CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

2005 URBAN WATER MANAGEMENT PLAN

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
Post Office Box 710
San Bernardino, CA 92402

December 2005

Contents

List of Tables

List of Figures

Appendices

Section 1
Introduction

1.1 Overview

The San Bernardino Municipal Water Department (SBMWD) was created as a municipal utility by Article 9 of the City of San Bernardino Charter adopted December 28, 1908. SBMWD is governed by a Board of Water Commissioners (Board), whose members are appointed by the Mayor and subject to confirmation by the Common Council. The Department serves portions of the City of San Bernardino and portions of unincorporated areas of the County of San Bernardino.

As an urban water supplier providing municipal and industrial water to approximately 40,000 accounts, SBMWD is required to comply with The Urban Water Management Planning Act (Act). The Act became effective on January 1, 1984 and requires that urban water suppliers prepare and adopt an urban water management plan (UWMP), in accordance with prescribed requirements. The UWMP shall be updated every five years. This document is an update of the previously prepared Urban Water Management Plan Update for the Planning Period 2000-2020.

The Act was originally developed as a result of concerns for potential water supply shortages throughout the State. Therefore, it required information that focused primarily on water supply reliability and water use efficiency measures. Since its original passage in 1983, there have been several amendments added, the most recent adopted in 2004. Some of the recent amendments include: additional emphasis on drought contingency planning and recycled water, as well as incorporation of water quality issues and how they might affect water supply reliability.

With the passage of Senate Bills 610 and 221 (codified as Water Code §10910 et seq.), in 2001, UWMPs take on even more importance. Water Code §10910 et seq. require that counties and cities consider the availability of adequate water supplies for certain new large developments. These statutes require written verification of sufficient water supply to serve the new development, and UWMPs are identified as key source documents for this verification.

SBMWD's 2005 UWMP updates the 2000 UWMP and takes into account new Act requirements and changes in demographics, water demand and supplies.

1.1.1 History

On May 8, 1905, in accordance with the City Charter, the Mayor and Common Council appointed the first Board of Water Commissioners of SBMWD. San Bernardino's first water distribution system, valued at $160,000 in 1905, covered just one square mile and served a population of only 6,000 people. Today, the SBMWD delivers water to over 40,000 accounts using 550 miles of water mains to areas within and outside of the City of San Bernardino city limits. The SBMWD obtains 100% of its water from the Bunker Hill Groundwater (BHG) Basin. Management of this groundwater basin is coordinated through the San Bernardino Valley Municipal Water District (Muni).

SBMWD is located approximately 60 miles east of Los Angeles and approximately 110 miles north of San Diego. SBMWD provides service for urban water users, such as residential, commercial, and industrial users. The service area is bounded on the north by the San Bernardino National Forest, on the east by the East Valley Water District and Redlands Municipal Utilities Department, on the south by the cities of Loma Linda and Colton, and on the west by the West Valley Water District, the City of Rialto, and the Muscoy Mutual Water Company. The elevation of the valley floor ranges from approximately 1,000 feet above sea level at the southern boundary to an elevation in excess of 2,100 feet above sea level at its northern most boundary. Figure 1-1 illustrates the SBMWD service area in relation to adjoining water agencies.

1.1.2 Service Area Description

Land Use

SBMWD has a service area of approximately 45 square miles (approximately 29,000 acres). Figure 1-2 shows the breakdown in land uses within SBMWD. The public land use includes government facilities, parks, and flood protection. Undeveloped land consists of all categories of undeveloped land, including currently undeveloped parks and flood protection areas.

Demographics

Current demographics were obtained for the entire City of San Bernardino using census tract level data from the Southern California Association of Governments (SCAG) developed for the 2004 Regional Transportation Plan. Table 1-1 presents these demographics in five year intervals beginning in 2005 and ending in 2030. Table 1-2 presents population projections specifically for the SBMWD service area.

Table 1-1
Demographic Projections for City of San Bernardino[1]

	2005	2010	2015	2020	2025	2030
Population	199,035	207,021	208,860	210,672	212,404	214,069
Households	57,221	58,288	60,211	62,290	64,440	66,734
Employment	88,791	99,337	110,056	120,965	131,943	143,045

[1] Reflects City of San Bernardino, not the water department service area.
Source: SCAG, RTP 2004.

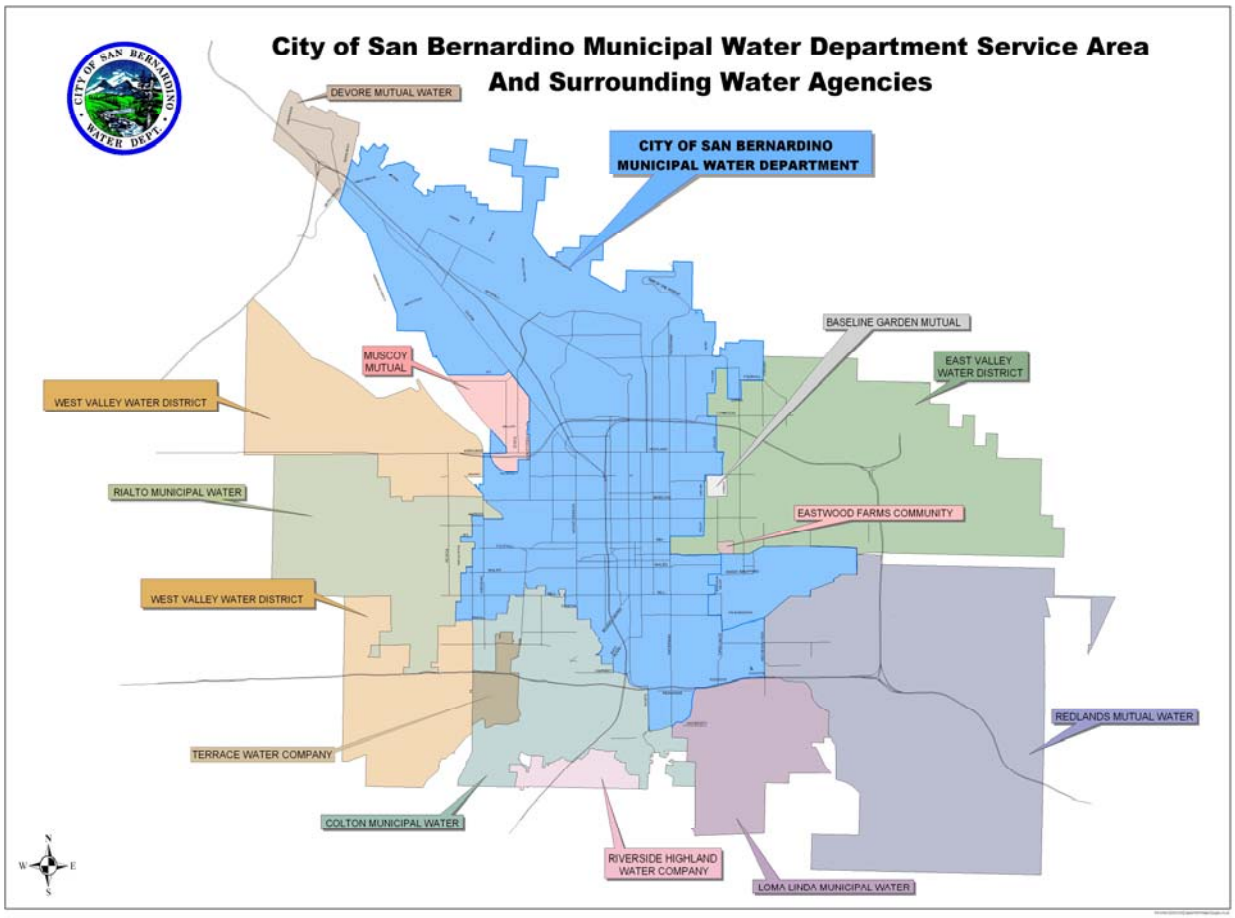


Figure 1-1
San Bernardino Municipal Water Department Service Area

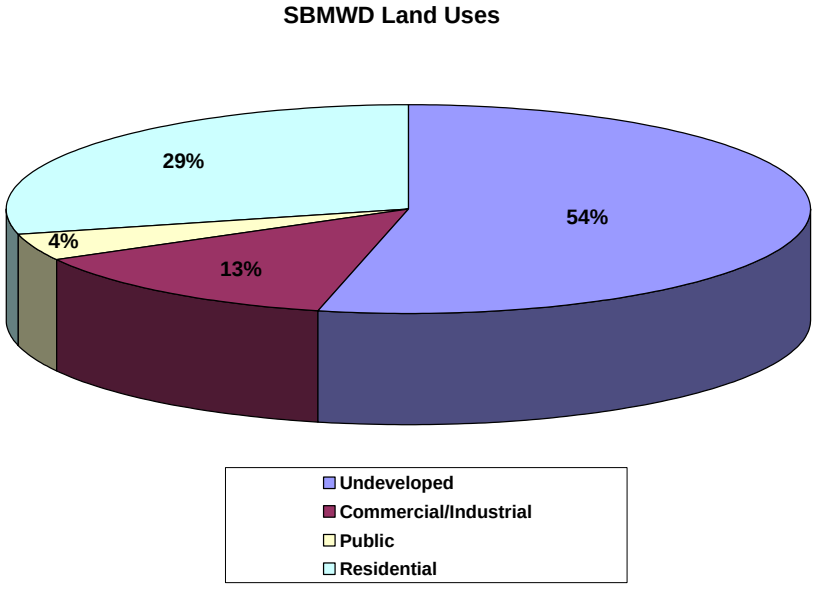


Figure 1-2
Land Use in SBMWD's Service Area

Table 1-2
Population Projections for SBMWD Service Area[1]

	2005	2010	2015	2020	2025	2030
Population	173,359	180,315	181,917	183,495	185,004	186,454

[1] Projections for service area developed by using 2000 US Census data by blocks to develop a percentage of the City population served and then applying the percentage to the SCAG RTP data in Table 1-1 to arrive at projections for the water department service area.

Within SBMWD's service area population is expected to slowly grow over the next 25 years at an average annual growth rate of approximately 0.3%. Over the projection period this will lead to approximately 13,000 new residents.

Housing as a whole, in the City of San Bernardino, is projected to increase at an annual rate of 0.6% over the projection period resulting in approximately 9,500 new households. It is expected that housing in SBMWD's service area will grow at a similar rate.

Total employment within the City of San Bernardino is expected to dramatically increase at an annual rate of 2.4% over the projection period. Total employment is expected to increase by approximately 54,250 employees by 2030. Employment growth that exceeds population growth indicates that workers will commute into the service area to their place of employment. It is expected that employment in the Department's service area will grow at a similar rate.

Climate

The climate within SBMWD's service area is characterized by warm, dry summers and mild winters with moderate amounts of rainfall. Mean annual temperatures average 63° Fahrenheit, with summer high temperatures (June through September) in the low-80's and winter lows in the upper 30's. The average annual maximum monthly temperature is 72.79° Fahrenheit based on weather data readings from January 1928 through September 2004 at San Bernardino Weather Station No. 7723 (latitude: 34:08:00, longitude: 117:15:00). Table 1-3 presents average climate data for the service area.

Rainfall varies dramatically between seasons and is characterized by a wet season/ dry season pattern. Average rainfall amounts during the period between May and October are typically less than one inch. The majority of rain usually occurs between November and April. Historical average annual precipitation for the region is a moderate 15.77 inches as recorded at San Bernardino Weather Station 7723. Throughout the historical period recorded at that station, total annual rainfall amounts have varied between 3.07 inches at a minimum to a maximum of 35.48 inches.

The standard annual monthly average evapotranspiration rate (ETo) for the region is 4.75 inches, as listed in Table 1-3, with the highest rates occurring during the summer months. ETo measures the loss of water to the atmosphere by evaporation from soil and plant surfaces and transpiration from plants. ETo serves as an indicator of how much water plants need for healthy growth. The ETo measurements were taken at the U.C. Riverside Station number 44 which is the closest ETo station to the service area, for the period of June 1995 through September 2005.

Table 1-3
Average Climate Data for SBMWD Service Area

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
Standard Monthly Average ETo (feet per year)[1]	2.42	2.69	4.29	5.37	6.30	6.59	7.55	7.19	5.45	3.91	2.75	2.44	4.75
Average Rainfall (inches)[2]	3.06	3.41	2.67	1.30	0.38	0.09	0.04	0.16	0.33	0.66	1.33	2.34	15.77
Average Max. Temperature (^{o}F)[2]	61.78	63.53	66.24	71.79	75.44	78.80	86.12	85.36	81.38	75.42	66.51	61.17	72.79

1. http://www.cimis.water.ca.gov/cimis/frontMonthlyReport.doc , Station #44 -UC Riverside, June 1995 - Sept 05.
2. Weather Station: San Bernardino F S 226, Station number 7723, Jan 1928 – Aug 2004

1.2 Water Master Plan

To help achieve its mission, SBMWD is in the process of completing a Water Master Plan. The purpose of the Water Master Plan (WMP) is to develop a long-range water supply plan and capital improvement plan to reliably meet the needs of SBMWD's service area from now until 2035.

The WMP is an assessment of current and ultimate water demands, evaluation of available groundwater supply sources to meet projected demands, and an evaluation of the distribution system to convey the source water through the service area. As a part of the assessment of the distribution system a hydraulic model is being developed and calibrated in order to size transmission pipelines, storage facilities and pumping units to meet current and projected demands in the service area. In addition, the WMP includes the development of an economic model to determine the cost of production for each of the 19 pressure zones in the distribution system.

1.3 Agency Coordination

Water resources in the San Bernardino Valley are coordinated through Muni, which was formed in 1954 to plan long-range water supply for the San Bernardino Valley including the BHG Basin. Muni is a State Water Project (SWP) contractor that was incorporated under the Municipal Water District Act of 1911 (California Water Code Section 7100 *et. seq.,* as amended). Its enabling act includes a broad range of powers to provide water, as well as wastewater, stormwater disposal, recreation, and fire protection services within its service area.

The District's responsibility for long-range water supply planning includes importing supplemental water and management of the groundwater basins within its boundaries. It has specific responsibilities for monitoring groundwater supplies in the San Bernardino and Colton-Rialto basins and maintaining flows at Riverside Narrows on the Santa Ana River.

SBMWD must coordinate its plans with Muni with respect to groundwater management issues. SBMWD also has an agreement with Muni for delivering treatment plant discharges to the Santa Ana River to satisfy water rights of downstream users, as further discussed in Section 6. As discussed above, SBMWD is preparing a WMP that requires coordination with Muni.

Table 1-4 identifies the planning documents on which the Department and Muni have coordinated and that form the basis for this UWMP. Additionally, the Department coordinates with the San Bernardino Valley Water Conservation District which manages groundwater recharge in the eastern portion of the San Bernardino Valley.

Table 1-4
Coordination with Appropriate Agencies

	Documents			
	San Bernardino Water Master Plan	**Draft Overview of Groundwater and Surface Water Management in the East San Bernardino Valley**	**San Bernardino Valley Municipal Water District Masterplan**	**Bunker Hill Basin 2004-2005 Engineering Investigation**
San Bernardino Municipal Water Department	X	X	X	X
San Bernardino Valley Municipal Water District	X	X	X	X
San Bernardino Valley Water Conservation District				X

The SBMWD coordinates with the City and County of San Bernardino as a condition of development in the Department's service area. Within unincorporated areas, confirmation of water availability is required by the County prior to the issuance of building permits. It is required by the City, for development within the City limits through its Environmental Review and Development Review processes for new development.

Section 2
Water Supply Sources

2.1 Current Water Supply Sources

SBMWD's current water supply consists solely of water extracted from the underlying underground aquifer, Bunker Hill Groundwater Basin (BHG Basin). However, it should be noted that SBMWD delivers small quantities of water to East Valley Water District (EVWD) for blending purposes as their source of supply exceeds the maximum contaminant level (MCL) established for drinking water standards for nitrate. In return for this water, EVWD delivers groundwater to SBMWD at a 2.5:1 ratio to compensate SBMWD for power costs associated with the difference in elevation at the delivery point and production costs. Table 2-1 summarizes SBMWD's water supply including net deliveries (amount received minus amount delivered) from EVWD for 2005.

Table 2-1
Current Water Supplies (Acre-Feet/Year)

Water Supply Sources	2005
Local Groundwater Pumping	47,301
Groundwater Deliveries from EVWD (net)[1]	200
Total Supply	47,501

[1] Data for October through December was forecast using average difference between 2004 and 2005 data of the previous months and applying it to the 2004 data

Source: Data from draft SBMWD Water Master Plan, SBMWD Water Production Data 2001-2005.

SBMWD produces its water supply from 57 groundwater wells located throughout its service area. The wells range from 50 to 1,300 feet in depth and have production capacities ranging from 50 to 3,500 gallons per minute (gpm).

SBMWD's water distribution system consists of pipelines, storage reservoirs, pumping stations, hydroelectric generating stations, manual and automatic control valves, fire hydrants, and water meters located throughout 19 individual pressure zones. SBMWD has 548 miles of pipeline varying in size from 2 inches to 78 inches in diameter, 41,317 metered water services, 13,800 valves, and 4,000 fire hydrants. SBMWD has 31 water storage reservoirs containing a total of 112 million gallons of domestic water storage capacity. These reservoirs vary in size from 40,000 gallons to 12 million gallons and are located throughout many of the 19 pressure zones.

Pressure zone reservoir elevations range from 1,249 feet to 2,100 feet mean sea level (msl) and are located at appropriate elevations necessary to provide adequate water pressure, 40 pounds per square inch (psi) to 80 psi throughout the pressure zone service area. SBMWD's pumping stations capacities range from 1,500 gpm to 12,000 gpm. In addition, most pressure zones have automated inter-zonal water transfer capabilities.

Water production and treatment facilities are operated by state certified water production and treatment operators through an automated supervisory control data acquisition (SCADA) system. The Department's groundwater production wells have a combined maximum production capacity of 90 million gallons per day (mgd) exceeding SBMWD's highest recorded peak water demand of 70 mgd.

2.1.1 Groundwater

Basin Description

SBMWD's service area overlies a portion of the BHG Basin, also known as the San Bernardino Basin. Management of the BHG Basin is coordinated through Muni. The BHG Basin contains in excess of 5 million acre feet (AF) of high-quality water of which approximately 1.5 million AF of water is extractable. The BHG Basin is replenished naturally by local precipitation and by stream flow from rain and snow melt in the San Bernardino Mountains watershed. Water can also be artificially recharged by rerouting stream flows to recharge percolation basins.

Prior to 1963 the lack of native surface water and imported water for many years led to groundwater overdraft within Muni's boundaries. In more recent years, increased groundwater recharge has led to high groundwater levels in the lower (southern) portion of the BHG Basin, also known as the pressure zone, where the aquifer is confined and artesian. Groundwater levels in the pressure zone may cause artesian flow in local wells, infrastructure infiltration, and the potential for liquefaction during seismic events. Within the past seventy years, a high groundwater condition has occurred in the area south and east of the intersection of "Mill & D Street" at least three times. A high groundwater condition occurs when the groundwater elevation exceeds the ground surface elevation. SBMWD participates with other local water agencies in a dewatering program to lower the water levels in the confined pressure zone. Muni has sold extracted high groundwater water to downstream water agencies and will likely do so again if high groundwater conditions reoccur.

Since 1970, Muni has been calculating the change in groundwater storage within the Bunker Hill Groundwater Basin using a specific yield model. This model calculates both the cumulative change in groundwater storage and the annual change in storage. The cumulative change in groundwater storage is a measurement of groundwater lost or gained in the BHG Basin compared to the base year of 1934. The year 1934 was selected by Muni as the base year to correspond with the California Department of Water Resources base period of 1934—35 through 1959-60. The cumulative change in storage since 1934 for the BHG Basin was negative 420,624 AF as illustrated in Figure 2-1. This figure represents a 30% decrease from the previous year. However, as illustrated in Figure 2-1 conditions have been worse in the past. The decrease in cumulative change in storage since 1998 has resulted from an increased reliance on groundwater production combined with below average precipitation. Drier winter months have led to a heavier reliance on pumping during the winter than in the past.

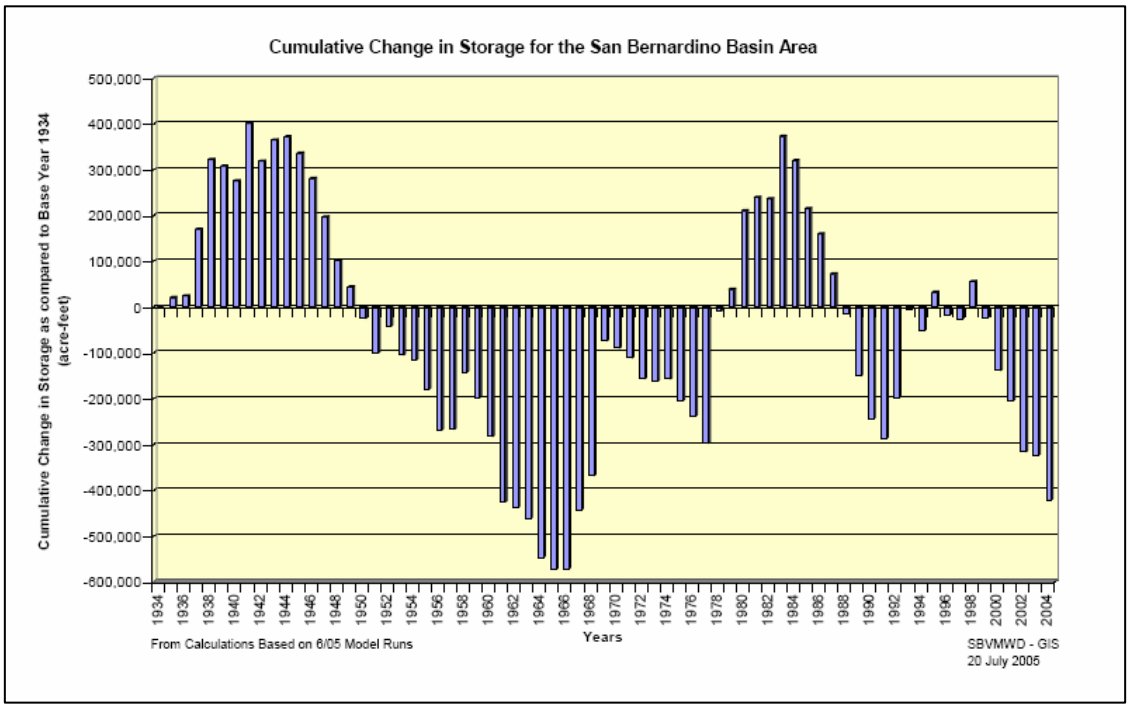


Figure 2-1
Basin Cumulative Change in Storage

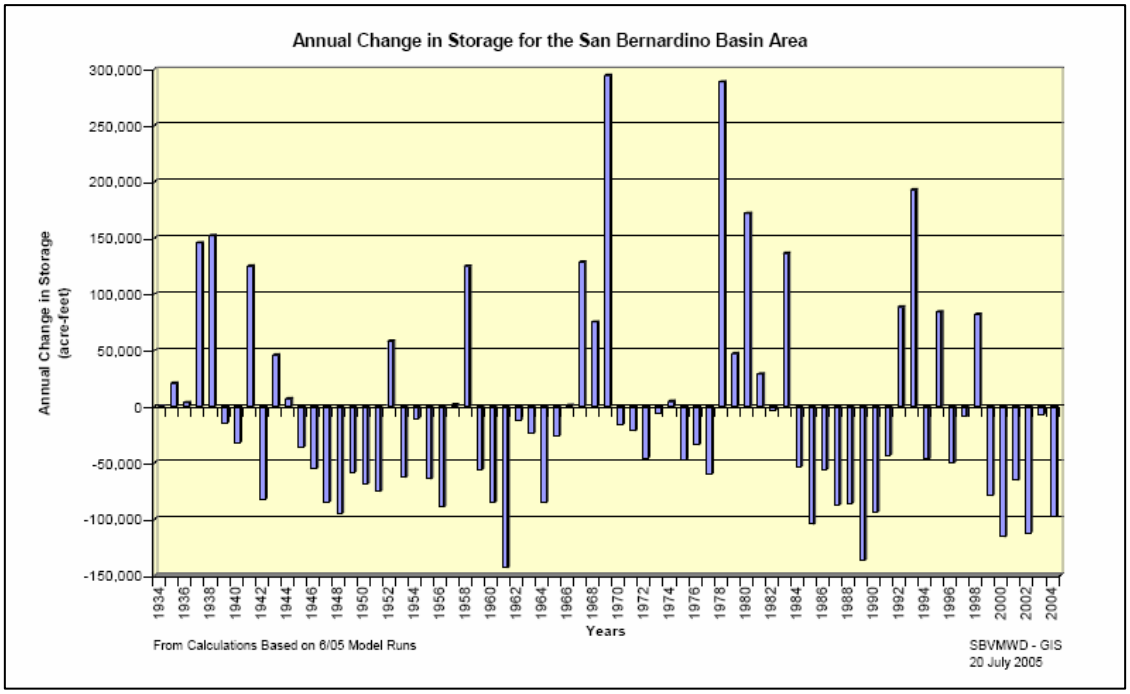


Figure 2-2
Basin Annual Change in Storage

The annual change in storage is the change in storage from the prior year. For 2004 this change was negative 97,648 AF as illustrated in Figure 2-2. Approximately 58% of the total decrease in annual storage is thought to be a result of increased well production and a reduction of natural recharge caused by below average precipitation throughout the BHG Basin.

In 2003, the most current year of verified extractions for the BHG Basin, extractions by agencies within Muni's jurisdiction were 169,833 AF. This exceeds the adjusted right of Muni by 2,595 AF, but does not exceed available credits Muni has resulting primarily from previous years where production was less than Muni's adjusted right.

Water quality extracted from the BHG Basin by SBMWD is of excellent mineral quality with total dissolved solids (TDS) averaging less than 350 milligrams per liter (mg/L). Most of the BHG Basin is impaired by one or more contaminants consisting of TCE, PCE, DBPC, perchlorate, nitrates, or fluoride as discussed in further detail in Section 7.

Basin Management

Groundwater management issues (mainly export) in the Bunker Hill Groundwater Basin are primarily governed by the judgment in *Western Municipal Water Destrict et.al v. East San Bernardino County Water District et al.,* entered on April 17, 1969 (Western Judgment). Other adjudications affecting the management of this basin include: *City of San Bernardino v. City of Riverside*, County of San Bernardino Case No. 13754; *Orange County Water District v. City of Chino,* County of Orange Case No 117628 (the Orange County Judgment); and a Consent Decree (Decree) entered in *City of San Bernardino v. United States of America*, United States District Court Central District, CV 96-8867 and CV 96-5205 (consolidated) among the US Environmental Protection Agency, the US Department of the Army, the City of San Bernardino, and the California Department of Toxic Substances.

Under the Western Judgment, Muni has the responsibility to ensure that adequate quantities of water are available for extractions above the basin safe yield of 232,100 AF/Y. As defined, this includes both the BHG Basin and the Lytle Creek Basin. Within Muni's boundaries, the adjusted right is 167,238 acre feet per year (AF/Y), with the remainder of the water rights assigned to plantiff agencies outside of its service area. If pumping by water agencies within Muni's service area exceeds their overall groundwater production, Muni is required to augment the supply sources by spreading imported water from the SWP or water obtained from other sources. Under the Western Judgment, the production rights of individual agencies within Muni's service area are not allocated. The Western Judgment also sets the maximum amount of water that can be exported from the Basin. A copy of the Western Judgment is included in Appendix A.

The City of San Bernardino v. the City of Riverside Judgment (1922) and subsequent amendments set the maximum amount of water that can be pumped by both cities from the Antil region and, to some extent, limits the geographic areas in which both parties may pump.

The 1969 Orange County Judgment was a physical solution adopted by the court to resolve claims of inter-basin allocation of obligations and rights in the Santa Ana Watershed. Essentially, the Lower Area (below Prado Dam) is ensured annual delivery of a base flow at Prado Dam of 42,000 AF plus all storm flow reaching Prado Dam. Muni, Chino Basin Municipal Water District (now IEUA), and Western Municipal Water District guarantee that those flows are met, with Muni responsible for delivery of approximately 16,000 AF to the Riverside Narrows. Muni contracts with SBMWD to discharge 16,000 AF from its wastewater treatment facility (now the RIX facility) to meet this obligation.

The Consent Decree (Decree) among the US Environmental Protection Agency, the US Department of the Army, the City of San Bernardino, and the California Department of Toxic Substances Control settles a lawsuit filed by the City of San Bernardino against Federal defendants. The Decree requires the City of San Bernardino to develop a groundwater management plan for a management zone that is a subset of the city limits to ensure the integrity and effectiveness of the interim remedial action implemented in the Newmark Groundwater Contamination Superfund Site. The groundwater management plan must regulate the amount of new pumping in the management zone, as well as spreading activities. As a result, the City of San Bernardino is developing a groundwater management program, that would regulate new wells within the management area and spreading such that these activities would not adversely affect the remedy.

As part of the groundwater management activities currently being conducted in the Basin, Muni submitted a Proposition 50 planning grant, with funding from a number of local water agencies within its jurisdiction, including SBMWD, to complete an Integrated Regional Groundwater Management Plan (IRGMP). The goal of the IRGMP is to coordinate the existing planning documents and legal documents governing the management of groundwater and surface water within Muni's service area.

Groundwater Recharge with Surface Water

Runoff in the form of rain and snow melt from the San Bernardino and San Gabriel mountains is a local source of water that is utilized to recharge the BHG Basin. On average the San Bernardino Water Conservation District captures approximately 65,000 AF of water annually from local sources, such as the Santa Ana River and Mill Creek, for spreading to recharge the BHG Basin. Capture rates are directly impacted by annual precipitation totals.

Groundwater Recharge with Imported Water

Muni became one of 29 contractors to the State Water Project (SWP) December 30, 1960 to obtain delivery of SWP water. SWP water is delivered from northern California to Muni where it is artificially recharged into the BHG Basin. Muni has the fifth largest of the SWP contracts with a maximum entitlement of 102,600 AF/Y that extends until 2035. Each of the 29 water supply contracts contains a schedule of annual water entitlements. For most contracts, the annual entitlements increase yearly up to the maximum entitlement.

Developing new supplies is necessary if SWP is to meet its contractual obligations in its long-term contracts. DWR has identified programs to increase its ability to fulfill contractual obligations. These programs involve increasing the water supply available through improvements in the Sacramento-San Joaquin Delta to more efficiently transfer water to the pumps while protecting the delta environment, constructing off-stream storage facilities, developing SWP groundwater storage (subsurface) facilities, and developing conjunctive-use projects in cooperation with local agencies.

SWP water is utilized to recharge the BHG Basin. During the drought years of 1987-1991, Muni purchased 64,622 AF over a five-year period. However, at this time, Muni is not obligated to purchase SWP water as the BHG Basin, though operating at a cumulative loss in storage since the base year, has enough credit in storage. At the request of those agencies within its jurisdiction, Muni can bring in SWP water. SBMWD has the ability to purchase SWP water from Muni for delivery at three high elevation groundwater recharge areas located in the northern portions of SBMWD's service area. All agencies requesting SWP water through Muni pay a fee to Muni for the water. In addition, Muni's "Rules for Service" requires agencies to have a 100% back-up for imported water delivered by Muni for direct delivery due to the interruptible nature of the SWP; this provision does not apply to groundwater recharge activities.

Historic Pumping

Historic total groundwater pumped by SBMWD from 2000 through 2004 is presented in Table 2-2 below. Average yearly production for the period was 46,565 AF/Y. Throughout the period 100% of SBMWD's supply was derived from groundwater.

Table 2-2
SBMWD Groundwater Pumped (Acre-Feet/Year)

	2000	2001	2002	2003	2004
Groundwater Pumped	47,487	45,676	48,504	42,850	48,311
% of Total Water Supply	100%	100%	100%	100%	100%

Source: SBMWD Well Production Data 2000-2005

2.1.2 Recycled Water

Currently, SBMWD does not use recycled water within its service area. Wastewater is treated at the San Bernardino Water Reclamation Plant to a secondary treatment level and then is conveyed to the Rapid Infiltration Extraction (RIX) Tertiary Treatment Facility in the City of Colton. This facility is jointly owned by SBMWD and the City of Colton and is operated under contract solely by the City of San Bernardino. RIX further treats the wastewater to a tertiary level. All treated effluent from the facility is discharged to the Santa Ana River. A portion of the discharged water, 16,000 AF/Y, is provided by contract to Muni to maintain flows in the Santa Ana River fulfilling Muni's downstream obligations under the Orange County Judgment. The remainder of the discharged amount is excess water, subject to potential reuse.

The RIX Treatment Plant is approximately 300 ft. lower in elevation than SBMWD's lowest service area. The combined capital outlay for the required infrastructure to move reclaimed water into the SBMWD's lower pressure zone service area and the operational pumping energy costs make it economically unfeasible to use this reclaimed water. As such, it is not economically feasible to pump the reclaimed water back up from the RIX to the service areas for reuse. Therefore the SBMWD does not currently utilize recycled water to offset potable demands within its service area. Recycled water use is discussed in further detail in Section 6.

2.1.3 Water Transfers

Water transfers are the voluntary exchange of water between a willing buyer and a willing seller. As shown in Table 2-1 above and as previously discussed, SBMWD currently participates in water exchanges with EVWD to assist EVWD in meeting water quality standards.

2.2 Planned Water Supply Sources

SBMWD is currently in the process of completing a Water Master Plan. The purpose of the Water Master Plan is to develop a long-range water supply plan and capital improvement plan to reliably meet the needs of SBMWD's service area from now until 2035. Data derived from the Water Master Plan combined with data from an analysis of Muni's supply is discussed further in Section 8.

Table 2-3 summarizes the hydrologic years used to assess supply reliability for the 2005 UWMP. The hydrologic years were selected based on local weather, hydrology, and historic SWP data. The historical sequence is the historical time period utilized to determine the water year types.

Table 2-3
Supply Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Normal Water Year	Average*	1922-1994
Single-Dry Water Year	1991	1922-1994
Multiple-Dry Water Years	1987-1991	1922-1994

* Average of historical sequence

Based on SBMWD's current capital improvement plan, SBMWD will be constructing a new well in fiscal year 2008 with an additional well to be constructed every four years thereafter. Existing wells have adequate capacity to handle projected demands within SBMWD's service area.

Table 2-4 summarizes the timing of new projected recycled water supplies, as well as the reliability of this supply under different water year types. The table does not include potential recycled water supplies. The new recycled water reclamation plant, as discussed in more detail in Section 6, is essentially drought proof as it is minimally impacted by hydrologic conditions.

Table 2-4
Future Water Supply Projects (Acre-Feet/Year)

Project Name	Project Start	Average Year	Single-Dry Year	Multiple- Dry Years				
				Year 1	Year 2	Year 3	Year 4	Year 5
Recycled Water Reclamation Plant	2006	840	840	840	840	840	840	840

Table 2-5 summarizes the planned water supplies for SBMWD through 2025, under normal weather conditions. The planned supply includes existing projects as well as the planned recycled water project shown in Table 2-4. SBMWD will continue to rely on the BHG Basin to fulfill the majority of its future supply needs. As discussed in Section 8, the planned groundwater supply is reliable until 2022 for an average year, single dry-year, and multiple dry years.

Table 2-5
Planned Water Supply (Acre-Feet/Year)

Water Supply Sources	2010	2015	2020	2025
Groundwater	53,940	61,039	66,850	72,664
Recycled Water	840	840	840	840
Total	54,780	61,879	67,690	73,504

Source: Data from SBMWD Draft Water Master Plan, 2005

In early 1996, Muni completed a Regional Water Facilities Master Plan (Master Plan) for the BHG Basin. The Master Plan includes an analysis of local water retailers' current and projected build-out water demands. A list of proposed projects was developed in the Master Plan to allow for moving water throughout the BHG Basin

(See Table 2-6). The most important project recommended to increase reliability is item 7, the completion of the Master Plan Crosstown Feeder to transfer groundwater produced in the artesian pressure zone to purveyors in the eastern and western portions of Muni's service area.

Table 2-6
Additional Supplemental Water Supply Sources from the Bunker Hill Groundwater Basin for Full Build-out

1.	Install shallow groundwater extraction wells and a transmission system throughout the lower portion of the artesian pressure zone to facilitate rapid dewatering (lowering groundwater levels) to prevent groundwater loss due to artesian flow and subsurface losses over the San Jacinto Fault. The extraction system will be used to maintain lower groundwater levels which will decrease liquefaction potential and provide storage capacity for additional groundwater recharge of periodic storm flow normally lost from the Basin.
2.	Increase current water production safe yield of the Basin to create additional storage capacity for conjunctive use storage of SPW in the Basin.
3.	Construct a storm water discharge pipeline from the Corp of Engineers Seven Oaks Dam Project to transport conservation water and/or storm flows into the Muni's SPW transmission pipeline. Storm flows normally lost to the ocean can be distributed as follows: a) To areas of the Basin that have storage capacity: b) For conjunctive groundwater storage with other SPW contractors and/or the Department of Water Resouces. c) Sale to other agencies outside of the boundaries of the Muni.
4.	Construct a surface water conservation element in the Corp of Engineers Seven Oaks Dam Project to conserve up to 10,000 AF per year of native stream flow currently lost during storm events.
5.	Optimize groundwater recharge of tertiary treated water reclamation plant effluent. A study is currently underway in the watershed involving the Regional Water Quality Control Board's (RWQCB) nitrogen and TDS objectives and the establishment of a Management Plan for the watershed. The Department recently completed construction of a 41 MGD Rapid Infiltration and Extraction (RIX) facility to treat secondary wastewater effluent to tertiary levels and reduce nitrogen. This source of water is considered viable for groundwater replenishment through pump back to spreading facilities and/or a negotiated exchange for SPW.
6.	Construction of the Foothill Feeder extension (a joint project between the Muni, the Department of Water Resources, and the San Gorgonio Pass Water Agency) which, will when completed, include pipelines and boosting stations capable of delivering combinations of SPW and local stream flows to local basin producers.
7.	Completion of the Master Plan Crosstown Feeder to transfer groundwater produced from the artesian pressure zone to water purveyors in the eastern and western portions of the Muni service area.

Source: Regional Water Facilities Master Plan Draft EIR, 2000.

Inconsistencies of Supply

SBMWD's groundwater supply is projected to be available at a consistent level of use. During drought years there is the potential that SBMWD will need to increase pumping to offset increased demands. If pumping by water agencies exceeds the entitlement of agencies within Muni's boundaries, then Muni would augment the supply available in the Basin with its accrued credits, entitlements to SWP water, or water obtained from other sources. Additionally, the SBMWD will implement conservation programs as discussed in Section 8 to further reduce its demands. There are no inconsistencies in supply with regard to legal, environmental, or water quality issues. Although, there is contamination of portions of the groundwater supply used

by SBMWD clean-up actions are currently occurring to treat the groundwater. It is not expected that water quality impacts will impact future supply availability.

2.3 Future Water Supply Sources

2.3.1 Future Recycled Water

SBMWD continues to explore opportunities to economically and feasibly utilize recycled water. As a result of the Reclamation Feasibility Study, SBMWD estimates that in the future it will be able to potentially recycle an additional 2.25 mgd or 2,519 AF/Y of water for use within its service area. This is in addition to the projected recycled water supply of 840 AF/Y discussed in Section 2.2 and in more detail in Section 6. This amount could replace future potable water demands if implemented. Future recycled water supplies are discussed in more detail in Section 6.

2.3.2 Future Water Exchanges and Transfers

SBMWD has water exchange and transfer agreements with several of the surrounding agencies on an as required basis. Exchanges occur when SBMWD pumps water for another agency and in turn receives water from that agency at a future time and at a specified ratio to account for pumping and delivery costs. The existing system of interties is shown in Figure 2-3. Existing interties with other agencies and the capacity of the interties are listed in Table 2-7.

Table 2-7
Transfer and Exchange Opportunities

Source of Transfer Agency	Transfer or Exchange Direction	Maximum Metered Capability (mgd)	Proposed Quantities
East Valley Water District*	Transfer Between	4	Up to maximum capability as needed
City of Riverside*	Transfer To SBMWD	2	
West Valley WD*	Transfer Between	3	
Loma Linda	Transfer Between	5	
Colton	Transfer From SBMWD	3	
City of Rialto	Transfer Between	3.6	
SBVMWD (Muni)	Transfer Between	5	
Riverside Highland Water Company	Transfer FROM SBMWD	3	
Total		28.6	

*For EVWD, City of Riverside, and West Valley WD there have been transfers/exchanges within the past 5 years

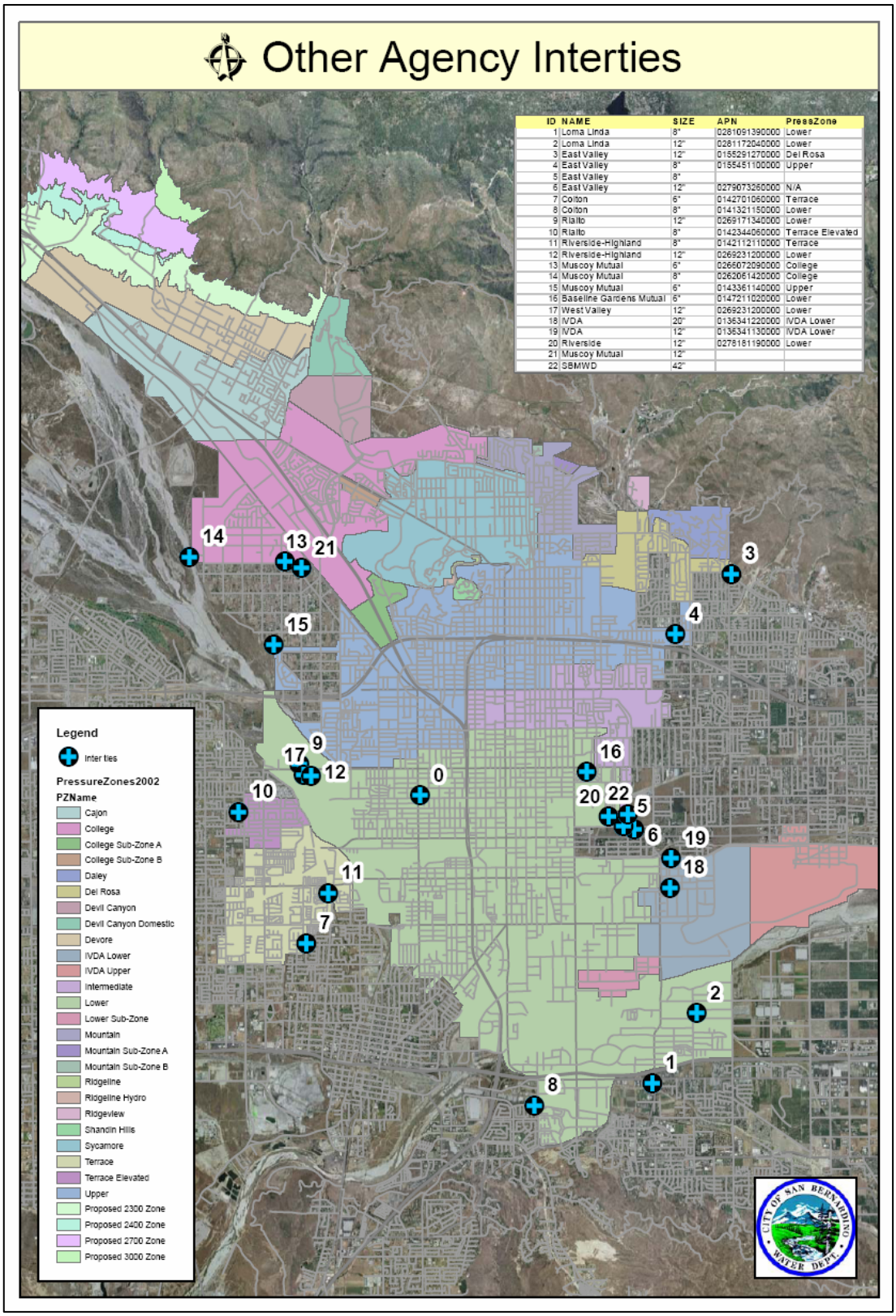


Figure 2-3
Other Agency Interties

Exchanges in the past have occurred during periods of lowered groundwater levels, loss of water by other agencies due to groundwater contamination, and to facilitate increased pumping in SBMWD's artesian pressure zone to lower groundwater levels that had infiltrated underground utilities. Agencies that SBMWD has had exchanges with include Victoria Farms Mutual Water Company, City of Riverside, and EVWD. Exchanges are on an as needed basis and only occur when adequate supplies are available within SBMWD's service area. Therefore, exchanges are not taken into consideration when examining future water supplies.

2.3.3 Desalination

Desalination of ocean water is not viable for SBMWD given its distance from the Pacific Ocean. Desalination of brackish groundwater is not necessary, given the water quality of the basins used by SBMWD.

Section 3
Water Demands

3.1 Overview

The service area for SBMWD is a desirable place to live as a result of a combination of factors including climate and affordability. Growth has steadily continued in the SBMWD service area and is expected to continue in the future, but at a lower growth rate. Growth directly leads to increased demands on the water supply.

3.2 Future Water Demands

Projecting water demands allows SBMWD to determine if future water supply investments are needed and to match expected demands. Water demand projections are used to schedule any investments to ensure they are online when needed thus minimizing cost impacts of idle facilities. Future water demands included here are derived from models being prepared for the SBMWD Water Master Plan.

3.2.1 Consumptive Water Demand Forecast

Projected water demands in the Water Master Plan were estimated in 5-year intervals up to 2035 based on water billing data and future land uses as designated by the City's General Plan. For purposes of the UWMP, estimated demand projections are provided to 2025.

Table 3-1 summarizes the current and projected number of accounts by customer type between 2005 and 2025 in five-year intervals. Customer types developed for the Master Plan model do not readily convert to previous customer types, so historical accounts are not listed here. Throughout the time period total customer accounts are expected to increase by approximately 14.8%. Table 3-2 lists the land use classes in each customer account class.

Table 3-1
SBMWD Customer Accounts

Customer Class	Year				
	2005	2010	2015	2020	2025
Residential	33,399	34,394	35,029	35,664	36,299
Commercial/ Industrial	5,096	5,619	6,143	6,624	7,104
Public	195	322	450	577	704
Other	19	93	167	241	315
Total	38,709	40,428	41,789	43,106	44,422

Source: Data from SBMWD Draft Master Plan model, 2005

Table 3-2
Conversion of Land Use Classes to Customer Accounts

Land Use Class	Customer Account Class
Residential 35	Residential
Residential Estate	
Residential High	
Residential Low	
Residential Medium	
Residential Medium High	
Residential Medium High 20	
Residential Suburban	
Residential Urban	
Commercial	Commercial/Industrial
Commercial General	
Commercial Heavy	
Commercial Neighborhood	
Commercial Office	
Commercial Regional	
Industrial Extractive	
Industrial Heavy	
Industrial Light	
Office Industrial Park	
Public	Public
Public Facilities	
Public Flood Control Areas	
Public Parks	
Unknown -	Other
Unknown BP1	
Unknown BP2	
Unknown BP3	
Unknown XX	

Results of the water demand forecast for normal weather conditions and 2000-2025 demands are summarized by customer account in Table 3-3. Total annual average water demands are projected to increase from the current 43,970 AFY to 68,359 AFY in 2025, a 24,389 AFY increase. The largest growth in water demand is expected to occur in the Commercial/Industrial class from 9,593 AFY in 2005 to 20,724 in 2025. This corresponds with the expected 2% annual average growth in employment discussed in Section 1. These demands do not include unaccounted water and system losses.

Table 3-3
Average Annual Consumptive Water Demand (Acre-Feet/Year)

Customer Class	Year					
	2000	2005	2010	2015	2020	2025
Residential	29,297	30,976	33,968	36,586	39,206	41,823
Commercial/ Industrial	6,665	9,593	12,973	16,354	18,538	20,724
Public[1]	N/A	3,332	3,934	4,537	5,139	5,742
Other[1]	N/A	69	69	69	69	69
Total	43,621	43,970	50,945	57,547	62,952	68,359

1. 2000 data for Public and Other does not readily transfer based on Master Plan model inputs

Source: Data from SBMWD Draft Master Plan model, 2005; SBMWD data files

3.2.2 Sales to Other Agencies and Additional Water Uses and Losses

As stated in Section 2, SBMWD does engage in water exchanges and transfer agreements with several of the surrounding agencies on an as required basis. Amounts delivered to other agencies are listed in Table 3-4. Future deliveries are not anticipated beyond 2005 at this time.

Additional water uses include unaccounted for water. For future projections and in the model for the SBMWD Water Master Plan it is assumed system losses are 7% of the total amount pumped. This value is based on historic water data. Table 3-4 presents projected unaccounted water.

Table 3-4
Additional Water Uses and Losses (Acre-Feet/Year)[1]

Water Use	Year				
	2005	2010	2015	2020	2025
Sales to Other Agencies	221	0	0	0	0
Unaccounted for Water	3,310	3,835	4,332	4,738	5,145
Total	3,531	3,835	4,332	4,738	5,145

1. Based on normal weather conditions.

3.2.3 Total Water Uses

Total water use is the summation of the consumptive water demands presented in Table 3-3 and the additional water uses in Table 3-4. Table 3-5 summarizes the total future water uses under normal weather conditions.

Table 3-5
Total Water Use (Acre-Feet/Year)[1]

Water Use	Year				
	2005	2010	2015	2020	2025
Consumptive Demand	43,970	50,945	57,547	62,952	68,359
Sales to Other Agencies	221	0	0	0	0
Unaccounted Water	3,310	3,835	4,332	4,738	5,145
Total	47,501	54,780	61,879	67,690	73,504

1. Based on normal weather conditions.

THIS PAGE INTENTIONALLY LEFT BLANK

Section 4
Conservation

4.1 Introduction

Effective water conservation practices are necessary to be able to provide adequate supplies to meet growing demands in SBMWD's service area. Through its own initiatives SBMWD is committed to increasing water conservation through the implementation of Best Management Practices, also commonly referred to as Demand Management Measures.

4.2 BMP Implementation

SBMWD has implemented a portion of the BMPs listed in Table 4-1. Table 4-1 lists each BMP and summarizes SBMWD's status in implementing the BMPs. BMP 10 is not applicable to SBMWD as SBMWD is not a wholesale agency. No additional BMPs were proposed in the 2000 UWMP beyond those that were already implemented. In the time period since the 2000 UWMP, existing BMPs have continued to be implemented.

Table 4-1
BMPs for Urban Conservation in California

BMP #	Practices	Status
1	Water surveys programs for single-family residential and multi-family residential customers	Implemented
2	Residential plumbing retrofit	Not Implemented
3	System water audits, leak detection and repair	Implemented
4	Metering with commodity rates for all new connections, and retrofit of existing connections	Implemented
5	Large landscape conservation programs and incentives	Not Implemented
6	High efficiency washing machine rebate program	Not Implemented
7	Public information programs	Implemented
8	School education programs	Implemented
9	Commercial/Industrial/Institutional water conservation	Not Implemented
10	Wholesale agency assistance program	Not applicable
11	Conservation pricing	Under Evaluation
12	Water conservation coordinator	Not Implemented
13	Water waste prohibition	Implemented
14	Residential ULFT replacement program	Not Implemented

4.2.1 BMP 1: Water Survey Programs for Single-Family and Multi-Family Residential Customers

SBMWD is currently conducting water survey audits for residential customers on a customer requested basis at no cost to the customer. During these surveys a meter service supervisor checks the appearance of landscaping, looks for signs of irrigation system leaks, and interviews the customer to determine if the inside piping or plumbing fixtures are leaking. If SBMWD field personnel notice apparent leaks or

unusually high metered water consumption, they will leave a door tag alerting the customer to check for leaks. These system audits are a cost-effective means of reducing water loss from undetected leaks.

Upon request, SBMWD will conduct complete landscaping audits. Additionally, the City of San Bernardino Building Code requires the installation of water efficient landscaping for any new expansion over 25% of existing floor space and requires the usage of water saving landscaping for all new developments.

The California Urban Water Conservation Council (CUWCC) estimates a ten percent reduction in outdoor use will result from outdoor surveys. Savings resulting from this program were estimated to have a life of three years. Sufficient budget is and will continue to be allocated for these audits and outdoor surveys.

SBMWD does not currently conduct indoor residential surveys. Potential savings assumptions as established by the CUWCC are presented in Table 4-2. CUWCC's methodology for calculating savings resulting from indoor water surveys assumes savings for showerhead retrofits, ULFT retrofits, and leak repairs. It is not reasonable to assume each survey will result in all or any of these changes. Further, this methodology introduces potential double counting of toilet and showerhead retrofits because these fixtures are offered as part of other BMPs (BMP 2 and 14).

Table 4-2
CUWCC BMP 1 Savings Assumptions

	Pre-1980 Construction	Post-1980 Construction
Low-Flow Showerhead Retrofit	7.2 gcd	2.9 gcd
Toilet Retrofit (five year life)	1.3 gcd	0.0 gcd
Leak Repair	0.5 gcd	0.5 gcd

Source: CUWCC
http://www.cuwcc.org/m_bmp1.lasso

4.2.2 BMP 2: Residential Plumbing Retrofit

SBMWD is not implementing this BMP. Currently there is not a local enforceable ordinance in effect in the SBMWD service area requiring the replacement of high-flow showerheads and other water using fixtures with low flow counterparts. California State law since 1992 prohibits the sale or installation of non-conserving showerheads. However, it is important to note that CUWCC estimates that showerheads have a ten year life, thus it is likely that all pre-1980 homes have been retrofitted with new showerheads purchased by residents. Further, it could be argued that homes constructed pre-1994 also have retrofitted showerheads, or will in the very near future.

4.2.3 BMP 3: System Water Audits, Leak Detection, and Repair

To determine the extent of and potential for system leaks, SBMWD conducts regular metered water production versus metered water sales mass balance audits to detect unusual changes in the water operation. The goal is to minimize water losses and increase overall system efficiencies. Periodic reports concerning this are prepared and presented to the General Manager and Board of Water Commissioners. The cost-effectiveness is determined by the Department's ability to plan for and implement programs and/or water system component replacement that provide an efficient means of reducing water loss.

Past water audits conducted by the Department have indicated that approximately 7% of the total water produced is unaccounted for with a total of 2% estimated as attributable to leaks within the system. The remaining 5% is attributed to nonmetered uses (see below) and metering error. The non metered sources of unaccounted for water production that can consume water include:

- Flushing of new water lines - new construction.
- A routine flushing program of the existing in service pipelines.
- Fire use including training.
- Street sweeping.
- Illegal use of water by construction contractors. The Department requires meters for all water provided to construction sites, but cannot enforce all unauthorized uses of the water.
- Unmetered Water Department plant process water.

The Department responds immediately to repair leaks that occur. Field personnel (e.g. meter readers, water production and treatment operators, construction and maintenance technicians) are trained to recognize potential service and main line leaks. Pipelines with chronic leak problems are replaced. The Department maintains an active main replacement program. This is a cost-effective means of reducing water loss due to leakage.

The Department has an ongoing meter calibration, repair, and replacement program. When failed meters are discovered, lost revenue from underbillings are regained by estimating water usage as compared to historical billing data. Likewise, the Department may credit customers for over read or high meter readings. The Department replaces nonoperating meters as identified. Customer water meters larger than 1½-inch in size are tested on a bi-annual basis. Source of supply water meters are tested annually and domestic meters 1-inch in size or smaller are replaced on a 19-year rotation basis. The average water loss or unaccountable water as

reported in the Department's annual audit averages 7% per year. This replacement program is a cost-effective means of reducing water loss as well as erroneous billings.

Sufficient budget is and will continue to be allocated for conducting system water audits, leak detection, and repairs.

4.2.4 BMP 4: Metering with Commodity Rates for all new Connections and Retrofit of Existing Connections

All of SBMWD's customers are metered and charged a commodity rate for water service (see Appendix B for the water rate schedule). The only unmetered water use permitted is for residential construction use in which a flat monthly fee is charged for a maximum period of 120 days or until the lot landscaping is started or the dwelling is completed.

4.2.5 BMP 5: Large Landscape Conservation Programs and Incentives

SBMWD does not currently provide a large landscape water audit program to its customers. However, SBMWD does provide separate dedicated landscape meters for customers with large landscapes.

4.2.6 BMP 6: High-Efficiency Washing Machine Rebate Program

SBMWD encourages its customers to purchase high-efficiency washing machines on its website, but does not provide a rebate program.

4.2.7 BMP 7: Public Information Programs

Public information regarding water conservation is disseminated to the public through various means. Through its public awareness programs, SBMWD believes that during times of drought a 10 to 20 percent reduction in water use can be achieved. During past droughts SBMWD has undertaken public awareness programs that included informing the public about water conservations through various advertising mediums.

Current public information programs include:

- Participation with other local water agencies in Water Awareness Month activities, including distribution of education materials at conferences and radio advertising
- Presentations to local community groups and service clubs through the City's speakers bureau
- Tours of SBMWD facilities to educate the public regarding the importance of the water supply, facilities required to provide potable water, and regulatory influences on the cost of providing water

- Inclusion of water conservation and water use information in SBMWD's Annual Water Quality Report

- Use of an internet website with a conservation section highlighting methods to conserve water both indoors and outdoors.

SBMWD's public information program is a cost-effective means of providing long-term beneficial impacts to the local water supply by educating customers. Sufficient budget is and will continue to be allocated for these programs.

4.2.8 BMP 8: School Education Programs

SBMWD participates in school education programs when requested by local school administrators and educators. Requests have increased in the past during periods of drought. During Water Awareness Month SBMWD participates in community school programs designed to increase awareness of water. Tours of water facilities throughout the year are also provided to educational groups.

SBMWD's education program is a cost-effective means to provide early education of young water users in order to provide long-term beneficial impacts to the local water supply. Sufficient budget is and will continue to be allocated for these programs.

4.2.9 BMP 9: Commercial/Industrial/Institutional Conservation Programs

SBMWD does not currently provide surveys as part of a conservation program for commercial/industrial/institutional users.

4.2.10 BMP 11: Conservation Pricing

SBMWD does not currently utilize a pricing structure that is conservation driven for any of its billing classifications. Water customers pay per hundred cubic feet (HCF) used, an energy surcharge per HCF used, and a monthly service charge based upon meter size. Residential users have an allowance that must be exceeded before HCF charges are applied.

Wastewater customers pay a regional facility and treatment charge and a collection system charge in the form of either a flat rate per unit or a flat rate plus a charge for HCF dependent upon the classification of the customer.

Appendix B contains a copy of the water and sewer rate structures.

4.2.11 BMP 12: Conservation Coordinator

The duties of a Water Conservation Coordinator fall within the scope of the SBMWD community liaison position job duties.

4.2.12 BMP 13: Water Waste Prohibition

SBMWD has a water conservation policy adopted on February 5, 1991 that encourages water users to not waste water. However, SBMWD does not have a water waste prohibition ordinance nor a water softener ordinance. SBMWD's water conservation policy (Resolution 418, Drought Contingency Plan) is included in Appendix C.

4.2.13 BMP 14: Residential ULFT Replacement Programs

SBMWD does not provide a toilet replacement incentive program; however, as part of the Department's Water Awareness Program, water displacement bags for high water usage toilets are made available. Ultra-low water usage toilets are now a requirement by the State of California per Title 24 in all new construction. Building permits issued by all planning jurisdictions within the Department's service area require conformance with Title 24. Additionally, all toilets sold in the State of California are required to be ultra-low flush toilets.

4.3 Analyses of BMPs

4.3.1 Economic Considerations

The unit cost of conservation was compared to the unit cost of new water supply development to determine the most cost-effective means of acquiring additional water supplies. First, the unit cost (dollars per AF) of installing and operating a new 2,000 gpm (3,226 AF/Y) well was determined. Assuming a total capital cost of $972,000 annualized over twenty-five years with a 5% interest rate results in a capital cost of $21/AF. Annual operation and maintenance costs (operation, maintenance, power, and replacement) for a well this size tends to vary between $75/AF and $100/AF for water extracted. Therefore, the total unit costs of extracted groundwater would range between $96/AF and $121/ AF.

Table 4-3 provides a range of conservation costs ($/AF) for four categories of conservation. Costs include the conservation devices, administration costs associated with the program, and labor.

Table 4-3
Representative Conservation Costs

Program	Cost Range per AF
Residential Plumbing Retrofits[1]	$180-$350
Residential and Commercial Water Use Surveys	$300-$500
Landscape Conservation	$200-$700
High Efficiency Washing Machine Rebates	$200-$300

[1] Includes showers, faucets, and toilets

Sources: CUWCC, BMP Cost and Savings Study, July 2000; Los Angeles Department of Water and Power 2005 UWMP; Rancho California Water District 2005 UWMP

Development of new groundwater supply is a more cost effective means of obtaining additional water supplies than implementing additional BMPs or conservation measures at this time. Using the most expensive operations and maintenance expense for a new well combined with the annualized capital costs versus the lowest cost for residential plumbing retrofits results in a difference of $59/AF. Therefore, conservation measures have not been emphasized during non-drought periods.

For the most part the Department's water supply will match demands throughout the next 20-year planning period as further explained in Section 8. However, the Department will continue to promote wise water usage for the benefit of public awareness and increasing the efficiency of operations.

4.3.2 Environmental Considerations

A review of the above identified programs was conducted to determine any direct or indirect environmental consequences. There were no significant adverse environmental consequences determined to be associated with the Department's conservation program. Implementation of these water conservation programs will have no significant negative environmental effect.

THIS PAGE INTENTIONALLY LEFT BLANK

Section 5
Water Shortage Contingency Plan

5.1 Overview

In order to ensure a reliable water supply in a water shortage situation, the SBMWD developed a Drought Contingency Plan that was originally adopted by the SBMWD on March 12, 1991 in response to a statewide water shortage. This Plan included voluntary conservation measures. The objective of the Drought Contingency Plan was to provide effective, implementable measures to ensure a safe, adequate, and reliable supply of water during continued drought conditions. It was also the SBMWD's intention to continue to cooperate with other local water purveyors to assist them in meeting their water needs.

Additionally, the SBMWD has a Supplemental Emergency Plan designed to address emergency water shortages that could occur as a result of an earthquake, flood, fire, or other catastrophic events affecting power supplies and/or the water distribution system.

5.2 Water Shortage Contingency Plan

As required by the Urban Water Management Plan Act, the SBMWD has developed a water shortage contingency plan, based on the Drought Contingency Plan, so that it may provide a reliable supply of water to its customers in the event of a water shortage situation. Below sections 10632 (a) through (i) of the Water Code are discussed.

5.2.1 Water Code Section 10632 (a)

The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier: (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage

Currently the SBMWD has a resolution that establishes water conservation guidelines based on the availability of supply. The SBMWD's water shortage contingency plan has three stages of action and each stage has a set of conservation measures. Water Code section 10632 of the Urban Water Management Plan Act requires a shortage situation of a 50 percent reduction in water supply to be addressed. Presented below are three water stages and the actions that are taken for each stage. Stage I is designed to be in effect when there are no water shortages. Stage II is implemented when there are water shortages up to 10%. Stage III, a water shortage emergency, will provide adequate conservation during a water shortage of up to a 50 percent reduction in water supply and is discussed below.

Stage I - Normal Conditions (No Supply Shortage): Normal conditions shall be in effect when the SBMWD is able to meet all the water demands of its customers in the immediate future. During normal conditions, all water users should continue to use water wisely to prevent the waste or unreasonable use of water, and to reduce water consumption to that necessary for ordinary domestic and commercial purposes.

Stage II - Threatened Water Supply Condition (10% or less Shortage): In the event of a threatened water supply shortage which could affect the SBMWD's ability to provide water for ordinary domestic and commercial uses, the following water conservation measures may be implemented:

- **Excessive Irrigation and Related Waste** - No customer of the SBMWD or other person acting on behalf of or under the direction of a customer shall cause or permit the use of water for irrigation of landscaping or other outdoor vegetation, plantings, lawns or other growth to exceed the amount required to provide reasonable irrigation of same, and shall not cause or permit any unreasonable or excessive waste of water from said irrigation activities or from watering devices or systems. The free flow of water away from an irrigated site shall be presumptively considered excessive irrigation and waste.

- **Commercial Facilities** - Large water use commercial and industrial facilities shall, upon request of the General Manager, provide the SBMWD with a plan to conserve water at their facilities. The SBMWD will provide these facilities with information regarding the average monthly water use by the facility for the last two year period. The facility will be expected to provide the SBMWD with a plan to conserve or reduce the amount of water used by that percentage deemed by the SBMWD to be necessary under the circumstances.

- **Parks, Golf Courses, Swimming Pools, and School Grounds** - Public and private parks, golf courses, swimming pools and school grounds which use water provided by the SBMWD shall make every effort to use water for irrigation and pool filling between the hours of 10:00 p.m. and 6:00 a.m. (non-peak water usage hours).

- **Domestic Irrigation** – The SBMWD may determine that the irrigation of exterior vegetation shall be conducted only during specified hours and/or days, and may impose other restrictions on the use of water for such irrigation. The irrigation of exterior vegetation at other than these times shall be considered to be a waste of water.

- **Swimming Pools** - All residential, public, and recreational swimming pools of all sizes shall use evaporation-resistant covers and shall recirculate water. Any swimming pool which does not have a cover installed during periods of nonuse shall be considered a waste of water.

- **Run Off and Wash Down** - No water provided by the SBMWD shall be used for the purposes of wash down of impervious areas (i.e., driveways and sidewalks). Any water used on premises that is allowed to escape the premises and run off into gutters or storm drains shall be considered a waste of water.

- **Vehicle Washing** - The washing of cars, trucks or other vehicles is not permitted except with a hose equipped with an automatic shut-off device, or a commercial facility so designated for vehicle washing purposes.

- **Drinking Water Provided by Restaurants** - Restaurants are requested not to provide drinking water to patrons except by request.

Stage III - Water Shortage Emergency - Mandatory Water Conservation Measures (10 to 50% Shortage): - In the event of a water shortage emergency in the form of a major deficiency of any supply or failure of a distribution facility caused either by drought or catastrophe in which SBMWD may be prevented from meeting the water demands of its customers, the General Manager may declare a water shortage emergency subject to the ratification of the Board of Water Commissioners within 72 hours of such declaration, and the following water conservation measures may be placed into effect immediately following such declaration:

- **Prohibition** - Watering of parks, school grounds, golf courses, lawns, landscape irrigation, washing down of driveways, parking lots or other impervious surfaces, washing of vehicles, except when done by commercial car wash establishments using only recycled or reclaimed water, filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes may be prohibited.

- **Restaurants** - Restaurants shall not serve drinking water to patrons except by request.

- **Construction Meters** - No new construction meter permits shall be issued by the SBMWD. All existing construction meters shall be removed and/or locked out of service.

- **Commercial Nurseries and Livestock** - Commercial nurseries shall discontinue all watering and irrigation. Watering of livestock is permitted as necessary.

5.2.2 Water Code Section 10632 (b)

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

SBMWD obtains its water supplies from the underlying BHB Basin. An analysis was conducted on the reliability of this supply source for the next twenty years and is further discussed in Section 8. Under a worse case scenario mimicking the hydrology of the historically driest three consecutive years on record (1989, 1990, and 1991), applied to 2006, 2007, and 2008 there were no shortages in supplies. Table 5-1 illustrates that the SBMWD would experience no shortages if the described scenario occurs.

Table 5-1
Driest Three-Year Water Supply Sequence

Supply & Demand (Acre-Feet)	Current Conditions	Followed by Driest Three Consecutive Years (1989-1991)		
	2005	2006	2007	2008
Groundwater Available[1]	47,501	48,957	50,413	51,868
Demand[2]	47,501	48,957	50,413	51,868

1. Reliability analysis further described in Section 8.
2. Interpolated years 2006-2008 from data from draft SBMWD Water Master Plan. Includes consumptive demands, unaccounted for uses, and sales to other agencies.

5.2.3 Water Code Section 10632 (c)

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

The SBMWD operates in an area where the probability of an earthquake is high. Depending on the severity, an earthquake may damage the water system or interrupt power supplies needed to pump groundwater. The SBMWD Supplemental Emergency Plan provides a framework for an organized response to an earthquake emergency, as well as other catastrophic events. The primary objectives of the plan are to maintain the functionality of the water distribution system, assess the system and if necessary make rapid repairs to any damage, and prevent any further damage.

Supplemental Emergency Plan

The Emergency Water Shortage Plan is designed for implementation during emergency water shortages that could occur as a result of earthquake, flood, fire, or other catastrophes affecting power supply or the distribution system.

The SBMWD maintains portable backup power supply and diesel and/or natural gas driven wells at critical locations within the distribution system to provide domestic water for emergency purposes during sustained power outages. Additionally, the SBMWD has entered into a Mutual Aid Agreement with surrounding water agencies which contain provisions for dispatching personnel and equipment as required to restore and/or maintain an adequate supply of domestic water.

In the event of a natural or man-made catastrophe that affects the SBMWD's ability to provide a potable water supply for a sustained period of time (30 days or more), the following measures will be implemented as required:

- SBMWD's boil water notification program will be activated. The notice will be provided to local radio stations and newspapers. Customers will be notified of supplemental sources of water for cooking and drinking.
- Mutual Aid Agreements will be implemented.
- Potable water will be made available and distributed to customers throughout the SBMWD's service area.
- A public information program will be initiated.
- Normal water service conditions will be restored as expediently as possible.

5.2.4 Water Code Section 10632 (d-f)

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

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

As presented in Section 5.2.1, during Stage I – Normal Conditions, the SBMWD requests its customers use water wisely to prevent unreasonable use of water and to reduce water consumption to a level that is not in excess of ordinary domestic and commercial purposes.

Mandatory prohibitions occur during both Stage II – Threatened Water Supply Condition and Stage III – Water Shortage Emergency – Mandatory Water Conservation Measures. These prohibitions are shown in Table 5-2 and are also detailed in Section 5.2 above. Combined implementation of these prohibitions is designed to achieve a water use reduction consistent with up to a 50% reduction in water supply. Additionally, California Law states that water waste is a violation, even if there is not a water shortage.

Currently, the SBMWD has no set charges or penalties for excessive use of water nor does it have a tiered rate structure designed to reduce excessive water consumption.

Table 5-2
Mandatory Prohibitions and Consumption Reduction Methods

Prohibition	Stage When Prohibition Becomes Mandatory
Excessive Irrigation and Related Waste	Stage II
Domestic Irrigation prohibited other than during specified hours and/or days	Stage II
Swimming Pools unless provided with evapotranspiration covers	Stage II
Run Off and Wash Down of Impervious areas such as driveways and sidewalks	Stage II
Vehicle Washing without automatic shut off valve or at commercial car wash facilities	Stage II
Watering of parks, school grounds, golf courses, lawns, landscape irrigation	Stage III
Washing down of driveways, parking lots or other impervious surfaces	Stage III
Washing of vehicles, except when done by commercial car wash establishments using only recycled or reclaimed water	Stage III
Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes	Stage III
Restaurants - Shall not serve water except by specific request.	Stage III
New Construction Meters not allowed, & existing meters shall be placed out of service.	Stage III
No watering at commercial nurseries and livestock (except livestock watering as necessary)	Stage III

5.2.5 Water Code Section 10632 (g)

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

The projected impact on water sales for a one-year period under a Stage II water shortage condition would result in an overall decrease in water sales revenue of approximately 10%. A decrease in water sales revenue of this magnitude would not adversely impact the financial operations of SBMWD. However a one year period under a Stage III water shortage condition would reduce sales revenue by approximately 25% given the current rate structure. Adequate reserves are available to cover both shortage scenarios described above. However, a 25% reduction in water sales revenue would necessitate a water rate increase if the Stage III condition continued beyond the initial one-year period.

5.2.6 Water Code Section 10632 (h & i)

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

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

SBMWD's water shortage resolution was discussed in Section 5.2 and a copy of the resolution and the plan are attached in Appendix C.

If the water saving actions contained within the resolution are ever necessitated by water shortage conditions, SBMWD will be able to track actual reductions in water use through its billing system. The billing system tracks actual use on a monthly basis regardless of the supply situation. SBMWD can readily compare past consumption records with current consumption records to determine actual water reductions during water shortages.

THIS PAGE INTENTIONALLY LEFT BLANK

Section 6
Wastewater Treatment and Reuse

6.1 Agency Participation in Wastewater Treatment and Reuse Planning

Wastewater treatment and reuse planning efforts within San Bernardino Water Reclamation Plant's (SBWRP) service area requires close coordination with several other agencies. The San Bernardino Municipal Water Department operates the SBWRP serving the cities of San Bernardino and Loma Linda, property that was formerly Norton Air Force Base, East Valley Water District (EVWD), Patton State Hospital, and portions of the unincorporated areas of San Bernardino County. The area served by the SBWRP is approximately 50 square miles and is larger than the Water Department's service area. The San Bernardino Municipal Water Department and the Colton Water Department jointly own the Rapid Infiltration Extraction (RIX) Tertiary Treatment Facility. This plant further treats discharges from the SBWRP and from the City of Colton's waste water treatment plant.

Agencies that have participated in wastewater treatment and reuse planning are summarized in Table 6-1.

Table 6-1
Participating Agencies in Wastewater Treatment and Reuse Planning

San Bernardino Municipal Water Department
City of Colton
San Bernardino Valley Municipal Water District
East Valley Municipal Water District
City of Loma Linda
County of San Bernardino

Figure 6-1 illustrates the location of the RIX facility in relation to the SBWRP and the water yards. The RIX facility is located in the City of Colton outside of the SBMWD service area. The SBWRP is located slightly north of the southern boundary of the SBMWD service area.

6.2 Wastewater Collection and Treatment Systems

Individual collection systems within the service area for SBWRP are not operated by the SBMWD, but rather are operated by the County of San Bernardino, cities of San Bernardino, Loma Linda, and Colton, and EVWD.

Figure 6-1
RIX Location Map

6.2.1 San Bernardino Water Reclamation Plant

All wastewater is treated to a secondary level at SBWRP in four separate stages: preliminary, primary, secondary, and solids handling.

- Preliminary – Screening and grit are removed for disposal in a sanitary landfill
- Primary – A mechanical process where solids are settled out and pumped to digestion tanks while liquids are pumped to aeration tanks for further treatment
- Secondary – Aeration and biological processes treat and further reduce organic matter and nutrients
- Solids Handling – Dissolved air flotation thickening and anaerobic digestion further reduce solids generated in the water purification processes, which produces biosolids that are thickened via belt presses and a centrifuge and then removed for land application or composting.

SBWRP has a current capacity of 33 mgd or 36,948 AF/Y. Effluent is treated to secondary standards. It is estimated that by 2012 the plant capacity will be expanded to 40.5 mgd or 45,345 AF/Y. Table 6-2 summarizes the past, current, and projected average dry weather wastewater volumes collected and treated within the service area for SBWRP and RIX. Between 2005 and 2025 the average wastewater collected at SBWRP is expected to increase from 30,230 AF/Y or 20 mgd to 41,426 AF/Y or 37 mgd in 2025 or approximately 0.5 mgd per year.

Table 6-2
Wastewater Collection and Treatment
Average Wastewater Collected (Acre-Feet/Year)

Wastewater Plant	2000	2005	2010	2015	2020	2025	Disposal Method	Treatment Level
SBWRP	28,371	30,230	30,790	35,828	38,627	41,426	Flows to RIX	Secondary
RIX	35,089	36,948	39,747	42,546	45,345	48,144	Santa Ana River	Tertiary/Title 22

Source: 2000 UWMP and John Perry (SBMWD, Water Reclamation Division)

None of the wastewater treated by the SBWRP is currently discharged or treated to recycled water standards as shown in Table 6-3.

Table 6-3
Wastewater Effluent
Quantity Meeting Recycled Water Standards (Acre-Feet/Year)

Wastewater Plant	2000	2005	2010	2015	2020	2025
SBWRP	0	0	0	0	0	0
RIX	35,089	36,948	39,747	42,546	45,345	48,144

Source: 2000 UWMP and John Perry (SBMWD, Water Reclamation Division)

After secondary treatment at the reclamation plant, non-disinfected effluent is conveyed via a gravity flow pipeline system to the jointly operated RIX facility for further treatment. Effluent streams from the SBWRP and the City of Colton's wastewater treatment are combined prior to entering RIX.

6.2.2 Rapid Infiltration Extraction Tertiary Treatment Facility

RIX is designed to treat the incoming secondary treated effluent stream from the SBMWD's secondary plant and the City of Colton's secondary plant to tertiary levels to comply with Title 22, Division 4, of the California Code of Regulations. Title 22 is regulated by the Department of Health Services. Title 22 standards established water quality standards and reliability criteria dependent upon the end use of recycled water to protect public health. Both secondary and tertiary treated wastewater can meet Title 22 standards ultimately dependent upon the end use of the water.

At the RIX facility tertiary treatment to Title 22 standards consists of a native soil filtration process followed by ultraviolet (UV) disinfection prior to discharge to the Santa Ana River. Typically, Title 22 standards are met by using conventional tertiary filtration. However, testing of the RIX demonstration project allowed Department of Health Services to approve the RIX process as compliant with Title 22 standards for disposal in the Santa Ana River.

Major components of the RIX facility are:

- A series of infiltration basins (and associated piping to deliver the wastewater to the basins) that filters the influent stream
- An extraction pumping system to withdraw the infiltrated water from the local aquifer with gravity flow delivering the water to the UV disinfection system with disinfection capabilities consistent with Title 22 standards
- A monitoring well system that provides a means for collecting groundwater samples and determining the depth to groundwater
- An outfall pipeline that delivers the disinfected water to the Santa Ana River
- A 7-mgd DynaSand® fluidized bed sand filter.

The RIX facility was initially certified for a capacity of 40 mgd, however, actual infiltration capacity has been limited to 27 mgd. An additional capacity of 7 mgd has been attained by the construction of the DynaSand® filters, thus bringing the total capacity to 34 mgd. At the present time, SBMWD and the City of Colton have retained a design firm that is in the process of designing four additional infiltration basins that will restore the treatment capacity to the 40 mgd initially planned. Those basins should be constructed by summer 2007. It should be noted that extraction capacity and discharges to the Santa Ana River are normally 20 percent higher that

the infiltration capacity of the basins to demonstrate containment to the Regional Water Quality Control Board.

Table 6-2 shows the current and projected wastewater discharges from the SBWRP and the RIX. This table indicates discharges from the RIX project are to increase from approximately 35,000 AF/Y to a projected 48,000 AF/Y by the year 2025.

6.3 Current, Projected, and Potential Uses of Recycled Water

6.3.1 Current and Projected Uses of Recycled Water

SBMWD's Water Reclamation Division completed a Water Reclamation Feasibility Study in February 2005. This recycled water optimization plan was designed to explore an effective and efficient means of constructing and distributing recycled water to customers within the service area as no water recycling facilities are currently located in the service area. The 2000 UMWP did not project any recycled water use in the service area for the projection period ending in 2020. Objectives of the study included:

- Determine proposed locations for satellite reclamation facilities in San Bernardino (Verdemont Area), Loma Linda, and in East Valley Water District's area
- Assess and evaluate the feasibility of proposed satellite reclamation facilities based on key selection criteria and costs
- Examine several treatment alternatives and recommend treatment processes for each of the proposed facilities
- Evaluate and propose expansion of specific treatment facilities for both secondary and tertiary treatment at SBWRP
- Select and recommend a recycled water system alternative based on economic and non-economic criteria

As an outcome of this study, SBMWD will reactivate the reclamation plant or the treatment process located at SBWRP. When reactivated in mid-2006 this facility will divert approximately 0.75 mgd or 840 AF/Y of water from the influent stream to RIX for treatment to Title 22 standards for landscaping applications at SBWRP. Water will then be distributed to the City of San Bernardino Municipal Golf Course and to the California Department of Transportation located adjacent to Interstate 215 for landscape irrigation. Table 6-4 lists projected uses of recycled water ultimately treated in the SBWRP service area.

Historically, the SBMWD has not reused any of its recycled water rights from the RIX facility to offset demands within its service area. However, 16,000 AF/Y is used to maintain flows in the Santa Ana River to fulfill downstream obligations on behalf of Muni as required by the Orange County Judgment as listed in Table 6-4. The remainder of the discharged amount is excess water that rights are not currently assigned to.

Table 6-4
Projected Future Use of Recycled Water Treated in the SBWRP Service Area (Acre-Feet/Year)

Use	2010	2015	2020	2025
Discharge to Santa Ana River to Satisfy Downstream Obligations	16,000	16,000	16,000	16,000
Landscape	840	840	840	840
Total	16,840	16,840	16,840	16,840

6.3.2 Potential Recycled Water Use

SBMWD has previously determined that the use of recycled water from the RIX facility to offset water demands within its service area is not feasible at this time. The RIX facility is located at an elevation and distance from SBMWD's water yards and the service area that makes it economically impractical to utilize recycled water as illustrated in Figure 6-1. An elevation difference of approximately 300 ft exists between the RIX facility and the SBMWD's Lower Pressure Zone with an elevation of 1,249 ft. SBMWD continues to look for opportunities to potentially sell excess effluent from RIX to other downstream water agencies within southern California. SBMWD has determined that up to approximately 18,000 AF/Y of SBMWD's share of effluent from RIX could be sold to other agencies in the future as indicated in Table 6-5. This use would be in addition to the projected future use in Table 6-4. During times of drought this virtually drought-proof water supply may be a viable alternative for downstream water users. In 2003 SBMWD completed an Environmental Impact Report evaluating the sale of up to 18,000 AF/Y per year of excess effluent to potential buyers downstream.

Table 6-5
Potential Use of Recycled Water Treated in the SBWRP Service Area (Acre-Feet/Year)

Use	2010	2015	2020	2025
Sales to Downstream Users	17,914	17,914	17,914	17,914
Landscape	2,519	2,519	2,519	2,519
Total	20,433	20,433	20,433	20,433

As a result of the Reclamation Feasibility Study, SBMWD estimates that in the future the SBWRP service area will be able to potentially recycle an additional 2.25 mgd or 2,519 AF/Y of water for use within its service area as identified in Table 6-5. This amount would replace future potable water demands. These satellite reclamation facilities would be potentially located in the Cities of San Bernardino and Loma Linda and within the East Valley Water District's service area. Potential users include customers with large landscape areas.

Currently, recycled water supplies are not available within the service area. All recycled water from the proposed 0.75 mgd facility at SBWRP will be used by the previously mentioned golf course and the California Department of Transportation. Thus, SBWRP has not developed methods to encourage additional recycled water use within its service area. As SBMWD proceeds with additional studies for potential small recycled water facilities it will seek to develop methods to encourage recycled water use in the vicinity of these facilities.

THIS PAGE INTENTIONALLY LEFT BLANK

Section 7
Water Quality Impacts on Reliability

7.1 Introduction

SBMWD relies on local groundwater as its sole source of water. However, in certain years the BHG Basin must be recharged with SWP water by Muni to ensure legal obligations under the Western Judgment are fulfilled. Contamination of the BHG Basin, availability of SWP water, or more stringent regulatory requirements has the potential to result in adjustments to water resource management strategies and, in a worse case scenario, impact supply reliability.

California Title 22 Drinking Water Standards (Title 22) incorporate federal requirements of the Safe Drinking Water Act, and compliance with Title 22 is required by all water service providers. Therefore, Title 22 monitoring of all regulated chemicals, as well as a number of unregulated chemicals, is conducted by SBMWD. In order to be in compliance with Title 22, each agency must ensure that the regulated chemicals meet established primary drinking water standards to ensure the safety of the water supply. In addition to the primary drinking water standards, secondary drinking water standards have been set for some minerals based on non- health related aesthetics, such as taste and odor. Both primary and secondary standards are expressed as the maximum contaminate levels (MCLs) that are allowable for a given constituent. Unregulated chemicals do not have established drinking water standards, but are chemicals of concern for which standards may be eventually adopted. These unregulated chemicals often have a "notification level", which is a health based advisory level established by Department of Health Services for chemicals in drinking water that lack MCLs.

As illustrated in Table 7-1, the SBMWD has accounted for known and foreseeable water quality impacts in their current management strategies based on current water quality requirements and known data regarding contaminants in the BHG Basin. SBMWD does not anticipate water quality impacts that would either reduce the water supply available or that cannot be handled through existing management strategies.

Table 7-1
Current & Projected Water Supply Changes Due to Water Quality Percentage

Water Source	2005	2010	2015	2020	2025	2030
Local Groundwater Production	0	0	0	0	0	0
SWP	0	0	0	0	0	0
Total	0	0	0	0	0	0

Each of the water sources and any current or future impacts to water quality are discussed below.

7.2 Groundwater Quality

As stated in previous sections of this document, SBMWD pumps its sole source of water, groundwater from the BHG Basin. This basin is utilized by over twenty other public and private water suppliers.

Every year SBMWD is required to provide consumers a Consumer Confidence Report stating whether or not SBMWD has met all drinking water quality standards during the previous year. To monitor the quality of the water supplies, SBMWD collects over 6,000 samples of water throughout the year resulting in over 30,000 tests, conducted by Contract Laboratories, for more than 130 possible contaminants. As reported in the most recent published Consumer Confidence Report, SBMWD has met all of the maximum contaminant levels (MCLs) for domestic drinking water. However, portions of the BHG Basin are impaired by one or more of the following contaminants: trichloroethylene (TCE), tetrachloroethylene (PCE), 1,2 dibromo-3-chloropropane (DBCP), perchlorate, nitrates, and fluoride. Drinking water standards are met via a combination of management strategies that involve treatment of the contaminants and blending of water to reduce contaminant levels and pumping in non-contaminated areas.

7.2.1 Clean-up Actions

Portions of the BHG Basin have been contaminated by historic discharges of volatile organic compounds (VOCs). SBMWD has entered into agreements with the State of California Department of Toxic Substances Control (DTSC) and the US Environmental Protection Agency (USEPA) to remove contaminants from groundwater.

In 1986, the SBMWD entered into an agreement with DTSC to receive State Superfunds to construct four groundwater contamination remediation wellhead treatment plants. In 1991, the completed $5.2 million project restored 37.6 mgd of groundwater production from 13 SBMWD wells that had been removed from service due to TCE/PCE concentrations in excess of the MCLs for drinking water.

In October 1995, the SBMWD entered into a cooperative agreement with the USEPA to construct seven groundwater extraction barrier wells (approximately 14.0 mgd) to halt the further migration of groundwater contaminants towards additional SBMWD, EVWD, and the City of Riverside domestic water wells. The USEPA project, Newmark Groundwater Contamination Superfund Site, has been divided into two operable units, the Newmark Operable Unit (NOU) and the Muscoy Operable Unit (MOU) based on the location of the contamination plumes. Contamination from Norton Air Force Base is not considered part of this Superfund project. Disposal of VOCs is suspected to have occurred as early as the 1940's, but was not discovered until a water supply monitoring program was implemented in the early 1980's. More than 25% of SBMWD's water supply has been impacted by the contamination. Funding for this Superfund project in the amount of $69 million over fifty years has been secured through the settlement of the Consent Decree.

The NOU is designed to treat a five mile long plume. The NOU consists of seven wells, 32,000 lineal feet of raw water transmission mains, and 14.0 mgd of granular activated carbon (GAC) wellhead treatment units. GAC units remove contaminants via adsorption and absorption. Construction of the NOU extraction and treatment system was completed in October 1998.

The MOU is located approximately two miles west of the NOU and extends for approximately four miles. The MOU consists of five groundwater extraction barrier wells, approximately 20,000 lineal feet of raw and treated water transmission main, and 12 mgd of GAC wellhead treatment units. Recent projects components completed by SBMWD are:

- 5 extractions wells
- USEPA monitoring wells
- 4 Façade houses to blend equipment in with residential neighborhoods
- A pocket park
- Expansion of the SCADA system to allow monitoring of the system

After one year of successful operations SBMWD will take over operations of the extraction and treatment system.

As forecast in SBMWD's 10-year Capital Improvement Plan (CIP), SBMWD plans to spend approximately $10.2 million on the MOU project, including capital costs for water transmission. Funding will be provided by the USEPA. Proposed project components planned for the next ten years are listed in Table 7-2.

The current extent of the contamination plumes in each operable unit is depicted in Figure 7-1.

The USEPA Superfund Project must be operated continuously (on a 24 hour per day, 7 days per week basis) at federally mandated extraction and treatment flow rates for the barrier wells to be effective. This continuous pumping activity has exceeded demands during the early stages of the project. SBMWD has utilized most of the water production capacity created by the two USEPA domestic drinking water restoration projects within its service area by either temporarily curtailing usage of uncontaminated groundwater production wells of equal water production capacity and/or entering into water sales agreements with surrounding water agencies.

Table 7-2
Ten-Year CIP Projects for Muscoy/Newmark Operating Unit

11th & Acacia 7.5 mgd Treatment Plant Construction	Newmark 17th Street Plant Carbon Vessel Replacement
27th & Acacia 6.8 mgd Treatment Plant Construction	North Plant Well Bowl Assembly Replacement
Transmission Capital Costs - 11th & Acacia Treatment Plant	North Plant Well Motors Major Service
North Plant Carbon Vessel Replacement	North Plant Variable Speed Drives Replacement
Newmark South Plant Carbon Vessel Replacement	Muscoy Well Bowl Assembly Replacement
Newmark Well Bowl Assembly Replacement	Muscoy Well Motors Major Service
Newmark Well Motors Major Service	Muscoy Variable Speed Drives Replacement
Newmark Variable Speed Drives Replacement	Rehabilitation of 1 EPA Water Production Well each year
Groundwater Model	Replace EPA003 Well Equipment

Source: SBMWD Draft 10-Year CIP

A consent decree among the City of San Bernardino, USEPA, US Department of the Army, and DTSC has been approved that absolves claims against the US Army by the City of San Bernardino and DTSC over groundwater contamination. Funds provided by the consent decree require the City of San Bernardino to use the majority of the funds to operate and maintain the USEPA Superfund Project.

7.3 State Water Project Water through San Bernardino Valley Municipal Water District

SWP water has the potential to impact contamination of the BHG Basin if the water is contaminated. However, any impacts would be minimal as SWP water recharged into the BHG Basin occurs in relatively small quantities as compared to natural recharge of the basin. SWP waters are delivered via the East Branch of the SWP; TDS levels in this branch average 250 mg/L. TDS levels and available supply vary based on hydrologic conditions in the Sacramento-San Joaquin watersheds, introduction of saline non project waters by upstream parties, as well as saline intrusion in the Sacramento San Joaquin Bay Delta. Variations of total dissolved solids (TDS) levels over short periods of time are attributed to seasonal and tidal flow patterns. As such, the SWP water would present no water quality issues for use in SBMWD's service area as groundwater extracted from the BHG Basin has an average TDS of less than 350 mg/L.

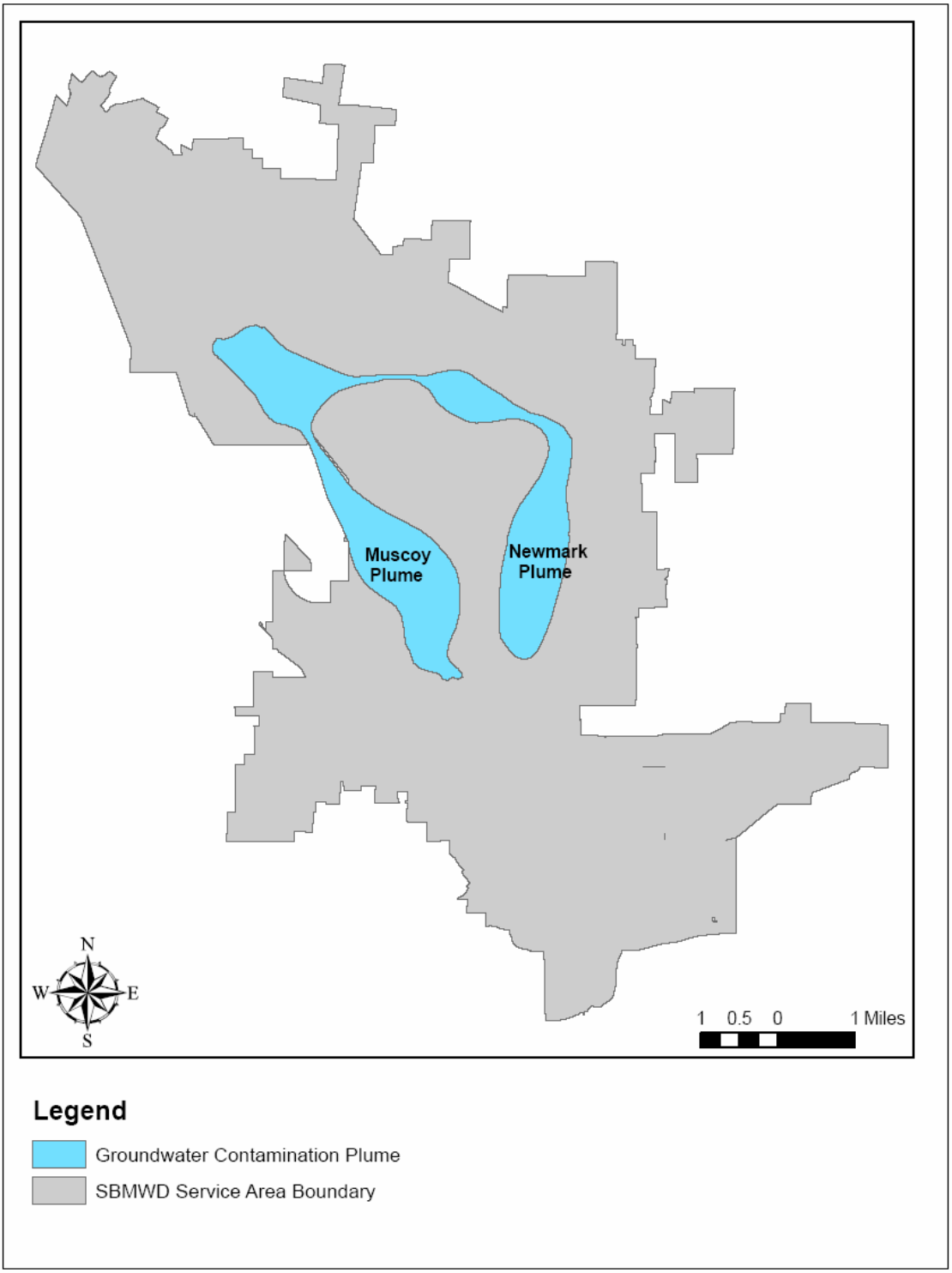


Figure 7-1
SBMWD Service Area in Relation to Superfund Contaminant Plumes

Treatment of SWP water supplies containing high levels of total organic carbon (TOC) and bromide with disinfectants, such as chlorine, creates disinfection byproducts (DBPs) linked to specific cancer types. TOC and bromide in the Delta region of the SWP are of a significant concern as concentration levels increase as Delta water is impacted by agricultural drainage and seawater intrusion. In 1998, the USEPA adopted more stringent regulations for DBPs that took effect in 2002. Even more stringent regulations are expected to be proposed in 2005. This impact would be minimal on the BHG Basin, as the amount of SWP water is relatively low when compared to the natural recharge from local streams.

7.4 Water Quality Protection

SBMWD takes numerous actions to maintain water quality within its service area at both the local and regional level. SBMWD along with other City departments are tasked with environmental oversight to ensure that potential industrial and commercial sources of contaminants are minimized or completely eliminated. The City also conducts educational programs to inform residents about water quality and how their actions can potentially impact water quality.

SBMWD completed the state and federal required Drinking Water Source Assessment and Protection Program (DWSAP) in 2002. This program has two parts, assessment and protection. The assessment element involves defining protection areas around water sources and compiling a list of activities in the service area that may potentially impact groundwater. The protection element involves managing the potential activities that may impact groundwater to prevent contamination and developing plans in case contamination occurs. The assessment element was completed in 2002 and the protection element was completed in 2003.

SBMWD also participates in a joint DWSAP program with other water purveyors in the BHG Basin and sponsored by the Upper Santa Ana Water Resources Association (USAWR). USAWR is voluntary organization for groundwater producers in the BHG Basin. This coordinated program provides the greatest amount of source protection considering any contamination in the BHG Basin, regardless of jurisdictional boundaries of water agencies, has the ability to impact other water purveyors.

It should be noted that, though currently known and foreseeable water quality issues are already incorporated into existing management strategies and the reliability of SBMWD's supplies for the next 20 years, unforeseeable water quality issues, including new or changing regulations, could alter the quality SBMWD's water supply and potentially impact supply reliability.

Section 8
Water Service Reliability

8.1 Introduction

The implementation of the water projects included in the SBMWD's 10-year CIP and water facilities master plan will help ensure that the Department will be able to meet projected water demands.

As discussed in Section 2, 100% of the Department's water supplies for the projection period ending in year 2025, are from groundwater wells in the BHG Basin.

As established under the Western Judgment, Muni is responsible for the management of groundwater supplies in the BHG basin, and has the ability to provide supplemental SWP water to augment supplies in its service area. The following sections provide information regarding regional water supplies and their reliability. This information was used to assess the reliability of water supply for SBMWD, discussed under Section 8.3.

8.2 San Bernardino Valley Municipal Water District

Muni was formed in 1954 to plan long-range water supply for the San Bernardino Valley. It imports water into its service area through participation in the California State Water Project and manages groundwater storage within its boundaries. It was incorporated under the Municipal Water District Act of 1911 (California Water Code Section 7100 *et seq.*, as amended). Its enabling act includes a broad range of powers to provide water, as well as wastewater, stormwater disposal, recreation, and fire protection services.

Muni's service area covers a 325 square mile area in southwestern San Bernardino County, about 60 miles east of Los Angeles, with a population of about 600,000. It spans the eastern two-thirds of the San Bernardino Valley, the Crafton Hills, and a portion of the Yucaipa Valley, and includes the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, Grand Terrace, and Yucaipa.

8.2.1 Reliability of Local Supply

The Santa Ana River and its tributaries are the principal source of native surface water for the urbanized portions of San Bernardino, Riverside, and Orange Counties, an area with a population of about 4 million. Combined agricultural and domestic water demand in this region exceeds the availability of water from the Santa Ana River or groundwater supplies in the watershed, thus requiring the use of imported water. The lack of both native surface water and imported water for many years prior to 1963 led to groundwater overdraft within Muni's boundaries. In more recent years, increased groundwater recharge has led to high groundwater levels in certain areas of the BHG Basin.

Groundwater is the principal source of supply in the Muni's service area. Other sources of water supply are the California State Water Project (SWP), the Santa Ana River, and its major tributaries including Mill Creek on the east end and Lytle Creek on the west.

Muni's local supply has three main components: groundwater, surface supply, and new/reclaimed supply. Groundwater comes from four different basins: San Bernardino (including Lytle Creek), Colton, Riverside and Yucaipa. Groundwater exports from the San Bernardino Basin include exports to Western Municipal Water District, per the 1969 Western Judgment, and exports to the Chino Basin per an agreement with the Inland Empire Utilities Agency.

Table 8-1 summarizes the safe yield local supply for Muni.

Table 8-1
Safe Yield Local Water Supply for Muni

Local Water Supply	Acre-Feet/Year
Groundwater	
San Bernardino Basin Available Supply	
Total Supply	179,900
Less WMWD	(64,862)
Less Chino Basin	(12,527)
Sub-Total (Available Supply to Muni)	102,511
Colton Basin Available Supply to Muni	8,350
Riverside Basin Available Supply to Muni	12,644
Yucaipa Basin Available Supply to Muni	8,700
Sub-Total for Groundwater	132,305
Surface Supply Available to Muni	
Lytle Creek	12,000
Santa Ana River	25,800
Mill Creek	14,400
Sub-Total	52,200
New Supplies and Reclaimed Water for Muni	
New Supplies	11,000
Increase water spreading	10,000
Reclaimed water	26,000
Sub-Total	47,000
Total Local Supplies	231,405

Source: Muni Water Budget. Revised 11-03-2005.

8.2.2 Reliability of State Water Project Supply

Muni is one of 29 contractors to the California State Water Project, which delivers water from northern California to various parts of the state. Muni's contract entitlement for state water was 1,677 AF in 1972, the initial year of deliveries, and increased to a maximum entitlement of 102,600 AF in 1991. Its maximum entitlement is the fifth-largest of the SWP contractors.

The SWP is owned and operated by the State of California, Department of Water Resources (DWR). Its principal facilities consist of Oroville Dam on the Feather River in Northern California and the California Aqueduct, which transports water from the Sacramento-San Joaquin River Delta over 300 miles south to the Tehachapi Mountains. At the base of the Tehachapis, DWR operates the A. D. Edmonston pump station, which lifts SWP water over the mountains, the largest single lift in the world. Pipeline facilities run from the Tehachapis to the Devil Canyon Power Plant and from Devil Canyon to Lake Perris, 25 miles south, which is the terminus of the SWP. The Devil Canyon Power Plant Afterbay, located in the northern portion of the City of San Bernardino, is a principal point from which SWP water flows by gravity to SWP contract water users in Southern California, including Muni.

The SWP currently delivers about 2.3 million AF/Y. SWP contracts call for ultimate delivery of a total of 4.2 million AF/Y. It has been determined, however, that without modification, the SWP is not capable of meeting ultimate delivery needs. Moreover, statewide drought conditions and environmental constraints in the Sacramento-San Joaquin Delta and San Francisco Bay can significantly curtail the availability of water from the SWP, making the quantity of available water from the SWP uncertain from year to year.

To help assess the reliability of SWP supplies for preparation of the 2005 UWMPs, the State Water Contractors sent excerpts from DWR's working draft of the 2005 State Water Project Delivery Reliability Report (May, 2005). In this draft report, various hydrologic studies were conducted on the expected deliveries (expressed as percentage of entitlement) that would be available during different hydrologic years from 1922 to 1994. Study 7 of that report seems to be the most recent and relevant. Figure 8-1 shows the percent of total entitlement for the SWP supply available.

8.2.3 Reliability of Total San Bernardino Valley Municipal Water District Water Supplies

Taking the local water supplies presented in Section 8.2.1 and SWP supplies presented in Section 8.2.2, the supply reliability for the Muni as a whole can be estimated. These supplies are compared to projected water demands shown in Figure 8-2. Projected water demands for Muni where based on the District's ultimate build-out demands of approximately 364,600 AF/Y. Demands for 2005 to 2025 were derived using current and historical population for Muni's service area. Based on population, it is anticipated that the ultimate build-out demand of 364,600 AF/Y would occur in 2053.

Under all hydrologic conditions (average year, single-dry year, and multi-dry years), Muni's supplies, including local and imported, meet or exceed demands until the year 2022. After which, during some critical dry years, supply shortages are expected to occur.

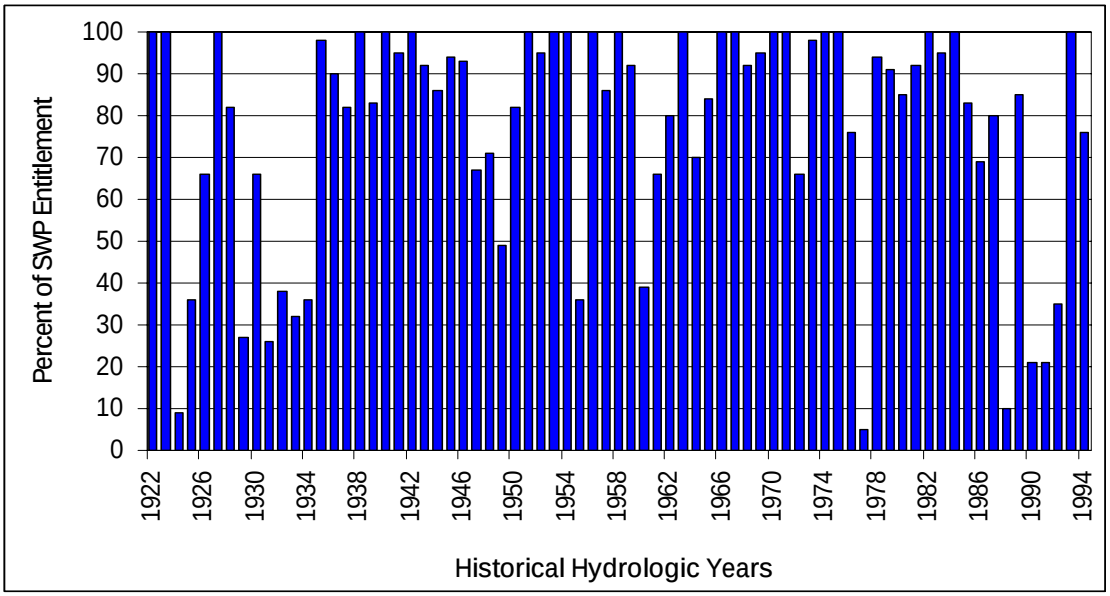


Figure 8-1
Reliability of SWP Deliveries
Source: DWR Working Draft of SWP Delivery Reliability Report (May 2005)

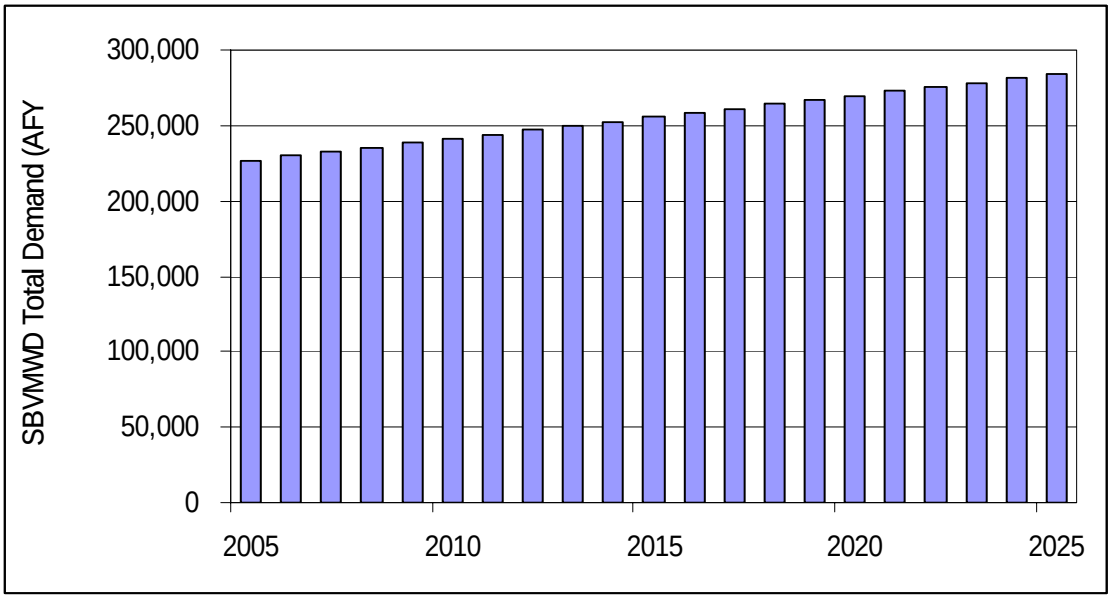


Figure 8-2
Projection of Muni's Water Demands

Table 8-2 shows available supplies under the different hydrologic scenarios, compared to projected water demand for year 2025. In the first comparison, total average-year supply exceeds demand by about 26,000 AF/Y. However, shortages exist for the single-dry year (1991), second year of multi-year drought (1988), fourth and fifth years (1990 and 1991). Because Muni can store unused SWP water for later use (carryover), another comparison was made using carryover supplies from the SWP. Carryover supplies are unused SWP supplies from the previous year that can be used to meet potential shortages in the following year. The result of this reliability assessment indicates that by year 2025, there could be: a 28,000 AF/Y shortage (or 10%) in a single-year dry period (1991); 13,000 AF/Y shortage (or 5%) in the second year (1988); and a 28,000 AF/Y shortage (or 10%) in the fifth year.

Table 8-2
Supply Reliability Assessment for Muni's Service Area (Acre-Feet/Year)

	Average	Single Dry Year (1991)	Multiple-Dry Years				
			1987	1988	1989	1990	1991
Local Supplies	231,405	231,405	231,405	231,405	231,405	231,405	231,405
SWP Supply	79,002	21,546	82,080	10,260	87,210	21,546	21,546
Total	310,407	252,951	313,485	241,665	318,615	252,951	252,951
2025 Demand	284,211	284,211	284,211	284,211	284,211	284,211	284,211
Difference	26,196	(31,260)	29,247	(42,546)	34,404	(31,260)	(31,260)
% of Demand	9%	-11%	10%	-15%	12%	-11%	-11%
Carryover Supply*	--	3,144	--	29,274	--	31,260	3,144
Difference with Carryover	NA	(28,117)	0	(13,272)	0	0	(28,117)
% of Demand	NA	-10%	0%	-5%	0%	0%	-10%

* Carryover supply represents unused SWP supply from previous year (if available) to meet potential shortage in following year.

If these shortages in supply are passed on in proportion to the communities within Muni's service area, then the worst shortage any of them would have to manage by 2025 would be 10%of projected demands. Proportions allocated to agencies are based on verified extractions as a percentage of the total extraction by non-plaintiffs in the 2003 Western – San Bernardino Watermaster Report. This is a manageable reduction that was experienced during the 1987-1991 drought during which public education resulted in about a 10% reduction in water demand in the San Bernardino region.

8.3 Reliability Assessment for SBMWD

Based on the reliability of Muni's supply, it is expected that total groundwater available to SBMWD will be sufficient to meet demands reliably through year 2022. After 2022, supplies will be adequate in all but the most severe types of drought.

Table 8-3 shows total demands (from Section 3) and total supplies for SBMWD under average conditions.

Table 8-3
Service Area Reliability Assessment for Normal Water Year (Acre-Feet/Year)

	2010	2015	2020	2025
Total Demand [1]	54,780	61,879	67,690	73,504
Percent of Year 2005	115%	130%	142%	155%
Total Supply	54,780	61,879	67,690	73,504
Percent of Year 2005	115%	130%	142%	155%
Difference (Supply minus Demand)	0	0	0	0
Difference as a Percent of Supply	0%	0%	0%	0%
Difference as a Percent of Demand	0%	0%	0%	0%

[1] Includes consumptive demand, and unaccounted for uses.

8.3.1 Single-Dry Water Year

Using the year 1991 to represent the single-dry year scenario, projections of water demands were compared to projected supplies for the period 2010 to 2025 (see Table 8-4). It is projected that no shortfalls in supply exist until after 2020. The shortfalls in 2025 represent a 10%, which is believed to be manageable through public education and drought conservation.

Table 8-4
Service Area Reliability Assessment for Single-Dry Year (Acre-Feet/Year)

	2010	2015	2020	2025
Total Demand [1]	54,780	61,879	67,690	73,504
Percent of Year 2005	115%	130%	142%	155%
Total Supply	54,780	61,879	67,690	66,154
Percent of Year 2005	115%	130%	142%	155%
Difference (Supply minus Demand)	0	0	0	7,350
Difference as a Percent of Supply	0%	0%	0%	11%
Difference as a Percent of Demand	0%	0%	0%	10%

[1] Includes consumptive demand, and unaccounted for uses.

8.3.2 Multiple Dry Water Years

To determine the reliability of SBMWD's supplies under a multi-year drought scenario, the 1987-1991 drought period was used as a hydrologic base year to obtain supply and demand forecasts in five year intervals. Each five-year increment (e.g. 2006-2010) assumes the same multiple dry year period condition. Only after year 2022 are supply shortages expected. These shortfalls can be managed through public education and drought conservation.

Tables 8-5 through 8-8 summarize the reliability under multiple dry years.

Table 8-5
2006-2010 Service Area Reliability Assessment for Multiple-Dry Years (AF/Y)

	2006	2007	2008	2009	2010
Total Demand	48,957	50,413	51,868	53,324	54,780
Total Supply	48,957	50,413	51,868	53,324	54,780
Difference (Supply minus Demand)	0	0	0	0	0
Difference as a Percent of Supply	0%	0%	0%	0%	0%
Difference as a Percent of Demand	0%	0%	0%	0%	0%

Table 8-6
2011-2015 Service Area Reliability Assessment for Multiple-Dry Years (AF/Y)

	2011	2012	2013	2014	2015
Total Demand	56,200	57,620	59,039	60,459	61,879
Total Supply	56,200	57,620	59,039	60,459	61,879
Difference (Supply minus Demand)	0	0	0	0	0
Difference as a Percent of Supply	0%	0%	0%	0%	0%
Difference as a Percent of Demand	0%	0%	0%	0%	0%

Table 8-7
2016-2020 Service Area Reliability Assessment for Multiple-Dry Years (AF/Y)

	2016	2017	2018	2019	2020
Total Demand	63,041	64,203	65,366	66,528	67,690
Total Supply	63,041	64,203	65,366	66,528	67,690
Difference (Supply minus Demand)	0	0	0	0	0
Difference as a Percent of Supply	0%	0%	0%	0%	0%
Difference as a Percent of Demand	0%	0%	0%	0%	0%

Table 8-8
2021-2025 Service Area Reliability Assessment for Multiple-Dry Years (AF/Y)

	2021	2022	2023	2024	2025
Total Demand	68,853	70,016	71,178	72,341	73,504
Total Supply	68,853	69,315	68,331	67,277	66,154
Difference (Supply minus Demand)	0	-700	-2,847	-5,064	-7,350
Difference as a Percent of Supply	0%	-1%	-4%	-8%	-11%
Difference as a Percent of Demand	0%	-1%	-4%	-7%	-10%

THIS PAGE INTENTIONALLY LEFT BLANK

Section 9
References

California Irrigation Information Management Information System, Department of Water Resources, Office of Water Use Efficiency. Station 44 – UC Riverside ETO Station Data. Retrieved November 1, 2005. http://www.cimis.water.ca.gov.

CDM. Draft San Bernardino Valley Municipal Water District Regional Water Facilities Masterplan Water Quality Study. 1996.

CDM. Draft SBMWD Water Facilities Master Plan Data. 2005.

City of San Bernardino Municipal Water Department. Resolution 2004-124. Retrieved November 15, 2005. http://www.ci.san-bernardino.ca.us/water/default_csb.htm.

City of San Bernardino Municipal Water Department. Rule and Regulation No. 21 General Water Service/Water Rates. Retrieved November 15, 2005. http://www.ci.san-bernardino.ca.us/water/default_csb.htm.

City of San Bernardino Municipal Water Department. San Bernardino Water Utility Capital Improvement Budget Fiscal Year 2005-2006. 2005.

City of San Bernardino Municipal Water Department. Urban Water Management Plan Update for the Planning Period 2000-2020. 2002.

City of San Bernardino Municipal Water Department. 2003 Consumer Confidence Report. Retrieved November 10, 2005. http://www.ci.san-bernardino.ca.us/water/redirect.asp?URL=m%20%20s

Perry, John. San Bernardino Municipal Water Department, Wastewater Division. Phone Conversation. November, 15, 2005.

Perry, John. San Bernardino Municipal Water Department, Wastewater Division. E-mail Correspondence via Bill Bryden Regarding Reclamation Feasibility Study. November 15, 2005.

San Bernardino Valley Municipal Water District. Change in Groundwater Storage Calendar Years 1934-2004. 2005.

San Bernardino Valley Municipal Water District and Western Municipal Water District. Draft Environmental Impact Report Santa Ana River Water Rights Applications for Supplemental Water Supply. 2004.

San Bernardino Valley Municipal Water District. Draft Overview of Groundwater and Surface Management in the East San Bernardino Valley. 2005

San Bernardino Valley Municipal Water District. Regional Water Facilities Master Plan Final EIR. 2001.

San Bernardino Valley Municipal Water District. SBVMWD Water Budget Revised 11/3/05. 2005.

San Bernardino Valley Water Conservation District. 2004-2005 Groundwater Conditions in the San Bernardino Valley Water Conservation District. 2005.

Southern California Association of Governments. 2004 Regional Transportation Plan. Retrieved November 3, 2005. http://www.scag.ca.gov/forecast/downloads/2004GF.xls

State of California, Department of Finance. *Population Projections by Race/Ethnicity for California and Its Counties 2000–2050.* Retrieved November 1, 2005. http://www.dof.ca.gov/HTML/DEMOGRAP/DRU_Publications/Projections/P-1_Tables.xls.

State of California, Department of Water Resources. Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report. 2005.

United States Environmental Protection Agency. Newmark Groundwater Contamination. Retrieved November 8, 2005. http://yosemite.epa.gov/r9/sfund/overview.nsf/ef81e03b0f6bcdb28825650f005dc4c1/5a50a68ada6060e58825660b007ee691?OpenDocument#progress.

US Department of Commerce, National Oceanic & Atmospheric Administration, National Climate Data Center. Annual Climatological Survey, Station 045115/93134 Los Angeles Civic Center 1948-2003.

Appendix A
Western Judgment

APPENDIX C

FILED
RIV. RIVERSIDE COUNTY
APR 17 1969
DONALD D. [illegible], Clerk
By [illegible] Deputy

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF RIVERSIDE

WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY, a municipal water district; CITY OF RIVERSIDE, a municipal corporation; THE GAGE CANAL COMPANY, a corporation; AGUA MANSA WATER COMPANY, a corporation, MEEKS & DALEY WATER COMPANY, a corporation; RIVERSIDE HIGHLAND WATER COMPANY, a corporation, and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA,

Plaintiffs,

-vs-

(A) EAST SAN BERNARDINO COUNTY WATER DISTRICT, et al.,

Defendants

No. 784726

784726
4/7/69

JUDGMENT

TABLE OF CONTENTS

		Boundaries of San Bernardino Valley Municipal Water District & Western Municipal Water District of Riverside County
APPENDIX B --		Extractions by Plaintiffs from San Bernardino Basin Area.
APPENDIX C --		Exports for Use on Lands not Tributary to Riverside Narrows
APPENDIX D --		Miscellaneous Data

RECITALS

(a) Complaint. The complaint in this action was filed by certain parties exporting water from the area defined herein as the San Bernardino Basin Area for use within Western, and sought a general adjudication of water rights.

(b) Orange County Water District Action. Subsequently the Orange County Water District filed an action for the adjudication of the water rights of substantially all water users in the area tributary to Prado Dam in the Santa Ana River Watershed. A decree of physical solution has been entered in such action whereby individual water users were dismissed, and San Bernardino Valley and Western assumed responsibility for the deliveries of certain flows at Riverside Narrows and Prado respectively.

(c) Physical Solution. The Judgment herein will further implement the physical solution in the Orange County Water District action, as well as determine the rights of the hereinafter named Plaintiffs to extract water from the San Bernardino Basin Area, and provide for replenishment of the area above Riverside Narrows. Such Judgment is fair and equitable, in the best interests of the parties, and in furtherance of the water policy of the State. San Bernardino Valley has the statutory power and resources to effectuate this Judgment and accordingly the other defendants may be dismissed.

(d) Stipulation. The parties named herein through their respective counsel have proposed and filed a written stipulation agreeing to the making and entry of this Judgment. By reason of such stipulation, and good cause appearing

therefor,

IT IS HEREBY ORDERED, ADJUDGED AND DECREED as follows:

I

ACTIVE PARTIES

(a) The parties to this Judgment are as follows:

(1) Plaintiff Western Municipal Water District of Riverside County, a California municipal water district, herein often called "Western", appearing and acting pursuant to Section 71751 of the Water Code;

(2) Plaintiff City of Riverside, a municipal corporation;

(3) Plaintiffs Riverside Highland Water Company, Agua Mansa Water Company and Meeks & Daley Water Company, each of which is a mutual water company and a California corporation;

(4) Plaintiff The Regents of the University of California, a California public corporation;

(5) Defendant San Bernardino Valley Municipal Water District, a California municipal water district, herein often called "San Bernardino Valley", appearing and acting pursuant to Section 71751 of the Water Code;

(b) This Judgment shall inure to the benefit of, and be binding upon, the successors and assigns of the parties.

II

DISMISSED PARTIES

All parties other than those named in the preceding Paragraph I are dismissed without prejudice.

III

PRIOR JUDGMENTS

(a) The Judgment dated and entered on May 13, 1959, in that certain action filed in the Superior Court of the State of California in and for the County of San Bernardino, entitled and numbered "San Bernardino Valley Water Conservation District, a State Agency, Plaintiff v. Riverside Water Company, a corporation, et al., Defendants", No. 97031, is superseded effective January 1, 1971, and for so long as this Judgment remains in effect as to any party hereto that was a party to that action, and as to any party hereto that is a successor in interest to the rights determined in that action

(b) The Judgment dated June 23, 1965, and entered on April 21, 1966, in that certain action filed in the Superior Court of the State of California in and for the County of San Bernardino entitled and numbered "San Bernardino Valley Water Conservation District, a State Agency, Plaintiff, v. Riverside Water Company, a corporation, et al., Defendants," No. 111614, is superseded effective January 1, 1971, and for so long as this Judgment remains in effect as to any party hereto that was a party to that action, and as to any party hereto that is a successor in interest to any rights determined in that action.

(c) As used in this Paragraph III only, "party" includes any person or entity which stipulates with the parties hereto to accept this Judgment

IV

DEFINITIONS

The following ground water basins and tributary areas are situated within the Santa Ana River watershed upstream from Riverside Narrows and are tributary thereto, and their approximate locations and boundaries for purposes of this Judgment are shown upon the map attached hereto as Appendix "A"; San Bernardino Basin Area (the area above Bunker Hill Dike, but excluding certain mountainous regions and the Yucaipa San Timoteo, Oak Glen and Beaumont Basins); Colton Basin Area, Riverside Basin Area within San Bernardino County, and Riverside Basin Area within Riverside County.

As used herein the following terms shall have the meanings herein set forth:

(a) Bunker Hill Dike - The San Jacinto Fault, located approximately as shown on Appendix "A", and forming the principal downstream boundary of the San Bernardino Basin Area.

(b) Riverside Narrows - That bedrock narrows in the Santa Ana River indicated on Appendix "A".

(c) Extractions - Any form of the verb or noun shall include pumping, diverting, taking or withdrawing water, either surface or subsurface, by any means whatsoever, except extractions for hydroelectric generation to the extent that such flows are returned to the stream, and except for diversions for replenishment.

(d) Natural Precipitation - Precipitation which falls naturally in the Santa Ana River watershed.

(e) Imported Water - Water brought into the Santa Ana River watershed from sources of origin outside such watershed.

(f) Replenishment - Artificial recharge of the ground water body achieved through the spreading or retention of water for the purpose of causing it to percolate and join the underlying ground water body, or injection of water into the ground water resources by means of wells; provided that as used with reference to any obligation of Western to replenish the Riverside Basin Area in Riverside County, the term replenishment shall include any water caused to be delivered by Western for which credit is received by San Bernardino Valley against its obligation under the Orange County Judgment to provide base flow at Riverside Narrows.

(g) Safe Yield - Safe yield is that maximum average annual amount of water that could be extracted from the surface and subsurface water resources of an area over a period of time sufficiently long to represent or approximate long-time mean climatological conditions, with a given areal pattern of extractions, under a particular set of physical conditions or structures as such affect the net recharge to the ground water body, and with a given amount of usable underground storage capacity, without resulting in long-term, progressive lowering of ground water levels or other undesirable result. In determining the operational criteria to avoid such adverse results, consideration shall be given to maintenance of adequate ground water quality, subsurface outflow, costs of pumping, and other relevant factors.

The amount of safe yield is dependent in part upon the amount of water which can be stored in and used from the ground water reservoir over a period of normal water supply under a given set of conditions. Safe yield is thus related to factors which influence or control ground water recharge, and

to the amount of storage space available to carry over recharge occurring in years of above average supply to years of deficient supply. Recharge, in turn, depends on the available surface water supply and the factors influencing the percolation of that supply to the water table.

Safe yield shall be determined in part through the evaluation of the average net groundwater recharge which would occur if the culture of the safe yield year had existed over a period of normal native supply.

(h) Natural Safe Yield - That portion of the safe yield of the San Bernardino Basin Area which could be derived solely from natural precipitation in the absence of imported water and the return flows therefrom, and without contributions from new conservation. If in the future any natural runoff tributary to the San Bernardino Basin Area is diverted away from that Basin Area so that it is not included in the calculation of natural safe yield, any replacement made thereof by San Bernardino Valley or entities within it from imported water shall be included in such calculation.

(i) New Conservation - Any increase in replenishment from natural precipitation which results from operation of works and facilities not now in existence, other than those works installed and operations which may be initiated to offset losses caused by increased flood control channelization.

(j) Year - A calendar year from January 1 through December 31. The term "annual" shall refer to the same period of time.

(k) Orange County Judgment - The final judgment in Orange County Water District v. City of Chino, et al., Orange County Superior Court No. 117628, as it may from time to

time be modified.

(l) Return Flow - That portion of the water applied for use in any particular ground water basin which subsequently reaches the ground water body in that basin.

(m) Five Year Period - a period of five consecutive years.

V

EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA

(a) For Use by Plaintiffs. The average annual extractions from the San Bernardino Basin Area delivered for use in each service area by each Plaintiff for the five year period ending with 1963 are hereby determined to be as set forth in Table B-1 of Appendix "B". The amount for each such Plaintiff delivered for use in each service area as set forth in Table B-1 shall be designated, for purposes of this Judgment, as its "base right" for such service area.

(b) For Use by Others. The total actual average annual extractions from the San Bernardino Basin Area by entities other than Plaintiffs for use within San Bernardino County for the five year period ending with 1963 are assumed to be 165,407 acre feet; the correct figure shall be determined by the Watermaster as herein provided.

VI

SAN BERNARDINO BASIN AREA RIGHTS AND REPLENISHMENT

(a) Determination of Natural Safe Yield. The natural safe yield of the San Bernardino Basin Area shall be computed by the Watermaster, reported to and determined initially by supplemental order of this Court, and thereafter

shall be subject to the continuing jurisdiction thereof.

(b) Annual Adjusted Rights of Plaintiffs.

1. The annual "adjusted right" of each Plaintiff to extract water from the San Bernardino Basin Area for use in each service area designated in Table B-1 shall be equal to the sum of the following:

(a) its base right for such service area, until the natural safe yield of the San Bernardino Basin Area is determined, and thereafter its percentage of such natural safe yield determined by the methods used in Table B-2; and (b) an equal percentage for each service area of any new conservation, provided the conditions of the subparagraph 2 below have been met.

2. In order that the annual adjusted right of each such Plaintiff shall include its same respective percentage of any new conservation, such Plaintiff shall pay its proportionate share of the costs thereof. Each Plaintiff shall have the right to participate in new conservation projects, under procedures to be determined by the Watermaster for notice to Plaintiffs of the planned construction of such projects. With respect to any new conservation brought about by Federal installations, the term "costs" as used herein shall refer to any local share required to be paid in connection with such project. Each Plaintiff shall make its payment at times satisfactory to the constructing agency, and new conservation shall be credited to any participating Plaintiff as such conservation is effected.

3. In any five year period, each Plaintiff shall have the right to extract from the San Bernardino Basin Area for use in each service area designated in Table B-1 an amount of water equal to five times its adjusted right for such service area; provided, however, that extractions by each Plaintiff in any year in any service area shall not exceed such Plaintiff's adjusted right for that service area by more than 30 percent.

4. If the natural safe yield of the San Bernardino Basin Area has not been determined by January 1, 1972, the initial determination thereof shall be retroactive to that date and the rights of the Plaintiffs, and the replenishment obligation of San Bernardino Valley as hereinafter set forth, shall be adjusted as of such date. Any excess extractions by Plaintiffs shall be charged against their respective adjusted rights over the next five year period, or in the alternative, Plaintiffs may pay to San Bernardino Valley the full cost of any replenishment which it has provided as replenishment for such excess extractions. Any obligation upon San Bernardino Valley to provide additional replenishment, by virtue of such retroactive determination of natural safe yield, may also be discharged over such next five year period.

5. Plaintiffs and each of them and their agents and assigns are enjoined from extracting any more water from the San Bernardino Basin Area than is permitted under this Judgment. Changes in place

of use of any such water from one service area to another shall not be made without the prior approval of Court upon a finding of compliance with Paragraph XV(b) of this Judgment. So long as San Bernardino Valley is in compliance with all its obligations hereunder, and Plaintiffs are allowed to extract the water provided for in this Judgment, Plaintiffs are further enjoined from bringing any action to limit the water extracted from the San Bernardino Basin Area for use within San Bernardino Valley.

6. Nothing in this Judgment shall prevent future agreements between San Bernardino Valley and Western under which additional extractions may be made from the San Bernardino Basin Area, subject to the availability of imported water not required by San Bernardino Valley, and subject to payment satisfactory to San Bernardino Valley for replenishment required to compensate for such additional extractions.

(c) San Bernardino Valley Replenishment. San Bernardino Valley shall provide imported water for replenishment of the San Bernardino Basin Area at least equal to the amount by which extractions therefrom for use within San Bernardino County exceed during any five year period the sum of: (a) five times the total average annual extractions determined under Paragraph V(b) hereof, adjusted as may be required by the natural safe yield of the San Bernardino Basin Area; and (b) any new conservation to which users within San Bernardino Valley are entitled. Such replenishment shall be

supplied in the year following any five year period; provided that during the first five year period, San Bernardino Valley shall supply annual amounts on account of its obligations hereunder, and such amounts shall be not less than fifty percent of the gross amount of excess extractions in the previous year.

1. Against its replenishment obligation over any five year period San Bernardino Valley shall receive credit for that portion of such excess extractions that returns to the ground water of the San Bernardino Basin Area.

2. San Bernardino Valley shall also receive credit against any future replenishment obligations for all replenishment which it provides in excess of that required herein, and for any amounts which may be extracted without replenishment obligation, which in fact are not extracted.

(d) In this subparagraph (d), "person" and "entity" mean only those persons and entities, and their successors in interest, which have stipulated with the parties to this Judgment within six months after its entry to accept this Judgment.

San Bernardino Valley agrees that the base rights of persons or entities other than Plaintiffs to extract water from the San Bernardino Basin Area for use within San Bernardino Valley will be determined by the average annual quantity extracted by such person or entity during the five year period ending with 1963. After the natural safe yield of the San Bernardino Basin Area is determined hereunder, such

base rights will be adjusted to such natural safe yield; the adjusted right of each such person or entity shall be that percentage of natural safe yield as determined hereunder from time to time which the unadjusted right of such person or entity is of the amount determined under Paragraph V(b).

San Bernardino Valley further agrees that in the event the right to extract water of any of such persons or entities in the San Bernardino Basin Area is adjudicated and legal restrictions placed on such extractions which prevent extracting of water by said persons or entities in an amount equal to their base rights, or after natural safe yield is determined, their adjusted rights, San Bernardino Valley will furnish to such persons or entities or recharge the ground water resources in the area of extraction for their benefit with imported water, without direct charge to such persons or entities therefor, so that the base rights, or adjusted rights, as the case may be, may be taken by the person or entity.

Under the provisions hereof relating to furnishing of such water by San Bernardino Valley, such persons or entities shall be entitled to extract in addition to their base rights or adjusted rights any quantities of water spread for repumping in their area of extractions, which has been delivered to them by a mutual water company under base rights or adjusted base rights included by the Watermaster under the provisions of Paragraph V (b) hereof. Extractions must be made within three years of spreading to so qualify.

VII

WATER DISCHARGED ACROSS THE BUNKER HILL DIKE

San Bernardino Valley shall keep in force an agreement with the City of San Bernardino that the present annual quantity of municipal sewage effluent discharged across Bunker Hill Dike, assumed for all purposes herein to be 16,000 acre feet annually, shall be committed to the discharge of the downstream obligations imposed on San Bernardino Valley under this Judgment or under the Orange County Judgment, and that such effluent shall comply with the requirements of the Santa Ana River Basin Regional Water Quality Control Board in effect December 31, 1968.

VIII

EXTRACTIONS FROM COLTON BASIN AREA AND RIVERSIDE BASIN AREA IN SAN BERNARDINO COUNTY.

(a) The average annual extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County, for use outside San Bernardino Valley, for the five year period ending with 1963 are assumed to be 3,349 acre feet and 20,191 acre feet, respectively; the correct figures shall be determined by the Watermaster as herein provided.

(b) Over any five year period, there may be extracted from each such Basin Area for use outside San Bernardino Valley, without replenishment obligation, an amount equal to five times such annual average for the Basin Area; provided, however, that if extractions in any year exceed such average by more than 20 percent, Western shall provide replenishment in the following year equal to the excess

extractions over such 20 percent peaking allowance.

(c). To the extent that extractions from each such Basin Area for use outside San Bernardino Valley exceed the amounts specified in the next preceding Paragraph (b), Western shall provide replenishment. Except for any extractions in excess of the 20 percent peaking allowance, such replenishment shall be supplied in the year following any five year period, and shall not be from reclaimed water produced within San Bernardino Valley. Such replenishment shall also be of a quality at least equal to the water extracted from the Basin Area being recharged; provided, that water from the State Water Project shall be deemed to be of acceptable quality. Replenishment shall be supplied to the Basin Area from which any excess extractions have occurred and in the vicinity of the place of the excess extractions to the extent required to preclude influence on the water level in the three wells below designated; provided that discharge of imported water into the Santa Ana River or Warm Creek from a connection on the State Aqueduct near the confluence thereof, if released in accordance with a schedule approved by the Watermaster to achieve compliance with the objectives of this Judgment, shall satisfy any obligation of Western to provide replenishment in the Colton Basin Area, or that portion of the Riverside Basin Area in San Bernardino County, or the Riverside Basin Area in Riverside County.

(d) Extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County, for use within San Bernardino Valley, shall not be limited. However, except for any required replenishment by Western, San Bernardino Valley shall provide the water to maintain the static water levels in the area, as determined by wells numbered

1S 4W 21 Q3, 1S 4W 29 H1, and 1S 4W 29 Q1 at an average level no lower than that which existed in the Fall season of 1963. Such 1963 average water level is hereby determined to be 822.04 feet above sea level. In future years, the level shall be computed by averaging the lowest static water levels in each of the three wells occurring at or about the same time of the year, provided that no measurements will be used which reflect the undue influence of pumping in nearby wells, or in the three wells, or pumping from the Riverside Basin in Riverside County in excess of that determined pursuant to Paragraph IX(a) hereof.

(e) Extractions by Plaintiffs from the Colton Basin Area and the portion of the Riverside Basin Area in San Bernardino County may be transferred to the San Bernardino Basin Area if the level specified in Paragraph (d) above is not maintained, but only to the extent necessary to restore such 1963 average water level, provided that Western is not in default in any of its replenishment obligations. San Bernardino Valley shall be required to replenish the San Bernardino Basin Area in an amount equal to any extractions so transferred. San Bernardino Valley shall be relieved of responsibility toward the maintenance of such 1963 average water level to the extent that Plaintiffs have physical facilities available to accommodate such transfers of extractions, and insofar as such transfers can be legally accomplished.

(f) The Colton Basin Area and the portion of the Riverside Basin Area in San Bernardino County constitute a major source of water supply for lands and inhabitants in both San Bernardino Valley and Western, and the parties hereto have a mutual interest in the maintenance of water quality in these Basin Areas and in the preservation of such supply. If

the water quality in such Areas, as monitored by the City of Riverside wells along the river, falls below the Objectives set therefor by the Santa Ana River Basin Regional Water Quality Control Board, the Court shall have jurisdiction to modify the obligations of San Bernardino Valley to include, in addition to its obligation to maintain the average 1963 water level, reasonable provisions for the maintenance of such water quality.

(g) The primary objectives of Paragraph VIII and related provisions are to allow maximum flexibility to San Bernardino Valley in the operation of a coordinated replenishment and management program, both above and below Bunker Hill Dike; to protect San Bernardino Valley against increased extractions in the area between Bunker Hill Dike and Riverside Narrows, which without adequate provision for replenishment might adversely affect base flow at Riverside Narrows, for which it is responsible under the Orange County Judgment; and to protect the area as a major source of ground water supply available to satisfy the historic extractions therefrom for use within Western, without regard to the method of operation which may be adopted by San Bernardino Valley for the San Bernardino Basin Area, and without regard to the effect of such operation upon the historic supply to the area below Bunker Hill Dike.

If these provisions should prove either inequitable or unworkable, the Court upon the application of any party hereto shall retain jurisdiction to modify this Judgment so as to regulate the area between Bunker Hill Dike and Riverside Narrows on a safe yield basis; provided that under such method of operation, (1) base rights shall be determined on the basis of total average annual extractions for use within San Bernardino Valley and Western, respectively, for the five year period ending

with 1963; (2) such base rights for use in both Districts shall be subject to whatever adjustment may be required by the safe yield of the area, and in the aggregate shall not be exceeded unless replenishment therefor is provided; (3) in calculating safe yield, the outflow from the area at Riverside Narrows shall be determined insofar as practical by the base flow obligations imposed on San Bernardino Valley under the Orange County Judgment; and (4) San Bernardino Valley shall be required to provide replenishment for any deficiency between the actual outflow and the outflow obligation across Bunker Hill Dike as established by safe yield analysis using the base period of 1934 through 1960.

IX

EXTRACTIONS FROM THE PORTION OF RIVERSIDE BASIN AREA IN RIVERSIDE COUNTY WHICH IS TRIBUTARY TO RIVERSIDE NARROWS.

(a) The average annual extractions from the portion of the Riverside Basin Area in Riverside County which is tributary to Riverside Narrows, for use in Riverside County for the five year period ending with 1963 are assumed to be 30,044 acre feet; the correct figures shall be determined by the Watermaster as herein provided.

(b) Over any five year period, there may be extracted from such Basin Area, without replenishment obligation, an amount equal to five times such annual average for the Basin Area; provided, however, that if extractions in any year exceed such average by more than 20 percent, Western shall provide replenishment in the following year equal to the excess extractions over such 20 percent peaking allowance.

(c) To the extent that extractions from such Basin Area exceed the amounts specified in the next preceding

Paragraph (b), Western shall provide replenishment. Except for any extractions in excess of the 20 percent peaking allowance, such replenishment shall be supplied in the year following any five year period, and shall be provided at or above Riverside Narrows.

(d) Western shall also provide such replenishment to offset any reduction in return flow now contributing to the base flow at Riverside Narrows, which reduction in return flow results from the conversion of agricultural uses of water within Western to domestic or other uses connected to sewage or waste disposal systems, the effluent from which is not tributary to the rising water at Riverside Narrows.

X

REPLENISHMENT TO OFFSET NEW EXPORTS OF WATER TO AREAS NOT TRIBUTARY TO RIVERSIDE NARROWS.

Certain average annual amounts of water extracted from the San Bernardino Basin Area and the area downstream therefrom to Riverside Narrows during the five year period ending in 1963 have been exported for use outside of the area tributary to Riverside Narrows and are assumed to be 50,667 acre feet annually as set forth in Table C-1 of Appendix "C"; the correct amount shall be determined by the Watermaster as herein provided. Western shall be obligated to provide replenishment at or above Riverside Narrows for any increase over such exports by Western or entities within it from such areas for use within areas not tributary to Riverside Narrows. San Bernardino Valley shall be obligated to provide replenishment for any increase over the exports from San Bernardino Valley for use in any area not within Western nor tributary to Riverside Narrows as set forth in Table C-2 of

Appendix "C", such amounts being subject to correction by the Watermaster, or for any exports from the San Bernardino Basin Area for use in the Yucaipa, San Timoteo, Oak Glen and Beaumont Basins.

XI

REPLENISHMENT CREDITS AND ADJUSTMENT FOR QUALITY

(a) All replenishment provided by Western under Paragraph IX and all credits received against such replenishment obligation shall be subject to the same adjustments for water quality applicable to base flow at Riverside Narrows, as set forth in the Orange County Judgment.

(b) Western shall receive credit against its replenishment obligations incurred under this Judgment for the following:

1. As against its replenishment obligation under Paragraph VIII, any return flow to the Colton Basin Area or the portion of the Riverside Basin Area within San Bernardino County, respectively, resulting from any excess extractions therefrom; and as against its replenishment obligation under Paragraph IX, any return flow to the portion of the Riverside Basin Area in Riverside County, which contributes to the base flow at Riverside Narrows, resulting from any excess extractions therefrom, or from the Riverside Basin Area in San Bernardino County, or from the Colton Basin Area.

2. Subject to adjustment under Paragraph (a) hereof, any increase over the present amounts of sewage effluent discharged from

treatment plants within Riverside County which are tributary to Riverside Narrows, and which results from the use of imported water

3. Any replenishment which may be vided in excess of that required; any amounts which hereunder are allowed to be extracted from the Colton and Riverside Basin Areas without replenishment obligation by Western, and which in fact are not extracted; any storm flows conserved between Bunker Hill Dike and Riverside Narrows by works financed solely by Western, or entities within it, which would not otherwise contribute to base flow at Riverside Narrows; and any return flow from imported water used in Riverside County which contributes to base flow at Riverside Narrows; provided, however, that such use of the underground storage capacity in each of the above situations does not adversely affect San Bernardino Valley in the discharge of its obligations at Riverside Narrows under the Orange County Judgment, nor interfere with the accomplishment by San Bernardino Valley of the primary objectives of Paragraph VIII, as stated in Subdivision (g).

(c) The replenishment obligations of Western under this Judgment shall not apply during such times as amounts of base flow at Riverside Narrows and the amounts of water stored in the ground water resources below Bunker Hill Dike and tributary to the maintenance of such flow are found by Order of the Court to be sufficient to satisfy any obligation which San Bernardino Valley may have under this Judgment, or under the

treatment plants within Riverside County which are tributary to Riverside Narrows, and which results from the use of imported water

3. Any replenishment which may be vided in excess of that required; any amounts which hereunder are allowed to be extracted from the Colton and Riverside Basin Areas without replenishment obligation by Western, and which in fact are not extracted; any storm flows conserved between Bunker Hill Dike and Riverside Narrows by works financed solely by Western, or entities within it, which would not otherwise contribute to base flow at Riverside Narrows; and any return flow from imported water used in Riverside County which contributes to base flow at Riverside Narrows; provided, however, that such use of the underground storage capacity in each of the above situations does not adversely affect San Bernardino Valley in the discharge of its obligations at Riverside Narrows under the Orange County Judgment, nor interfere with the accomplishment by San Bernardino Valley of the primary objectives of Paragraph VIII, as stated in Subdivision (g).

(c) The replenishment obligations of Western under this Judgment shall not apply during such times as amounts of base flow at Riverside Narrows and the amounts of water stored in the ground water resources below Bunker Hill Dike and tributary to the maintenance of such flow are found by Order of the Court to be sufficient to satisfy any obligation which San Bernardino Valley may have under this Judgment, or under the

Orange County Judgment, and if the Court further finds by Order that during such times any such increase in pumping, changes in use or exports would not adversely affect San Bernardino Valley in the future.

(d) The replenishment obligations of San Bernardino Valley under Paragraph X of this Judgment for increase in exports from the Colton and Riverside Basin Areas within San Bernardino Valley below the Bunker Hill Dike shall not apply during such times as the amounts of water in the ground water resources of such area are found by Order of the Court to be sufficient to satisfy the obligations which San Bernardino Valley may have to Plaintiffs under this Judgment, and if the Court further finds by Order that during such times any such increases in exports would not adversely affect Plaintiffs in the future.

XII

CONVEYANCE OF WATER BY SAN BERNARDINO VALLEY TO RIVERSIDE NARROWS.

If San Bernardino Valley determines that it will convey reclaimed sewage effluent, or other water, to or near Riverside Narrows, to meet its obligations under this or the Orange County Judgment, the City of Riverside shall make available to San Bernardino Valley for that purpose any unused capacity in the former Riverside Water Company canal, and the Washington and Monroe Street storm drains, without cost except for any alterations or capital improvements which may be required, or any additional maintenance and operation costs which may result. The use of those facilities shall be subject to the requirements of the Santa Ana River Basin Regional Water Quality Control Board and of the State Health Department, and compliance

therewith shall be San Bernardino Valley's responsibility.

XIII

WATERMASTER

(a) This Judgment and the instructions and subsequent orders of this Court shall be administered and enforced by a Watermaster. The parties hereto shall make such measurements and furnish such information as the Watermaster may reasonably require, and the Watermaster may verify such measurements and information and obtain additional measurements and information as the Watermaster may deem appropriate.

(b) The Watermaster shall consist of a committee of two persons. San Bernardino Valley and Western shall each have the right to nominate one of such persons. Each such nomination shall be made in writing, served upon the other parties to this Judgment, and filed in Court. Such person shall be appointed by and serve at the pleasure of and until further order of this Court. If either Western or San Bernardino Valley shall at any time nominate a substitute appointee in place of the last appointee to represent it, such appointee shall be appointed by the Court in place of such last appointee.

(c) Appendix "D" to this Judgment contains some of the data which have been used in preparation of this Judgment, and shall be utilized by the Watermaster in connection with any questions of interpretation.

(d) Each and every finding and determination of the Watermaster shall be made in writing certified to be by unanimous action of both members of the Watermaster committee. In the event of failure or inability of such Watermaster Committee to reach agreement, the Watermaster committee may determine to submit the dispute to a third person to be selected

by them, or if they are unable to agree on a selection, to be selected by the Court, in which case the decision of the third person shall be binding on the parties; otherwise the fact, issue, or determination in question shall forthwith be certified to this Court by the Watermaster, and after due notice to the parties and opportunity for hearing, said matter shall be determined by order of this Court, which may refer the matter for prior recommendation to the State Water Resources Control Board. Such order of the Court shall be a determination by the Watermaster within the meaning of this Judgment.

(e) The Watermaster shall report to the Court and to each party hereto in writing not more than seven (7) months after the end of each year, or within such other time as the Court may fix, on each determination made by it pursuant to this Judgment, and such other items as the parties may mutually request or the Watermaster may deem to be appropriate. All of the books and records of the Watermaster which are used in the preparation of, or are relevant to, such reported data, determinations and reports shall be open to inspection by the parties hereto. At the request of any party this Court will establish a procedure for the filing and hearing of objections to the Watermaster's report.

(f) The fees, compensation and expenses of each person on the Watermaster shall be borne by the District which nominated such person. All other Watermaster service costs and expenses shall be borne by San Bernardino Valley and Western equally.

(g) The Watermaster shall initially compute and report to the Court the natural safe yield of the San Bernardino Basin Area, said computation to be based upon the cultural

conditions equivalent to those existing during the five calendar year period ending with 1963.

(h) The Watermaster shall as soon as practical determine the correct figures for Paragraphs V(b), VI(b)1, VIII(a), IX(a) and X, as the basis for an appropriate supplemental order of this Court.

XIV

CONTINUING JURISDICTION OF THE COURT

(a) The Court hereby reserves continuing jurisdiction of the subject matter and parties to this Judgment, and upon application of any party, or upon its own motion, may review and redetermine, among other things, the following matters and any matters incident thereto:

1. The hydrologic condition of any one or all of the separate basins described in this Judgment in order to determine from time to time the safe yield of the San Bernardino Basin Area

2. The desirability of appointing a different Watermaster or a permanent neutral member of the Watermaster, or of changing or more clearly defining the duties of the Watermaster.

3. The desirability of providing for increases or decreases in the extraction of any particular party because of emergency requirements or in order that such party may secure its proportionate share of its rights as determined herein.

4. The adjusted rights of the Plaintiffs as required to comply with the provisions hereof with respect to changes in the natural safe yield of the San Bernardino Basin

Area. If such changes occur, the Court shall adjudge that the adjusted rights and replenishment obligations of each party shall be changed proportionately to the respective base rights.

5. Conforming the obligations of San Bernardino Valley under this Judgment to the terms of any new judgment hereafter entered adjudicating the water rights within San Bernardino Valley, if inconsistencies of the two judgments impose hardship on San Bernardino Valley

6. Adjusting the figures in Paragraphs V(b), VI(b) 1, VIII(a) IX(a), and X, to conform to determination by the Watermaster.

7. Credit allowed for return flow in the San Bernardino Basin Area if water levels therein drop to the point of causing undue hardship upon any party.

8. Other matters not herein specifically set forth which might occur in the future and which would be of benefit to the parties in the utilization of the surface and ground water supply described in this Judgment, and not inconsistent with the respective rights of the parties as herein established and determined.

(b) Any party may apply to the Court under its continuing jurisdiction for any appropriate modification of this Judgment if its presently available sources of imported water are exhausted and it is unable to obtain additional supplies of imported water at a reasonable cost, or if there is any substantial delay in the delivery of imported water through the State Water Project.

XV

SAVING CLAUSES

(a) Nothing in this Judgment precludes San Bernardino Valley, Western, or any other party from exercising such rights as it may have or obtain under law to spread, store underground and recapture imported water, provided that any such use of the underground storage capacity of the San Bernardino Basin Area by Western or any entity within it shall not interfere with any replenishment program of the Basin Area.

(b) Changes in the place and kind of water use, and in the transfer of rights to the use of water, may be made in the absence of injury to others or prejudice to the obligations of either San Bernardino Valley or Western under Judgment or the Orange County Judgment

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

If any Plaintiff shall have transferred all of its said water rights and each transferee not theretofore bound by this Judgment as a Plaintiff shall have appeared in this action

and filed a valid and effective express assumption of the obligations imposed upon such Plaintiff under this Judgment as to such transferred water rights, such transferring Plaintiff shall thereupon be discharged from all obligations hereunder. If any Plaintiff shall cease to own any rights in and to the water supply declared herein and shall have caused the appearance and assumption provided for in the third preceding sentence with respect to each voluntary transfer, then upon application to this Court and after notice and hearing such Plaintiff shall thereupon be relieved and discharged from all further obligations hereunder. Any such discharge of any Plaintiff hereunder shall not impair the aggregate rights of defendant San Bernardino Valley or the responsibility hereunder of the remaining Plaintiffs or any of the successors.

(d) Non-use of any right to take water as provided herein shall not result in any loss of the right. San Bernardino Valley does not guarantee any of the rights set out herein for Western and the other Plaintiffs as against the claims of third parties not bound hereby. If Western or the other Plaintiffs herein should be prevented by acts of third parties within San Bernardino County from extracting the amounts of water allowed them by this Judgment, they shall have the right to apply to this Court for any appropriate relief, including vacation of this Judgment, in which latter case all parties shall be restored to their status prior to this Judgment insofar as possible.

(e) Any replenishment obligation imposed hereunder on San Bernardino Valley may be deferred until imported water first is available to San Bernardino Valley under its contract with the California Department of Water Resources and the

obligation so accumulated may be discharged in five approximately equal annual installments thereafter.

(f) No agreement has been reached concerning the method by which the cost of providing replenishment will be

XVI

EFFECTIVE DATE

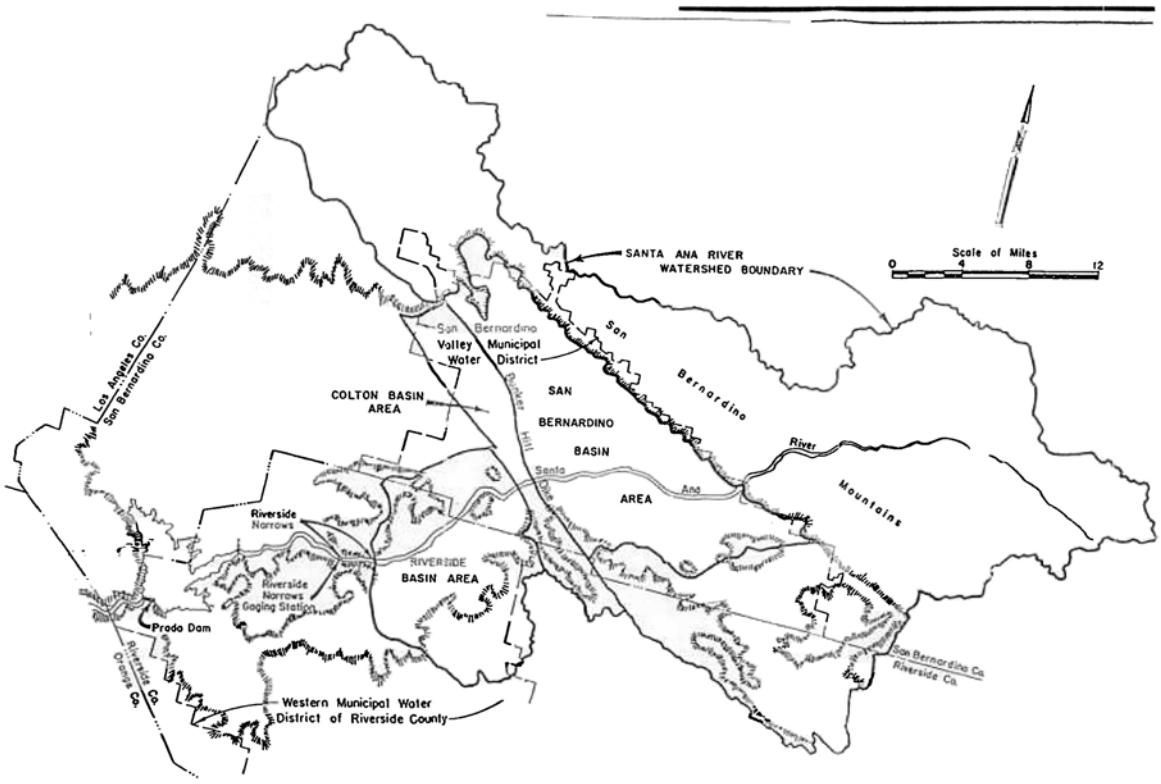
The provisions of Paragraphs III and V to XII of this Judgment shall be in effect from and after January 1, 1971;

ENTERED

APR 17 1969

JUDGMENT BOOK 124 PG 42

JUDGE OF THE SUPERIOR COURT



MAP SHOWING

SAN BERNARDINO BASIN AREA, COLTON BASIN AREA, AND RIVERSIDE BASIN AREA SITUATED WITHIN SAN BERNARDINO COUNTY; RIVERSIDE BASIN AREA WITHIN RIVERSIDE COUNTY; BUNKER HILL DIKE; RIVERSIDE NARROWS; AND BOUNDARIES OF SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT & WESTERN MUNICIPAL WATER DISTRICT OF RIVERSIDE COUNTY.

APPENDIX B
TABLE B-2

PLAINTIFFS' PERCENTAGES OF BASE RIGHT TO TOTAL PRODUCTION FROM SAN BERNARDINO VALLEY BASIN AREA,
231,861 Acre Feet Annually,
For 5-Year Average Ending With 1963
Classified According to Service Area

Plaintiff	Delivery to San Bernardino Basin Area	Delivery to Colton Basin Area & Riverside Basin Area in San Bernardino County	Delivery to Areas Outside San Bernardino Valley
City of Riverside (including those rights acquired as successor to the Riverside Water Company and The Gage Canal Company)	.630	.543	21.878
Riverside Highland Water Company		1.082	0.815
Aqua Mansa Water Company, and Meeks & Daley Water Company		.141	3.321
The Regents of the University of California			0.250
Total	.630	1.766	26.264

APPENDIX C
TABLE C-1

EXTRACTIONS FOR USE WITHIN WESTERN
FROM
THE SAN BERNARDINO BASIN AREA, COLTON BASIN AREA,
AND THE RIVERSIDE BASIN AREA
FOR USE ON LANDS THAT ARE NOT TRIBUTARY
TO THE RIVERSIDE NARROWS FOR
AVERAGE OF FIVE-YEAR PERIOD ENDING IN 1963

Extractor	Five-Year Average Ac. Ft.
City of Riverside, including Irrigation Division water extracted by Gage Canal Co. and former Riverside Water Co.	30,657
Meeks & Daley Water Co., Agua Mansa Water Co., and Temescal Water Co., including water received from City of Riverside	13,731
Extractions delivered by West Riverside Canal received from Twin Buttes Water Co., La Sierra Water Co., Agua Mansa Water Co., Salazar Water Co., West Riverside 350" Water Co., and Jurupa Water Co.	5,712
Rubidoux Community Services District	531
Jurupa Hills Water Co.	36
TOTAL	50,667

(ALL ACR FEET)

	San ard Bas	ea	
	272	[illegible]	657
San Berna County Water Dis ict	,961	947	3,9[illegible]
y Ri			7[illegible]
TOTAL			19 24[illegible]

APPENDIX D
TABLE D-1

EXTRACTIONS FROM SAN BERNARDINO BASIN AREA
FOR THE AVERAGE OF FIVE-YEAR PERIOD ENDING WITH 1963
FOR USE WITHIN SAN BERNARDINO COUNTY

(ALL VALUES IN ACRE FEET)

Basin	Five Year Avg. 1959-63
Beaumont	10,064
Big Bear	1,171
Borea Canyon	91
Bunker Hill	181,600
City Creek	337
Cook Canyon	197
Devil Canyon	3,326
Devil Creek	42
Lower Cajon	2,090
Little San Creek	15
Lytle	29,364
Mill Creek	11,084
Oak Glen	935
Plunge Creek	1,265
Santa Ana	1,790
Strawberry Creek	291
San Timoteo	2,272
Waterman Canyon	367
Yucaipa	13,837
Upper Basin Total	260,139
Less: Beaumont	
Oak Glen	
San Timoteo	27,107
Yucaipa	
Subtotal	233,032
Less Big Bear	1,171
Subtotal	231,861
Less extractions for use outside San Bernardino County	60,897
Extractions from San Bernardino for use in San Bernardino County	170,964

APPENDIX D
TABLE D-2

EXTRACTIONS FROM
COLTON BASIN AREA FOR AVERAGE OF
FIVE-YEAR PERIOD ENDING WITH 1963
BY SAN BERNARDINO AND RIVERSIDE COUNTY ENTITIES
FOR USE WITHIN EACH COUNTY

(VALUES IN ACRE FEET)

Extractor	Place of Use		Total
	San Bernardino Co.	Riverside Co.	
San Bernardino County Entities	8,480	0	8,480
Riverside County Entities	147	3,349	3,496
TOTAL EXTRACTIONS	8,627	3,349	11,976

APPENDIX D
TABLE D-3

EXTRACTIONS FROM
RIVERSIDE BASIN AREA IN SAN BERNARDINO COUNTY
FOR AVERAGE FIVE-YEAR PERIOD ENDING WITH 1963
BY SAN BERNARDINO AND RIVERSIDE COUNTY ENTITIES
FOR USE WITHIN EACH COUNTY

(VALUES IN ACRE FEET)

Extractor	Place of Use		
	San Bernardino Co.	Riverside Co.	Total
San Bernardino County Entities	9,582	0	9,582
Riverside County Entities	3,929	20,191	24,120
TOTAL EXTRACTIONS	13,511	20,191	33,702

APPENDIX D
TABLE D-4

EXTRACTIONS FROM
SAN BERNARDINO BASIN AREA, COLTON BASIN AREA
AND RIVERSIDE BASIN AREA USED WITHIN
RIVERSIDE COUNTY FOR THE AVERAGE
FIVE-YEAR PERIOD ENDING WITH 1963

(ALL VALUES IN ACRE FEET)

Basin	Five-Year Average
San Bernardino Basin Area	60,897
Colton Basin Area	3,349
Riverside Basin Area in San Bernardino County	20,191
Riverside Basin Area in Riverside County	30,044
TOTAL	114,481

APPENDIX D
TABLE D-5

IRRIGATED ACREAGE IN RIVERSIDE BASIN AREA IN RIVERSIDE COUNTY PRESENTLY TRIBUTARY TO RIVERSIDE NARROWS WHICH UPON CONVERSION TO URBAN USES REQUIRING SEWAGE DISPOSAL THROUGH THE RIVERSIDE TREATMENT PLANT WILL BE DISCHARGED TO THE RIVER BELOW RIVERSIDE NARROWS

Entity Serving Acreage	Acres
Gage Canal	1,752
Alta Mesa Water Co.	65
East Riverside Water Co.	926
Riverside Highland Water Company	1,173
TOTAL	3,916

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B
Water and Sewer Rates

Appendix B

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

300 North "D" Street
San Bernardino, CA 92401

RULE AND REGULATION NO. 21
GENERAL WATER SERVICE
WATER RATES

The following rates shall be charged for all water furnished for either domestic, commercial, or industrial use within the City of San Bernardino, or for any other purposes for which no other rate is specified:

A. SINGLE FAMILY DWELLING UNIT (monthly minimum charge):

METER SIZE	APRIL 1, 2000	JANUARY 1, 2002	CUBIC FOOT ALLOWANCE
5/8"	$ 7.60	$ 8.05	500
3/4"	10.10	10.75	500
1"	12.15	12.85	500
1-1/2"	21.75	23.05	500
2"	30.35	32.20	500
3"	51.65	54.75	500
4"	87.70	92.95	500
6"	157.90	167.35	500
8"	236.80	251.00	500
10"	296.00	313.75	500
12"	355.25	376.55	500

All in excess of 500 cu. ft. per month, add $.83 per 100 cu. ft. effective 04/01/00, increasing to $.88 per cu. ft. effective 01/01/02.

B. MULTIPLE FAMILY DWELLING UNITS:
Includes duplexes, triplexes, apartments, mobile home parks, condominiums, and town homes served by one or more master meters.

1. Minimum Monthly Charge: 1st unit shall be the same as A, each additional unit served by meter shall be $3.15 per unit per month effective 04/01/00, increasing to $3.35 per unit per month effective 01/01/02.

2. Cubic Foot Allowance: 1st unit shall be the same as A, each additional unit served by meter shall be 200 cu. ft. per month.

3. All usage in excess of allowance per month shall be $.83 per 100 cu. ft. effective 04/01/00, increasing to $.88 per 100 cu. ft. effective 01/01/02.

4. Water furnished for municipal use to the City of San Bernardino shall be exempt from all water service charges as long as water usage does not exceed 110% of the FY1994/95 water usage. Water usage that is in excess of that amount shall be charged at $.288 per 100 cu. ft. Water furnished for use by the City of San Bernardino for landscape assessment districts or funded from other than the City's General Fund shall be charged at $.288 per cu. ft.

C. COMMERCIAL, LANDSCAPE & INDUSTRIAL USERS (minimum monthly charge):

METER SIZE	APRIL 1, 2000	JANUARY 1, 2002
5/8"	$ 7.60	$ 8.05
3/4"	10.10	10.75
1"	12.15	12.85
1-1/2"	21.75	23.05
2"	30.35	32.20
3"	51.65	54.75
4"	87.70	92.95
6"	157.90	167.35
8"	236.80	251.00
10"	296.00	313.75
12"	355.25	376.55
All usage per month	$.83 hcf	.88 hcf

Water furnished for municipal use to the City of San Bernardino shall be exempt from all water service charges as long as water usage does not exceed 110% of the FY 1994/95 water usage. Water usage that is in excess of that amount shall be charged at $.288 per 100 cu. ft. Water furnished for use by the City of San Bernardino for landscape assessment districts or funded from other than the City's General Fund shall be charged at $.288 per cu. ft.

D. SURCHARGE - AREA OUTSIDE CITY:
All new services installed after 2-1-91 outside the incorporated territory of the City shall be the amount computed at the minimum monthly charge, and the consumption charge as set forth in this rule and regulation multiplied by 1.5.

E. UNMETERED CONSTRUCTION RATE (RESIDENTIAL ONLY):
A jumper shall be installed (in place of water meter) at the beginning of house construction for a maximum period of 120 days or until the lot landscaping begins or house is finished, whichever comes first. Thereafter, the water meter shall be installed and subject to all charges as listed in Section A of this regulation. Water used for tract grading and jetting of trenches is not covered in the above charge. The charge is hereby established at the rate of $25.00/month per service.

F. DELMANN HEIGHTS USERS: (Customers formerly served by Southern California Water Company): Effective April 1, 2000, Delmann Heights customers will be charged the same as all other City of San Bernardino Municipal Water Department customers.

G. MUNICIPAL USE: Water furnished for municipal use to the City of San Bernardino shall be exempt from all water service charges as long as water usage does not exceed 110% of the FY 1994/95 water usage. Water usage that is in excess of that amount shall be charged at $.288 per 100 cu. ft. Water furnished for use by the City of San Bernardino for landscape assessment districts or funded from other than the City's General Fund shall be charged at $.288 per cu. ft.

H. ENERGY SURCHARGE: Effective July 5, 2001, all consumption, except municipal, shall be charged five cents ($.05) per every hcf used to offset the increased power costs.

Approved by BOWC:	July 3, 2001
Effective:	July 5, 2001
Supersedes:	April 1, 2000

Resolution 2004-124

RESOLUTION OF THE CITY OF SAN BERNARDINO FIXING AND ESTABLISHING CHARGES FOR SERVICES AND FACILITIES FURNISHED BY THE CITY SEWERAGE COLLECTION AND TREATMENT SYSTEM LOCATED INSIDE AND OUTSIDE THE INCORPORATED TERRITORY OF THE CITY; AND REPEALING RESOLUTIONS 96-347 AND 98-12.

BE IT RESOLVED BY THE MAYOR AND COMMON COUNCIL OF THE CITY OF SAN BERNARDINO AS FOLLOWS:

SECTION 1. Users Located Within and Users Located Outside the Incorporated Territory of the City. Pursuant to the provisions of Section 13.32.520 of the San Bernardino Municipal Code, any premises located within or located outside the incorporated territory of the City which are served by a connection to the system of sewage and waste treatment of the City shall be charged and the user thereof shall pay a sewer service charge based upon the following schedule:

CLASSIFICATION	REGIONAL FACILITIES AND TREATMENT CHARGE	COLLECTION SYSTEM CHARGE	TOTAL MONTHLY CITY CHARGE
Residential (Single Family, Duplex, Triplex)	$14.50/ month/unit	$3.45/ month/unit	$17.95/ month/unit
Multi-Family, Mobile Home Parks (Four or More Units)	$.83/hcf + $2.00/month	$.33/hcf + $1.00/mo	$1.16/hcf + $3.00 mo
Retail, Commercial, Light Industrial (Non-Office, Bakeries, Markets, Theaters, Dry Cleaners)	$1.70/hcf + $2.00/month	$.33/hcf + $1.00/mo	$2.03/hcf + $3.00 mo
Auto Repair, Car Wash	$1.17/hcf + $2.00/month	$.33/hcf + $1.00/mo	$1.50/hcf + $3.00 mo
Offices, Motels (Without Restaurants)	$1.32/hcf + $2.00/month	$.33/hcf + $1.00/mo	$1.65/hcf + $3.00 mo
Restaurants, Hotels (Hotels/Motels with Restaurants)	$1.84/hcf + $2.00/month	$.33/hcf + $1.00/mo	$2.17/hcf + $3.00/mo
Laundromats	$1.15/hcf + $2.00/month	$.33/hcf + $1.00/mo	$1.48/hcf + $3.00 mo

RESOLUTION OF THE CITY OF SAN BERNARDINO FIXING AND ESTABLISHING CHARGES FOR SERVICES AND FACILITIES FURNISHED BY THE CITY SEWERAGE COLLECTION AND TREATMENT SYSTEM LOCATED INSIDE AND OUTSIDE THE INCORPORATED TERRITORY OF THE CITY; AND REPEALING RESOLUTIONS 96-347 AND 98-12.

CLASSIFICATION	REGIONAL FACILITIES AND TREATMENT CHARGE	COLLECTION SYSTEM CHARGE	TOTAL MONTHLY CITY CHARGE
Hospitals, Convalescent Homes	$.84/hcf + $2.00/month	$.33/hcf + $1.00/mo	$1.17/hcf + $3.00 mo
Schools, Churches, Nursery Schools/Daycare	$.62/hcf + $2.00/month	$.33/hcf + $1.00/mo	$.95/hcf + $3.00 mo
Domestic Liquid Waste		$.02/gallon	
Industry	$816.10/MG DF $264.91/1,000 LBS BOD $577.41/1,000 LBS SS	$.33/hcf + $1.00/mo	

HCF = 100 Cubic Feet of Water Usage
MG DF = Million Gallons of Discharge Flow
BOD = Biological Oxygen Demand
SS = Suspended Solids

Commercial dischargers, for the purpose of this resolution shall include all dischargers and all premises obligated to pay sewer service charges under this resolution other than residential dischargers.

Charges for commercial dischargers shall be computed based upon actual water consumption as reflected by water meter readings for the billing period. Billings based upon such water consumption may be reduced for the purpose of establishing sewer service charges subject to "seasonal" or "consumptive" use as recognized and approved by the Board of Water Commissioners of the City of San Bernardino.

Domestic liquid waste dischargers, for the purpose of this resolution, shall be haulers of septic or chemical toilet waste, which is domestic wastewater confined in a septic tank or other approved detention chamber, not connected to the sanitary sewer

RESOLUTION OF THE CITY OF SAN BERNARDINO FIXING AND ESTABLISHING CHARGES FOR SERVICES AND FACILITIES FURNISHED BY THE CITY SEWERAGE COLLECTION AND TREATMENT SYSTEM LOCATED INSIDE AND OUTSIDE THE INCORPORATED TERRITORY OF THE CITY; AND REPEALING RESOLUTIONS 96-347 AND 98-12.

system. Charges for domestic liquid waste dischargers shall be computed based upon the basis of actual flow measurements.

Residential dischargers, for the purpose of this resolution, shall be any single family dwelling unit, any duplex or triplex family dwelling unit not requiring a City license for occupancy and operation.

City shall have the right to terminate services provided to users outside of incorporated territories of the City by giving a ninety (90) day notice in writing to the user; and said user and owner shall be subject to any increase in said fee or fees, charges and amounts, which may be imposed from time to time by amending this resolution.

The rates established by this resolution shall be effective July 1, 2004.

SECTION 2. Resolutions 96-347 and 98-12 are hereby repealed.

/

/

/

/

/

/

/

/

/

RESOLUTION OF THE CITY OF SAN BERNARDINO FIXING AND ESTABLISHING CHARGES FOR SERVICES AND FACILITIES FURNISHED BY THE CITY SEWERAGE COLLECTION AND TREATMENT SYSTEM LOCATED INSIDE AND OUTSIDE THE INCORPORATED TERRITORY OF THE CITY; AND REPEALING RESOLUTIONS 96-347 and 98-12.

I HEREBY CERTIFY that the foregoing resolution was duly adopted by the Mayor and Common Council of the City of San Bernardino at a regular meeting thereof, held on the 3rd day of May, 2004, by the following vote to wit:

COUNCIL MEMBERS	AYES	NAYS	ABSENT	ABSTAIN
ESTRADA	X			
LONGVILLE			X	
McGINNIS	X			
DERRY	X			
KELLEY	X			
JOHNSON	X			
McCAMMACK	X			

Rachel G. Clark
Rachel Clark, City Clerk

The foregoing resolution is hereby approved this 6th day of May, 2004.

Judith Valles, Mayor
City of San Bernardino

Approved as to form
and legal content:

JAMES F. PENMAN
City Attorney

By:

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C
Resolution No. 418 – Drought Contingency Plan

APPENDIX B

RESOLUTION NO. 418

A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS, CITY OF SAN BERNARDINO, ADOPTING THE 1991 DROUGHT CONTINGENCY PLAN FOR THE CITY OF SAN BERNARDINO, CALIFORNIA.

WHEREAS, the State of California is ending its fifth consecutive year of critically low rainfall; and

WHEREAS, the San Bernardino area is ending its seventh consecutive year of below average rainfall; and

WHEREAS, the Governor of the State of California appointed an Emergency Drought Action Team on February 1, 1991 to prepare a plan of action no later than February 15, 1991; and

WHEREAS, the Drought Action Team has reported to the Governor and the Governor is now calling upon communities throughout California to enact and put into place Drought Rationing Plans; and

WHEREAS, the Governor is requesting that those communities who are blessed with more plentiful supplies of water begin conserving water immediately; and

WHEREAS, The City of San Bernardino has local supplies on which it can rely, with the implementation of drought contingency measures; and

WHEREAS, the Drought Action Team has asked the Department of Water Resources to review the individual plans, as requested by the Governor.

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF WATER COMMISSIONERS OF THE CITY OF SAN BERNARDINO, that the San Bernardino Municipal Water Department hereby adopts the "1991 Drought Contingency Plan for the City of San Bernardino,

California", for a March 1991 submittal to the California Department of Water Resources in response to the Governor's request

HEREBY CERTIFY that the foregoing resolution was adopted by the Board of Water Commissioners of the City of Bernardino at a regular adjourned meeting thereof held on the 12th day of March, 1991 by the following vote to wit

AYES Commissioners Chandler, Willis and Urata

NAYS None

ABSENT: Commissioners Bivens and Garcia

BERNARD C. KERSEY, Deputy City Clerk & Ex-Officio Secretary

(SEAL)

1991
CITY OF SAN BERNARDINO
DROUGHT CONTINGENCY PLAN

SECTION I STATEMENT OF THE PROBLEM

On February 1, 1991, Governor Pete Wilson appointed an emergency drought action team to develop a plan of action for the State of California to deal with the continuing drought conditions. Snowpacks and reservoir storage in the northern part of the State are as low as 1978 levels; overall reservoir storage averaged 50% in February. Entitlements to water deliveries from the Central Valley Project (CVP) and the State Water Project (SWP) are, therefore, being significantly reduced. The Governor has called on all communities to adopt water rationing plans to prepare for the probable "worst case" scenario--being the availability of only 50% of the normal water allotment.

The City of San Bernardino has historically relied on local groundwater and surface water to meet all of its demand for water supply. The City residents are supplied with water by the San Bernardino Municipal Water Department which operates approximately 36 wells and a 3 MGD treatment plant at Devil Canyon.

Since 1972, the San Bernardino Valley Municipal Water District (SBVMWD), a contractor with the State Water Project, has taken deliveries of its SWP water entitlements and spread anywhere from 0 to 32,000 acre feet annually to recharge the local groundwater basin. The City of San Bernardino has indirectly benefited from this imported water.

Last year, the Water Department requested that the SBVMWD spread 5,000 acre feet specifically to recharge certain portions of the basin, allowing the Department to maintain its production capacity. Although the Water Department has submitted a request to SBVMWD to deliver 5,000 acre feet of water in the summer of 1991, this water may not be available.

The local drought conditions have adversely affected the Water Department's ability to meet peak demand in the middle and northern portions of the City with the existing water production and distribution system. The estimated peak summer demand in 1991 is 70 MGD, and current production capacity is 85 MGD. During the 1980's, nearly 20 of the City's wells were rendered inoperable by high levels of volatile organic contaminants. Systems have been built and others are underway to treat the groundwater and reclaim a substantial amount of groundwater production capacity.

Since 1985, the water levels in most production wells in the northern portions of the City have dropped an average of 150 feet. Water levels in some wells are low enough that existing pumps are unable to pump the water.

Although the Water Department has requested the delivery of 5,000 acre feet of SPW from the SBVMWD, the ability of the State to meet this delivery request is not expected. The Water Department has, therefore, prepared this plan in response to the Governor's request, and to adopt a plan of action to rely only on local groundwater supplies to meet water demand for the 1991 and 1992 water year.

SECTION II OBJECTIVE

The objective of this Drought Contingency Plan is to provide the City of San Bernardino with effective, implementable measures to ensure a safe, adequate, and reliable supply of water during continued drought conditions. It is also our intention to continue to cooperate with other local water purveyors to assist in meeting their water needs. These efforts will reduce to a minimum the demand for imported water supplies making SPW available to those communities throughout the State who are not able to rely on local water supplies.

SECTION III. IMPLEMENTATION MEASURES

In addition to meeting demands of the City, the Water Department is participating in workshops with other local water purveyors to enable that all agencies within the SBVMWD could meet demands with local supplies.

During the last five years, the Department has entered into agreements with several surrounding water agencies to transport water supplies during emergency/drought conditions. Existing and planned water system interconnections are as follows:

Metered interties capable of transferring 4 MGD between Bernardino and the East Valley Water District.

Metered interties currently providing 1.5 MGD from San Bernardino to South San Bernardino County Water District. SSBCWD wells are out of service due to groundwater contamination.

Metered intertie currently providing .5 MGD from San Bernardino to Victoria Farms MWC. VFMWC well is out of service due to groundwater contamination.

Metered interties capable of transferring 5 MGD between Loma Linda and San Bernardino.

Metered interties capable of transferring 2 MGD from Bernardino to Colton.

Metered interie under construction capable of transferring MGD between San Bernardino and City of Rialto.

Metered interties capable of transferring 3 MGD between San Bernardino and West San Bernardino CWD.

Metered intertie capable of transferring 5 MGD proposed between San Bernardino and SBVMWD.

Metered intertie capable of transferring 2 MGD from the City of Riverside to San Bernardino.

Metered intertie capable of transferring 3 MGD from San Bernardino to the Riverside Highland Water Company

In 1986, the Department recognized the need to develop a method of producing water in the southern portion of the Bunker Hill Basin for transfer to the northern portions of San Bernardino where the groundwater aquifer fluctuates dramatically during drought conditions. Since 1986, the Department has constructed the following projects to alleviate this localized deficiency:

Constructed three 3) wells 7 MGD capacity).

Three (3) wells currently under construction (4 MGD projected capacity).

Constructed three (3) wellhead treatment plants (DOHS Superfund) to return 29 MGD of capacity lost to groundwater contamination (TCE/PCE).

Installed two (2) miles of inter-zone transmission main, and 15,000 gallons per minute of additional boosting capacity.

Completed a 5-year master plan study of water system improvements needed to provide sufficient local groundwater to meet San Bernardino's domestic water needs through the year 2010 under all projected hydrologic cycles.

Formed a three-party joint powers agency with the City of Rialto and West San Bernardino County Water District to sell bonds to fund the 5-year capital improvement plan.

Sold $9.5 million of bonds to complete the first year of capital improvements (50% complete).

Adopted a water revenue plan capable of amortizing the bond-debt requirements of the 5-year master plan improvements.

School Education Program: The Water Department is currently responding to requests from the local school administrators and educators to provide classroom speakers and educational materials.

Many requests are being made as a direct result of increased public awareness related to the drought. A formal program will be developed and carried out over the long-term. The objective is to have water education become part of the curriculum at the elementary and high school levels.

Public Awareness Program: The Water Department believes that through the public awareness program activities outlined herein, a 10 to 20 percent reduction in water use can be achieved. Since January 1990, the Department has been preparing and distributing various educational materials, as well as plumbing retrofit kits to our customers. In February 1991, the Water Department developed a Water Conservation Policy which is included as Attachment A to this Plan.

Elements of the Public Awareness Program include

Speaker's bureau for service clubs, chambers of commerce universities, and other organizations

Workshops with other city departments to encourage consistency in the water conservation message and efficient water use by the City.

Distribution (at payment centers, new service sign-ups, and mail-out requests) of AWWA and DWR brochures with water efficiency tips for inside and outside use.

Distribution of lawn watering guides and toilet/shower/faucet retrofit kits.

Coordination with the University of California, Cooperative Extension to provide water audits and budgets for large outside water users.

Plan for three xeriscape demonstration projects at Water Department facilities.

Distribute conservation materials to commercial customers

Air local television programs: interviews with water experts, public service announcements, and education videos.

Provide public awareness information to printed news media for publication.

Include water conservation/drought awareness message in Annual Water Quality Report--mailed to all customers.

Develop month-long public awareness campaign for "Water Awareness Month".

SECTION IV SCHEDULE

This Plan will be in effect from the day first adopted through the end of the 1992 water year. If drought conditions continue beyond October 1, 1992, this Plan will be subject to revision.

Many of the measures defined herein will become elements of long-term Water Department programs, and will not be ended when water supplies have returned to "normal" levels. Those programs that are being developed in response to this drought period are now perceived to be necessary elements of permanent public affairs, education, and capital improvement programs.

ATTACHMENT "A"

CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
WATER CONSERVATION POLICY
February 5, 1991

The City of San Bernardino Municipal Water Department does not currently anticipate the need to implement water rationing. We are, at this time, constructing facilities to enable us to redistribute groundwater from the south portion of the City (artesian pressure zone) to the middle and northern service areas of the City where our groundwater supplies have been diminished by the 5-year drought. We will, however, comply with any State of California mandate should the Governor's appointed task force on the water shortage recommend a state-wide water use reduction plan.

The City of San Bernardino Municipal Water Department encourages wise and efficient use of water

We encourage our customers to purchase/install water-saving devices such as:

Automatic lawn watering timers and low water use sprinklers

Water during the evening hours to minimize evapora tion.

Reset automatic watering timers on a monthly basis to meet the needs of weather conditions.

Shut off all automatic sprinklers during wet periods.

Low-flow shower heads

Low-flush 3 gallon) or ultra low-flush (1.6 gallon) toilets.

Drip irrigation system for shrubbery and trees in lieu of conventional sprinklers/bubblers.

Use energy saving/water saver cycle on washing machines and dishwashers whenever possible and only wash full loads.

We encourage all new development as well as our existing water customers to plant drought-tolerant lawns and shrubbery which are available at most local nurseries.

In asking our customers to use water wisely, we remind them that a large percentage of the water that we produce each day is, unfortunately, wasted in the following ways:

Needless toilet flushing, i.e., disposal of wrappers and tissues that can be disposed of in trash containers. Continued use of toilets that use more than 6 gallons per flush.

Taking long showers with shower heads that flow at a rate of 6 to 8 gallons per minute.

Allowing kitchen and bathroom faucets to flow at a rate of 5 gallons per minute continuously while washing dishes, shaving, brushing our teeth or during the countless times throughout the day that we use water.

Washing cars without using a shut-off nozzle and allowing the hose to flow at a rate of 5 to 8 gallons per minute.

Not repairing leaking and/or dripping faucets and plumbing.

Washing down driveways and sidewalks.

Over watering lawns and gardens

Any customer requesting water conservation information will be mailed a water conservation kit and lawn watering guide.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix D
Urban Water Management Plan Update Checklist

Appendix D
2005 Urban Water Management Plan Requirements Checklist

Checklist organized according to Water Code Sections

Page Number in Plan	Water Code Section	Location in Guide	Items to Address
1-5, 1-6	10620 (d)(1)	Page 2	Participate in area wide, regional, watershed, or basin wide urban water management planning
1-5, 1-6, 6-1	10620 (d)(2)	Page 2	Describe coordination of its plan with other appropriate agencies in the area
2-5 through 2-12, 4-1 through 4-7, 5-1 through 5-7, 6-5 through 6-7, 7-2 through 7-4, 7-6	10620 (f)	Page 2	Describe water management tools and options used by the entity that will maximize resources and minimize the need to import water from other regions
Appendix F	10621 (a)	Page 4	Update plan every five years on or before December 31, in years ending in five and zero
Appendix E	10621 (b)	Page 4	Notify any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments
Appendix E		Page 4	Consult with and obtain comments from any city or county that receives notice
1-2 through 1-4	10631 (a)	Page 8	Provide current and projected population for water service area in 5-year increments to 20 years
1-2, 1-4		Page 8	Identify sources of population data
1-4, 1-5		Page 8	Describe climate characteristics that affect water management
1-2 through 1-4		Page 8	Describe other demographics that affect water management
2-1, 2-7 through 2-9	10631 (b)	Page 10	Identify existing and planned water supply sources
2-1		Page 10	Provide current water supply quantities
2-8		Page 10	Provide planned water supply quantities in 5-year increments to 20 years
N/A	10631 (b) (1)	Page 12	Attach copy of any groundwater management plans adopted, including plans adopted pursuant to Part 2.75 or any other specific authorization for groundwater management
2-2 through 2-6	10631 (b) (2)	Page 12	A description of any groundwater basins or basin from which the urban water supplier pumps groundwater
Appendix A		Page 12	If the groundwater basin is adjudicated attach a copy of the order or decree
N/A		Page 12	For basins that are not adjudicated, state whether basins are in overdraft.

Page Number in Plan	Water Code Section	Location in Guide	Items to Address
N/A		Page 12	If basin is in overdraft or projected to be in overdraft describe plan to eliminate overdraft
2-4, 2-5		Page 12	Quantify legal pumping amounts from basin
2-1 through 2-6	10631 (b) (3)	Page 12	Detailed description and analysis of location, amount, and sufficiency of water pumped for past five years
2-1 through 2-9	10631 (b) (4)	Page 12	Detailed description and analysis of location, amount, and sufficiency for 20 year projection of water to be pumped
2-7 through 2-10	10631 (c) (1)	Page 14	Describe reliability of water supply and vulnerability to seasonal or climatic shortage for average water year
2-7 through 2-10, 8-1 through 8-6	10631 (c) (2)	Page 14	Describe reliability of water supply and vulnerability to seasonal or climatic shortage for single dry water year,
2-7 through 2-10, 8-1through 8-7	10631 (c) (3)	Page 14	Describe reliability of water supply and vulnerability to seasonal or climatic shortage for multiple dry water years,
2-8, 2-9, 4-1 through 4-7, 6-5 through 6-7, 8-6, 8-7	10631 (c)	Page 14	Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs
2-10	10631 (d)	Page 16	Describe opportunities for exchanges or water transfers on a short-term or long-term basis, include proposed quantities and terms of agreement
3-1 through 3-3	10631 (e) (1-3)	Page 18	Identify and quantify past water use by sector
3-2, 3-3		Page 18	Identify and quantify current water use by sector
3-2, 3-3		Page 18	Identify and quantify projected water use by sector in five-year increments to 20 years
3-3		Page 20	Identify and quantify past, current, and projected water use over five-year increments by sales to other agencies to twenty years
3-3		Page 20	Identify and quantify past, current, and projected water use over five-year increments by additional water uses and losses to twenty years
4-1 through 4-7	10631 (f) (1)	Page 24	Provide a description of supplier's water demand management measures that are currently being implemented or scheduled for implementation, including the steps necessary to implement any proposed measures
4-1 through 4-7	10631 (g)	Page 40	Provide an evaluation of DMMs not being implemented or scheduled for implementation
2-8	10631 (h)	Page 42	Description of water supply projects and water supply programs that may be undertaken to meet total projected water use with a timeline for each project. Quantify each proposed project's normal-year supply, single dry-year supply, and multi-dry year supply.
2-12	10631 (i)	Page 44	Describe opportunities for development of desalinated water (ocean, brackish water)

Page Number in Plan	Water Code Section	Location in Guide	Items to Address
N/A	10631 (j)	Page 22	Provide annual report from CUWCC identifying water demand management measures being implemented or scheduled for implementation to satisfy requirements (f) and (g)
N/A	10631 (k)	Page 46	Provide wholesale agency with water use projections for that source of water in five-year increments to twenty years
N/A		Page 46	Wholesaler provided information identifying and quantifying existing and planned sources of water available to supplier over five-year increments to twenty years
N/A		Page 46	Information from wholesaler describing reliability of wholesale supplies and amount to be delivered during normal, single-dry, and multiple-dry years, including factors resulting in inconsistency and information or plans to supplement or replace water sources that are not reliable
N/A	10631.5	Page 48	Include 2003-2004 or 2005 Annual Report submitted to CUWCC and CUWCC coverage report
5-1 through 5-3	10632 (a)	Page 50	Provide an urban water contingency plan analysis with stages of action to be taken in response to a water supply shortage
5-2, 5-3		Page 50	Provide water supply conditions for each stage
5-3		Page 50	Provide in plan a 50% supply shortage
5-3, 5-4	10632 (b)	Page 52	Estimate the minimum water supply available for each of the next three years based on the driest three-year historic sequence by source
5-4, 5-5	10632 (c)	Page 54	Provide a catastrophic supply interruption plan for non-drought related events looking at vulnerability of each source, delivery and distribution systems and actions to minimize impacts of supply interruption
5-5, 5-6	10632 (d)	Page 56	List mandatory prohibitions against specific water use practices during water shortages and stage when they become mandatory
5-5, 5-6	10632 (e)	Page 56	List consumption reduction methods in the most restrictive stages up to a 50% reduction, stage when the method takes place, and projected reduction by method
5-5	10632 (f)	Page 56	List excessive use charges or penalties and stages when they take effect
5-6	10632 (g)	Page 58	Describe how planned consumption reduction methods, penalties and prohibitions are likely to impact revenues.
5-6		Page 58	Describe how water shortage plan is likely to impact expenditures
5-6		Page 58	Describe measures to overcome reduced revenues and increased expenditures
Appendix C	10632 (h)	Page 60	Provide a draft water shortage contingency resolution or ordinance
5-7	10632 (i)	Page 60	Describe mechanisms to determine actual reductions on a weekly or daily basis
6-1	10633	Page 62	Identify coordination of the recycled water plan with other agencies

Page Number in Plan	Water Code Section	Location in Guide	Items to Address
6-1 through 6-5	10633 (a)	Page 64	Describe wastewater collection and treatment systems in supplier area including amount collected and treated and quantify volumes
6-3, 6-4	10633 (b)	Page 64	Describe methods of wastewater disposal and treatments levels and quantify amounts meeting recycled water standards
6-3, 6-4, 6-6, 6-7	10633 (c)	Page 64	Describe current uses of recycled water, including type, place and quantities
6-6, 6-7	10633 (d)	Page 66	Describe and quantify potential uses of recycled water and explain technical and economic feasibility
6-5, 6-6	10633 (e)	Page 66	Describe projected use of recycled water in service area at 5-year intervals to 20 years and compare actual use of recycled water to previous projections
6-6	10633 (f)	Page 66	Describe actions that might be taken to encourage recycled water use and projected results
6-1 through 6-7	10633 (g)	Page 66	Provide recycled water use optimization plan that includes actions to facilitate use
7-1 through 7-6	10634	Page 68	Analyze and describe how water quality affects water management strategies and supply reliability for each source of water in five-year increments for twenty years
8-6	10635 (a)	Pages 70-74	Compare projected normal water supply to projected normal water use over the next twenty years, in 5-year increments
8-4		Pages 70-74	Compare projected single-dry year supply to projected single-dry year supply use over the next twenty years, in 5-year increments
8-7		Pages 70-74	Compare projected multiple-dry year supply to projected multiple-dry year supply over the next twenty years, in 5-year increments (for following fiver year periods: 2006-2010, 2011-2015, 2016-2020, 2021-2025)
**	10635 (b)	Page 74	Provide Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR
Appendix F	10642	Page 78	Attach copy of adopted resolution to UWMP
Appendix E		Page 78	Encouragement involvement of social, cultural and economic community groups
Appendix E		Page 78	Plan available for public inspection
Appendix E		Page 78	Provide proof of public hearing
Appendix E		Page 78	Provide meeting notice to any city or county it supplies water within
6-5	10643	Page 78	Review recycled water plan in 2000 UWMP and discuss whether it is being implemented as planned
4-1		Page 78	Review DMMs in 2000 UWMP and discuss whether they are being implemented as planned
**	10644	Page 78	Provide 2005 UWMP to DWR and cities and counties within supplier area within 30 days of adoption

Page Number in Plan	Water Code Section	Location in Guide	Items to Address
**	10645	Page 78	Provide documentation showing where plan will be available for public review during normal business hours 30 days after submittal to DWR

** To be enclosed with transmittal letter to DWR.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix E
Public Hearing and Review Period Notice

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT

NOTICE OF PUBLIC HEARING FOR THE 2005 URBAN WATER MANAGEMENT PLAN

The San Bernardino Municipal Water Department will hold a PUBLIC HEARING to receive comments on the Department's 2005 Urban Water Management Plan. The hearing will be held during a regularly scheduled meeting of the Board of Water Commissioners on December 13, 2005 at 10:00 a.m. This hearing will be held in accordance with the requirements of the State of California Water Code Division 6, Part 2.6 (Urban Water Management Planning). The Public Hearing will be held in the Water Department Boardroom, Fifth Floor of the San Bernardino City Hall at 300 North "D" Street, San Bernardino, California 92418. During the hearing, the Board of Water Commissioners will receive public comments concerning the Department's 2005 Urban Water Management Plan. The Draft UWMP will be available online for public review as of December 5, 2005 at www.sbcitywater.org and www.sbcity.org. Printed copies of the plan will be available for review, starting Monday, December 5, 2005, at the Department's Customer Service office located on the Fifth Floor of City Hall at 300 North "D" Street, San Bernardino, California 92418. The Customer Service office is open Monday through Thursday, 7:30 a.m. to 5:30 p.m. and Fridays 7:30 a.m. to 4:30 p.m.

Written comments may be submitted to SBMWD-UWMP Comments, P.O. Box 710, San Bernardino, California 92402 or via e-mail to sbmwd-uwmpcomments@sbcitywater.org, prior to the Public Hearing.

Public Hearing and Review Period Publication List

Publication: Sun Bernardino County Sun
Publication Dates: November 29, 2005 and December 6, 2005

Publication: El Chicano
Publication Dates: November 24, 2005 and December 1, 2005

Publication: Black Voice
Publication Dates: November 24, 2005 and December 1, 2005

Publication: Precinct Reporter
Publication Dates: November 24, 2005 and December 1, 2005

At the Regular Meeting of the Board of Water Commissioners of the City of San Bernardino, held on Tuesday, December 13, 2005 at 9:30 a.m. in the Water Department Board Room, with President Cocke presiding, with Commissioners Callicott, Battey, Miller and Fernandez present; staff Aldstadt, Ohama, Turnipseed, Bryden and Erickson present, the following business was transacted:

****

PUBLIC HEARING - URBAN WATER MANAGEMENT PLAN:

Upon motion by Commissioner Miller, duly seconded by Commissioner Battey, it was unanimously voted that the hearing be closed, to adopt a resolution approving the 2005 Urban Water Management Plan, and to authorize staff to submit appropriate copies of the Plan and Resolution to the California Department of Water Resources.

B. WARREN COCKE
President

By: ROBIN L. OHAMA
Deputy City Clerk &
Ex-Officio Secretary

****

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO) ss.
CITY OF SAN BERNARDINO)

I, Robin L. Ohama, Secretary in and for the Board of Water Commissioners of the City of San Bernardino, hereby certify that the foregoing is a full, true and correct copy of an extract from the minutes of the Board of Water Commissioners of the City of San Bernardino held on the 13th day of December, 2005.

IN WITNESS WHEREOF, I have hereunto set my hand and the Official Seal of the City of San Bernardino this 22nd day of December, 2005.

Robin Ohama
ROBIN L. OHAMA
Secretary

(SEAL)

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix F
Resolution Adopting 2005 Urban Water Management Plan Update

Appendix F

RESOLUTION NO. 682

A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS, CITY OF SAN BERNARDINO ADOPTING THE 2005 URBAN WATER MANAGEMENT PLAN DATED DECEMBER 2005 FOR THE CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT, AND SUPERSEDING RESOLUTION NO. 595

WHEREAS, water is a limited and renewable resource subject to ever increasing demands; and

WHEREAS, management, conservation, and efficient use of water resources are essential to ensure an adequate and reliable water supply in the future; and

WHEREAS, the State of California Water Code, Part 2.6, was enacted requiring urban water suppliers to prepare and adopt water management plans to achieve conservation and efficient use; and

WHEREAS, the Urban Water Management Plan developed for the San Bernardino Municipal Water Department has been made available for public inspection, and a public hearing was noticed pursuant to Section 6066 of the Government Code, and was held on December 13, 2005.

NOW, THEREFORE, BE IT RESOLVED that the Board of Water Commissioners of the City of San Bernardino hereby adopts the 2005 Urban Water Management Plan, dated December 2005, a copy of which is attached hereto, marked Exhibit "A", and incorporated herein as though fully set forth at length.

I HEREBY CERTIFY that the foregoing resolution was duly adopted by the Board of Water Commissioners of the City of San Bernardino at a regular meeting thereof held on the 13TH of December, 2005 by the following vote, to-wit:

AYES: Cocke, Callicott, Battey, Miller, Fernandez

NAYS: None

ABSENT: None

Robin L. Ohama
Deputy City Clerk & Ex-Officio Secretary

(SEAL)

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix F

RESOLUTION NO. 682

A RESOLUTION OF THE BOARD OF WATER COMMISSIONERS, CITY OF SAN BERNARDINO ADOPTING THE 2005 URBAN WATER MANAGEMENT PLAN DATED DECEMBER 2005 FOR THE CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT, AND SUPERSEDING RESOLUTION NO. 595

WHEREAS, water is a limited and renewable resource subject to ever increasing demands; and

WHEREAS, management, conservation, and efficient use of water resources are essential to ensure an adequate and reliable water supply in the future; and

WHEREAS, the State of California Water Code, Part 2.6, was enacted requiring urban water suppliers to prepare and adopt water management plans to achieve conservation and efficient use; and

WHEREAS, the Urban Water Management Plan developed for the San Bernardino Municipal Water Department has been made available for public inspection, and a public hearing was noticed pursuant to Section 6066 of the Government Code, and was held on December 13, 2005.

NOW, THEREFORE, BE IT RESOLVED that the Board of Water Commissioners of the City of San Bernardino hereby adopts the 2005 Urban Water Management Plan, dated December 2005, a copy of which is attached hereto, marked Exhibit "A", and incorporated herein as though fully set forth at length.

I HEREBY CERTIFY that the foregoing resolution was duly adopted by the Board of Water Commissioners of the City of San Bernardino at a regular meeting thereof held on the 13TH of December, 2005 by the following vote, to-wit:

AYES: Cocke, Callicott, Battey, Miller, Fernandez

NAYS: None

ABSENT: None

Robin L. Ohama
Deputy City Clerk & Ex-Officio Secretary

(SEAL)

THIS PAGE INTENTIONALLY LEFT BLANK