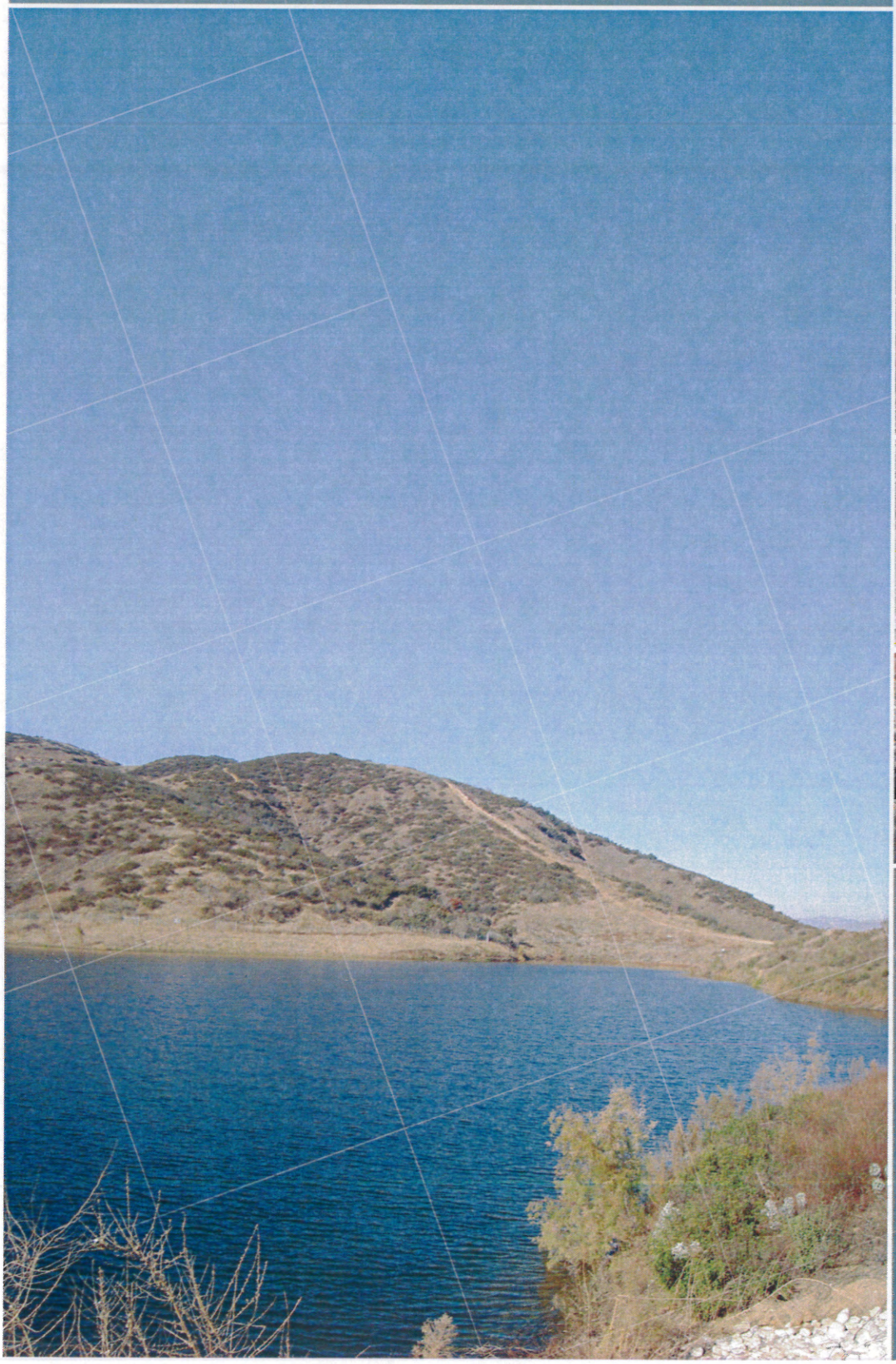
2010 Urban Water Management Plan for the San Gorgonio Pass Water Agency



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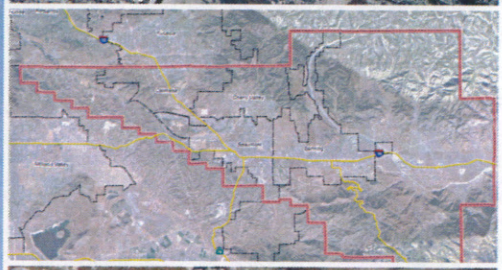

SAN GORGONIO PASS WATER AGENCY
Established 1961

Prepared by

CDM

Contents

Section 1 Introduction 1-1
1.1 Urban Water Management Planning Act 1-1
1.2 Law 1-1
1.2.1 Changes in the Act Since 2005 1-2
1.2.2 Senate Bill 7 1-3
1.2.3 DWR Guidance 1-4
1.3 Agency Coordination 1-4
1.4 Agency Background 1-5
1.5 Agency Climate Characteristics 1-8
1.6 Agency Demographic Characteristics 1-9
1.6.1 Population and Housing Projections 1-9
1.6.2 Employment 1-10
Section 2 Water Demands 2-1
2.1 Law 2-1
2.2 Service Area Demands 2-1
2.3 Imported Water Demand 2-3
Section 3 Water Supply Sources 3-1
3.1 Law 3-1
3.2 Introduction 3-2
3.3 Groundwater 3-2
3.3.1 Cabazon Basin 3-4
3.3.2 Banning Basin 3-5
3.3.3 Banning Canyon 3-6
3.3.4 Beaumont Basin 3-6
3.4 Surface Runoff 3-8
3.4.1 Existing Sources 3-8
3.4.2 Future Sources 3-9
3.5 Recycled Water 3-10
3.6 Summary of Local Sources 3-12
3.7 Imported Water 3-12
3.7.1 SGPWA's Role 3-12
3.7.2 SWP Reliability 3-16
3.7.3 Facilities 3-18
3.8 Supplemental Imported Water 3-22
3.8.1 Water Transfers and Exchanges 3-22
Section 4 Water Demand Management Programs 4-1
4.1 Law 4-1
4.2 Introduction 4-2
4.3 Conservation BMP Implementation 4-3
4.3.1 BMP1: Water Survey Programs for Single-family and Multi-family 4-3
4.3.2 BMP 2: Residential Plumbing Retrofit 4-4
4.3.3 BMP 3: System Water Audits, Leak Detention and Repair 4-4

4.3.4 BMP 4: Metering with Commodity Rates for all new Connections and Retrofit of Existing Connections....4-4
4.3.5 BMP 5: Large Landscape Conservation Programs and Incentives....4-5
4.3.6 BMP 6: High-Efficiency Washing Machine Rebate Program....4-5
4.3.7 BMP 7: Public Information Programs....4-6
4.3.8 BMP 8: School Education Programs....4-6
4.3.9 BMP 9: Commercial/Industrial/Institutional (CII) Conservation Programs....4-6
4.3.10 BMP 10: Wholesale Agency Assistance Program....4-7
4.3.11 BMP 11: Conservation Pricing....4-8
4.3.12 BMP 12: Conservation Coordinator....4-8
4.3.13 BMP 13: Water Waste Prohibition....4-9
4.3.14 BMP 14: Residential ULFT Replacement....4-9
4.4 Overview of Senate Bill 7 - 20x2020 Water Conservation Plan...4-10
Section 5 Water Reliability....5-1
5.1 Law....5-1
5.2 Introduction....5-1
5.3 Water Reliability by Categorical Year Type....5-2
5.4 Regional Water Balance Model....5-6
5.4.1 Introduction....5-6
5.4.2 Results....5-7
Section 6 Water Shortage Contingency Plan....6-1
6.1 Law....6-1
6.2 Introduction....6-1
6.3 Three Years Minimum Water Supply....6-2
6.4 Preparation for Catastrophic Water Supply Interruptions....6-2
6.4.1 Drought Conditions....6-2
6.4.2 Earthquake or other Natural Disasters....6-3
6.4.3 Contamination....6-4
6.5 Provisions to Reduce Water Consumption....6-4
Section 7 Water Quality....7-1
7.1 Law....7-1
7.2 Contaminants of Concern....7-1
7.3 Salinity Management....7-1
7.3.1 Regulatory Objectives....7-1
7.3.2 YVWD Salinity Management....7-4
7.3.3 City of Beaumont / BCVWD Salinity Management....7-5
7.3.4 City of Banning Salinity Management....7-6
7.4 Nitrate Issues....7-6

References

Appendices

Appendix A Public Comments A-1
Appendix B Beaumont Basin Judgement B-1
Appendix C Long-Term Water Balance Model - Alternative Scenario Results C-1
Appendix D Seismically Active Faults in SGPWA Service Area D-1

List of Figures

Figure 1-1 SGPWA Service Area 1-7
Figure 1-2 SGPWA Population and Housing Unit Forecast from 2000 to 2035 1-10
Figure 1-3 SGPWA Employment Forecast from 2000 to 2035 1-11
Figure 2-1 SGPWA Service Area Demand Projections (2010-2035) 2-3
Figure 3-1 Groundwater Basins and Canyons with Pumping by SGPWA Retail Agencies 3-3
Figure 3-2 Probability Curve of Local Surface Runoff Relative to Long-Term Average 3-10
Figure 3-3 Projected Imported Water Requirements for SGPWA Service Area 3-15
Figure 3-4 Probability Curve of SWP Availability 3-17
Figure 3-5 Phase II of SWP East Brach Extension (figure from DWR, 2008) 3-19
Figure 3-6 Recharge of Imported Water in SGPWA and BCBWD Existing and Planned Basins 3-21
Figure 5-1 Results of Long-Term Water Balance Model for UWMP Scenario 5-8
Figure 7-1 Modeled TDS in the Yucaipa and Beaumont Groundwater Basins 7-3

List of Tables

Table 1-1 Agency Coordination 1-5
Table 1-2 SGPWA Service Area 1-6
Table 1-3 Climate Data for SGPWA 1-8
Table 1-4 SGPWA Population and Housing Unit Forecast from 2000-2035 1-9
Table 1-5 SGPWA Employment Forecast from 2000-2035 1-11
Table 2-1 Current and Projected Potable Water Demands 2-2
Table 2-2 Current and Projected Non-Potable Water Demands 2-2
Table 2-3 Current and Projected Water Demands on SGPWA Service Area 2-4
Table 3-1 Safe Yield Estimates for Groundwater Basins in the SGPWA Service Area 3-4
Table 3-2 Current and Projected Groundwater Production for each Retail Agency by Basin 3-5
Table 3-3 Appropriator and Overlier Pumping Rights in the Beaumont Basin assuming Current Levels of Overlier Production (all values are in (AFY) 3-7

Table 3-4 Summary of Planned Local Sources of Water Supply in SGPWA Service Area 3-13
Table 3-5 Deliveries of SWP to SGPWA Service Area Since Completion of East Branch Extension 3-14
Table 3-6 Summary of Potential Water Transfers and Exchange Opportunities for SGPWA identified in 2007 3-24
Table 4-1 BMPs Implementation in SGPWA Service Area 4-3
Table 4-2 Demonstration of SGPWA Service Area Recycled Water or Conservation BMPs Achieving 20x2020 Targets 4-11
Table 5-1 Imported and Local Runoff Supply Volume in Average, Single-Dry and Multiple-Dry Hydrologic Year Types 5-2
Table 5-2 Water Supply and Demand Comparison for SGPWA Service Area for an Average Hydologic Condition 5-3
Table 5-3 Water Supply and Demand Comparison for SGPWA Service Area for a Single-Dry Hydrologic Condition 5-4
Table 5-4 Water Supply and Demand Comparison for SGPWA Service Area for a Multiple-Dry Hydrologic Condition 5-5
Table 5-5 Summary of Alternative Scenario Simulations 5-9
Table 6-1 Minimum Water Supply During Multiple Dry Years (AFY) 6-2
Table 6-2 Emergency Reservoir Storage and Production Capacity with Backup Power for SGPWA Retail Water Agencies 6-4
Table 6-3 Water Use Reductions Associated with Water Shortage Response Stages for SGPWA Retail Water Agencies 6-4
Table 6-4 Matrix Indicating Types and Implementation Levels for Key Elements of Retail Water Agency Water Shortage Contingency Plans 6-5
Table 7-1 Typical TDS Concentrations of Inflows to San Gorgonio Pass Area Groundwater Basins 7-2
Table 7-2 Water Quality Objectives in Groundwater and POTW Effluent Compared with Current and Projected TDS Concentrations 7-4

List of Acronyms

AFY	Acre-feet per year
ARB	Air Resources Board
BCVWD	Beaumont Cherry Valley Water District
BMPs	Best Management Practices
CBDA	California Bay-Delta Authority
CEC	California Energy Commission
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CPUC	California Public Utilities Commission
CSRM	Constantly-Stirred Reactor Model
CUWCC	California Urban Water Conservation Council
CWD	Cabazon Water District
DPH	Department of Public Health
DWR	California Department of Water Resources
EDU	Equivalent dwelling unit
EPA	Environmental Protection Agency
degrees F	Fahrenheit
GCM	Global climate model
MCL	Maximum Contaminant Level
MOU	Memorandum of Understanding
SAR	Santa Ana River
SARI	Santa Ana Regional Interceptor
SAWPA	Santa Ana Watershed Project Authority
SBVMWD	San Bernardino Valley Water District
SGPWA	San Gorgonio Pass Water Agency
SMWC	South Mesa Water Company
STMZ	San Timoteo Management Zone
STWMA	San Timoteo Watershed Management Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids

ULFT	Ultra-Low-Flush Toilets
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Planning Act
WRCOG	Western Riverside Council of Governments
WWTP	Wastewater Treatment Plant
YVRWFF	Yucaipa Valley Regional Water Filtration Facility
YVWD	Yucaipa Valley Water District

Section 1
Introduction

1.1 Urban Water Management Planning Act

All urban water suppliers within the state of California are required to prepare urban water management plans. California Water Code Sections 10610 through 10657 detail the information that must be included in these plans as well as who must file them. This plan satisfies the requirements of the Urban Water Management Planning Act (UWMPA) of 1983 and the subsequent amendments to the Act. According to the Act, an urban water supplier is defined as a supplier, either publicly or privately owned, that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually.

This report constitutes the San Gorgonio Pass Water Agency's (SGPWA) Urban Water Management Plan (UWMP) for year 2010. This is SGPWA's first UWMP as deliveries of water have only recently exceeded 3,000 acre-feet per year (AFY). Urban water suppliers are required to update their UWMPs at least once every five years on or before December 31, in years ending in five and zero. This plan shall be adopted by the urban water supplier and submitted to the California Department of Water Resources (DWR). The UWMP requires greater analyses of management tools and options that will maximize resources and minimize the need to import water from other regions. An analysis of total projected water use compared to water supply sources over the next 20 years in five-year increments is required. Water quality, as it affects water management strategies and supply reliability, is addressed in this UWMP. Water demand and supply information is compared for single dry year and multiple dry year scenarios. Additional amendments to the Act require detailed descriptions of groundwater basins and groundwater production if groundwater is an existing or planned source of water.

1.2 Law

10620 (d) (2) each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

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

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

1.2.1 Changes in the Act Since 2005

Since 2005, several amendments have been added to the Act. Some of the amendments provided for reporting on lower income and affordable household water projections, eligibility for state water management grants or loans, and reporting on the feasibility of serving recycled water demands. The following is a summary of the significant changes in the Act that have occurred from 2005 to the present:

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

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

Conditions eligibility for a water management grant or loan made to an urban water supplier and awarded or administered by DWR, the State Water Resources Control Board, or the California Bay-Delta Authority or its successor agency on the implementation of water demand management measures, including consideration of the extent of compliance with the conservation measures described in the California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) (Water Code § 10631.5).

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

Requires DWR, in consultation with the State Water Resources Control Board and the California Bay-Delta Authority or its successor agency, to develop eligibility requirements to implement the foregoing grant and loan conditions (Water Code § 10631.5(b)).

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

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

Required DWR, in consultation with the California Urban Water Conservation Council, to convene a technical panel, no later than January 1, 2009, to provide information and recommendations to the Department and the Legislature on new demand management measures, technologies, and approaches. The panel and DWR were to report to the Legislature on their findings no later than January 1, 2010 and each five years thereafter (Water Code § 10631.7.3)

Clarifies that "indirect potable reuse" of recycled water should be described and quantified in the plan, including a determination with regard to the technical and economic feasibility of serving those uses (Water Code § 10633(d)). Requires DWR to recognize exemplary efforts by water suppliers by obligating DWR to identify and report to the technical panel, described above, any "exemplary elements" of individual water suppliers' plans, meaning any water demand management measures adopted and implemented by specific urban water suppliers that achieve water savings significantly above the levels required to meet the conditions to state grant or loan funding (Water Code § 10644(c)).

1.2.2 Senate Bill 7

In addition to changes to the Act, the state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session, referred to as SBX7-7, on November 10, 2009, which became effective February 3, 2010. This new law was the water conservation component to the historic Delta legislative package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. This implements the Governor's similar 2008 water use reduction goals. The law will require each urban retail water supplier to develop urban water use targets to help meet the 20 percent goal by 2020, and an interim urban water reduction target by 2015.

The bill states that the legislative intent is to require all water suppliers to increase the efficiency of use of water resources and to establish a framework to meet the state targets for urban water conservation called for by the Governor. The bill establishes methods for urban retail water suppliers to determine targets to help achieve increased water use efficiency by the year 2020. The law is intended to promote urban water conservation standards consistent with the California Urban Water Conservation Council's adopted best management practices.

Additionally, the bill specifically includes reporting requirements in the upcoming UWMPs. Specifically, urban retail water suppliers must include in their 2010 UWMPs the following information from its target-setting process: (1) baseline daily per capita water use; (2) urban water use target; (3) interim water use target; and (4) compliance daily per capita water use, including technical bases and supporting data for those

determinations. An urban retail water supplier may update its 2020 urban water use target in its 2015 UWMP (Water Code § 10608.20).

To give retail urban water suppliers, time to conduct the additional required analyses, SBX7-7 grants an extension for submission of UWMPs due in 2010 to July 1, 2011. The bill does not expressly provide this same extension for wholesale water agencies (Water Code § 10608.20(j)).

Urban *wholesale* water suppliers, such as SGPWA, are not required to perform all of the target-setting and reporting requirements of SBX7-7. However, wholesale agencies must include in UWMPs an assessment of present and proposed future measures, programs, and policies that would help achieve the water use reductions required under this bill (Water Code § 10608.36).

1.2.3 DWR Guidance

In 2005, DWR provided guidance materials to aid water districts in developing their urban water management plans. These materials assisted water districts comply with the law and DWR staff in their review of submitted plans for regulatory compliance. The guidance materials consisted of a series of worksheets detailing acceptable responses to the requirements set forth in the Act. At that time, DWR also provided a checklist for cross referencing sections of the respondent water agency's Plan with the relevant sections of the Water Code to be sure that it addresses all relevant provisions of the Act.

Since the draft revised guidebook and checklist for the 2010 Urban Water Management Plan will not be released until DWR completes the development of new reporting methodologies for retail agencies, expected in October, 2010, SGPWA used the 2005 guideline materials in the development of this plan. The final revised guidebook and checklist for the 2010 Urban Water Management Plan are not expected until January, 2011, after the submittal date for wholesale suppliers.

1.3 Agency Coordination

SGPWA has coordinated its UWMP planning efforts with retail agencies to ensure that data and issues are characterized properly. Technical challenges associated with water management for each of the retail agencies required working closely together as a group. Coordination has involved routine meetings between SGPWA's retail agencies and SGPWA. In addition, several meetings were held with the SGPWA UWMP development team. Topics discussed at these meetings included:

- Local supply estimates
- Long-term management of the Beaumont Basin
- Recycled water sources

- Collaboration opportunities between agencies
- Water management during droughts

To minimize reporting redundancy, water management activities undertaken by SGPWA's purveyors are briefly described in this document, as they are addressed in more detail in the individual UWMPs of the purveyors that are required to prepare plans. Table 1-1 lists the agencies that have coordinated to support the development of this UWMP.

Table 1-1
Agency Coordination

Agency	Participated in UWMP Development	Attended Regional Coordination Workshops	Received Draft Report and Public Hearing Notice	Received Final Report
Yucaipa Valley Water District	X	X	X	
South Mesa Water Company				
Beaumont-Cherry Valley Water District	X	X	X	
City of Banning Water Department	X	X	X	
Cabazon Water District				
Banning Heights Mutual Water Company				
High Valley Water District				

1.4 Agency Background

The SGPWA is an advocate for the groundwater basins within its service area, including the Beaumont and Cabazon basins as well as lesser groundwater basins. It is SGPWA's goal to preserve the basins for current and future generations. In order to do this, it is necessary to import supplemental water from any available sources providing the highest quality at the lowest price, including the State Water Project (SWP) as well as other potential sources. SGPWA is committed to end groundwater overdraft in its service area.

SGPWA was established in 1961 as a State Water Project (SWP) contractor for the San Gorgonio Pass region in Riverside County (Figure 1-1). SGPWA's mission is to ensure long-term sustainability of water resources by importing reliable levels of SWP water to the region to supplement existing sources of local supply. SGPWA's service area spans approximately 225 square miles (mi^2) or 142,416 acres and includes the Cities of Calimesa, Beaumont, and Banning, as well as other unincorporated areas such as Cherry Valley, Cabazon, Poppet Flat, and the Banning Bench. Table 1-2 summarizes the extent of service areas for water agencies that serve water to these municipalities.

Generally, the municipalities falling within the service area of water agencies in the SGPWA service area is summarized below:

- City of Banning Department of Public Works – Most of the City of Banning
- Beaumont Cherry Valley Water District – City of Beaumont and community of Cherry Valley
- Yucaipa Valley Water District – Most of City of Calimesa in SGPWA service area. YVWD also provides water to the City of Yucaipa, which falls within SBVMWD's services area. Water demands and supplies within this portion of YVWD's service area are excluded from this UWMP for the San Gorgonio Pass area.
- South Mesa Water Company – Portion of City of Calimesa
- Cabazon Water District – Unincorporated areas in Riverside County east of the City of Banning
- Banning Heights Mutual Water Company – Small section north of the City of Banning
- High Valleys Water District - Unincorporated areas in Riverside County south of the City of Banning

Table 1-2
SGPWA Service Area

Water Retailer	Area (Acres)
Yucaipa Valley Water District	**17,388**
South Mesa Water Company	**974**
Beaumont-Cherry Valley Water District	**19,693**
City of Banning Water Department	**19,644**
Cabazon Water District	**7,990**
Banning Heights Mutual Water Company	**876**
High Valley Water District	**5,287**
Other unincorporated Riverside County	**34,043**
Other unincorporated San Bernardino County	**1,910**
Morongo Tribal Lands	**34,611**
Total SGPWA Service Area	**142,416**

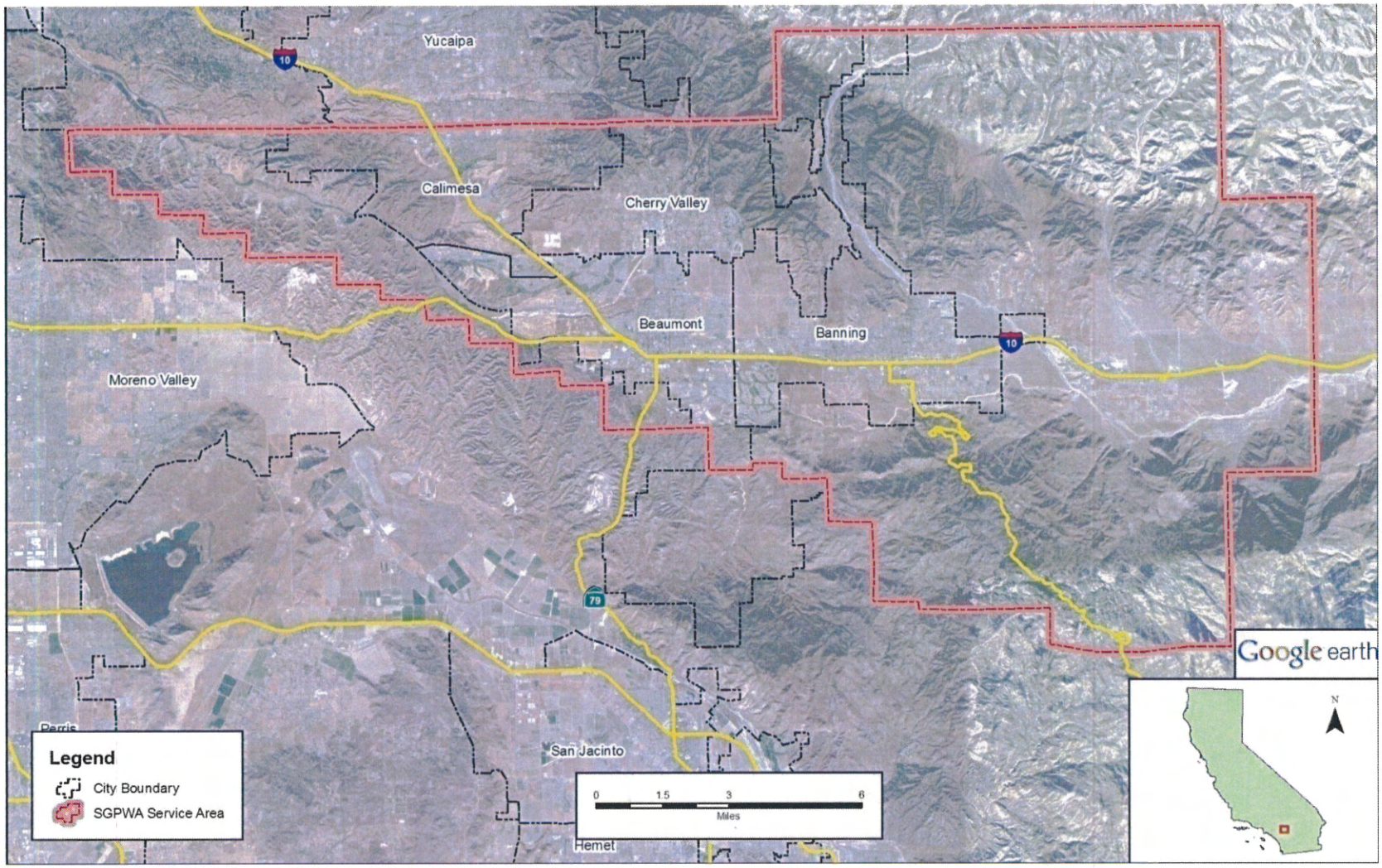

Figure 1-1
SGPWA Service Area

There is significant opportunity for development and population growth within this service area. Therefore, SGPWA is developing an UWMP to address SWP needs for the region and determine if imported water supplies can be utilized at levels necessary to allow for long-term projections of region-wide population growth.

SGPWA plans to have sufficient sources and facilities to provide supplemental water needed to support population growth for the region as a whole up to 2035. The SGPWA UWMP strives for fairness between water purveyors while also protecting any one agency from experiencing more significant shortfalls than the region as a whole. To achieve this goal, detailed understanding of individual water agencies' use of their respective local supply sources was integrated into a water supply and demand forecasting model. Local sources of water supply in the SGPWA service area include groundwater, surface runoff, and recycled water.

1.5 Agency Climate Characteristics

SGPWA service area experiences a semi-arid climate with hot, dry summers and mild, relatively wet winters (Table 1-3). Temperatures in the summer can exceed 95 degrees Fahrenheit (F), but with low humidity. In the winter, high temperatures may not rise above 55 degrees F during rainy days. On average, January is the coldest month with an average high/low of 61 degrees F/39 degrees F while August is the hottest with a high/low of 96 degrees F/58 degrees F. SGPWA receives about 18 inches of precipitation annually with most of it occurring from January through March, with February being the wettest month. However, during El Nino years, Southern California can receive considerably more precipitation and cooler temperatures than average. Evapotranspiration follows a similar trend as temperature, peaking in July, and decreasing in December.

Table 1-3
Climate Data for SGPWA

Month	Monthly Average Maximum Temp[1] (°F)	Monthly Average Minimum Temp[1] (°F)	Monthly Average Precip[2] (in)	Monthly Average Evapo-transpiration[3] (in)
Jan	61	39	3.40	1.86
Feb	64	39	3.52	2.66
Mar	66	40	3.25	4.03
Apr	72	43	1.48	5.40
May	79	48	0.67	6.82
Jun	88	53	0.13	7.65
Jul	96	58	0.12	8.37
Aug	95	59	0.28	7.60
Sep	90	56	0.37	6.00
Oct	81	49	0.79	4.19
Nov	69	43	1.44	2.55
Dec	62	39	2.50	1.71
Annual	77	47	17.95	58.84

1) NOAA/NCDC (2010); Station ID 609; historical period July 1, 1948 to July 31, 2001.
2) San Gorgonio Pass Water Agency, 2010. Ground Water Data Manager (Calabash Database); Beaumont monitoring location; historical period January 1889 to December 2005.
3) California Irrigation Management Information System (CIMIS), 2010; average of Zones 9 and 16

1.6 Agency Demographic Characteristics

Population, housing, and employment projections are all tools utilized to project municipal and industrial water demands. The following sections provide discussion on each of these demographics.

1.6.1 Population and Housing Projections

Table 1-4 shows the population and housing unit projections for SGPWA service area through the year 2035. The projections are obtained from Western Riverside Council of Governments (WRCOG). WRCOG provides growth projections for the cities of Banning, Beaumont, and Calimesa. The average population and housing unit percent growth for the three projected cities was applied to the other areas within the SGPWA service area that did not have projections (Cabazon, Cherry Valley, and unincorporated Riverside), assuming these areas have similar growth potential.

These population and housing projections were developed prior to the recent economic recession. Water demand projections used in this regional UWMP were updated to reflect more conservative growth rates expected as a result of the economic recession, therefore these tables should not be used to estimate per capita or total water demand for the San Gorgonio Pass area.

Table 1-4
SGPWA Population and Housing Unit Forecast from 2000-2035

Year	Population[1]			Housing Units[1]		
	Population	Percent	Change	Housing Units	Percent	Change
2010	91,777			36,297		
2015	119,425	30%	27,648	46,964	29%	10,667
2020	144,358	21%	24,933	56,657	21%	9,693
2025	170,374	18%	26,016	66,733	18%	10,076
2030	197,351	16%	26,977	77,239	16%	10,506
2035	212,418	8%	15,067	83,398	8%	6,159

1) Western Riverside Council of Governments (2010). "Sub-regional growth forecast".

During the period of 2010 to 2035, SGPWA's population is expected to grow from 91,777 to 212,418 residents, an addition of 120,641 people. Projections are presented for five-year intervals in Figure 1-2. This represents an average annual increase of 3.4 percent. The SGPWA service area will experience sustained growth from 2010 to 2035 although the growth rate will diminish over time, from an annual average of 6 percent during the initial years of the projection to an annual average of 2 percent by 2035 as undeveloped areas available for new construction within the service area are reduced.

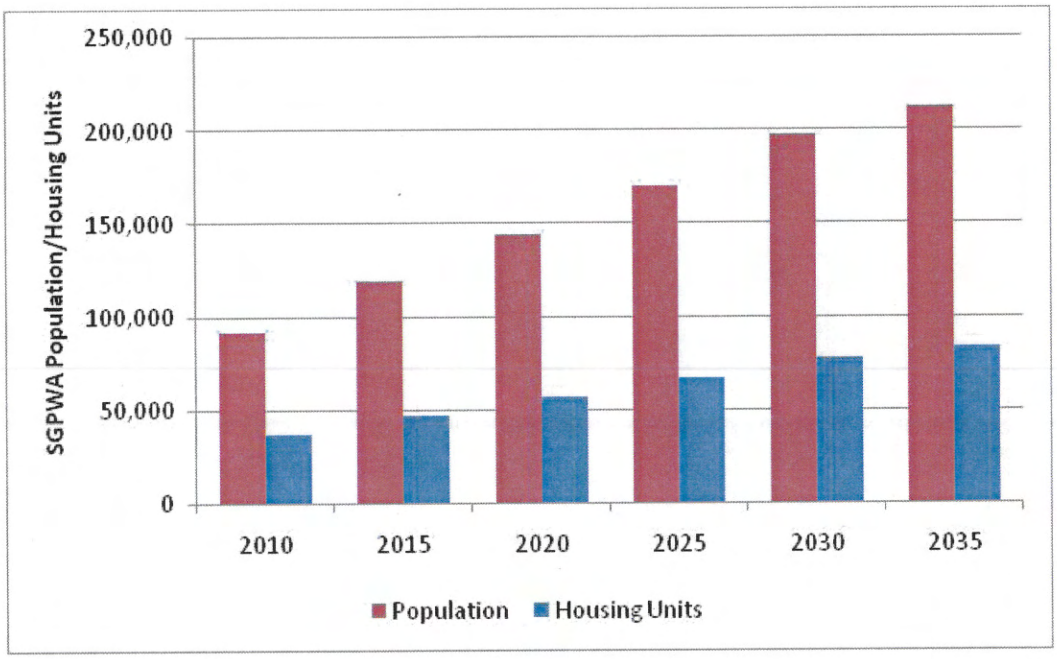

Figure 1-2
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During the period of 2010 to 2035, SGPWA's population is expected to grow from 91,777 to 212,418 residents, an addition of 120,641 people. Projections are presented for five-year intervals in Figure 1-2. This represents an average annual increase of 3.4 percent. The SGPWA service area will experience sustained growth from 2010 to 2035 although the growth rate will diminish over time, from an annual average of 6 percent during the initial years of the projection to an annual average of 2 percent by 2035 as undeveloped areas available for new construction within the service area are reduced.

During the period of 2010 to 2035, SGPWA's housing units is expected to grow from 36,297 to 83,398 units, an addition of 47,101 units. Projections indicate an average annual population growth of 3.4 percent each year. The SGPWA service area will experience sustained growth from 2010 to 2035 although the growth rate will diminish over time, from an annual average of 6 percent during the initial years of the projection to an annual average of 2 percent by 2035 as undeveloped areas available for new construction within the service area are reduced

1.6.2 Employment

Table 1-5 shows the employment projections for SGPWA service area through the year 2035. These projections are also shown graphically in Figure 1-3. The projections are obtained from the WRCOG. Employment data was calculated in a similar manner to the population and housing unit data. Initial employment data was obtained from the 2000 US Census, except for the Unincorporated Riverside area which was obtained by the ratio of employees to households and multiplying the value with the number of households within the area.

From 2000 to 2008, employment within SGPWA increased by 146 jobs according to data from the WRCOG. While Banning and Beaumont experienced job growth during the time period, Calimesa had a significant reduction in jobs. The combined employment data from Banning, Beaumont, and Calimesa shows a net job increase of 1 percent.

Table 1-5
SGPWA Employment Forecast from 2000-2035

Year	Employed Population[1]	Percent	Change
2010	20,270	-	-
2015	24,302	20%	4,032
2020	28,334	17%	4,032
2025	33,631	19%	5,297
2030	38,928	16%	5,297
2035	44,225	14%	5,297

1) Western Riverside Associate of Governments (2010). "Sub-regional growth forecast".

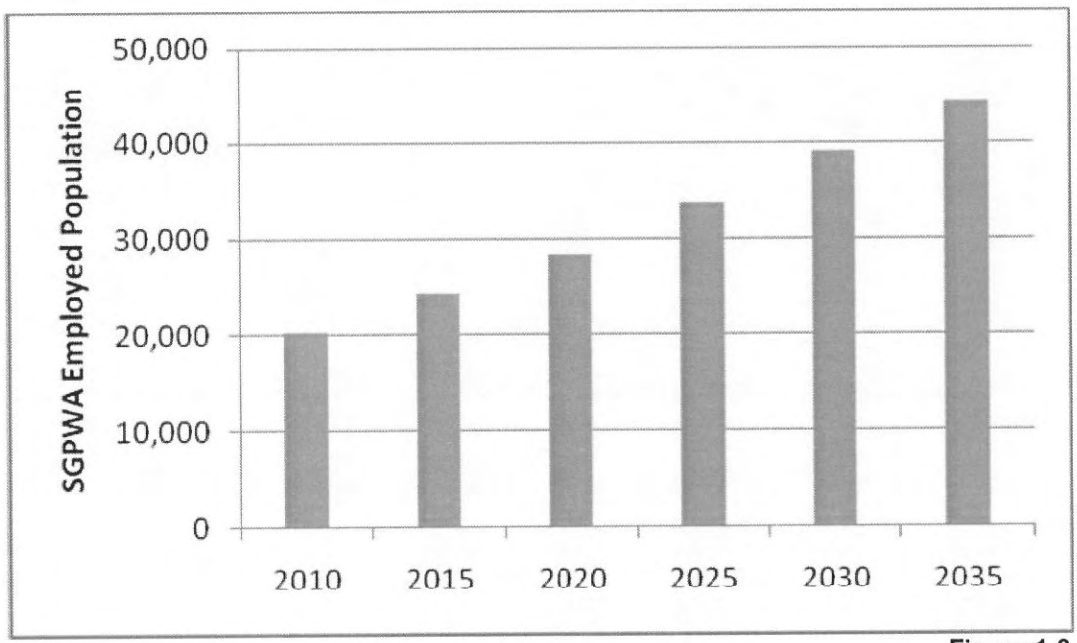

Figure 1-3
SGPWA Employment Forecast from 2000 to 2035

From 2000 to 2009, SGPWA's share of California's job growth increased from 0.117 percent to 0.143 percent. Unlike the State of California that experienced job losses during the early 1990s and 2000s, Riverside County has posted a positive job growth every single year since 1990. SGPWA's share of Riverside's job growth has remained

relatively constant, oscillating between 2.53 percent and 2.78 percent from 2000 to 2009.

Employment in the SGPWA's service area will increase by approximately 25,568 jobs representing an annual average growth rate of 4 percent between 2008 and 2035. These jobs are primarily serving the residents and are often referred to as population serving jobs usually created as a function of local population growth. Employment in the retail, construction, financial activities, health care services, social services, and local government (for example school districts, police and fire departments,) sectors will increase to keep pace with population growth in the San Gorgonio Pass area.

Unlike population serving employment job growth in basic sectors is a function of larger market economic growth, such as regional, national and global economic growth. Examples include manufacturing and high tech industries. In the San Gorgonio Pass area all jobs in the basic sectors are forecasted to experience positive growth except agriculture, which will experience a decline as land conversion to non-agriculture uses occurs. The leisure and hospitality sectors will experience strong growth contributed primarily by casino entertainment businesses on Tribal lands, which are a characteristic feature of this region.

Section 2
Water Demands

This section details current and future water demands for the SGPWA service area and imported water demands on SGPWA. The total demand for the service area includes both potable and non-potable water demands for the individual water purveyors. These demands include various water use sectors including, single-family residential, multi-family, commercial, industrial, institutional and governmental, landscape, and agricultural. Various water sectors such as saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof have no water demands in the SGPWA service area. The water use projections for the service area and demands on SGPWA are provided in 5-year increments to year 2035.

2.1 Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

(A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

2.2 Service Area Demands

Service area demands include all water demands for the individual water purveyors within the SGPWA service area. SGPWA's service area encompasses ten water purveyors as described in Section 1 of this urban water management plan. However, demands are only presented for those purveyors with demands on SGPWA. Water demand projections are divided between potable and non-potable water uses.

Table 2-1 shows the current and projected potable water demands for the Beaumont Cherry Valley Water District (BCVWD), the City of Banning, Yucaipa Valley Water District (YVWD), South Mesa Water Company (SMWC), and Cabazon Water District (CWD). These five retail water agencies are responsible for serving most water demands in the San Gorgonio Pass region and potential imported water demand on SGPWA, assuming the Morongo Tribe does not need imported water in the future. If in the future, the Morongo Tribe determines that it will need imported water supplies

from SGPWA, the additional demand will be reflected in updates to the SGPWA UWMP.

Table 2-1
Current and Projected Potable Water Demands

Agency Name	Potable Water Demand (AFY)					
	2010	2015	2020	2025	2030	2035
BCVWD	15,658	13,867	13,278	15,701	18,377	19,351
City of Banning	9,484	10,669	13,358	16,047	18,736	21,753
YVWD	1,025	1,313	1,461	1,701	2,033	2,577
SMWC	2,500	2,630	3,055	3,370	3,656	4,056
CWD	1,000	4,000	8,000	12,000	16,000	16,000
Total Potable Water Demands	29,667	32,479	39,152	48,819	58,802	63,737

Future water demands included here are derived entirely from data provided by each retail water agency in recent coordination activities (basis for BCVWD, YVWD, and the City of Banning demands), or year 2005 UWMPs (basis for SMWC demands), or from information provided to the San Timoteo Watershed Management Authority (STWMA) by Krieger and Stewart Consultants (basis for CWD demands). The distribution of water demands by water use sectors was not performed in this wholesale UWMP, but will be incorporated into each retail water agencies UWMPs . In addition, the method used by each retail water agency to project water demands is not included in this wholesale UWMP. The UWMPs for each retail water agency will include detailed descriptions of methodologies used to develop demand projections from 2010 through 2035.

Current and future non-potable water demands were also provided by retail water agencies in the SGPWA service area (Table 2-2). This table shows that current uses of non-potable water are minimal, but grow quickly prior to 2015. Section 3 discusses the status of each retail water agency's plans for delivering recycled water to serve existing and new non-potable demands.

Table 2-2
Current and Projected Non-Potable Water Demands

Agency Name	Non-Potable Water Demand (AFY)					
	2010	2015	2020	2025	2030	2035
BCVWD	0	5,372	6,216	7,342	8,440	8,843
City of Banning	0	1,832	2,160	2,488	2,816	2,816
YVWD	100	269	491	851	1,349	2,166
SMWC	0	110	145	190	244	244
CWD	0	0	0	0	0	0
Total Non-Potable Water Demands	100	7,583	9,012	10,871	12,849	14,069

Data provided by these five retail water agencies in SGPWA's service area for the 2010 UWMP shows that water demand projections increase from approximately 30,000 AFY in 2010 to approximately 80,000 AFY in 2035. These projections are significantly less than projections included in the recently completed Supplemental Water Supply Planning Study, prepared by Webb and Associates in 2009 for SGPWA (Figure 2-1).

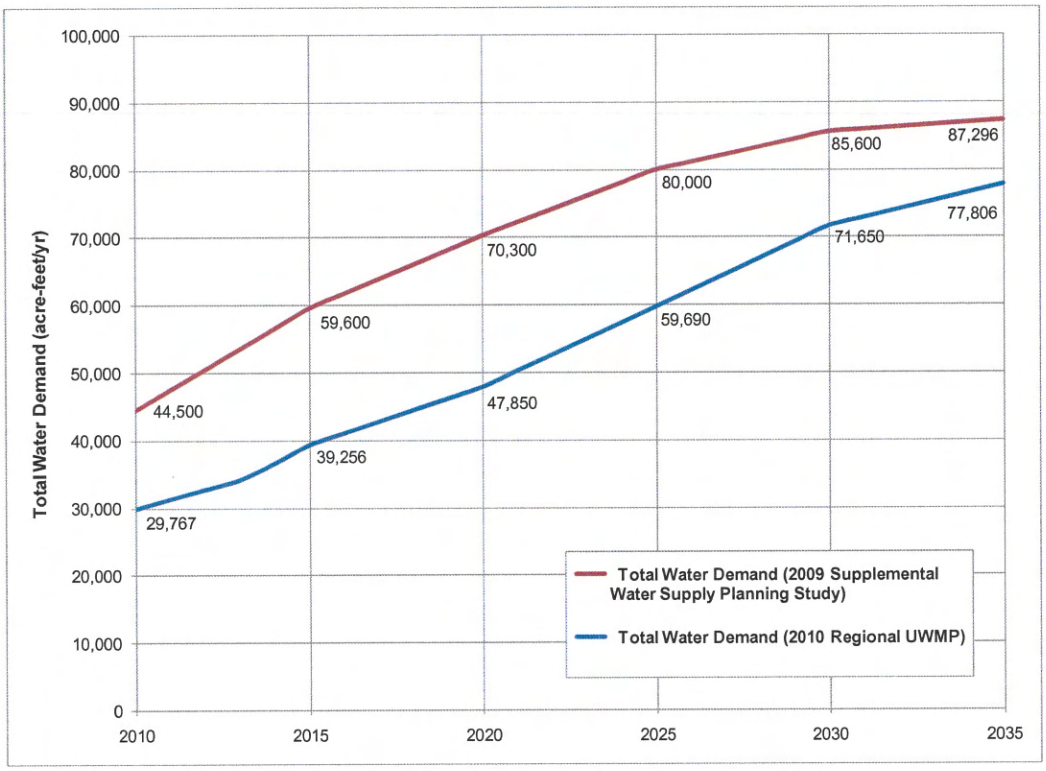

Figure 2-1
SGPWA Service Area Demand Projections (2010-2035)

The difference between the two projections is due to the economic downturn experienced in last two years. The data used for 2009 Supplemental Water Supply Planning Study demand projections were based on population growth trends up to 2007, when development in the San Gorgonio Pass area was occurring at a very fast pace. Demand projections used in this 2010 UWMP are based on more conservative development rate assumptions that reflect the impacts of the current economic downturn. In 2035 the gap between the two plans narrows to approximately 9,490 AFY. Ultimate demand projections (occurring after 2035) do not differ substantially between the two plans.

2.3 Imported Water Demand

SGPWA is a State Water Contractor and provides imported SWP water to its retail agencies. SGPWA supplements local supplies with SWP water. A more detailed discussion of SWP water is provided in section 3.5.

Demands for imported water from SGPWA were estimated by the following equation:

Total Service Area Demand – Local Supplies = Imported Water Demand

Total demand for imported water to be served by SGPWA is derived by deducting the total local supplies by all retails agencies from the total consumptive water demands in the SGPWA area. These local supplies include the potable and non-potable water supplies for all the retail agencies within the SGPWA service area. Section 3 of this UWMP describes all existing and planned local supplies for each retail water agency.

Projections of imported water demands allow SGPWA 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 and therefore, minimizing the cost impacts of idle facilities.

As shown in the Table 2-3 below, in 2010, the combined local supplies of all the retail water agencies exceeds total water demand, thus any imported water can be used to mitigate overdraft or added to long term storage accounts in the Beaumont Basin. The Beaumont Basin and its long-term storage capacity will be discussed in more detail in the following sections of this UWMP.

Table 2-3
Current and Projected Water Demands on SGPWA Service Area

Average Hydrologic Year Demand and Supply	Water Demand or Supply (AFY)					
	2010	2015	2020	2025	2030	2035
Total Potable Demands	29,667	31,673	38,838	48,819	58,802	63,737
Total Non - Potable Demands	100	7,583	9,012	10,871	12,849	14,069
Total Consumptive Water Demands	29,767	39,256	47,850	59,690	71,650	77,806
Conservation BMPs Demand Reduction	0	944	3,039	4,141	5,230	5,914
Local Supplies by Retail Agencies	33,700	31,342	37,051	40,534	43,952	44,972
Total Demand on SGPWA	0	6,970	7,760	15,015	22,468	26,920

The need for imported water increases to over 32,000 AFY by 2035 during an average hydrologic year. Increasing demand for imported water exceeds SGPWA's current SWP Table A allocation of 17,300 AFY prior to 2025 for an average hydrologic condition, assuming full Table A allocations are available from the SWP. Given that reliability of the SWP during average hydrologic years in the San Francisco Bay Delta, at the SWP's major pumping facilities, cannot provide full Table A deliveries, supplemental sources of imported water will be required sooner. Section 5 describes an approach used by SGPWA to evaluate different scenarios of local and imported water supply reliability based upon historical hydrologic patterns.

Section 3
Water Supply Sources

This section details current and future water supplies for the SGPWA service area. As a State Water Contractor, SGPWA obtains all of its water via the SWP. However there are significant local supplies in the region including groundwater, surface water, and recycled water. Local supply estimates presented in this section are based on preliminary values provided by retail water agencies in the SGPWA service area. These retailers are finalizing their respective UWMPs in July 2011, therefore estimated supply yields may differ from those reported in this section. If the values change significantly, SGPWA is prepared to submit an addendum to this 2010 regional UWMP.

3.1 Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments as described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

1) A copy of any groundwater management plan adopted by the urban water supplier, including any specific authorization for groundwater management.

2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over drafted or has projected that the basin will become over drafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

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

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

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

3.2 Introduction

Water supplies available to water purveyors in the SGPWA service area include the following categories:

- Groundwater
- Surface Runoff and Stormwater
- Recycled Water
- Imported Water

Each of these categories of water supply has unique characteristics that affect long-term yield, seasonality, sensitivity to climatic variation, and reliability. This UWMP documents each of these supply sources for the region, using data provided by each of the major water purveyors. The following sections describe each category of supply in the SGPWA service area under current operations and with implementation of new projects.

3.3 Groundwater

Groundwater sources of supply are numerous and diverse throughout the SGPWA service area. Groundwater pumping by water purveyors occurs in the Beaumont, Banning, Yucaipa, and Cabazon groundwater basins (Figure 3-1). In addition, pumping in Banning and Edgar canyons is a major source of groundwater. Banning Canyon is tributary to the Banning groundwater basin and Edgar Canyon is tributary to the Beaumont groundwater basin. Estimates of maximum perennial yield from each of these groundwater basins and canyons have been documented in various studies, as shown in Table 3-1. Several of the groundwater basins in Table 3-1 have multiple estimates of long-term safe yield. Values used in the development of this regional UWMP and the purveyor's respective UWMPs are highlighted in bold.

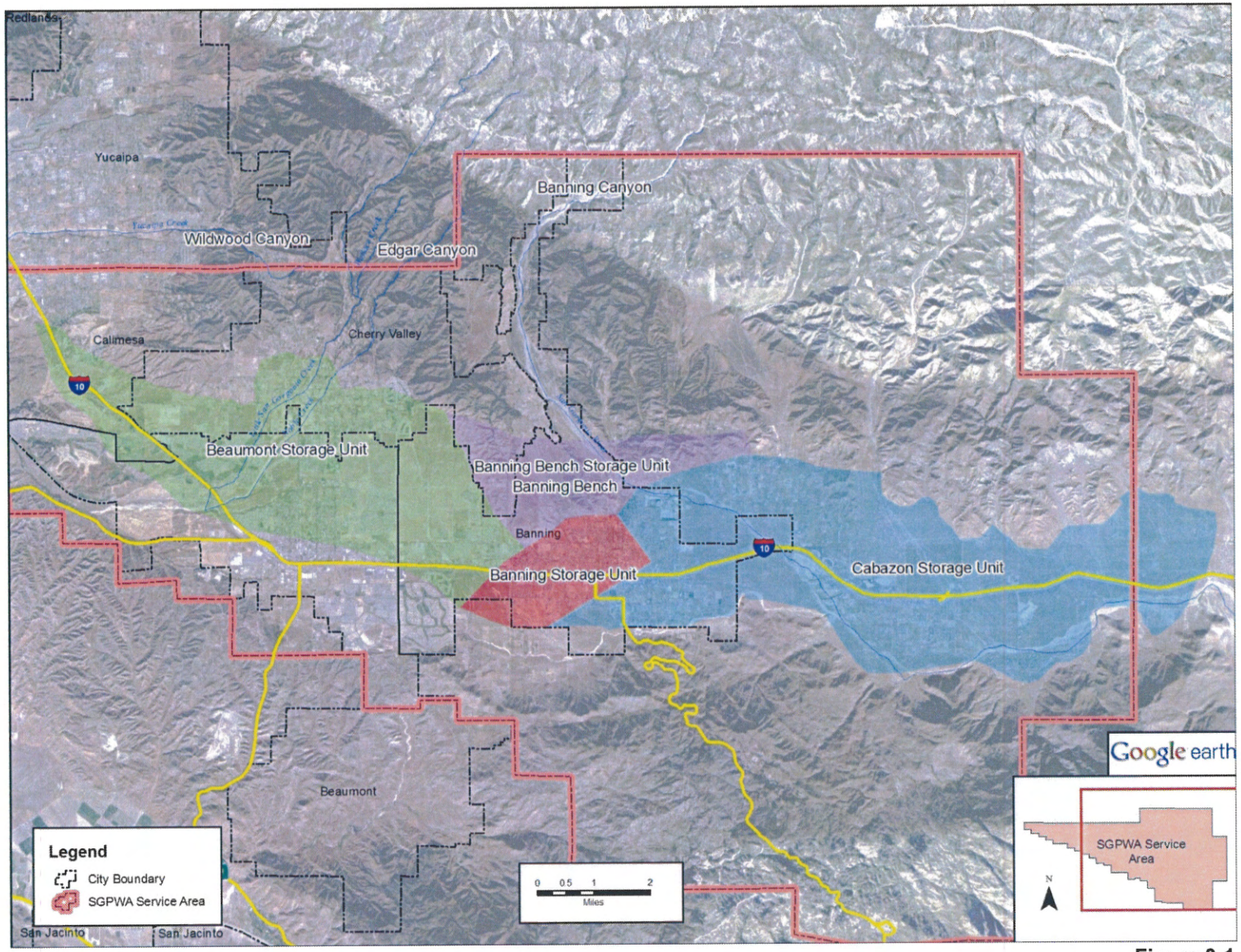

Figure 3-1
Groundwater Basins and Canyons with Pumping by SGPWA Retail Agencies

Table 3-1
Safe Yield Estimates for Groundwater Basins in the SGPWA Service Area

Groundwater Basin		Safe Yield Estimate (AFY)	Source
Beaumont Storage Unit		5,000	USGS, 2006
		8,650[1]	Beaumont Basin Judgment, 2004
		5,000	Boyle, 2002
		6,100	Boyle, 1995
		3,800	Boyle, 1988
Banning Storage Unit	West	350	STWMA, 2007; Geoscience, 2003
		933	STWMA, 2006
	East	1,310	STWMA, 2007
		2,798	STWMA, 2006
		1,050	Geoscience, 2003
	Combined	**1,130**[1]	Geoscience, 2010
Banning Canyon (including Banning Bench)		5,000	Geoscience, 2003
		6,030[1]	Geoscience, 2010
Cabazon Storage Unit		**1,770**[1]	Geoscience, 2010
Edgar Canyon		**2,600**[1]	BCVWD, 2006
Total Groundwater Yield in SGPWA Service Area		**20,180** [1]	

1) Values in bold represent the base yield from groundwater basins used to estimate local supplies in the 2010 SGPWA UWMP

3.3.1Cabazon Basin

The Cabazon groundwater basin is located on the eastern boundary of SGPWA's service area. CWD, Mission Springs Water District, Desert Hills Premium Outlets, and the Morongo tribes rely on pumping from this basin to serve the majority of their respective water demands. These water purveyors are within SGPWA's service area boundary, but do not purchase imported water from SGPWA.

The City of Banning currently produces 600 AFY from Well C6, in the Cabazon groundwater basin and is planning to construct new wells to extract an additional 1,165 AFY of groundwater from the Cabazon basin (Table 3-2). The California DWR Bulletin 118 for the San Gorgonio Pass Groundwater Basin (2004) determined that as much as 10,000 AFY of water is lost via subsurface outflow from the Cabazon groundwater basin (DWR, 2004). A key finding of a recent groundwater budget analysis for the Cabazon basin was that long-term yield from the Cabazon basin could be increased without reducing long-term water levels by implementing a project to change hydraulic gradients near the eastern boundary of the Cabazon basin (Geoscience, 2010). This type of project is not currently planned and therefore current levels of groundwater extraction are used in this regional UWMP.

Table 3-2 provides a summary of recent production, projected pumping requirements, and existing well capacity for each retail agency by groundwater basin.

Table 3-2
Current and Projected Groundwater Production for each Retail Agency by Basin

Agency / Basin	Production (AFY)				Projected 2035 Pumping (AFY)	Current Well Capacity (AFY)
	2005	2006	2007	2008		
City of Banning						
Banning Basin	1,485	1,787	2,512	1,999	7,320 [1]	8,790
Banning Canyon Basin	5,832	6,365	4,764	4,430	8,050 [2]	7,740 – 23,070 [4]
Beaumont Basin	1,765	2,010	2,947	3,154	5,280 [3]	14,030
Cabazon Basin	219	612	1,202	914	1,770	1,300
Beaumont-Cherry Valley Water District						
Beaumont Basin	5,607	9,200	11,096	10,617	16,500 [3]	39,200
Edgar Canyon Basin	1,463	2,548	1,935	2,127	3,740 [2]	6,000
Singleton Basin	0	0	0	0	600	0
Yucaipa Valley Water District (for City of Calimesa)						
Beaumont Basin	1,281	2,027	1,683	572	1,700 [5]	2,950
Yucaipa Basin	486	296	313	26	0	0
Wildwood Canyon Basin	87	99	76	61	0	0
Cabazon Water District						
Beaumont Basin	0	0	0	0	10,000 [3]	0
Cabazon Basin	915	824	780	737	2,800	M
South Mesa Water Co.						
Beaumont Basin	0	0	0	0	1,717 [3]	0
Calimesa Basin	782	882	954	842	M	M
San Timoteo Basin	1,133	1,184	p1,219	1,368	M	M
Singleton Basin	636	645	666	471	M	M

1) Sum of safe yield and volume of proposed recycled water for indirect potable reuse (IPR) in 2035; additional wells in area downstream of proposed IPR recharge site are planned by the City of Banning
2) Maximum of historical pumping from groundwater storage unit
3) Sum of 2035 imported water demand, appropriator rights in Beaumont Basin, and any additional Beaumont Basin recharge projects
4) Range of well capacity is due to large variation in water levels underlying canyons
5) Data provided by YVWD in June 2010
(M) indicates missing data at time of UWMP completion

3.3.2 Banning Basin

The Banning groundwater basin is not adjudicated and consists of the East Banning and West Banning storage units. The East Banning and Banning Bench storage units are separated from the West Banning storage unit by the McMullen fault (Bloyd, 1971). The East Banning storage units encompass approximately 7 mi^2 and the West Banning storage unit encompasses approximately 4 mi^2. The City of Banning is the only water purveyor that extracts water from the East Banning and West Banning storage units. The average of the estimated maximum perennial yield from the East

Banning storage units is 1,050 AFY, and 350 AFY from the West Banning storage unit (Geoscience, 2003). Historical trends in water level have declined in the Banning groundwater basin, especially in the West Banning storage unit, where most well pumping occurs.

There is sufficient storage capacity in the West Banning storage unit for the City of Banning to recharge recycled water in excess of recycled water demands. Based on the projections of recycled water supply and direct delivery demand, surplus recycled water of approximately 300 AFY would be available in 2015, during the initial phase of the recycled water system, increasing to almost 6,000 AFY by 2035. The City of Banning has initiated a feasibility study for a recycled water recharge and recovery project on a property west of the Banning wastewater treatment plant (WWTP) between Smith and Potrero Creeks.

The City of Banning plans to construct new wells in the Banning groundwater basin, to recover recycled water that is recharged in the West Banning Storage Unit. This would add additional capacity to Banning's existing wells (Table 3-2).

3.3.3 Banning Canyon

The Banning Canyon storage unit underlies the northernmost portion of the City of Banning. Subsurface inflow from mountain canyons and percolation of runoff within the alluvial sediments of the San Gorgonio River provides the main source of groundwater to this storage unit. The Banning Canyon storage unit is separated into three subunits, including Upper Banning Canyon, Middle Banning Canyon, and the Banning Bench. The Banning Bench (also known as Lower Banning Canyon) is the southernmost unit in Banning Canyon and marks the transition from the mountains to the valley below. Estimated perennial safe yield for the Banning Canyon and Banning Bench storage unit ranged from 4,000 - 6,000 AFY (Geoscience, 2003). Recent modeling suggested an estimate of 6,030 AFY (Geoscience, 2010) as the average of the Zero Net Draft and Hill modeling approaches. During dry years, water levels in the Banning Canyon storage unit decline and limit the ability to extract groundwater by about 33 percent.

The City of Banning is the only SGPWA retail agency that extracts groundwater from Banning Canyon. The City operates a total of 12 wells in Upper, Middle, and Banning Bench, with a combined pumping capacity of ranging from 4,800 gpm (7,740 AFY) in dry years to a design capacity of 14,300 gpm (23,070 AFY). Fluctuations in pumping capacity are the result of variable hydrologic conditions and limited year to year storage in the groundwater basin underlying Banning Canyon. The City has no plans to increase pumping capacity in Banning Canyon.

3.3.4 Beaumont Basin

The Beaumont groundwater basin encompasses approximately 28 mi^2 and underlies the Cities of Calimesa, Beaumont, and Banning. The Beaumont basin is the most studied basin within the SGPWA service area (USGS, 2006; Boyle, 2002; Bloyd, 1971). Generally, hydro-geologic studies have identified major inflows to the Beaumont

storage unit as runoff from Edgar Canyon (Little San Gorgonio and Noble Creeks) and from infiltration of rainfall within the groundwater basin boundary. There are several estimates of the long-term safe yield of this groundwater basin (Table 3-1). For purposes of this UWMP, the safe yield is assumed to be 8,650 AFY, as specified in the stipulated judgment adjudicating groundwater rights in the Beaumont Basin (Appendix B).

The Beaumont Basin is the only adjudicated groundwater basin within the SGPWA service area. The Judgment for the adjudication allocates pumping rights to both overliers and appropriators, and provides guidelines for conversion of pumping rights from overliers to appropriators. Overliers are parties that own land overlying the Beaumont Basin and have exercised pumping rights. Appropriators are the water purveyors who serve water to serve demands within the Beaumont Basin, including the City of Banning, BCVWD, SMWC, and YVWD. Appropriators can obtain additional pumping rights from an overlier by providing water service, either potable or recycled. The Beaumont Basin Watermaster develops annual projections of future pumping rights conversion from overliers to appropriators. Table 3-3 summarizes the 2009 Watermaster report of pumping rights in the Beaumont Basin, and projects long-term pumping assuming current levels of overlier production are sustained.

Table 3-3
Appropriator and Overlier Pumping Rights in the Beaumont Basin assuming Current Levels of Overlier Production (all values are in AFY)

Year	BCVWD	YVWD	SMWC	Banning	Total of Appropriators	Overlier Production	Total Beaumont Basin Rights
2010	10,527	2,884	1,149	6,674	21,234	2,907	24,141
2011	10,546	2,890	1,155	6,688	21,279	2,907	24,186
2012	10,491	2,872	1,139	6,647	21,149	2,907	24,056
2013	10,777	2,964	1,223	6,859	21,823	2,907	24,730
2014-2035	2,441	780	717	1,805	5,743	2,907	8,650 [1]

1) After 2013, the temporary surplus declared in the Beaumont Basin Judgment ceases. The long-term safe yield of the Beaumont Basin was determined to be 8,650 AFY in the Judgment.

In addition to the division of pumping rights associated with the long-term safe yield, the Judgment specified a physical solution. One element of the physical solution was to reserve a minimum of 200,000 AFY of available storage capacity in the basin for conjunctive use. Since the basin does not currently have this amount of unused groundwater storage, the Judgment declared a temporary surplus of 160,000 acre-feet and divided this surplus between the appropriators for use during the 2004-2013 period. This surplus is included in the pumping rights projections for 2010-2013 shown in Table 3-3. Water demand in this period is not sufficient to use a large portion of the temporary surplus; therefore, additions to the Beaumont Basin storage

account will occur in the near term. Section 5 presents the results of the water supply and demand model that tracks storage in the Beaumont Basin over the 2010 through 2035 planning period.

In addition to pumping of the temporary surplus and long term safe yield, most of the imported water used in the SGPWA service area is conveyed to spreading basins for recharge of the Beaumont Basin. Water purveyors can then extract their purchased water from the Beaumont Basin. Projections of 2035 Beaumont Basin pumping capacity requirements, shown in Table 3-2, account for each water purveyor's extraction of local and imported water spread in overlying recharge basins.

3.4 Surface Runoff

3.4.1 Existing Sources

Surface runoff flowing out of canyons in the San Bernardino Mountains within the San Gorgonio Pass area is discharged either westward to San Timoteo Creek or eastward to the Whitewater River. In the Whitewater River watershed, Banning Heights Mutual Water Company (BHMWC) and the City of Banning jointly have pre-1914 appropriative diversion rights to 13.26 cfs of local surface runoff, with BHMWC having the preferential right. The City of Banning can capture runoff up to 13.26 cfs not used to supply BHMWC.

The diversion of runoff requires operation of the Southern California Edison (SCE) San Gorgonio Hydroelectric Project No. 344, also referred to as the Whitewater Flume. In 1998, SCE ceased to operate the diversion for power generation, but continued to allow for its use for surface runoff diversion. Currently, BHMWC relies on this source of water to meet the majority of water demands in its service area. The City of Banning is currently receiving unused surface runoff that exceeds the storage and demands of BHMWC. Damage to the diversion facilities in the extreme rainfall event of January 2005 has limited the City of Banning's ability to divert runoff in excess of BHMWC demand.

In 2007, Southern California Edison (SCE), SGPWA, BHMWC, and the City of Banning entered into a four party agreement to transfer ownership of the Whitewater Flume from SCE to the Participating Entities (namely SGPWA, BHMWC, and the City of Banning). Commitments to repair the diversion system to allow the Participating Entities to maximize use of their existing rights are a component of the transfer agreement. These repairs will result in increased runoff diversion for the City of Banning from current conditions; however the volume of water expected is not reported at this time.

Within the San Timoteo watershed, YVWD has captured a long-term average of approximately 1,000 AFY of canyon runoff from Oak Glen and Wildwood Canyon. In recent years, this source of runoff has declined. YVWD is planning to continue capturing runoff for groundwater recharge in the Yucaipa groundwater basin, but is not expecting any additional yield.

3.4.2 Future Sources

Surface runoff in Edgar Canyon and Noble Creek are sources of water that BCVWD is planning to use to provide additional recharge of the Beaumont groundwater basin, in excess of current recharge in channel bottoms. The 2005 UWMP for BCVWD projected long-term annual average runoff in Little San Gorgonio and Noble Creeks of 2,600 AFY and 1,500 AFY, respectively. Hydrologic studies of this watershed provided these estimates of runoff from the two creeks to the BCVWD Recharge and Recycle Facility located at Cherry Avenue in the BCVWD service area. The hydrologic analyses consisted of extrapolating historical flow measurements from a US Geological Survey gauge in Little San Gorgonio Creek at Oak Glen Road to account for the larger watershed to the BCVWD Recharge and Recycle Facility. Accordingly, daily flow data were scaled upward by a factor of 4.1 to account for the larger tributary area to the BCVWD Recharge and Recycle Facility. In addition to the ratio of gauged to total tributary area, the extrapolation incorporated rainfall data from three rainfall stations to account for potential differences in runoff in un-gauged watershed areas.

An independent hydrologic modeling study, developed for STWMA, concluded that the long-term average runoff of 4,100 AFY from the drainage area to the BCVWD Recharge and Recycle Facility, was overestimated. Considering this assessment in the 2010 update of its UWMP, BCVWD revised the projection of potential surface runoff capture in Little San Gorgonio and Noble Creeks to 2,000 AFY and 1,000 AFY, respectively.

Surface runoff sources from small mountain canyons are highly variable. Generally, precipitation and antecedent moisture conditions control the volume of runoff in Edgar Canyon. Year to year fluctuations were approximated by evaluating data from a USGS gauge on San Timoteo Creek, downstream of the BCVWD Recharge and Recycle Facility, for a period of 83 years (1927-2009). This period of record largely overlaps with the hydrologic analyses conducted by the DWR in assessing the reliability of the State Water Project (SWP).

Annual runoff volumes from the San Timoteo gauge were normalized to the average year in the period of record. This provides a set of factors, which characterize the runoff in a given year relative to the long-term average (Figure 3-2). Therefore, in any given hydrologic year (1927-2009), the volume of runoff available for recharge at the BCVWD Recharge and Recycle Facility is simply this factor multiplied by the long-term average runoff in Little San Gorgonio and Noble Creeks. This approach provides a recharge volume of local runoff that would coincide with single or multiple dry years for the SWP.

A key consideration that needs to be incorporated into the estimation of surface runoff and stormwater recharge is the ability for the BCVWD Recharge and Recycled Facility to capture runoff. During extreme wet weather events, it would be almost impossible to recharge all runoff from Edgar Canyon. To estimate the maximum annual capture at the BCVWD Recharge and Recycle Facility, a daily storage,

treatment, and overflow model was developed for the 1969 wet season, the wettest year in the period of record from the Edgar Canyon flow gauge.

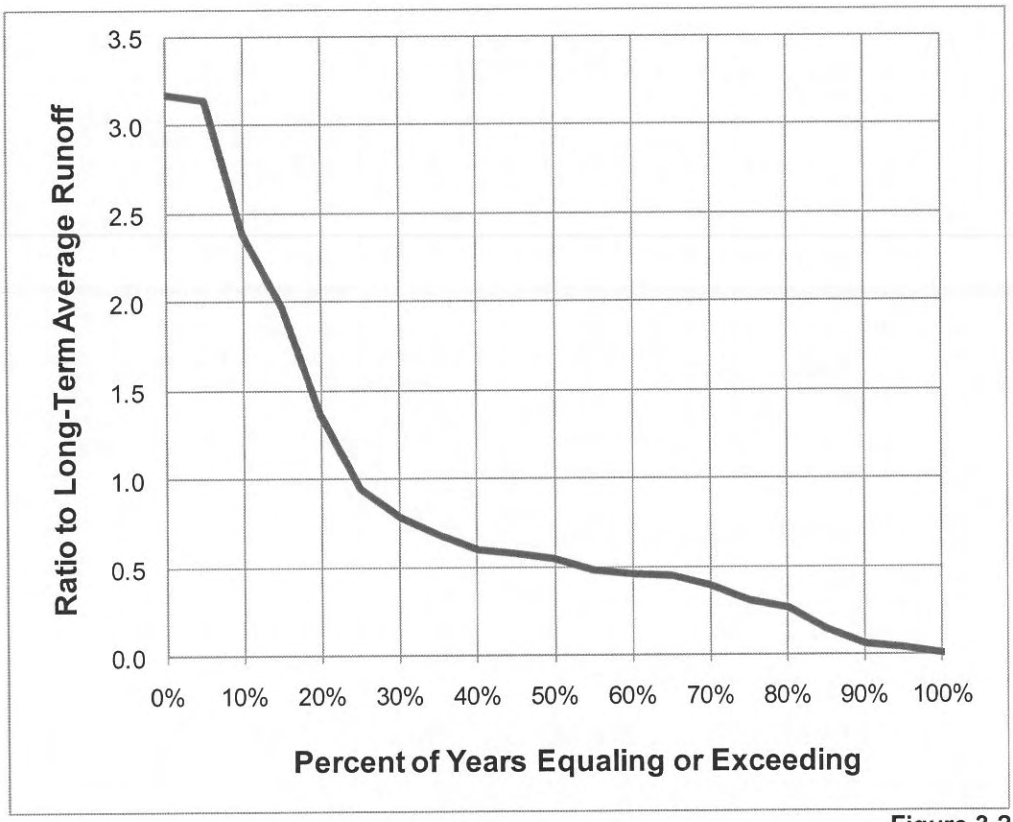

Figure 3-2
Probability Curve of Local Surface Runoff Relative to Long-Term Average

The portion of the BCVWD Recharge and Recharge and Recycle Facility that would be used to capture surface runoff is planned for completion by 2014. The storage capacity at completion is estimated to be 130 AF, assuming a configuration equivalent to the completed Phase 1 of the facility; 13 wetted acres at 10 foot depth. Based on recent recharge data from operation in the Phase 1 basins, an estimate of daily recharge is approximately 40 AF/day. The model assumed this same rate could be realized in the proposed expansion on the east side of Noble Creek. The wet season runoff that could be recharged given these conceptual sizing criteria is 9,500 AF, therefore the runoff factors were adjusted so that surface runoff source of supply never exceed this estimate of maximum capture volume

3.5 Recycled Water

The use of recycled water to offset potable water demands and for groundwater replenishment is a major component in the supply plans for most of the retail agencies in the SGPWA service area. Several key elements of implementing a recycled water program that are addressed in the UWMPs of each retail agency include:

- Availability of wastewater for reclamation
- Treatment of wastewater to meet Title 22 requirements for reclaimed water use
- Completion of a distribution system for recycled water
- Identification of specific demands for recycled water use
- Permitting and construction of facilities to recharge groundwater with recycled water
- Underlying groundwater basin water quality objectives for TDS and nitrate
- Other Regional Board requirements

Currently, there is no recycled water use in the SGPWA service area; however, retail agencies plan to have recycled water systems on-line in the near term (prior to the 2015 UWMP). The following sections describe the status of recycled water supplies for BCVWD, YVWD, and the City of Banning.

BCVWD

BCVWD has installed a large conveyance system for recycled water to be used for landscape irrigation throughout the City of Beaumont. This system is intended to convey 100 percent of recycled water from the City of Beaumont to specific landscape irrigation customers. Recycled water would be provided to users at approximately 4,500 AFY by 2015, increasing to approximately 9,000 AFY by 2035. At these planned rates of recycled water use, the percentage of total water demand served with recycled sources will be 25 percent by 2015 and 32 percent by 2035. This level of recycled water use is comparable to some of the most aggressive water recyclers in Southern California.

BCVWD also plans to recharge the Beaumont groundwater basin with recycled water from the City of Beaumont and potentially YVWD.

YVWD

Water recycling is an important component of the long-term water supply for YVWD. The Henry N. Wochholz Regional Water Recycling Facility produces approximately 3 mgd of advanced tertiary treatment of wastewater from YVWD sewer system, currently discharged to San Timoteo Creek. The treatment capacity of this facility would allow for up to 6.7 mgd, but may be re-rated to 8 mgd.

YVWD plans to implement aggressive recycled water use for new development in the City of Calimesa, requiring dual plumbing for front yard irrigation on single-family residential properties.

City of Banning

The City of Banning currently spreads treated wastewater effluent in ponds overlying the Cabazon groundwater basin. The Cabazon groundwater basin has limited storage capacity to allow for indirect potable reuse of this effluent. The use of recycled water is a major part of the City of Banning's long term water supply planning. Banning has plans to upgrade its wastewater treatment plant to meet Title 22 requirements. Once on-line, recycled water will no longer be sent to spreading areas in the Cabazon groundwater basin. Instead, recycled water will be delivered westward to provide water for irrigation at the Sun Lakes Country Club and Pardee Golf Course. Portions of the area planned for recycled water irrigation overly the Beaumont Basin and proposed SARWQCB Beaumont Groundwater Management Zone (GMZ), where water quality objectives for nitrogen and TDS are mandated. Section 7 discusses salt management in the Beaumont GMZ as a key water quality issue in the San Gorgonio Pass region.

For recycled water in excess of irrigation demands, Banning is planning a new indirect potable reuse project involving recharge in the West Banning Storage Unit with new wells near the proposed recharge location to recover the recycled water. This project is not project to be on-line until 2020 and will ultimately recharge over 5,000 AFY.

3.6 Summary of Local Sources

Local sources of water supply in the San Gorgonio Pass area have been sufficient to sustain 100 percent of current water demands. In the future, retail water agencies have plans to increase local supply sources, with the greatest emphasis on the use of recycled water for both irrigation and groundwater recharge. Table 3-4 summarizes current and planned yields in an average hydrologic condition for local sources of supply by type (groundwater, surface water, and recycled water) and by water agency. Table 3-4 shows that proposed projects will increase local supplies to levels greater than currently realized during the temporary surplus in the Beaumont Basin.

3.7 Imported Water

3.7.1 SGPWA's Role

SGPWA is one of 29 water agencies contracted to pay a portion of the SWP debt service. SGPWA's water allocation, as listed in Table A, of the SWP is 17,300 AFY. Table A is a tool used by DWR to allocate fixed and variable SWP costs and yearly water entitlements to the contractors. Table A contract amounts do not reflect actual deliveries a contractor should expect to receive. While SGPWA has been a SWP contractor since 1962, the ability to use water imported from Northern California is only a recent development. The first phase of the SWP East Branch Extension pipeline was completed in 2003 to convey water to San Bernardino Valley Water District (SBVMWD) and SGPWA.

Table 3-4
Summary of Planned Local Sources of Water Supply in SGPWA Service Area

Supply Source (Values in AFY)	Agency	2010	2015	2020	2025	2030	2035
Groundwater							
Banning Canyon	Banning	6,030	6,030	6,030	6,030	6,030	6,030
Banning Storage Unit	Banning	1,130	1,130	1,130	1,130	1,130	1,130
Beaumont Basin	YVWD	1,000	780	780	780	780	780
Beaumont Basin	BCVWD	10,527	2,441	2,441	2,441	2,441	2,441
Beaumont Basin	Banning	6,674	1,805	1,805	1,805	1,805	1,805
Beaumont Basin	SMWC	1,149	717	717	717	717	717
Cabazon Storage Unit	Banning	1,770	1,770	1,770	1,770	1,770	1,770
Cabazon Storage Unit	CWD	1,000	3,400	4,400	3,600	2,800	2,800
Edgar Canyon	BCVWD	2,600	1,800	1,800	1,800	1,800	1,800
Singleton Basin	BCVWD	0	600	600	600	600	600
Yucaipa Basins	SMWC	1,720	1,720	1,720	1,927	1,672	1,816
Other Non-Potable Pumping	BCVWD	0	800	1,500	1,500	1,500	1,500
Subtotal		33,600	22,993	24,693	24,100	23,045	23,189
Surface Runoff (Edgar Canyon)							
Noble Creek	BCVWD	-	-	1,000	1,000	1,000	1,000
Little San Gorgonio Creek	BCVWD	-	2,000	2,000	2,000	2,000	2,000
Subtotal		-	2,000	3,000	3,000	3,000	3,000
Recycled Water							
Irrigation Use	BCVWD	-	3,767	4,402	5,332	7,259	7,490
Irrigation Use	Banning	-	1,832	2,160	2,488	2,816	2,816
Irrigation Use	YVWD	100	269	491	851	1,349	2,166
Irrigation Use	SMWC	-	110	145	190	244	244
Beaumont Basin Recharge	BCVWD	-	-	-	-	319	147
Banning Basin Recharge	Banning	-	371	2,159	4,573	5,920	5,920
Subtotal		100	6,349	9,358	13,434	17,907	18,783
Total Local Supplies		33,700	31,342	37,051	40,534	43,952	44,972

Note: Local supply estimates presented in this table are based on preliminary values provided by retail water agencies in the SGPWA service area. These retailers are finalizing their respective UWMPs in July 2011, therefore estimated supply yields may differ from those reported in this section. If the values change significantly, SGPWA is prepared to submit an addendum to this 2010 regional UWMP.

Since 2003, SGPWA has purchased a portion of its Table A allocation to sell to retailers within its service area, including BCVWD, and the City of Banning (Table 3-5). In addition, SGPWA has reserved a portion of Table A purchases for mitigating overdraft in the Beaumont groundwater basin per Section 15.5 of the SGPWA Act.

Table 3-5
Deliveries of SWP to SGPWA Service Area for Recharge of Beaumont Basin Since Completion of East Branch Extension

Year	SGPWA	BCVWD	City of Banning	Total SWP Deliveries (AF)
2003/04	559	-	-	559
2004/05	517	-	-	517
2005/06	1,074	-	-	1,074
2006/07	556	6,689	-	7,245
2007/08	270	3,351	-	3,621
2008/09	936	1,355	2,555	4,846
2009/10	855	3,058	3,058	6,971

Note: Deliveries of SWP to YVWD for treatment at the Yucaipa Valley Regional Water Filtration Facility are not shown

Regional demands for imported water are estimated simply as total water demands (after conservation) minus local potable and non-potable supply sources. Currently, local supplies are sufficient to meet 90 percent of water demand, largely due to the declared temporary surplus in the Beaumont groundwater basin. This surplus ends in 2013, at which point, imported water will be necessary to meet over 30 percent of annual water demands. Figure 3-3 shows the annual imported water supply requirements for an average local hydrologic condition. Figure 3-3 shows a dip in imported water requirements in 2015. Several key new local potable and non-potable supply projects that are scheduled for completion in 2015 are responsible for this reduction in imported water supply requirements. The timing of these projects is very important to SGPWA's planning of SWP deliveries in the period following the end of the temporary surplus. If planned projects are not completed, SGPWA will need to obtain supplemental sources of imported water sooner than expected

This projection of imported water supply requirements includes up to 2,000 AFY of water to be used by SGPWA to mitigate overdraft in the Beaumont Basin. Depending upon climatic conditions in northern California, SGPWA could add 35,000 – 50,000 acre-feet of water to the Beaumont Basin between 2010 and 2035 toward the existing overdraft condition.

Prior to 2014, SGPWA and the retail agencies are planning to purchase imported water in excess of annual demand for banking in the Beaumont groundwater basin. The amount of water that will be banked in the upcoming years is dependent upon the availability of imported supplies from the SWP and the retail agencies' ability and willingness to purchase water in excess of annual demand to be used for mitigating future deficits in supply during drought conditions.

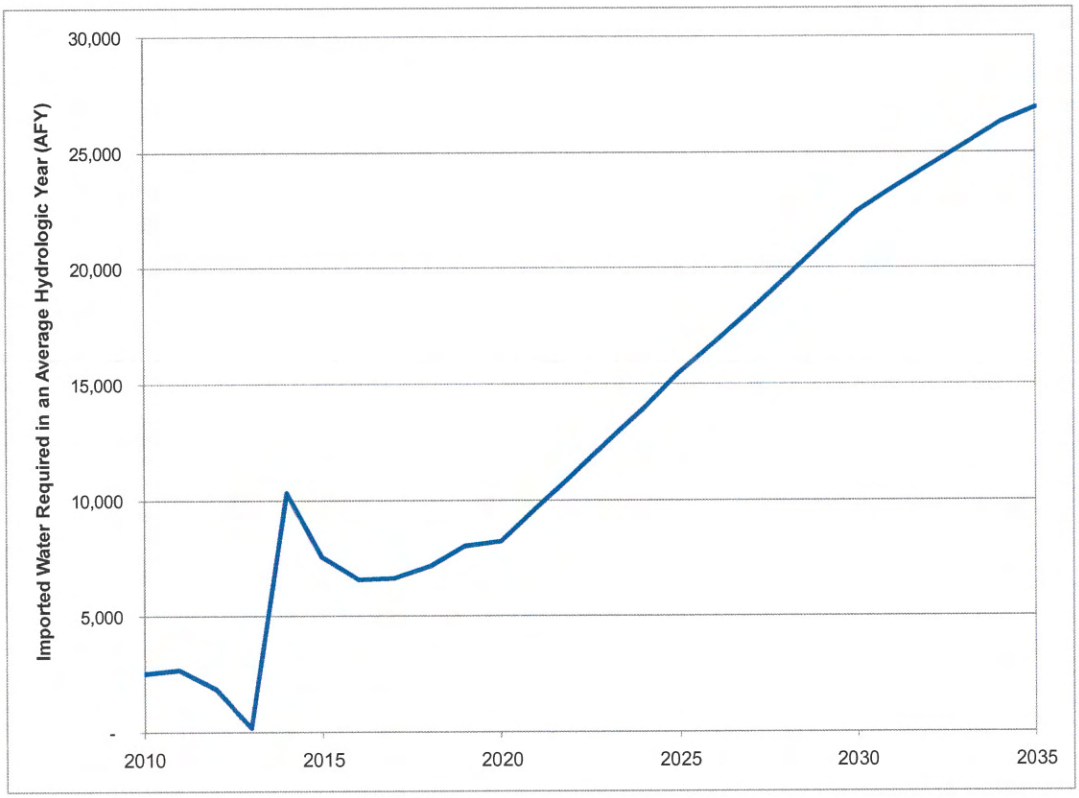

Figure 3-3
Projected Imported Water Requirements for SGPWA Service Area

For this regional UWMP, it is assumed that 100 percent of available Table A supply up to the capacity of the first phase of the East Branch Extension (11,000 AFY) will be obtained by SGPWA to recharge in the Beaumont groundwater basin. Preliminary data from the retail agencies include plans to purchase most of this water from SGPWA for addition to their respective groundwater basin storage accounts.

In 2014, the temporary surplus pumping from the Beaumont Basin will be exhausted, shifting more pressure to meet annual demands to SWP supplies. This reduces the amount of Table A water that may be available for long-term banking. However, the retail agencies do not plan to cease banking imported water in the Beaumont Basin. In the case of YVWD, the purchase of at least 7.0 acre-feet of water per equivalent dwelling unit (EDU) for addition to the Beaumont Basin storage account is a requirement in the Parcel Development Process (YVWD, 2008). Projections of new development in the City of Calimesa would require addition of approximately 30,000 acre-feet of imported water to YVWD's Beaumont Basin storage account. Imported water for long-term storage will not be available every year; therefore, SGPWA is planning for the necessary sources and infrastructure to capture as much water as possible in wetter hydrologic years.

3.7.2 SWP Reliability

The Bay-Delta is a major waterway at the confluence of the Sacramento and San Joaquin rivers serving multiple and at times conflicting purposes exacerbated during dry years when sufficient water to meet the needs of both people and the environment is in short supply. Approximately two-thirds of Californians receive at least a portion of their water from the Bay-Delta. Almost all water delivered via the SWP to southern California must pass through the Bay-Delta.

Contractors' requests for portions of their entitlements cannot always be met. In some year there are shortages and in other years surpluses. In 2008 and 2009 SWP contractors received only 35 percent and 40 percent, respectively, of their SWP contract allocations.

DWR has recently completed its 2009 update to the State Water Project Delivery Reliability Report (DWR, 2010). Projected reliability in the 2009 update shows a decrease in the long-term average reliability of water supplies from the SWP and increased reductions when compared to the previous 2007 report.

DWR developed the CALSIM II model to assess a variety of potential future water supply and demand scenarios for the SWP. Historical meteorological data are used in the CALSIM II model to simulate current and future SWP reliability over an 82-year range (1922-2003) of hydrologic year types. The 2009 update of this model incorporates new data on climate change and pumping restrictions to project SWP reliability for varying hydrologic conditions. The results of the model show that the long-term average reliability of the SWP is 60 percent. Expected deliveries for multiple-dry year periods will vary from 32 to 38 percent of maximum Table A amounts and for multiple-year wet periods 72 to 93 percent of maximum Table A amounts. Figure 3-4 shows the distribution of modeled SWP reliability for all 82-years of simulation.

For example, the chart shows that in 80 percent of years, there will be at least 8,000 AFY of supply available to SGPWA.

The primary factors that affect the reliability of the SWP are long term climate change and pumping restrictions to protect fish species listed as threatened and endangered under the federal or state Endangered Species Acts in the Bay-Delta. Additional factors impacting SWP reliability include infrastructure concerns, hydrologic variability, litigation, and water quality issues have resulted in supply reliability challenges for SWP contractors.

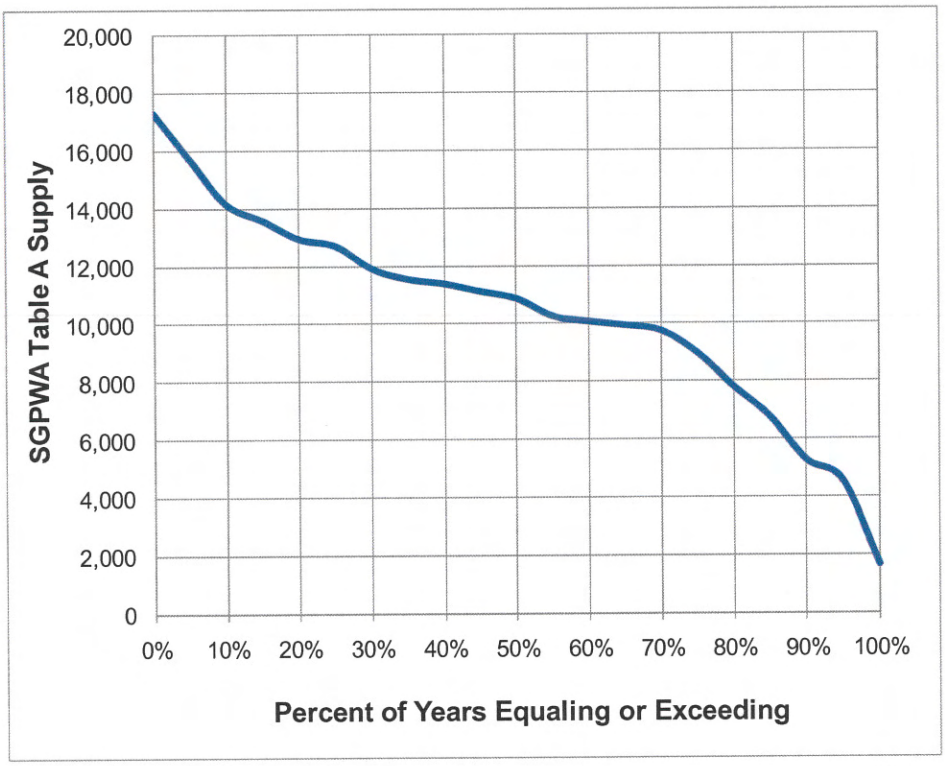

Figure 3-4
Probability Curve of SWP Availability

Uncertainty related to climate change and pumping restrictions are incorporated into the 2009 CALSIM II model update of SWP reliability as follows:

The primary effects of climate change to the Delta supply include, more precipitation falling as rain than snow, reduced Sierra snowpack, shifted timing of snowmelt runoff into streams (spring runoff comes earlier resulting in increased winter flows and decreased spring flows), and more severe flood events. Estimates of climate change are developed from downscaled global climate models (GCM). The GCM used for the 2009 update was selected because it provided the median reduction in SWP reliability from an uncertainty analysis spanning 12 different downscaled GCMs.

Restrictions on Delta pumping required by the biological opinions issued by the U.S. Fish and Wildlife Service (December 2008) and National Marine Fisheries Service (June 2009). The 2009 CLSIM II model assumes operations necessary to achieve the requirements of these recently adopted biological opinions and assume there is no future change in how water flows across the Delta. If the current conveyance systems in the Delta are improved in the future, SWP reliability would improve from the values reported in this 2009 update. Considering the recently approved Delta Vision plan, there is a high potential for future updates to the DWR State Water Project Delivery Reliability Report to reflect plans for additional facilities that would then