demand if mandatory water conservation measures are imposed because of drought conditions.

3.1 Demand Projection Development

The projections for growth within the City are based on multiple resources. For residential uses, the main component is basic population growth. An analysis of recent, current and project populations and the amount of water used by the residents establishes the majority of the projected demand. For the industrial and commercial customers, the growth is based on planned projects provided by City staff and reports. Most development however is in redevelopment areas as the City has been built out for many years.

For the business customers, the top 3 consumers had been consistent for many years until US Gypsum left in 2007. The two years prior to that, US Gypsum had averaged over 90,000 units (220 AF) per year. However, Koos Manufacturing and Saputo Cheese have remained the top two users totaling an average of 160,000 units (371 AF) over the last five years. Those two typically have roughly double the consumption of the next largest user and about 8 times the 10th largest user.

The large projects anticipated by the City include:

- Gateway Retail Center-600, 000SF commercial area – 30.5 AC
- South Gate Civic Center-118,000 SF
- Hon Property-Retail – 19.23 AC
- East Los Angeles Community College Extension-18.51 AC

As these projects are less than a 10% increase to the commercial and industrial uses within the City, we will assume a 1% rate per year in each sector throughout the study period of this report. Although it is possible that a large industrial user, as US Gypsum was, could return to the City, there is no planned development at this time.

Table 5 lists projection data provided to MWD by South Gate. The City has not used MWD water for several years and currently only anticipates using the connections for emergencies. Based upon Table 7, it does not appear that capacity above the 11,183 AF of adjudicated allotment for groundwater will be necessary. The City has not provided any projected demand to MWD.

Table 5: Demand Projections Provided to Wholesale Suppliers

Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035
MWD	N/A	0	0	0	0	0	0
Total	**N/A**	**0**	**0**	**0**	**0**	**0**	**0**

3.2 Baselines and Target

The City currently uses very little recycled water that is well below 10%, therefore a 10-year base period is used.

The DWR Guidebook establishes the procedure for determining the targets. This is summarized in the flow chart shown as Figure 5. There are four approved methods for determining the target water use. The method used by the City of South Gate to determine its water use target was Method 3: Ninety-five percent of the applicable state hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Water Conservation Plan. The City of South Gate is located in the South Coast Hydrological Region. Method 3 establishes this area target as 142 GPCD. The 10 year base period is 97 gpcd and well below 95% of the regional target of 142 gpcd. The confirmation process requires a 5 year base period calculation as well. Since the City is at 97 gpcd for that period also, it is less than 100 gpcd, the five-year base period is not required and no further reduction is required. With both base periods being 97, the interim target for 2015 remains at 97 gpcd as well.

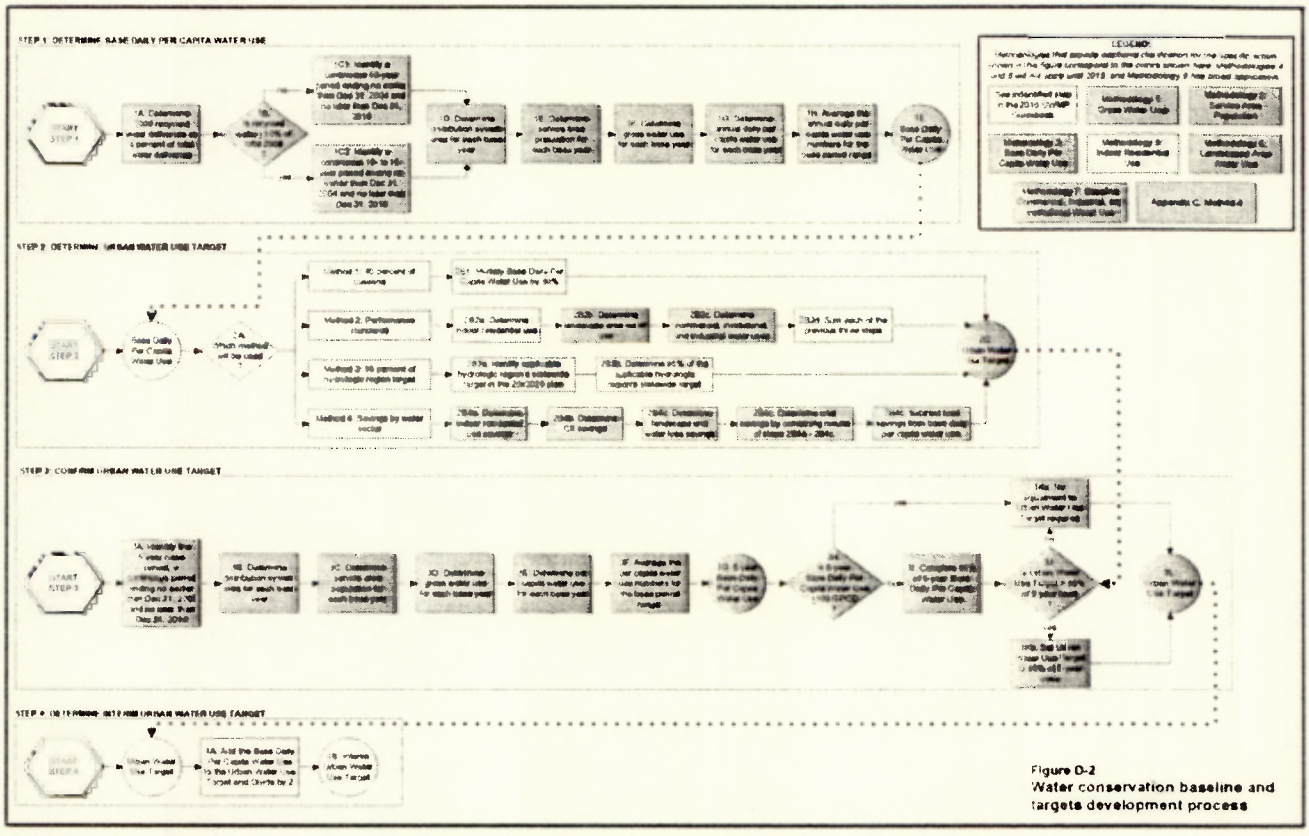
The City of South Gate has developed its baseline target for the water service area individually and not part of a regional target. The water service area does not directly overlap the city boundaries and therefore were adjusted based on the 2000 Census tract maps. The population estimates for the baseline years for the analysis were developed utilizing Appendix A in the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use Handbook. This method utilizes the 2000 Census data and calculates the person per single-family connection and per multifamily connection then projects the population out based on the connections throughout the selected base period.

In addition, although the City is compliant with the 20x2020 goals by having a usage rate under 100 gpcd, it is also a participant in the Gateway Authority IRMWP. This Regional Alliance will also plan to meet the 20x2020 goals as well.

Table 6: Base Daily Per Capita Water Use

Calendar Year	Population	Gross Water Use (AF)	Gross Water Use (GD)	Per Capita Water Use(GPCD)
1995	94746	9820	8767293	93
1996	94746	10226	9129336	96
1997	94746	10165	9074772	96
1998	94746	10332	9223806	97
1999	94746	11304	10091588	107
2000	90258	11239	10033666	111
2001	90258	10941	9767460	108
2002	90258	11797	10531486	117
2003	90258	10462	9340238	103
2004	91261	10582	9446947	104
2005	101340	10745	9592839	95
2006	92310	9997	8924675	97
2007	101501	10112	9027805	89
2008	100337	9809	8757232	87
2009	91146	9819	8765990	96
2010	102832	8402	7500483	73
10 year base period			2001-2010	97
5 year base period			2003-2007	97

Figure 5: Target Development Flow chart



Source: Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan, March 2011

3.3 Past, Current and Projected Water Deliveries by Sector

Industrial water consumption accounts for about 15 % of water used in South Gate. About 70% of all industrial water consumption is consumed by four of the City's top water users. These major industrial water users are: Saputo Cheese, Koo's Manufacturing, American Apparel and BGN Properties. There is some unoccupied industrial land that currently does not have any water demand, but it is anticipated vacant parcels may develop and water demand will increase with each development project.

Table 7 shows the projected water demands through 2035. The number of accounts for 2005 and 2010 are based upon accounts from the City finance department. The AFY total for 2005 and 2010 are based on actual production numbers as well. The 2015-2035 calculations are based upon the population growth rates and the average usage rates as calculated in the previous sections. For commercial and industrial, the projected growth is based upon planned projects as shown in Section 3.1

The City of South Gate delivered 8,402 acre-feet of water to 14,051 residential customers and 1,504 non-residential customers in Fiscal Year (FY) 2009-2010. This amount is much less than the city delivered in FY 2004-2005 (10,745 acre-feet to 13,847 residential customers and 1,491 non-residential customers).

Table 7 lists the past, current and projected water deliveries made by the City of South Gate from 2005 through 2035 in 5-year increments. The resulting water use data is separated by sector into the following categories: single-family and multi-family residential usage, commercial and industrial usage and other.

Demand at the South Gate Park varies from 108 to 432 GPM depending on the number of sprinkler heads that are on-line. The parks are watered at night and the demand does not impact daytime water distribution.

Table 7: Past, Current and Projected Water Deliveries

Water Use Sectors	2005		2010		2015	
	Accounts	AFY	Accounts	AFY	Accounts	AFY
Single-Family Residential	10,108	4,266	10,257	3,335	10,583	4,598
Multi-Family Residential	3,739	3,784	3,794	2,959	3,914	4,080
Commercial	1,388	1,010	1,402	789	1,474	1.088
Industrial	93	1,585	90	1,239	95	1,708
Other	10	100	12	78	13	108
Total	15,328	10,745	15,555	8,402	16,078	11,582

Water Use Sectors	2020		2025		2030		2035	
	Accts.	AFY	Accts.	AFY	Accts.	AFY	Accts.	AFY
Single-Family Residential	10,909	4,740	11,200	4,866	11,491	4,993	11,782	5,119
Multi-Family Residential	4,035	4,205	4,142	4,317	4,250	4,430	4,358	4,452
Commercial	1,549	1,122	1,628	1,152	1,711	1,181	1,798	1,211
Industrial	99	1,761	104	1,808	110	1,855	115	1,902
Other	14	111	15	114	16	117	17	120
Total	16,606	11,939	17.089	12,257	17,577	12,576	18,070	12,894

3.4 Sales to Other Agencies

The City of South Gate has interconnections with five agencies as shown in Table 8. The Golden State and Lynwood connections are operated automatically based upon pressure settings while the other 3 connections are operated manually. Each of these connections can be used to buy or sell water as needed by the two agencies.

As each of these connections are only utilized as needed or during a water emergency, it is not likely to be a large volume of sales comparatively. In 2010, there were no sales to other agencies and in 2009 only .19 AF was sold. But projecting forward, a small planned sale quantity needs to be anticipated.

Table 8 lists all City of South Gate current and projected sales to other agencies:

Table 8: Sales to Other Agencies

Water Distributed (AFY)	2010	2015	2020	2025	2030	2035
City of Downey	0	0.1	0.1	0.1	0.1	0.1
City of Lynwood	0	0.1	0.2	0.3	0.4	0.5
Walnut Park Mutual Water Company	0	0.1	0.1	0.1	0.1	0.1
City of Huntington Park	0	0.1	0.1	0.1	0.1	0.1
Golden State Water Company	0	0.1	0.2	0.3	0.4	0.5
Total	0	0.5	0.7	0.9	1.1	1.3

3.5 Low Income Housing Projection

The water use projections in Section 3.3 include water provided to low income housing units. The City does not have any specific projects planned for low income housing and they do not currently separate water accounts for low-income but based upon data provided from the Housing element, we can estimate the percentage of residences that are low-income. Lower income is based on 80% of median income of the County. In the 2000 Census, 52.1% of households were below this income level.[1] The ratios are expected to remain which allow us to project the water usage by using the rates as calculated in Table 6.

Table 9: Low-Income Projected Water Demands

Water Use (AFY)	2015	2020	2025	2030	2035
Single-Family Residential	1,793	1,848	1,897	1,947	1,996
Multi-family Residential	1,591	1,640	1,683	1,727	1,771
Total	**3,384**	**3,488**	**3,580**	**3,674**	**7,230**

[1] City of South Gate 2008-2014 Housing Element

3.6 Other Water Uses and Losses

The City of South Gate has the very unusual situation of having no losses. In effect they have a net gain within the system in most years. All systems have losses inherent to normal functions such as fire hydrant uses, leaks, theft, and under measurement by aging meters. Unaccounted for water system loss is typically calculated by subtracting metered water usage from the amount of water produced. It is believed that the net gain into the South Gate system is from a leak into the system from another connection. The City is working to determine the cause but have not been able to determine that as of yet. For the future projection, we assume that this anomaly will be found and a 2% system loss will occur.

Table 10 documents current and projected unaccounted-for system loss:

Table 10: Unaccounted-For Water System Loss

Water Use (AFY)	2005	2010	2015	2020	2025	2030	2035
Unaccounted-for System Losses	0	1	174	181	187	193	199
Total	**0**	**1**	**174**	**181**	**187**	**193**	**199**

3.7 Total Water Usage

The combined current and projected water usage, including sales and system losses, for the City of South Gate are given in Table 11:

Table 11: Total Water Use

Water Use (AFY)	2005	2010	2015	2020	2025	2030	2035
Total water deliveries (Table 7)	10,745	8,402	11,582	11,939	12,257	12,576	12,894
Sales to other Agencies(Table 8)	0	0	0.5	0.7	0.9	1.1	1.3
Unaccounted-for Water Losses (Table 10)	0	1	174	181	187	193	199
Total Water Usage	10,745	8,403	11,757	12,121	12,445	12,770	13,094

3.8 Water Use Reduction Plan

As detailed in Section 3.2, the current baselines and targets are all at 97 gpcd. Due to the water use being less than 100 gpcd, the City of South Gate is not required to do any water reduction at this time. However, the City will continue with current conservation measures and comply with the DMM's discussed further in Section 6.0.

The City is also a member of the Gateway Authority 20x2020 Regional Alliance which plans to meet the target goals from a regional perspective as well.

4.0 System Supplies

Groundwater is the major component of the City's water supply system. A secondary source, generally for emergencies, is from MWD connections and inter-connections with other water purveyors. Water generated by the groundwater wells is chlorinated and distributed to existing City customers or stored in elevated or ground-level (either buried or exposed on grade) reservoirs. Supply from the ground-level reservoirs is pressurized by booster pump stations into the distribution system.

The City of South Gate uses groundwater from the City wells as its primary source. Water generated from wells is chlorinated and distributed to City customers or stored in reservoirs. The total capacity of both active and stand-by wells is 32.97 million gallons per day (MGD), or 101.19 acre-feet per day. This represents a surplus over the City's average daily demand of 9.32 MGD, and the City's maximum daily demand of 16.78 MGD. Because the total capacity of these existing wells exceeds maximum daily demand, additional wells are not required. However, reservoir storage capacity needs to be improved and additional reservoirs or storage capacity needs to be developed.

In addition to its own sources, the City also has agreements to purchase water from other agencies including the Metropolitan Water District of Southern California (MWD), the City of Downey and the Golden State Water Company. These secondary sources are generally for emergencies only, and the City has not used purchased water during the last ten years. The City is allowed to pump 11,183 acre-feet per year, and has leased water rights of about 2,000 acre-feet per year to other agencies for many years. The City is working with other agencies to develop a "conjunctive use" program (water storage in the underground aquifer) and may be able to convert unused water to underground water storage. This plan requires cooperation with other water purveyors as well as court approval.

4.1 Groundwater

4.1.1 Metropolitan Water District and Central Basin

Central Basin relies on approximately 90,600 (AFY) of imported water from the Colorado River and California's State Water Project (SWP) to meet the District's retail and replenishment demands. MWD receives this supply from these two major water systems that supplies a majority of the Southern California region.

MWD was established to develop a supply from the Colorado River. Its first mission was to construct and operate the Colorado River Aqueduct (CRA), which can deliver roughly 1.2 million acre-feet (MAF) per year. Under its contract with the federal government, MWD has a basic entitlement of 550,000 AF per year of Colorado River water. MWD also holds a priority for an additional 662,000 AF per year.

SWP, MWD's second main source of imported water, is the nation's largest state-built water and power development and conveyance system. It includes facilities-pumping and power plants, reservoirs, lakes and storage tanks, and canals, tunnels and pipelines that capture, store and convey water from the Lake Oroville watershed in Northern California to 29 water agencies in Central and Southern California. Planned, designed, constructed and now operated and maintained by the California Department of Water Resources (DWR), this unique facility provides water supplies for 23 million Californians and for 755,000 acres of irrigated farmland.

The original State Water Contract called for an ultimate delivery capacity of 4.2 MAF, with MWD holding a contract for 1.9 MAF. More than two-thirds of California's drinking water, including all of the water supplied by the SWP, passes through the San Francisco- San Joaquin Bay-Delta (Bay-Delta). For decades, the Bay-Delta system has experienced water quality and supply reliability challenges and conflicts due to variable hydrology and environmental standards that limit pumping operations. In 1999, MWD's Board of Directors set new goals for the SWP with the adoption of its CALFED Policy Principles. These goals committed MWD to water quality objectives, the development of 0.65 MAF minimum dry-year supply from the SWP by 2020 and average annual deliveries of 1.5 MAF (excluding transfers and storage programs along the SWP). To achieve these goals while minimizing impacts to the Bay-Delta ecosystem, MWD would maximize deliveries to storage programs during wetter years, implement a number of source water qualities and supply reliability improvements in the Delta, remove operational conflicts with the Central Valley Project (CVP) and better coordinate planning and operations between the SWP and CVP.

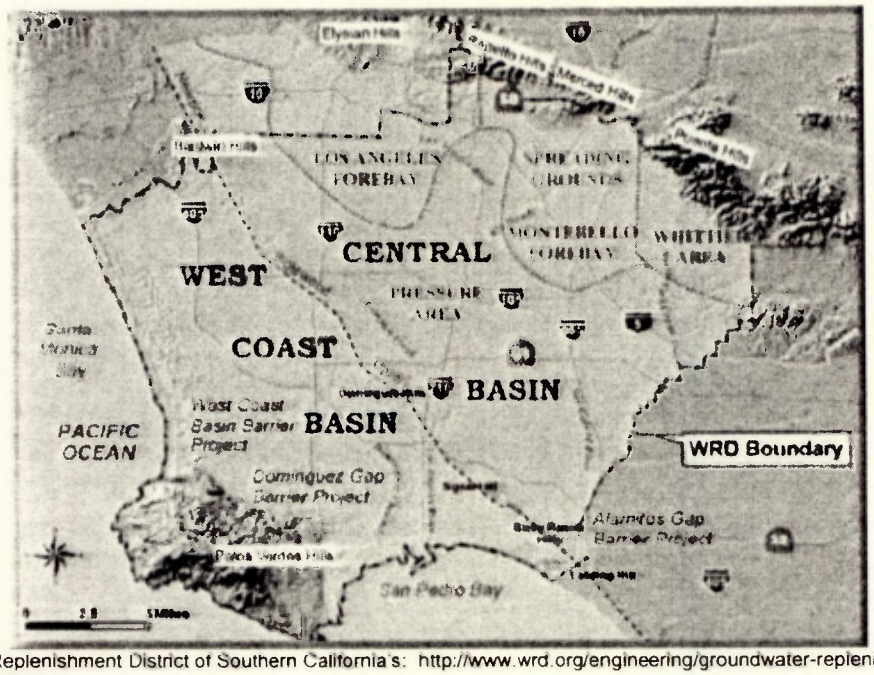
MWD offers different types of imported water to its member agencies depending on the ultimate use. Among them, Central Basin has delivered Non-Interruptible Water (treated full-service), Seasonal Treated Replenishment Water and Seasonal Untreated Replenishment Water. Non-Interruptible Water is the treated firm supply that is available all year round. Central Basin delivers an average of 63,000 AFY of non-interruptible water annually. It is used as the main supplemental supply of cities and water agencies and has historically been used as the main supply for the Alamitos Barrier; however, the City of Long Beach now provides water for that barrier. Seasonal Treated Replenishment Water, also known as the "In-Lieu" water, is delivered to customer agencies that are eligible to offset groundwater production with imported water.

This program incentivizes customer agencies to take imported surplus water which indirectly replenishes the groundwater basin. This surplus water is purchased at a discount rate in exchange for leaving groundwater in the basin for no less than a year so that it can be used subsequently during dry years. Seasonal Untreated Replenishment Water, better known as "Spreading" water, is delivered to the replenishment spreading grounds in the Montebello Forebay. Spreading water does not require treatment and is generally provided during the seasonal months (October through April), which allows for it to be purchased at a discounted rate. Water Replenishment District of Southern California (WRD) is the sole purchaser of spreading water, and the amount varies year to year depending on replenishment needs of the Basin, with the long term average being approximately 27,600 acre-feet per year. Groundwater has for many years been the primary supply of water within Central Basin's service area. In fact, it was the sole source of water supply until the Central Groundwater Basin (Basin) was overdrafted in the late 1940s. Today, the average customer agency in Central Basin relies on groundwater production for 62% of its water supply, although there still remain a few agencies in the District's service area that rely exclusively on groundwater to meet all current water needs.

Ultimately, the extensive overpumping of the Basin through the years led to critically low groundwater levels. This overpumping of the Basin resulted in a legal judgment, or adjudication, that limited the allowable extraction that could occur in any given ear and assigned water rights to basin pumpers. The adjudicated water rights were greater than the Basin yield; therefore, the Basin was operating with an annual overdraft. In order to address this overdraft, imported and recycled water sources and a means to purchase these sources were required.

The following graphic shows the location of the Central Basin

Figure 6: Central Basin Area



Source: Water Replenishment District of Southern California's: http://www.wrd.org/engineering/groundwater-replenishment-spreading-grounds.php

4.1.2 Water Replenishment District of Southern California (WRD)

The groundwater producers (pumpers) in the area, which are members of the Central Basin Water Association, led the creation of the WRD, which manages the replenishment of the groundwater basin. In 1959, the State Legislature enacted the Water Replenishment Act, enabling the water associations for the Basin to secure voter approval for the formation of the "Central and West Basin Water Replenishment District" (now referred to as the Water Replenishment District of Southern California or "WRD") to be the permanent agency in charge of replenishing the Basin. The State Legislature has vested in WRD the statutory responsibility to manage, regulate, replenish and protect the quality of the groundwater supplies within its boundaries for the beneficial use of the approximately 3.5 million residents and water users who rely upon those groundwater resources to satisfy all or a portion of their beneficial water needs. Although the water rights have been bought, sold, exchanged or transferred through the years, the total amount of allowable extraction rights within the entire groundwater basin has remained virtually the same. The adjudicated pumping rights available within Central Basin's service area totaled 163,960 AF. However, not all of these water right holders are water retail agencies. Many of these holders are nurseries, businesses, cemeteries and private entities that make up approximately 23% (37,287 AF) of the total water rights.

For the past 42 years, WRD has replenished the Basin through "Spreading Grounds" and prevented further seawater intrusion by injecting recycled and imported water into the Alamitos Barrier, which were created by the Los Angeles County Flood Control District (LACFCD) and owned and operated by the Los Angeles County Department of Public Works. WRD assesses a groundwater production fee, known as their "Replenishment Assessment," to pumpers in the Basin. This assessment provides funds that WRD uses to purchase and produce water for both spreading and injection to replace groundwater pumped as well as hydrological barriers to seawater intrusion.[1]

[1] Central Basin Municipal Water District 2010 Urban Water Management Plan

4.1.3 Groundwater Well Facilities

The City's allocated pumping rights from Central Basin are shown in Appendix F and Appendix G. The original 1965 adjudication was allocated as 7,954 AF and an additional 3,229 AF were via succession from other water right holders. The 11,183 AF is the current adjudication. The City often leases a portion of these rights to other water uses in the Basin with 2,500 AF leased to Golden State Water Company in 2010.

Currently, eight (8) of the City's twelve (12) wells are active. The active wells are Nos. 13, 14, 18, 19, 24, 25, 26, and 27. The active wells have a combined rated/tested capacity of about 18,700 gallons per minute (gpm), or 26.9 million gallons per day (mgd). All eight active wells discharge into existing storage reservoirs.

The City is in the process of equipping Well No. 28, which was drilled within the City property at Ardmore Avenue (previous location of Well No. 2) in 2003. Well No. 28 has been pump tested and is anticipated to produce a supply of 2,500 gpm. Unlike all other active City wells which discharge to storage reservoirs, Well No. 28 will discharge straight into the distribution system using onsite chlorination.

The following are general descriptions of the twelve existing wells within the City of South Gate:

Well No. 7 (Inactive): Well No. 7 was drilled in 1935, and is located north of Firestone Boulevard and east of Atlantic Avenue. The well is 883 feet deep and has a 16-inch diameter casing. The well suffers from trichloroethylene (TCE) contamination and was previously equipped with a wellhead treatment system consisting of granular activated carbon filtration, followed by disinfection with sodium hypochlorite. The well has been inactivated due to continuous contamination.

Well No. 13: Well No. 13 was drilled in 1940 and is located in South Gate Park. The well is 810 feet deep and has 16- inch diameter casing. The well pump is a constant speed Byron Jackson seven-stage vertical turbine pump. The well was last tested by SCE in June of 2000. The well's overall efficiency was found to be 38 percent with a specific capacity of 118 gpm/ft and specific energy consumption of 351 kWh/ac-ft. The pump has a tested capacity of 2133 gpm. Well No. 13 discharges into the South Gate Park Reservoir. Chlorinated solvents including TCE and perchloroethylene (PCE) have been detected in this well. Spray aeration in the South Gate Park Reservoir is used to remove these contaminants from the water. This well has also experienced some higher manganese concentration. A project to include manganese filtration is expected in the future.

Well No. 14: Well No. 14 was drilled in 1944 and is located in South Gate Park. The well is 813 feet deep and has an 18- inch diameter casing. The well pump is a constant-speed Layne and Bowler four-stage vertical turbine pump. The well was last tested by SCE in April of 2000. The well had an overall efficiency rating of 53 percent. The well's specific energy consumption is 302 kWh/AF and specific capacity is 129 gpm/ft. The pump has a tested capacity of 3233 gpm. Well No. 14 discharges into the South Gate Park Reservoir.

Well No. 18: Well No. 18 was drilled in 1945 and is located in South Gate Park. The well is 792 feet deep and has an 18- inch diameter casing. The well pump is a constant speed Aurora vertical turbine pump. The well was last tested by SCE in May of 2001. The well had an overall efficiency rating of 73 percent. The well's specific energy consumption is 214 kWh/AF and specific capacity is 56 gpm/ft. The pump has a tested capacity of 1500 gpm. Well No. 18 discharges to South Gate Park Reservoir.

Well No. 19: Well No. 19 was drilled in 1947 and is located in South Gate Park. The well is 794 feet deep and has an 18- inch diameter casing. The well pump, a constant speed Layne and Bowler six-stage vertical turbine pump, was installed in 1984. The well was last tested by SCE in May 2001. The well had an overall efficiency rating of 66 percent. The well's specific energy consumption is 289 kWh/AF and specific capacity is 88 gpm/ft. The pump has a tested capacity of 3065 gpm. Well No. 19 discharges to South Gate Park Reservoir.

Well No. 22B (Inactive): Well No. 22B was drilled in 1948 and is located east of Garfield Avenue and south of Southern Avenue. The well is 578 feet deep and has a 16-inch diameter casing. The well has been inactive since the fall of 1985 due to PCE contamination, and consistent reliability problems. The well has experimental Ultraviolet/Ozone treatment equipment for disinfection. However, the city plans to remove the equipment and install aeration or Granular Activated Carbon (GAC) filtration equipment for treatment.

Well No. 23 (Standby): Well No. 23 was drilled in 1952 and is located at the Salt Lake Reservoir site, just west of the Los Angeles River and south of Southern Avenue. The well is 856 feet deep and has an 18-inch diameter casing. The well has suffered from periodic sand production problems, as well as manganese contamination. However, basic water quality at this well has been consistently good. The well is currently not equipped with disinfection facilities. Because of its inherent sanding problems, the well has remained inactive. However, it remains in a standby mode. The well was lasted tested in April of 2000, and was found to have a capacity of 622 gpm.

Well No. 24: Well No. 24 was drilled in 1985 and is located at the Hawkins Reservoir site. The well is 1,290 feet deep and has a 16-inch and 20-inch diameter casing. The well site is equipped with sodium hypochlorite disinfection facilities. The well pump, a constant-speed Aurora three-stage vertical turbine pump, was installed in 1985. The well was last tested by SCE in June of 2000. The well's overall efficiency was 64 percent. The well has a specific energy consumption of 245 kWh/AF and specific capacity at 112 gpm/ft. The pump has a tested capacity of 1500 gpm.

Well No. 25: Well No. 25 was drilled in 1985 and is located at the Hawkins Reservoir site. The well is 1,331 feet deep and has a 16-inch and 20-inch casing. Water quality has generally been good. The well site is equipped with sodium hypochlorite disinfection facilities. The well pump, a constant-speed Aurora three-stage vertical turbine pump, was installed in 1985. The well was last tested by SCE in June of 2000. The well's overall efficiency was 64 percent. The well has a specific energy consumption of 245 kWh/AF and specific capacity at 112 gpm/ft. The pump has a tested capacity of 3080 gpm. In recent years, a portion of the casing collapsed and this has resulted in lower production.

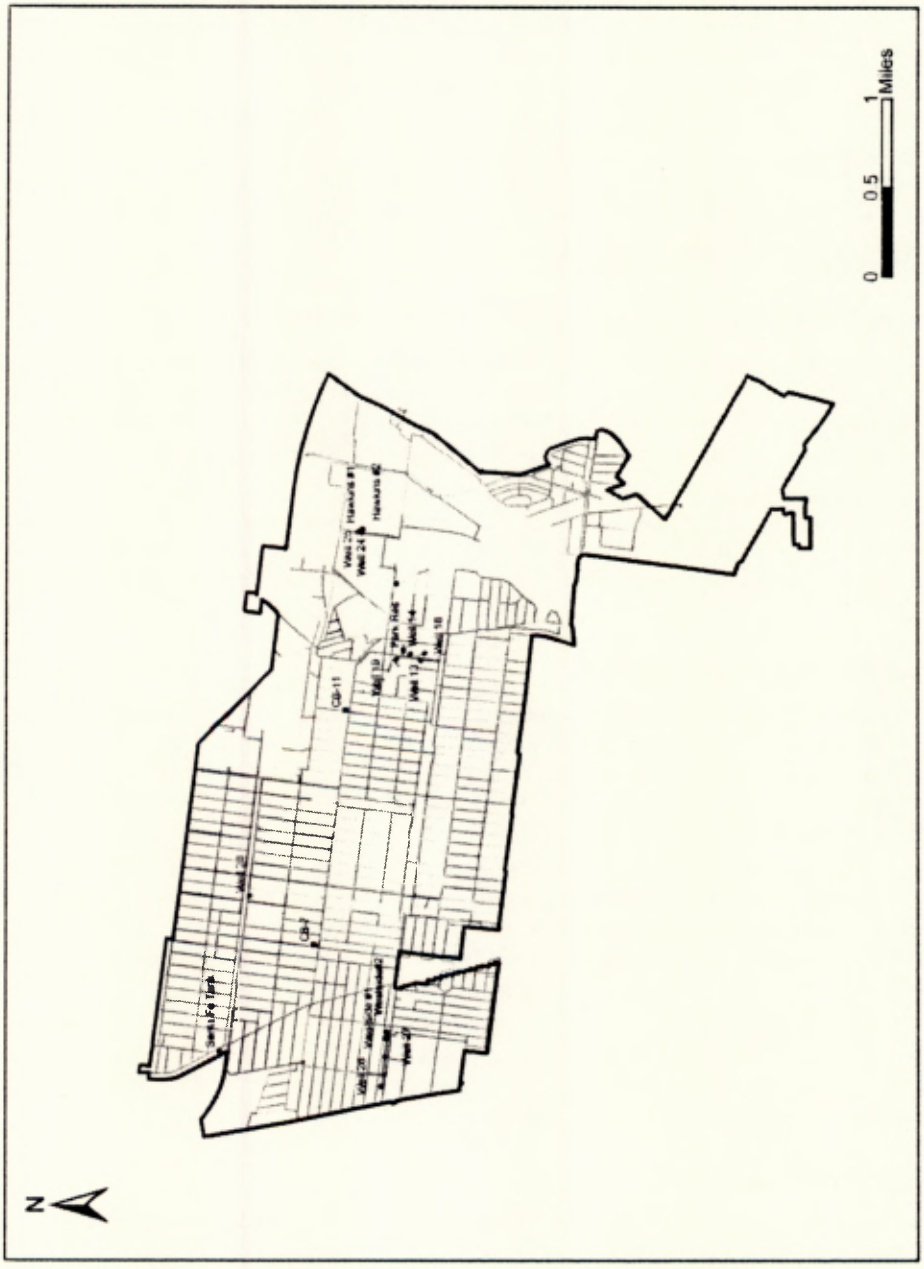
Well No. 26: Well No. 26 was drilled in 1987 and is located just north of Tweedy Boulevard, west of Long Beach Boulevard. The well is 1,226 feet deep and has a 16- inch and 18-inch diameter casing. Water quality has generally been good. The well site is equipped with sodium hypochlorite disinfection facilities. The well pump, a Floway fivestage vertical turbine pump, is powered by a natural gas engine with a variable speed drive. The well has not been tested by SCE. Installation tests indicate that the pump can move 2710 gpm at 224 feet of head at 83% efficiency.

Well No. 27: Well No. 27 was drilled in 1989 and is located approximately one block east of Well No. 26 to the north of Tweedy Boulevard. Well No. 27 is 1,200 feet deep and has a 16-inch and 18-inch diameter casing. Water quality has generally been good, but recent tests indicate that manganese contamination is a developing problem. The well site is equipped with sodium hypochlorite disinfection facilities. The current well pump, a constant- speed Ingersoll-Rand four-stage vertical turbine pump, was installed in 1992. Installation tests on the pump indicate that the pump can move 1500 gpm at 240 feet of head at a maximum efficiency of 85%.

Well No. 28: Well No. 28 was drilled in 2003 and is the City's newest well. The well was drilled in the same site as the recently demolished Well No. 2, which is on Ardmore Avenue, a few hundred feet west of Virginia Avenue. Well No. 28 is 1095 feet deep and has a 16-inch and 18-inch diameter casing. Based on the hydrogeological report prepared after the well drilling, the well will be able to produce 2,500 gpm. The aquifer testing resulted in an overall specific well capacity of 58.9 gpm/ft with a transmissivity value of 129,700 gpd/ft. Water quality in the well was tested to be in conformance to State Health Department requirements, and no treatment except disinfection is required.

The following graphic shows the location of the City wells throughout the service area.

Figure 7: City of South Gate Well locations



Source: City of South Gate Water Master Plan, August 2005

Currently, the City has greater available supply from its groundwater wells than the demands. But based upon the future projections as shown in Table 11, MWD supplies will be necessary. The following table projects that the City will utilize its full adjudicated rights from groundwater well production and supplement with MWD for the remainder.

Table 12: Current and Planned Water Supplies

Water Supply Source (AFY)	2005	2010	2015	2020	2025	2030	2035
MWD	0	0	399	756	1,074	1,393	1,711
Well Production	10,745	8,403	11,183	11,183	11,183	11,183	11,183
Totals	**10,745**	**8,403**	**11,582**	**11,939**	**12,257**	**12,576**	**12,894**

4.2 Sources of Water Supply

4.2.1 Metropolitan Water District (MWD) Connections

The City has two connections to the MWD pipeline system. Connection CB-7 is located at Southern Avenue and State Street, and CB-11 is located at Southern Avenue and Kauffman Avenue. Each connection consists of a 16-inch outlet from MWD's Middle Cross Feeder. The outlets branch into two 10-inch parallel lines, each having a 10-inch combination rate-of-flow, pressure-reducing and check valves.

Each connection has a rated capacity of 15 cfs (9.7 mgd), but the required pressure-reduction settings restrict actual capacity for CB-7 and CB-11 to 4.25 cfs (2.75 mgd) and 2.9 cfs (1.9 mgd), respectively. Prior to 1989, the City used MWD water to supplement well production during the peak summertime months. The MWD connections have not been used since 1989, but remain available for emergency or future use.

4.2.2 Inter-Agency connections

The City of South Gate has five interconnections to adjacent water systems. These interconnections are with the City of Downey, the City of Lynwood, the Walnut Park Mutual Water Company, the City of Huntington Park, and the Golden State Water Company (GSWC). Each is a two way connection, allowing water transfers to or from the City of South Gate, depending upon the given emergency situation and the relative pressures on each side of the inter-connections.

The interconnection with the City of Lynwood is an automatic connection. It is set to operate such that if local pressure in one of the two systems drops below 20 psi and there is a significant pressure differential between the two systems, the interconnection will open. Water will then flow from the system with higher pressure to the system with lower pressure. The connection to Golden State Water Company is automatic as well, set to open at 40 psi. The other connections are operated manually.

Although these connections all have two-way ability, the City of South Gate is the more frequent seller. The City currently has sufficient pumping rights and system to supply their residents and sell water to the neighboring agencies. But each of these connections provides the essential backup systems in case of emergencies or other system water supply deficits.

4.2.3 Local Groundwater

All local groundwater is pumped from Central Basin. The well facilities are described in more detail in Section 4.1.3.

Central Basin joined MWD in 1954 to purchase, on a wholesale level, potable water imported from the Colorado River and then sell it to the local municipalities, investor-owned and mutual water companies and water districts. Central Basin remains on of the largest member agencies of MWD's wholesalers with a population of about 1.6 million to 2 million.

Central Basin's service area covers approximately 227 square miles and includes 24 cities and several unincorporated areas in southeast Los Angeles County. In 2009-2010, the total water demand in Central Basin's service area was 257,492 AF. Central Basin projects that although population will increase, total demand will remain level due to increased recycled water use and consumption.[1]

4.2.4 Local Surface Water

The City of South Gate does not draw on any local surface water sources for drinking water purposes, and has no plans to do so in the future

4.3 Threats to Water Supply

Certain potential threats to the City of South Gate's water supply must be monitored closely in order to detect and mitigate future impacts to the availability and sufficiency of the city's water supply. These threats include future extended droughts, legal issues, water quality and environmental concerns. A matrix of these threats to the city's current and future water sources are listed in Table 13:

Table 13: Factors Resulting in Inconsistency of Supply

Name of Water Source	Climactic	Legal	Water Quality	Environmental
Groundwater Wells	N/A	Adjudication	Salt Water Infiltration; Iron, Manganese, contamination	N/A
MWD	Drought	Allocation	N/A	Endangered Species

4.3.1 Climactic

The major potential supply impact would be a prolonged drought. However, due to the City's supply sources and use, this impact is minimal. As the City owns adjudicated rights that do not fluctuate with Basin levels there is no climate impact.

For MWD, drought conditions could have some impact. MWD has multiple sources, programs, and plans to address extended drought conditions so the impact to South Gate is minimal. MWD's plans are detailed further in their 2010 RUWMP. The City currently only uses their MWD connections in times of emergency and future projections have MWD supplies as a small percentage of the total.

4.3.2 Legal

Allocation

MWD determines an overall allotment to agencies within the Central Basin. South Gate does not have a set allotment but shares with the surrounding agencies. South Gate currently does not use MWD and projects to use only a small percentage of its needes, a reduction of overall allotments are not a significant impact.

[1] Central Basin Municipal Water District Draft 2010 Urban Water Management Plan

Adjudication

The City currently has adjudicated water rights in the Central Basin as shown in Appendix F and Appendix G. It is highly unlikely that these rights could be altered. But if there was a legal judgment that reduced these rights, it would be a great impact to South Gate.

4.3.3 Water Quality

The City of South Gate publishes an annual Consumer Confidence Report (CCR). The most recently published CCR that was provided, shows that there were no average results higher than a primary or secondary MCL. There were a few tests that were above a secondary MCL with the most notable being manganese.[1] As mentioned in previous sections, the City is aware of the manganese issue at several wells and both controls it with mixing and plans treatment projects in the future.

Iron and manganese are common metallic elements found in the earth's crust which are chemically similar and cause similar problems. When exposed to air, iron and manganese sediments are oxidized and change from colorless, dissolved forms to colored, solid forms. Excessive amounts of these sediments are responsible for staining, and may even plug water pipes. Iron and manganese can also affect the flavor and color of food and water. Finally, nonpathogenic bacteria that feed on iron and manganese in water form slime in toilet tanks and can clog water systems.

CBMWD manages water quality in the basin as a whole. Any contaminants that could become problematic would be handled by CBMWD. Although there are no major contaminant issues, basin wide contaminant plumes have impacted other basins in Southern California and other parts of the United States. A large unmitigated plume that affected many of South Gate's wells is unlikely, but would be a huge impact if it occurred. A small plume could be mitigated as the City has a surplus of well facilities.

The wholesale imported water is managed by MWD and they would handle any water quality issues that would arise. MWD has multiple sources of water including the California Water Project and the Colorado River Aqueduct. With multiple storage locations and treatment facilities, it is also unlikely that MWD would have significant water quality issues that would impact delivery.

4.3.4 Environmental

Although there are not significant environmental issues at this time, these can change in the future. With the majority of South Gate's supply coming from groundwater, this would be a minor impact. But it is possible for MWD to be impacted by environmental issues and endangered species are the most likely of those.

Endangered Species

The most specific potential impact to MWD's supply would be threatened or endangered fish in the Delta which could impact the SWP supply. These impacts are discussed in MWD's RUWMP. But with the multiple supplies of MWD and a small percentage of use of these facilities by South Gate, this is a not a significant concern.

4.4 Planned Water Supply Projects and Programs

The City of South Gate and its wholesale supplier, MWD, have planned water supply projects. Although all demands are being met, these projects will provide further security for supply shortages in the future. Also discussed below are opportunities to augment the city's water supply through transfers and exchanges, and desalination.

[1] City of South Gate Water Division 2008 Consumer Confidence Report

4.4.1 MWD and CBWMD Water Supply Improvement Projects

MWD's RUWMP lists many future water supply projects. None of those projects are within the Central Basin MWD but it can be expected that they would improve the overall reliability of MWD.

The Central Basin plans one significant water storage program. CBWMD is developing a Conjunctive Use Storage Program that it will define in 2011 and roll out the program in 2012. [1]

4.4.2 City of South Gate Water Supply Projects

Potential plans for new sources are being considered at this time and will be addressed in the new Master Planning and Management Program. The City is working closely with the Central Basin Municipal Water District and the Water Replenishment District to consider expanded use of underground storage of water in the aquifer. This is referred to as "Conjunctive Use" and would benefit the City of South Gate. Conjunctive Use refers to the idea of storing water underground when it is plentiful, to be extracted during shortages.

Also, the City may consider the use of ultraviolet light and ozone to treat the Well No. 22-B water, so that it may be used as an active source. However, the City would need to prepare a demonstration study to show that the proposed treatment would reliably and consistently produce water of acceptable quality, before such treatment may be approved by the State Department of Health Services.

Because the City currently has excess supply compared to the current and projected water demands and multiple wells that are able to pump the current water rights, there is not a great need for new water supply projects. However, one potential project would be to provide manganese treatments on the two wells that have high manganese levels. This would provide additional system flexibility should another well be shut down.

Table 14 lists the future water supply projects for the City of South Gate water supply, including their projected start dates and completion dates and the amount of water each project will yield to the city during a normal year, single dry year and multiple dry-year periods:

Table 14: Future Water Supply Projects and Programs

Project Name	Projected Start Date	Projected Completion Date	**Annual Yields** (AFY)				
			Normal Year	Single Dry Year	Multiple Dry Year 1	Multiple Dry Year 2	Multiple Dry Year 3
Manganese Filtration for Wells 13 and 27	2012	2014	1400	1400	1400	1400	1400

4.4.3 Transfer or Exchange Opportunities

The City of South Gate has interconnections with other water agencies as described in section 4.2.2 The City also currently leases between 1500 to 2500 AFY to other agencies. Based on the previously discussed demands, the City will need to discontinue the water leases within the next 5 years of the projections wihthold. If the City can lease additional water from other agencies once the demand exceeds the 11,183 AFY rights, they could avoid the higher cost MWD water.

[1] Central Basin Municipal Water District 2010 Draft Urban Water Management Plan

4.4.4 Desalination Opportunities

The act of changing seawater into potable or fresh drinking water is called desalination. As the demand and competition for water in California increases and traditional ways of increasing water supply (construction of dams, aqueducts and pipelines) becomes less publicly acceptable, alternative ways of developing new water sources are being looked at. In 2004 the California Congress passes legislation requiring urban water suppliers to consider desalination opportunities in their Urban Water Management Plans.

The City of South Gate is not a coastal city and therefore it would be very difficult to establish any desalination project. In the future, regional agencies including MWD and CBMWD may develop desalination supplies. But it is expected that future desalination supplies would be utilized by coastal areas. That would allow inland areas to utilize a greater proportion of the current water supplies including groundwater and imported water. CBMWD is not planning any desalination projects. MWD does have several planned but they are all along the coastal areas.

4.4.5 Recycled Water Opportunities

The City does not own or operate any water recycling facilities. The City is a member agency with the Sanitation Districts of Los Angeles County. The Sanitation Districts construct, operate, and maintain facilities to collect, treat, recycle, and dispose of residential, commercial, and industrial wastewater. Individual districts operate and maintain their own portions of the collection system. The City of South Gate is responsible for the collection of wastewater through local sewers.

The Sanitation District treats sewer water to produce recycled water. The water is treated to drinking water standards and allowed to percolate into aquifers or be used to irrigate golf courses,

landscaped medians and other greenbelt areas, or be used in industrial processes. The City is using recycled water to offset use of potable water from the aquifer. Recycled water is purchased from the CBMWD and the City uses some of that in two City parks, Hollydale Park and Circle Park. The recycled water line on Atlantic Avenue has enough capacity to provide for most of the industrial uses in that area, but the potential customers have not been motivated to use this resource so far. The City offers a 15% discount from the cost of potable water for recycled water deliveries.

MWD has many recycled water programs. Within the CBMWD, there are four projects planned that will ultimately utilize approximately 65,000 AFY of recycled water[1]. CBMWD's current recycling effort produces more recycled water than the City of South Gate could use. The capital cost of the adding the recycled infrastructure does prevent expanded use at this time. The CBMWD UWMP Section 8 describes their current and proposed recycled water supplies.

Table 15 shows the recycled water used the City has delivered over the last ten years.

Table 15: Recycled Water Use 2001-2010

Water Supply Source (AFY)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Recycled Water	164	191	162	177	213	153	176	210	127	113

[1] Metropolitan Water District of Southern California Regional Urban Water Management Plan, November 2010, Table A.5-2

5.0 Water Supply Reliability an Water Shortage Contingency Planning

Water supply reliability is a measure of the City of South Gate's ability to provide an adequate water supply during times of shortage. Reliability focuses mostly on drought, though it must take into consideration other potential threats to the water supply, such as those discussed in Section 4.3. To counter these threats, Section 4.4 lists the projects and programs planned or already being implemented which will address the most serious threats to maintaining a consistent supply. With the addition of the city's conservation potential discussed in Section 5.5, the City should most likely be able to handle any drought.

There have not been any major water shortage problems in the City. The City of South Gate has been making system improvements and is positioning the enterprise to be a first class water utility. The City's own groundwater facilities have been sufficient to provide for its water needs during the last fifteen years. A worst case scenario would be loss of production at key water well facilities. In that case, the City will rely on purchased water, which can provide for essential needs. The City has standby wells which can be a significant source of supply. The City monitors growth in residential, commercial, and industrial developments requiring estimates of water usage to calculate increases in water demand. The City encourages use of recycled water and water conservation measures.

Worst case water shortages can be managed. Unless there is a significant water quality problem in the whole system, it is unlikely the City will need to import potable water.

As previously explained, the City relies on its groundwater sources and its interconnections with other utilities. If an emergency occurs only within the City, the interconnected supplies can be of help. However, in case of an area wide problem, the City may be fully dependent on its own groundwater sources. Fortunately, the City's groundwater is sufficient to provide for the necessities of the residents.

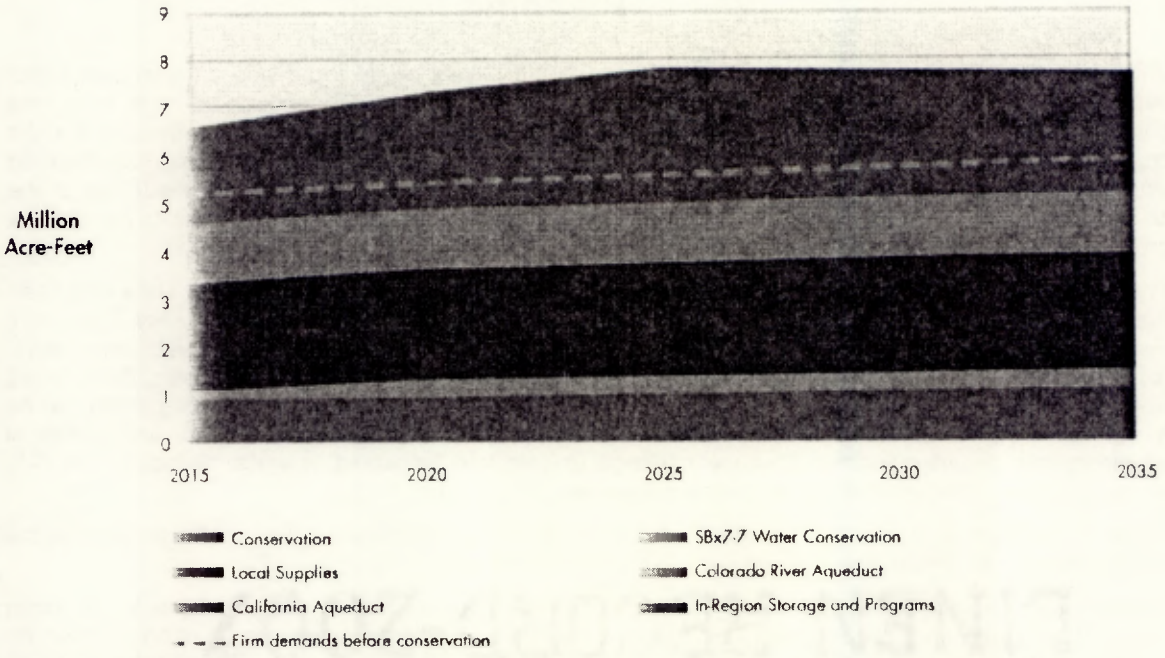
Overall, the City of South Gate has a very reliable water supply, as this section demonstrates. Combining MWD's supply assurance with data from Section 3.7 on the city's total projected water demand, this chapter will lay out three climatic scenarios—an average water year, a single dry water year, and multiple dry water years—for the city's water supply in the next 25 years.

5.1 MWD Supply Assurance

Metropolitan Water District (MWD) supplies wholesale water throughout Southern California. Although the City of South Gate is not a member-agency, the Central Basin MWD is a member agency. South Gate has two connections with MWD. The City has typically only needed these connections during emergency operations.

MWD has numerous sources of supply which enables them to provide assurance to their member agencies and retailers regarding the supply. The Regional Urban Water Management plan prepared in November 2010 by MWD provides the necessary details of MWDs plans. The following figure shows the excess supply over demand as projected by MWD.

Figure 8: MWD Dry Year Supplies and Demand



Source: Metropolitan Water District of Southern California Regional Urban Water Management Plan, November 2010

5.2 Water Supply Reliability

Section 4.2 described the sources of water for the City of South Gate. These sources have very high reliability as there are multiple wells for the groundwater source and two connections with MWD.

The City's supply and particularly their adjudicated groundwater rights are greater than the current demands as detailed in the previous sections. However, it is projected that those demands will increase and MWD water will become necessary. MWD has supply assurances as well and it appears the City will be able to meet the projected demand during normal conditions for the next 25 years.

5.3 Water Quality

With the City's mostly exclusive use of groundwater, there are few water quality problems. There have been some instances of water quality problems, primarily with manganese as discussed in Section 4.1.3, but with multiple well options these have been controllable. Barring a future unforeseen and new problem, there does not appear to be a high concern for water quality issues that would impact the supply reliability.

5.4 Drought Planning

The following tables give the City of South Gate's current and future water supply reliability scenarios for both normal year, single dry year and multiple dry year periods. However, the City of South Gate does not utilize any surface water sources and all of its sources (groundwater pumping and purchased MWD water) are consistent regardless of the runoff.

For each of the following near-term and projected single and multiple dry water year scenarios, the calculated water reliability deficit is compared with potential new supplies from 1) additional water supply sources discussed in Section 4.4, 2) the city's projected conservation potential, and 3) potential recycled water supplies. (*Potential additional supplies are listed in italics.*)

Table 16: Supply Reliability-historic conditions

Current Supplies (AFY)	Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
			Year 1	Year 2	Year 3
MWD	Ready	Ready	Ready	Ready	Ready
% of Normal	N/A	N/A	N/A	N/A	N/A
Groundwater	11, 183	11, 183	11, 183	11, 183	11, 183
% of Normal	100%	100%	100%	100%	100%
Compared to Normal Year +(-)	0	0	0	0	0

Table 17 puts together the consistent water supply for the City of South Gate during normal years with the city's demand projections 25 years into the future. The following charts include the groundwater supply and the MWD component as that is sufficient for all demands. There is not an allocation limit on the MWD sources, but there are financial considerations if it is needed. For the purpose of this table, the MWD is shown to meet the total demand need. But there is more supply available if the demand increases further:

Table 17: Projected Normal Water Supply and Demand Comparison

	2015	2020	2025	2030	2035
Supply totals (AFY)	11,582	11,939	12,257	12,576	12,894
Demand totals (AFY)	11,582	11,939	12,257	12,576	12,894
Difference (AFY)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Table 18 gives the city's single dry year water supply reliability scenario for the years 2015, 2020, 2025, 2030, and 2035:

Table 18: Future Water Supply Reliability – Single Dry Water Year

Projected Supply and Demand Comparison During Single Dry Years (AFY)					
Current Supplies / *Potential Additional Supplies*	**2015**	**2020**	**2025**	**2030**	**2035**
Supply totals	11,582	11,939	12,257	12,576	12,894
Demand totals	11,582	11,939	12,257	12,576	12,894
Surplus or (Shortfall)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Table 19 is a compound table that gives the city's multiple dry year water supply reliability scenarios for the three year periods ending in years 2015 through 2035, displayed in five-year increments:

Table 19: Future Water Supply Reliability – Multiple Dry Water Years

Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in year shown (AFY)					
Current Supplies / *Potential Additional Supplies*	**2015**	**2020**	**2025**	**2030**	**2035**
Supply totals	11,582	11,939	12,257	12,576	12,894
Demand totals	11.582	11,939	12,257	12,576	12,894
Surplus or (Shortfall)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

With the city's consistent supply that is not based on water runoff or drought conditions, the surplus above demand also remains consistent. Although the tables above show zero surplus or shortgall, the supply is not limited due to the availability of MWD water although it would be more costly. Therefore there are no scenarios prior to 2035 that would result in a supply shortage based upon dry year conditions.

5.5 Water Shortage Contingency Plan

The City of South Gate has adopted ordinances to respond to water shortage. The City is also a participant in the Member Agency Response System (MARS), which was developed by the Metropolitan Water District of Southern California for its members' agencies. The MARS network was developed in a coordinated effort to improve emergency response and expedite mutual aid to participating agencies.

The City's water conservation ordinances assist in reduction of water use. However, if a natural disaster such as an earthquake causes an emergency, the City will follow the Member Agency Response System (MARS) of the Metropolitan Water District.

The City of South Gate has adopted the Ordinance No. 2263 to respond to water shortages. This Ordinance amends Title 6.64 of the South Gate Municipal Code relating to the implementation of water conservation measures. This ordinance is referred to as the "Water Conservation Ordinance."

This ordinance authorizes the City Council to protect the public health, safety and welfare when it is determined there will be a water shortage. The City Council will determine by resolution the water conservation plan. The City Council may implement water conservation measures in addition to those specified in this ordinance.

Ordinance No. 2263 has three phases of water conservation:

> Phase I places some restrictions upon the use of water for washing down driveways and other similar exteriors, washing vehicles, use of decorative fountains and other fixtures, water served in restaurants, water leakage loss, landscaping water waste, etc. It also requires some large users to submit a water conservation plan.
>
> Phase II restricts landscape irrigation to two to three days per week at certain hours of the day to minimize water waste. Commercial nurseries and growers are exempt.
>
> Phase III restricts landscape irrigation to one to two days per week at certain hours of the day to minimize water waste. Commercial nurseries and growers are required to observe these restrictions.

City Ordinances establish a lower priority for use of water to such uses as the commercial and industrial landscaping and washing down driveways or washing vehicles. The second step is to reduce the residential landscaping applications. Finally, the general water use by commercial and industrial users is reduced. The City will provide water to residential users.

The City's priority is not to reduce the availability of potable water for domestic use by residential customers, fire suppression, and the maintenance of health and safety. The conservation ordinances and program establish processes for reducing landscape use of water and curtail commercial and industrial water use.

The determination of water shortage and implementation of the Water Conservation Ordinance is to be made by the City Council. The Water Department provides reports and recommendations to the City Council regarding implementation of any water restriction measures.

Water allotment is focused on maintaining water service for public health and safety. The goals are to provide residential customers with sufficient water to provide for their needs including normal sanitary uses. Fire suppression is a primary goal to protect life and property. Landscaping water uses will be curtailed.

The Ordinance No. 2263 authorizes the City Council to impose a surcharge to the existing water charges paid by water customers. Such emergency charges may be imposed whenever a significant shortage in the potable water supply is anticipated.

A person violating any provision of Ordinance No. 2263 is committing a misdemeanor. Upon conviction, misdemeanor violations are punishable by a fine or imprisonment or both.

City customers are metered and the Water Department reviews water use to assess the need to reduce water consumption.

5.5.1 Stages of Action

The Water Shortage Contingency Plan establishes progressively more serious stages of action dependent on the percent of water shortage. This shortage can be for any reason. (The currently adopted plan has Stage 3 at a 40% shortage. It will be revised for a 50% shortage).

Table 20: Water Shortage Contingency Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply conditions	% Shortage
1	Level 1	10
2	Level 2	15
3	Level 3	50

5.5.2 Penalties and Charges

Each violation of the Plan also has penalties to the violator. These are established to enforce these regulations during the urgent time of a water shortage.

Table 21: Water Shortage Contingency Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
Written Warning	All Stages; First Violation
$100 Administrative Fine	All Stages; Second Violation
$250 Administrative Fine	All Stages; Third Violation
$500 Administrative Fine	All Stages; Fourth Violation
Water Flow Restrictor ($100 Charge to remove)	All Stages; Fourth Violation
Termination of Water Service	All Stages; Fourth Violation
Misdemeanor Charge	Possible for Any Violation

5.5.3 Prohibitions

The following is the list of each of the prohibitions and the stage when they are enforced.

Table 22: Water Shortage Contingency Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Limits on Watering Hours	Permanent
Limit on Water Duration	Permanent
No Excessive Water Flow or Runoff	Permanent
No Washing Down hard or Paved Surfaces	Permanent
Obligation to Fix Leaks. Breaks or Malfunctions (Excessive Loss-3 days)	Permanent
Re-circulating Water Required for Water Fountains and Decorative Water Features	Permanent
Limits on Washing Vehicles	Permanent
Drinking Water Served Upon Request Only	Permanent
Commercial Lodging Establishments Must Provide Option to Not Launder Linen Daily	Permanent
No Installation of Single Pass Cooling Systems	Permanent
No Installation of Non-re-circulating in Commercial Car Wash or Laundry Systems	Permanent
Restaurants Required to Use Water Conserving Dish Wash Spray Valves	Permanent
Limits on Watering Days (3 days/week May-Nov)	Level 1
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks-72 hours)	Level 1
Watering Days (2 days/week May-Nov)	Level 2
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks – 48 hours)	Level 2
Limits on Filling Ornamental Lakes or Ponds	Level 2
Limits on Washing Vehicles	Level 2
Limits on Filling Residential Swimming Pools and Spas	Level 2
Water Allocations/ Water Budget	Level 2
Water Supply Shortage Rates	Level 2
Mandatory % Use Reductions	Level 2
No Watering or Irrigating	Level 3
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks-24 hours)	Level 3
No new Potable Water Service	Level 3

5.5.4 Reduction Methods

Each of the methods to reduce consumption has an estimated percentage reduction. These establish the goals to achieve the necessary savings during a shortage.

Table 23: Water Shortage Contingency Consumption Reduction Methods

Consumption	Stage When Method Takes Effect	Projected Reduction (%)
Limits on Watering Hours	Permanent	0
Limit on Water Duration	Permanent	0
No Excessive Water Flow or Runoff	Permanent	0
No Washing Down hard or Paved Surfaces	Permanent	0
Obligation to Fix Leaks. Breaks or Malfunctions (Excessive Loss-3 days)	Permanent	0
Re-circulating Water Required for Water Fountains and Decorative Water Features	Permanent	0
Limits on Washing Vehicles	Permanent	0
Drinking Water Served Upon Request Only	Permanent	0
Commercial Lodging Establishments Must Provide Option to Not Launder Linen Daily	Permanent	0
No Installation of Single Pass Cooling Systems	Permanent	0
No Installation of Non-re-circulating in Commercial Car Wash or Laundry Systems	Permanent	0
Restaurants Required to Use Water Conserving Dish Wash Spray Valves	Permanent	0
Limits on Watering Days (3 days/week May-Nov)	Level 1	1
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks-72 hours)	Level 1	1
Watering Days (2 days/week May-Nov)	Level 2	2
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks – 48 hours)	Level 2	1
Limits on Filling Ornamental Lakes or Ponds	Level 2	1
Limits on Washing Vehicles	Level 2	1
Limits on Filling Residential Swimming Pools and Spas	Level 2	1
Water Allocations/ Water Budget	Level 2	2
Water Supply Shortage Rates	Level 2	2
Mandatory % Use Reductions	Level 2	5
No Watering or Irrigating	Level 3	10
Obligation to Fix Leaks, Breaks, or Malfunctions(All leaks-24 hours)	Level 3	1
No new Potable Water Service	Level 3	2

5.5.5 Draft Resolution

The current Water Shortage Contingency Plan (Ordinance 2263 Appendix D) complies with requirements for this UWMP other than one item. Level 3 is currently implemented when there is a 40% demand reductions required. This portion of the Ordinance (Section 6.64.090A) needs to be revised for a 50% reduction. This resolution then needs to be re-adopted.

6.0 Demand Management

Many water managers today consider water conservation, or "demand management," as essentially a new source of water supply. The City of South Gate is committed to implementing water conservation programs at the local and regional level. Doing so will make it possible for the city to manage demand of water, especially during times of water scarcity.

This chapter gives an overview of regional water conservation efforts, the statewide water conservation Memorandum of Understanding (MOU) administered by the California Urban Water Conservation Council (CUWCC), current and future City of South Gate conservation measures.

The City has been active in water conservation and has adopted Ordinances No 2263 and Resolutions 4892, 4963, 4964, and 5054 in support of its conservation efforts (See Appendix D and Appendix E). Both of these are designed to reduce water usage, especially during shortages. The City encourages and may also, by using the above ordinances, require users to use recycled water for landscaping. There are also other measures that are required by these ordinances to ensure that the water waste or unnecessary use of potable water is reduced. Based on the Ordinance No. 1960, the City has also prepared specific guidelines for water conservation and landscaping. The Ordinance No. 1960 is designed to place certain water conservation requirements upon new and rehabilitated landscaping for industrial, commercial and multifamily residential developments. It does so by requiring submittal of landscaping plans prepared in accordance with the City's guidelines.

The City is using recycled water in two of its parks and further applications are possible. The City offers a 15% discount to its customers for using recycled water. Expanding the use of recycled water would reduce pumping of potable water. Alternatives will be reviewed to determine new uses and applications.

6.1 Regional Water Conservation Coordination

There are many regional plans for conservation. The City of South Gate receives most of its supply from groundwater pumping of the Central Basin. The CBMWD complies with a majority of the DMMs and these efforts are described in more detail in their UWMP.[1] Although the City may not participate in the programs directly, they indirectly are involved as the pumping fees that are paid contribute to the programs.

6.2 California Urban Water Conservation Council

The City of South Gate is not signatory to the CUWCC. However, the CUWCC has established the conservations guidelines that have been developed into the Demand Management Measures for the UWMP process. If a City is part of the CUWCC, they can include their compliance with the BMPs in their UWMP and not complete this DMM section. This may be something that the City of South Gate will consider prior to the 2015 UWMP.

The premier statewide organization dedicated to urban water conservation is the California Urban Water Conservation Council (CUWCC). The CUWCC administers the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), the result of a coordinated effort by the California Department of Water Resources (DWR), water utilities, environmental organizations and other interested groups to develop a central list of urban water conservation practices.

The CUWCC has identified fourteen (14) principal areas in which there are significant opportunities for urban water conservation, collectively known as "Best Management Practices," or BMPs. The State Legislature codified these BMPs into the Urban Water Management Planning Act, renaming them "Demand Management Measures," or DMMs. Table 24 lists these DMMs/BMPs:

[1] Central Basin Municipal Water District 2010 Urban Water Management Plan

Table 24: Demand Management Measures

DMM Number	DMM Name
A	Water Survey Programs for Single-Family Residential and Multi-Family Residential Connections
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 Assistance Programs
K	Conservation Pricing
L	Water Conservation Coordinator
M	Water Waste Prohibition
N	Residential ULFT Replacement Programs

The MOU requires that a water utility implement only the DMMs that are economically feasible. If a DMM is not economically feasible, the water utility may request an economic exemption for that DMM. The DMMs as defined in the MOU are generally recognized as standard definitions of water conservation measures.

Water providers who are signatories to the CUWCC Memorandum of Understanding (MOU) are allowed to submit copies of their mandatory BMP annual reports in lieu of a description of the DMMs in their Urban Water Management Plans. Though South Gate is not a signatory to the MOU, it participates in the implementation of the DMMs.

6.3 City of South Gate Water Conservation Measures

Each DMM listed will discuss whether the City has implemented, is scheduled to implement or has not implemented. If they have not implemented the DMM, a method to achieve DMM compliance will be listed or it will explain the function reason why the City can not meet that DMM. As the City has a less than 100 gpcd usage rate, they are not required to reduce consumption as part of this Act. However, the City is committed to promoting conservation where possible.

Many of these conservation efforts would have costs associated with them. The City is currently performing a rate study which will most likely result in increased rates. With budgetary cutbacks, rate sensitivity and the overall economic situation, the City cannot proceed with additional expenditures when it is already well below regional usage rates.

6.3.1 DMM A - Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers consist of water audit services to all water customers. Customers who come into the City Office would be notified of the opportunity for water survey performed to help reduce their water use. City staff members would work with the water customers to check for leaks, check water using fixtures, irrigation and landscape. The customer would also be given instruction on how to read the water meter and water utility bill. Based on the survey, staff would make written recommendations based on the customer's water use practices. If leaks are found, staff works with the customer to repair the leaks.

Estimating the benefits from a residential water survey program is difficult because it is up to the individual customer to implement recommendations from a survey. Due to the already low GPC, the City estimates a five percent decrease in water use for each unit surveyed. The average cost of the survey program is estimated to be approximately $50 per survey. The life span of a water survey is approximately three years. If 10 percent of residential connections are surveyed annually over the next ten years it would result in a savings of approximately 19.8 AFY. A snapshot of these potential savings is shown in Table 25.

Table 25: Cost-Benefit Analysis of DMM A

Total Cost	$58,087
Total Benefits	$54,250
Discount Rate (%)	5.0
B/C Ratio	0.93
Time Horizon (years)	12
Cost of Water (per AF)	$300
Average Water Savings (AFY)	19.8

The B/C ratio for this DMM is approximately 0.92. Since this B/C ratio is less than 1.0, it is not currently cost-effective for the City to implement this DMM.

6.3.2 DMM B - Residential Plumbing Retrofit

The City is exploring the creation and distribution of home water conservation kits that may include water saving tips, low flow showerheads, faucet aerators, toilet tank banks, toilet leak detection tablets, and literature related to other city water conservation programs. By providing water saving kits the City will be directly promoting water conservation into the homes of city water customers while offering simple ways to save.

This program also would offer the City the opportunity to meet with individual customers who are interested in conserving water. During these meetings the City is able to educate customers regarding additional methods of saving water and let them know about the other rebate programs offered by Redlands and local agencies.

The City is expecting to implement the program in 2015.

Additionally, the Gas Company offers rebates for low-flow shower heads. More information is available at:

http://www.socalgas.com/for-your-home/rebates/

6.3.3 DMM C - System Water Audits, Leak Detection and Repair

The City tracks the difference between water produced or purchased and the amount of water sold to it customers. The difference, expressed as a percentage of total water produced, is referred to as unaccounted for water. The City has the very unusual situation of having no losses. For the future projection, we assume that this anomaly will be found and a 2% system loss will occur. The generally accepted industry standard for unaccounted for water is from 7% to 15%. All water delivered to the City is recorded on master meters connected to each well. All water distributed by the City to its customers is metered, with the exception of water used from fire hydrants for emergencies, periodic flushing, leaks and theft. The Utility Billing Software program enables the City to log water use data and history of each service. Data for each service includes an account number, address, meter size and charges along with the water usage. With this data, the City can calculate the unaccounted for water.

The City does not have resources to perform leak detection. The City would have to hire a leak detection company. The estimated cost to perform the leak detection is $250 per mile. The estimated cost to fix leaks is estimated to be $4,000. The entire water system would be checked every other year. It is estimated that the losses would be reduced by half. A snapshot of these potential savings is shown in Table 26.

Table 26: Cost-Benefit Analysis of DMM C

Total Cost	$384,133
Total Benefits	$77,209
Discount Rate (%)	5.0
B/C Ratio	0.19
Time Horizon (years)	10
Cost of Water (per AF)	$300
Average Water Savings (AFY)	35

The B/C ratio for this DMM is approximately 0.19. Since this B/C ratio is less than 1.0, it is not currently cost-effective for the City to implement this DMM.

6.3.4 DMM D - Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections

The City requires meters on all connection to the water distribution system, including detector check meters on new private fire protection services. Currently, there are no known unmetered connections to the water distribution. All new commercial and industrial developments are required to have dedicated water meters and dedicated meters for landscape irrigation in commercial and industrial developments. Water customers currently pay the following rates:

Residential	$4.52	/100 c.f.
Commercial/Industrial	$4.77	/100 c.f.
Recycled water (Exceeding 4 ccf)	$2.92	/100 c.f.
Minimum Base Rate Charge (4 ccf or less)	$19.68	/100 c.f.

6.3.5 DMM E - Large Landscape Conservation Programs and Incentives

The largest landscape areas in the community are city-owned and consist primarily of parks. The parks are all utilizing recycled water for irrigation purposes. Additionally, to assist in landscape conservation for future developments, the City Council adopted the Chapter 11.33 Water Conservation and Landscaping. Chapter 11.33 established standards and procedures for the design, installation, and management of landscapes in order to utilize available plant, water, and land resources to avoid excessive landscape water demands while ensuring high quality landscape design. The ordinance requires developers to submit a landscape plan for review and approval by the City. These requirements are applicable to new and rehabilitated landscaping for apartments; condominiums; any multiple-unit residential developments; commercial developments; industrial developments; single-family residential and recreational developments.

6.3.6 DMM F - High-Efficiency Washing Machine Rebate Programs

Due to the lack of funding, the low gpcd for the City, and other agencies offering rebates, the City does not offer rebates for this DMM. The City is a member agency of MWD. MWD implements several conservation measures which customers of the participating agencies my receive rebates. Through MWD's SoCAl Water$mart program, customers may receive rebates of $110.00 for the installation of high efficiency washing machines. Customers who inquire about rebates are directed to the MWD SoCal Water$mart program at http://socalwatersmart.com.

Additionally, the Gas Company and Southern California Edison offer rebates for High Efficiency Clothes Washers. More information is available at:

http://www.socalgas.com/for-your-home/rebates/

http://www.sce.com/residential/rebates-savings/rebates-savings.htm

6.3.7 DMM G - Public Information Programs

The CBMWD has created the Shut Your Tap! Campaign. The City joined the Campaign in 2009. The Shut Your Tap! Campaign engages community partnerships, grassroots outreach, and media relations to promote water conservation within Central Basin's 24-city service area. The Shut Your Tap! program provides valuable information on ways to use water more efficiently and protect our most precious natural resource for the short and long-run. Central Basin Staff and Directors are available through the Speakers Bureau Program, to come to the City, local organization or school to give presentations on a variety of water related topics.

6.3.8 DMM H - School Education Programs

The City participates in school education programs through the CBMWD. Central Basin partners with 17 school districts in the District's service area to provide free water conservation education programming. The District funds programs that are designed for students from kindergarten through high school. Programs include Think Earth! It's Magic (K-5), Think Water! It's Magic, Water Wanderings (4-5), Think Watershed (4-6), Water for the City (4-8), Water Squad Investigations (4-12), Conservation Connection (6-8), Sewer Science (9-12) and Waterlogged (9-12). The education programs range from in class, extended daycare/after school and field trips. Educational topics range from watershed protection, marine animal and plants, water sources and wastewater treatment. Each year over 30,000 students from the District's service area participate in the CBWMD education program.

Additionally, CBWMD is partnering with local public agencies such as cities and school districts to create Demonstration Gardens that enrich the environmental awareness of the community and promote the benefits of water efficient gardens. The City is currently working with CBMWD on constructing a demonstration garden.

6.3.9 DMM I - Conservation Programs for Commercial, Industrial and Institutional Accounts

Currently, the City is not implementing this DMM. If the City were to implement this program in the future, the program could potentially provide a toilet replacement to commercial, industrial and institutional facilities. High volume, non ULFT toilets flushing at 3.5 or greater gallons per flush would be replaced with high efficiency toilets that flush at 1.28 or less gallons per flush. Additionally the city could offer free high efficiency flush valve retrofit kits (0.5 gpf) to replace flush valves in high volume urinals that flush at greater than 1.0 gallons per flush. Free installation could be included in this service for both toilets and urinals.

The goal of this program would be to achieve annual water savings by Commercial, Industrial and Institutional accounts. The average cost of the survey program is estimated to be approximately $650 per survey. The life span of a program is approximately five years. If five percent of accounts are surveyed annually over the next ten years, it would result in an average savings of approximately 46 AFY. A snapshot of these potential savings is shown in Table 27.

Table 27: Cost-Benefit Analysis of DMM I

Total Cost	$409,582
Total Benefits	$133,535
Discount Rate (%)	5.0
B/C Ratio	0.33
Time Horizon (years)	15
Cost of Water (per AF)	$300
Average Water Savings (AFY)	46

The B/C ratio for this DMM is approximately 0.32. Since this B/C ratio is less than 1.0, it is not currently cost-effective for the City to implement this DMM.

6.3.10 DMM J - Wholesale Agency Assistance Programs

The City is not a wholesale Agency and therefore this DMM is not applicable.

6.3.11 DMM K - Conservation Pricing

The City charges a set price per unit of potable water, referred to as a uniform volume charge. Water customers currently pay the following rates:

Residential	$4.52	/100 c.f.
Commercial/Industrial	$4.77	/100 c.f.
Recycled water (Exceeding 4 ccf)	$2.92	/100 c.f.
Minimum Base Rate Charge (4 ccf or less)	$19.68	/100 c.f.

A monthly minimum charge varies based on meter size. The current minimum charge for each meter size is listed below.

Two-inch (2")	$40.75	bi-monthly
Three-inch (3")	$61.11	bi-monthly
Four-inch (4")	$81.50	bi-monthly
Six-inch (6")	$122.23	bi-monthly
Eight-inch (8")	$162.98	bi-monthly
Ten inch (10")	$203.72	bi-monthly

This existing rate structure facilitates conservation since customer bills vary directly with the level of water usage. The Uniform Volume Charge also provides a clear and easy to understand price signal to the customer. To date the utility has avoided an inverted rate block structure in order to preserve this option for use during a prolonged drought.

6.3.12 DMM L - Conservation Coordinator

The City does not have a Water Conservation Coordinator classification position. Due to budget constraints, the conservation coordinator duties fall on the Senior City Engineer of the Public Works Department. The Senior City Engineer acting as the Conservation Coordinator duties include program management, tracking, planning, responding to public requests, and any required reporting.

6.3.13 DMM M - Water Waste Prohibition

The City adopted Ordinance 2263, Title 6 (Health and Sanitation), Chapter 6.64 (Water Conservation) of the South Gate Municipal Code in 2009. The Ordinance sets permanent water conservation requirements which prohibit the waste of water. Below are excerpts from the City's Municipal Code prohibiting water waste.

> *6.64.060(c)*
> *No Excessive Water Flow or Runoff: Watering or irrigating of any lawn, landscape or other vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.*
>
> *6.64.060(d)*
> *No Washing Down hard or Paved Surfaces: Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device or a low volume, high pressure cleaning machine equipped to recycle any water used.*
>
> *6064.060(e)*
> *Obligation to Fix Leaks, Breaks or Malfunctions: Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonable been discovered and corrected and in no event more than ~ days of receiving notice from the City is prohibited.*

The municipal code is enforced during normal and shortage conditions. Due to the lack of resources, the municipal code for waste is not strictly enforced during normal conditions. During times of water shortages, enforcement is increased. In the future and if resources become available, the City should enforce the municipal code during normal conditions.

6.3.14 DMM N - Residential ULFT Replacement Programs

The City currently does not operate an ultra-low-flush toilet replacement program. However, MWD, of which the City is within MWD's service area, maintains a residential ultra-low-flush toilet replacement program. MWD offers rebates starting at $50 per toilet if a customer replaces a toilet that is a program-qualifying model. The water customer purchases and installs the program-qualifying model, completes an application provided by MWD, and then sends the application and proof of purchase, and proof of residency (water service account number) to MWD.

The City does not currently budget for this program. IF the City were to implement its own program, the average cost of the rebate is estimated to be $75 and the man hours to verify installation would be approximately $50. Approximately 100 ULFT's would be installed each year with an estimated life span of five years. Programs such as these have been shown to produce savings of approximately 1.9 gallons per flush over high-water-using toilets. A snapshot of these potential savings is shown in Table 28.

Table 28: Cost-Benefit Analysis of DMM N

Total Cost	$101,348
Total Benefits	$11,242
Discount Rate (%)	5.0
B/C Ratio	0.11
Time Horizon (years)	15
Cost of Water (per AF)	$300
Average Water Savings (AFY)	3.8

The B/C ratio for this DMM is approximately 0.11. Since this B/C ratio is less than 1.0, it is not currently cost-effective for the City to implement this DMM.

6.4 Water Savings Analysis

Each of the individual DMM's that are currently being implemented are not easily quantifiable. However, the City's overall conservation of water is evident by the 97 gpcd that is in use. This is 32% less than the regional target that has been set and well below the average regional usage. The usage for the area is 178 gpcd[1]. So South Gate is 46% below that regional average.

[1] Metropolitan Water District of Southern California Regional Urban Water Management Plan

7.0 Recycled Water Plan

Water recycling is the reuse of treated wastewater for non-potable (non-drinking) purposes, including industrial uses and irrigation for public landscaping, such as medians, parks and golf courses. Using recycled water can increase the availability of potable water supplies.

The City of South Gate does not own or operate any water recycling facilities. The City purchases recycled water from the Central Basin Municipal Water District (CBMWD), which is offered to industrial users at a 15 percent discount. CBMWD obtains recycled water from the San Jose Creek Water Reclamation Plant in Whittier and the Los Coyotes Water Reclamation Plant in Cerritos, which are owned and operated by the Sanitation District of Los Angeles County. The City is a member agency with the Sanitation Districts of Los Angeles County. The Sanitation Districts construct, operate, and maintain facilities to collect, treat, recycle, and dispose of residential, commercial, and industrial wastewater.

From 1996 to 2010, South Gate purchased 2,486 acre feet of recycled water from the CBMWD. The City itself uses recycled water for irrigation in Hollydale Park and Circle Park. There are also two carwash facilities in the City that recycle their own water. CBWMD operates a recycled water pipeline on Atlantic Avenue that has enough capacity to provide for most of the industrial uses in that area, but despite the reduced cost the potential customers have not been motivated to use this resource. CBMWD may extend additional recycled water pipeline to the westside of the City.

Individual districts operate and maintain their own portions of the collection system. The City of South Gate is responsible for the collection of wastewater through local sewers and the collection of solid waste.

The City is planning on expanded use of recycled water for medians, and park facilities where possible. It may be necessary in the future to require landscaping on private property to use recycled water. A program to educate and guide the potential customers about the benefits and safety of the recycled water will be pursued. Recycled water is less expensive to acquire, more reliable and is the best means to reduce potable water demand.

7.1 CBMWD Recycling Plan

Recycled water is a cornerstone of Central Basin's efforts to augment local supplies and reduce dependence on imported water. Since planning and constructing its recycled water distribution systems in the early 1990s, Central Basin had become an industry leader in promoting water re-use. Recycled water is used for non-potable applications such as landscape irrigation, commercial and industrial processes such as cooling, and indirect potable use through groundwater replenishment.

In FY 2006-2007, recycled water demand within Central Basin's service area peaked at 5,311 AF. This amount represented about 2 percent of the Central Basin service area total water demand.

The source of Central Basin's recycled water is the Sanitation Districts of Los Angeles County (LACSD). LACSD operates six water recycling plants in the Los Angeles basin and is described in more detail in Section 7.2.

Wastewater that is treated at the San Jose Creek and the Los Coyotes water reclamation plants undergoes tertiary treatment and denitrification. Tertiary recycled water is filtered and disinfected wastewater that meets specific Title 22 testing criteria.[1] Tertiary treated water can be used for a wide variety of industrial and irrigation purposes where high-quality non-potable water is needed.

[1] California Health Laws Related to Recycled Water, "The Purple Book", June 2001, Title 22, Chapter 3, Article 1, 60301.230

Central Basin's recycled system is comprised of two separate projects: E. Thornton Ibbetson Century Water Recycling Project (Ibbetson Century Project) and the Esteban E. Torres Rio Hondo Water Recycling Project (Torres Project). Both projects deliver recycled water for landscape irrigation and industrial uses throughout the Central Basin service area.

The potential of recycled water use will increase among cities, water agencies, and businesses/industries through the years. The increased cost of imported water and groundwater will enhance the beneficial usages of recycled water.

In 2008, Central Basin developed a Recycled Water Program Master Plan to help identify all of the potential customers that could benefit from recycled water. Although there is great potential to increase recycled water use in Central Basin, there are challenges and limitation in connecting customers. Among them is proximity to recycled water pipelines, capacity and pressure to serve, and retrofit cost feasibility. These factors play a significant role in meeting the potential growth of recycled water.[1]

7.2 Sanitation Districts of Los Angeles County

The Sanitation Districts of Los Angeles County (Sanitation Districts) operate 11 wastewater treatment facilities, 10 of which are classified as water reclamation plants (WRPs). These facilities serve approximately five million people in 78 cities and unincorporated areas within Los Angeles County. Effluent quality from the WRPs ranges from undisinfected secondary to coagulated, filtered, disinfected tertiary. During Fiscal Year 2008-09 (FY 08-09), Sanitation Districts' facilities produced an average of 456.92 million gallons per day (MGD), or 512,001 acre-feet per year (AFY) of effluent, which is a decrease of 4.5% from the preceding fiscal year, and a 14.7% decrease from the historic peak of FY 89-90.

Capacity at the ten Sanitation Districts' water reclamation facilities is now 252.8 MGD (283,285 AFY). However, of the total effluent produced, only 170.75 MGD (191,336 AFY) consisted of recycled water suitable for reuse (67.8% of capacity). This amount is 37.4% of the total amount of effluent produced, a decrease of 0.9% from the preceding fiscal year. The remaining 286.17 MGD (320,664 AFY) was effluent discharged to the ocean from the Sanitation Districts' Joint Water Pollution Control Plant (JWPCP) in the City of Carson, a 6.6% decrease from the preceding fiscal year.

The Sanitation Districts have made efforts over the past four-and-a-half decades to divert high quality wastewater flows away from direct ocean disposal to the upstream WRPs, which provide recycled water supplies for eventual reuse. Discharge to the ocean has steadily decreased since the WRPs in the Los Angeles Basin (i.e., the Joint Outfall System, or JOS) were built in the early 1970's, while additional needed treatment capacity has been added to the WRPs . Significant drops in effluent production occurred in 1977 and 1991 in response to serious droughts. A similar drop in effluent production has been occurring since 2006 when the current water crisis in the State became apparent and conservation actions began to be implemented. The majority of these decreases came from the JWPCP, while the upstream WRPs were able to maintain a relatively high level of production, which contributed to recycled water's reputation as being "drought-proof."

Of the total amount of recycled water produced, 70.13 MGD (78,580 AFY)was actively reused for a variety of applications including urban landscape irrigation, agricultural irrigation, industrial process water, recreational impoundments, wildlife habitat maintenance, and groundwater replenishment.

The amount of recycled water used for replenishment of the underground water supply can vary greatly from year to year, depending on the amount and timing of rainfall runoff, maintenance activities in the spreading grounds, and other factors. The long-term trend of recycled water usage is best represented by the increase in direct, non-potable reuse for landscape and agricultural irrigation, industrial process supply, and environmental enhancement.

[1] Central Basin Municipal Water District 2010 Urban Water Management Plan

More recycled water is typically used for groundwater recharge (via surface spreading) than for all other applications combined because of its cost-effectiveness. The San Jose Creek, Whittier Narrows, and Pomona WRPs discharge to rivers or creeks (i.e., flood control channels) that can convey the water by gravity to existing off-stream recharge basins. These basins and the unlined portions of the rivers and creeks permit large volumes of recycled water to percolate by gravity into the aquifer. Recycled water used in this way incurs no additional capital improvement and related operation and maintenance (O&M) costs or any energy consumption for pumping.[1]

7.3 Future Recycled Water Uses

Regionally, the use of recycled water is growing. The CBMWD, MWD, and Sanitation Districts plans are growing.

Locally, providing treated wastewater for reuse in the City of South Gate for municipal parks, school and landscaped median irrigation, commercial and industrial facilities has long been an effort to conserve water supplies in the face of ever increasing growth and water demand. However, the costs associated with installing treatment systems to produce high-quality effluent and installing pipelines to distribute it locally has been prohibitive. There are other options that can be explored in the future.

7.3.1 Satellite Wastewater Treatment Plants

Satellite wastewater treatment plants or point-of-use facilities collect wastewater from an interceptor or trunk line, treat it so that it meets appropriate reuse standards, and then release it to nearby customers. Because the plants have such a small footprint, Membrane Biological Reactors (MBR) generally can be located even in dense urban locations without difficulty. The highly automated systems require relatively little operator oversight and tend to perform reliably.

The MBR process combines an aerobic biological process with an immersed membrane system. Cost-effective and reliable, this separation technology is suited for a wide range of municipal and industrial wastewater applications. MBR systems can also provide advanced nitrogen and phosphorus removal to meet the most stringent effluent requirements.

There are many equipment variations, configurations and options that can be used with MBR systems, all of which are designed to provide the necessary treatment for each wastewater or water reuse project. The equipment selected depends on effluent requirements, operation and maintenance requirements, power consumption, future expansion and initial capital costs.

Within the MBR process, the biological process and membrane operating systems are located in separate tanks to optimize performance of the overall process and to simplify operation and maintenance. This unique combination eliminates the need for clarifiers, return sludge pumping, polishing effluent filters and maintenance normally associated with a conventional clarification process.

By eliminating clarifiers, the biological process can be designed and operated for high-rate wastewater treatment, rather than sludge settleability. The biological system can also be operated at much higher mixed liquor suspended solids (MLSS) concentrations (8,000 to 16,000 mg/L). This results in a more efficient biological process that increases solids retention time, reduces sludge yield and improves reactor efficiency for nitrification and denitrification.

High MLSS levels also mean that the plants can operate with shorter hydraulic retention times, allowing smaller reactor basins than with conventional treatment. Space requirements in the plant can be up to 50 percent less than with a conventional biological process.

Operation of the MBR treatment process is easily automated and can be controlled with a microprocessor such as a membrane monitoring system, which continuously monitors and records important operational parameters. A highly automated design helps operators meet stringent environmental requirements.

[1] Twentieth Annual Status Report on Recycled Water

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RESOLUTION CERTIFICATION PAGE

STATE OF CALIFORNIA)

COUNTY OF LOS ANGELES) SS

CITY OF SOUTH GATE)

I, Carmen Avalos, City Clerk of the City of South Gate, California, hereby certify that the whole number of Members of the City Council of said City is five; that Resolution No. 7614 was adopted by the City Council at their Regular Meeting held on July 8, 2014, by the following vote:

Ayes:	Council Members:	Gonzalez, Morales, Davila, Hurtado and De Witt
Noes:	Council Members:	None
Absent:	Council Members:	None
Abstain:	Council Members:	None

Witness my hand and the seal of said City on July 17, 2014.

Carmen Avalos, City Clerk
City of South Gate, California