Appendix J, **Water Supply Assessment**

WATER SUPPLY ASSESSMENT

for

BUTTERFIELD SPECIFIC PLAN

Prepared for

The City of Banning

by

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RBF CONSULTING

TABLE OF CONTENTS

Page

TABLE OF CONTENTS
(continued)

Page

TABLE OF CONTENTS
(continued)

Page

TABLE OF CONTENTS
(continued)

Page

TABLE OF CONTENTS
(continued)

Page

TABLE OF CONTENTS
(continued)

Page

LIST OF FIGURES

LIST OF TABLES

1. EXECUTIVE SUMMARY

3. THE CITY OF BANNING

4. PROJECT DESCRIPTION

5. HISTORICAL AND PROJECTED WATER DEMANDS FOR CITY

LIST OF APPENDICES

ABBREVIATIONS

2005 UWMP – City of Banning's 2005 Urban Water Management Plan

2010 UWMP – City of Banning's draft 2010 Urban Water Management Plan

AC – acre

AF – acre-feet

AFY – acre-feet per year

ANSI - American National Standards Institute

ASR – aquifer storage and recovery

AWWA - American Water Works Association

Banning Basins – collectively, the Banning, Banning Bench and Banning Canyon Basins

Beaumont Basin Judgment – Judgment Pursuant to Stipulation Adjudicating Groundwater Rights in the Beaumont Basin, *San Timoteo Watershed Management Authority v. City of Banning et al.*, Riverside County Sup. Ct., Case No. RIC 389197 (Feb. 4, 2004)

BCVWD – Beaumont-Cherry Valley Water District

BHMWC – Banning Heights Mutual Water Company

BiOp - biological opinion

BMPs – best management practices

BMZ - Basin Management Zone

BWC – Banning Water Company

CBIA – California Building Industry Association

CDPH – California Department of Public Health

CEQA – California Environmental Quality Act

cfs – cubic feet per second

CGBSC – California Green Building Standards Code

COOP – Beaumont 1E Station, National Climatic Data Center Cooperative Observer Program Station 040609

City – City of Banning

CWD – Cabazon Water District

CII – commercial, industrial, and institutional

CIMIS – California Irrigation Management Information System

Consolidated – Consolidated Reservoir and Power Company

CUWCC – California Urban Water Conservation Council

CVP – Central Valley Project

Delta or Bay Delta – Sacramento-San Joaquin River Delta

DOF – California State Department of Finance

DFG – California Department of Fish and Game

DWR – Department of Water Resources

DU – dwelling units

DU/AC – dwelling units per acre

EIR – Environmental Impact Report

EBXI – East Branch Extension of the California Aqueduct – Phase 1

EBXII – East Branch Extension of the California Aqueduct – Phase II

EMWD – Eastern Municipal Water District

ETAF – evapotranspiration adjustment factor

ETo – evapotranspiration

FEIR – Final Environmental Impact Report

FEMA – Federal Emergency Management Agency

FERC – Federal Energy Regulatory Commission

gpcd – gallons per capita per day

GPD – gallons per day

GRRP – proposed groundwater recharge reuse projects

HCP – Habitat Conservation Plan

IEUA – Inland Empire Utilities Agency

IPCC – Intergovernmental Panel on Climate Change

LAFCO – Local Agency Formation Commission of Riverside County

MAWA – Maximum Applied Water Allowance

mg – million gallons

mgd – million gallons per day

MBR – membrane bioreactor

Model Ordinance – Model Water Efficient Landscape Ordinance

MOU – California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California

MWD – Metropolitan Water District

NCAR – National Center for Atmospheric Research

NCCP – Natural Community Conservation Plan

NCDC – Beaumont 1E Station, National Climatic Data Center

NMFS – National Marine Fishery Service

NPDES – National Pollutant Discharge Elimination System

North Basin Reservoir – A large surface reservoir or "main lake" to be constructed at the Project site

O&M - operations and maintenance

PA – Planning Area

Pass Agency – San Gorgonio Pass Water Agency

Project – Pardee Homes' Butterfield Specific Plan

RCFCD – Riverside County Flood Control District Station 12 in Banning

RCFC&WCD – Riverside County Flood Control & Water Conservation District

Recharge Facility – Noble Creek Recharge facility

Right of Way – the 20 foot wide right-of-way for the Facilities

RTP – Southern California Association of Governments' (SCAG) 2004 Regional Transportation Plan Population Growth Forecast

ROWD – Report of Waste Discharge

SARWQCB - Santa Ana Regional Water Quality Control Board

SBVMWD – San Bernardino Valley Municipal Water District

SCE – Southern California Edison Company

SCAG – Southern California Association of Governments

SGPWA – San Gorgonio Pass Water Agency

SMWD – South Mesa Water District

SMMWC – South Mesa Mutual Water Company

SRF – State Revolving Fund

STWMA – San Timoteo Watershed Management Agency

SWP – State Water Project

SWRCB – State Water Resources Control Board

TAF – thousand acre-feet

TTM – Tentative Tract Map

UWMP – Urban Water Management Plan

USACE – United States Army Corps of Engineers

USEPA – United States Environmental Protection Agency

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

VAMP – Vernalis Adaptive Management Plan

WDR – Waste Discharge Requirements

WSA – Water Supply Assessment

WSCP - Water Shortage Contingency Plan

WWTP – Wastewater Treatment Plant

YWCA – Yuba County Water Agency

YVWD – Yucaipa Valley Water District

1. EXECUTIVE SUMMARY

1.1 Purpose of this Water Supply Assessment

The purpose of this water supply assessment (WSA) is to provide an evaluation of the adequacy of total existing and future water supplies available to serve Pardee Home's proposed amendment of the previously approved 1993 Deutsch Specific Plan (also referred to as the "Butterfield Specific Plan" or the "Project") and in satisfaction of the requirements of California Water Code section 10910, *et seq.* (the "WSA law"). This WSA is prepared by the City of Banning (City), a public water system within the meaning of California Water Code section 10912(c), for review and approval by the City pursuant to Water Code section 10910(a).

1.2 Scope of the Water Supply Assessment

This WSA is intended to satisfy the requirements of the WSA law and includes:

- Section[1] 1 is this Executive Summary.
- Section 2 describes in more detail the scope of this WSA and the applicable legal requirements.
- Section 3 discusses the City's water system, service area, existing service connections and metered water use, applicable weather patterns for the City and other factors affecting water demands.
- Section 4 describes the proposed Project, its water supply infrastructure, and projected water demands for the Project.
- Section 5 describes the City's historical and projected water demands – both gross and net (after conservation) – including the demands proposed Project.
- Section 6 discusses existing and future water supplies and evaluates the reliability of those supplies for the 35-year projection.
- Section 7 is the conclusion. It compares the City's projected supplies and demands, and provides the City's assessment of the availability of all water sources to supply Project demands during normal, single dry, and multiple dry years for a 35-year projection, together with all other anticipated demand.

[1] All references in this WSA to "Section" and "Appendix" are to the sections and appendices of this WSA, unless otherwise specified.

1.3 The City

The City of Banning is located in the San Gorgonio Pass area of Riverside County. The westernmost boundary of the City's planning area is located at the summit of the San Gorgonio Pass. The City of Beaumont is adjacent to the City to the west; the unincorporated Cabazon area is adjacent to the east.

The City owns and operates a public water system. The City's Water and Wastewater Utilities Department provides domestic water service to all areas of the City except for a small portion in the northern area of the City which is served by the Banning Heights Mutual Water Company (BHMWC). In 2009, the City provided water service to 10,542 service connections for a variety of uses (residential, commercial, etc.) and delivered approximately 8,730 acre-feet per year (AFY) of water to its customers. In 2010, the City provided water service to 11,006 service connections (residential, commercial, etc.) and delivered approximately 7,586 AFY of water to its customers.[2]

The City's existing water supplies primarily include groundwater pumped from five local groundwater basins[3] and imported State Water Project (SWP) water purchased from the San Gorgonio Pass Water Agency (Pass Agency).

1.4 The Project

The Project is a mixed use development. The overall Project Area encompasses 1,543 acres of residential and non-residential land and open space. A maximum of 5,387 dwelling units is proposed. The Project proposes 36 acres of commercial land use, anticipated to accommodate retail and service uses for the proposed Project and surrounding areas. Two elementary school sites are proposed within the Specific Plan area, as well as an 18-hole golf course and clubhouse, located throughout the central portions of the Project area. The Project landowner and Project proponent is Pardee Homes.

Along with the traditional water and recycled water delivery systems that will connect and integrate the Project into the City's domestic water system, the Project will include several additional water supply enhancement and water resource management facilities. For example, the first phase of the Project will include a large surface water reservoir to regulate and optimize the recapture of stormwater flows and urban runoff. The Project also includes a system of drainage improvements, which will utilize the available capacity of both Smith Creek and Pershing Channel to transport controlled Project drainage (stormwater and treated urban runoff) from and through the Project site in its developed condition. A major component of the drainage system is the re-alignment and improvement of Smith Creek. Before Project drainage enters Smith Creek or Pershing Channel it will pass through water quality treatment facilities, which

[2] State of California, Natural Resources Agency, Department of Water Resources Form 38, Public Water System Statistics, as filed by the City of Banning (Banning DWR Form 38), Calendar Year 2010.

[3] The terms "basin" and "storage unit" have the same meaning. See also footnote 180.

will likely consist of vegetated detention basins or vegetated flow through swales. The Project does not include appropriation of water from Smith Creek.

The Project proponent has also proposed to construct groundwater recharge basins in the golf course open space areas. The construction of recharge basins or ponds on the Project site will allow for the recharge of the Beaumont Basin with captured increases in drainage runoff and stormwater.

The Project is proposed to have three potable water pressure zones. These zones consist of a lower (south) zone that will tie into the City's existing Foothill West pressure zone, a middle zone (Zone I) specific to the Project, and an upper (north) zone (Zone II) also specific to the Project. Water from the lower zones will be pumped to the upper zones. Each Project pressure zone will have its own water storage reservoir in the form of a tank or tanks on the Project site. Each tank will be sized to have sufficient capacity for daily operational storage, for emergency storage and for fire flow storage pursuant to City standards. Each tank will also be located at the appropriate elevation to provide required operational pressures and fire flow pressures pursuant to City standards.

No new groundwater wells or other water diversion facilities are proposed by the Project.

1.5 The City's 2010 Urban Water Management Plan

The City's 2005 UWMP, which summarizes the City's anticipated water supplies and demands for the period 2005 to 2030, expressly accounts for the Project's projected water demands.[4] Concurrent with preparation of this WSA, the City has undertaken an update of its 2005 UWMP as required by Water Code section 10610, *et seq*.[5] The City's Draft 2010 UWMP (attached as Appendix A), describes and compares the City's projected water supplies and demands for the period 2015 to 2035 and expressly accounts for the Project's projected water demands.[6]

Both this WSA and the Draft 2010 UWMP present updated supply and demand information. The City has made every effort to ensure that this WSA and the Draft 2010 UWMP are entirely consistent. As permitted by Water Code section 10910(c(2), this WSA incorporates by this reference the City's Draft 2010 UWMP. However, as a result of the fact that the study period for this WSA is 10 years longer than the planning period for the 2010 UWMP, and given the fact that the 2010 UWMP will be released for public review and comment at the same time, this WSA also makes an independent assessment of the sufficiency of the City's supplies during normal, single dry and multiple dry years to meet the demands of the Project, in addition to the City's existing and planned future uses, for the study period 2015 to 2045.

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4 *See* 2005 UWMP, pp. 3-1 to 3-2, 5-1.

5 By creating Water Code section 10608.20(j), SBx7 7 provides for an extension of the deadline for retailers preparing UWMPs by six months – from December 31, 2010 to July 1, 2011.

6 City of Banning Draft 2010 Urban Water Management Plan, p. 20 (Draft 2010 UWMP).

The Draft 2010 UWMP makes the following conclusions:

- Over the next twenty-five years, the City is anticipated to have a surplus of water to meet its customer's demands.[7]

- While population is increasing, housing density is increasing as well because hillside density transfers are applied to rural and agricultural residential areas. This will result in a decrease in residential irrigation on a per capita basis.[8]

- Following the completion of Phase I of the City's Wastewater Treatment Plant, recycled water can be utilized to meet the City's irrigation demands for open space, including land for hillside preservation and recreation.[9]

- The demand projections included in the UWMP will be achieved through a combined use of recycled water, conservation within new developments and retrofitting of existing infrastructures.[10]

- Groundwater management, water conservation and the effective use of recycled water generated within the city are the primary elements of the City's long-term strategy for meeting its water needs. The goals of the City's water conservation program are to reduce water demands, demonstrate a commitment to best management practices (BMPs), and ensure reliable water supplies.[11]

- Currently the City can meet demand with existing sources of potable water from existing groundwater wells, additional production from existing wells or additional wells will be necessary to meet demand in the future.[12]

1.6 Water Demands

1.6.1 Project Demands

The Butterfield Specific Plan will be constructed in five phases over an estimated 30 years. The total projected gross water demand for the Project at full buildout is approximately 4,224 AFY. The Project's gross potable water demand at buildout is 2,880 AFY. The gross non-potable demand of the Project at buildout, which includes golf course and landscape irrigation (parks and greenbelts), is approximately 1,344 AFY. These numbers do not reflect any required or anticipated additional conservation (demand savings) measures. The Project's total projected net demand at buildout is 3,103 AFY, which takes into account expected and required new conservation

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[7] City of Banning, Draft 2010 UWMP, p. 92.
[8] City of Banning, Draft 2010 UWMP, p. 34.
[9] Draft 2010 UWMP, p. 35.
[10] Draft 2010 UWMP, p. 40.
[11] Draft 2010 UWMP, p. 41.
[12] Draft 2010 UWMP, p. 51.

measures. Table 1.6.1 sets forth the Project's gross and net (after conservation) projected potable and non-potable water demands in five-year increments.

Table 1.6.1. Water Demand for Project (AFY)							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Potable Demand	300	818	1,284	1,751	2,218	2,693	2,880
Non-potable Demand	953	1,073	1,113	1,161	1,277	1,326	1,344
Total Gross Project Water Demand	**1,253**	**1,891**	**2,397**	**2,912**	**3,495**	**4,019**	**4,224**
Demand Savings from Conservation	111	304	490	674	863	1,047	1,121
Total Net Projected Project Demand After Conservation Savings	**1,142**	**1,587**	**1,908**	**2,239**	**2,633**	**2,972**	**3,103**

1.6.2 City Demands

The City's total projected water demand includes both potable and non-potable demands.[13] Gross water demands based on past historical practice have been reduced to account for numerous legal requirements mandating water conservation. This conservation will reduce demand over time as new dwelling units are built and existing dwelling units are retrofitted.

In order to evaluate water supply reliability, California statutes require the consideration of water supplies and demands in normal, single dry and multiple dry years.[14] There is no statute or regulation that dictates the proper method for calculating demands in single dry and multiple dry water years compared to normal water years. This WSA assumes that demand will remain constant, even in dry years. This approach is more conservative because water use generally declines in dry years due to public notification of drought conditions and voluntary conservation actions.[15]

Table 1.6.2.A summarizes the City's gross water demand, without the Project, for years 2015-2045.

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[13] The City's water demand projections are based on actual historical demand trends. In contrast, the Pass Agency's 2010 Final Urban Water Management Plan (December 2010) (Pass Agency's 2010 UWMP), which was prepared and approved before the City's preparation of its own 2010 UWMP, includes potable and non-potable water demands for the City of Banning that are based on inaccurate baseline data and do not take into recent historical demand trends or account for existing and future conservation measures that will reduce potable demand. (Pass Agency's 2010 UWMP, p. 2-2).

[14] Cal. Water Code § 10910(c)(3).

[15] City of Banning, 2005 Urban Water Management Plan (Dec. 2005) (hereafter "2005 UWMP"), pp. 6-4 to 6-7; *see also* Draft 2010 UWMP, pp. 81-89.

Table 1.6.2.A Gross Water Demand for City (Without Project) (AFY)							
	2015	2020	2025	2030	2035	2040	2045
Potable Demand	7,498	7,801	8,273	8,830	9,613	10,502	11,854
Non-potable Demand	2,009	2,188	2,447	2,698	2,881	3,132	3,413
Total Gross Water Demand	9,507	9,989	10,719	11, 569	12,493	13,634	15,267

Table 1.6.2.B summarizes the City's total projected water demand with the Project for the same period.

Table 1.6.2.B Total Projected City Water Demand (With Project) (AFY)							
	2015	2020	2025	2030	2035	2040	2045
Gross Potable Demand	7,798	8,619	9,557	10,623	11,831	13,195	14,734
Gross Non-potable Demand	2,962	3,261	3,560	3,859	4,158	4,458	4,757
Total Gross Projected Water Demand	10,760	11,880	13,117	14,482	15,989	17,653	19,491
Demand Savings from Conservation[16]	384	1,697	1,874	2,069	2,284	2,518	2,781
Total Net Demand (See Table 5.3.1)	**10,376**	**10,183**	**11,243**	**12,413**	**13,705**	**15,135**	**16,710**

This WSA's projections of water demands for the study period are conservative — as noted throughout the text — and therefore provide a reasonable evaluation of City-wide demands for the study period.

1.7 Water Supplies

The City's average annual water supply is, and will continue to be, from local groundwater supplies. The City pumps groundwater from five local groundwater basins — the Banning, Banning Bench, and Banning Canyon basins (collectively, the Banning Basins), the Cabazon Basin and the Beaumont Basin. All of the City's groundwater supplies are supported by vested water rights. In the case of the Beaumont Basin, the City's production and storage rights in the basin have been adjudicated by a court and are subject to a final judgment (Appendix B).

Additionally, the City purchases imported State Water Project water from the Pass Agency which it percolates into the Beaumont Basin and stores for later use; it does not

[16] Conservation measures include installation of efficient plumbing fixtures in new construction, replacement of noncompliant plumbing fixtures in existing residences, and installation of efficient landscape and irrigation systems, including moisture irrigation controllers for new residential landscaping. See sections 5.3 and 5.4 of this WSA.

take direct delivery of the supply. The City is not entitled to a specified quantity of supply from the Pass Agency; rather, it may purchase all of the water that the Pass Agency has available to sell, subject only to the demands of other retailed water customers. Historically, the Pass Agency has made available for purchase all of the water that the City has requested.

The City also discharges secondary treated wastewater into percolation ponds overlying the Cabazon Basin. The water recharges the basin, is stored and later recovered by the City's groundwater pumping. It also utilizes local surface water rights to replenish and augment the yield of local groundwater supplies. Like imported water, the City does not directly divert these supplies.

In the future, the City will increase its groundwater pumping in the Cabazon Basin, increase imported water purchases and develop a recycled water supply to meet existing and future potable and non-potable demands. Additionally, the Project, if approved, would generate an additional source of supply for the City in the form of stormwater detention, which would constitute “new yield” to the Beaumont Basin. However, to ensure a conservative estimate of available supplies in this WSA, these projected stormwater flows are not included in the City’s projected water supplies. Given that the City's water supply extraction and distribution system is fully integrated, any of the above-referenced supplies may be used to serve the Project.

The City’s ability to conjunctively manage imported surface water supplies with local groundwater supplies provides numerous benefits to the City and its existing and future customers, including improving overall water supply reliability, improved operational flexibility, more efficient use of supplemental supplies during wetter than normal years, increased basin yield, and reduced water supply costs over time.

The City is uniquely situated to take advantage of this management technique because it overlies the Beaumont Basin and has adjudicated production and storage rights in the basin. The Beaumont Basin Judgment expressly promotes conjunctive use. Further, the City has an approved Groundwater Storage Agreement with the Watermaster permitting it to store up to 80,000 AF in the Beaumont Basin. The City’s ability to store imported water supplies, when available, for use in later years allows the City to maximize its beneficial use of the Beaumont Basin by carrying over unneeded supplies for later use. In most years, given anticipated future City pumping to meet projected demands, the City will be able to store and “bank” the majority of the imported water supplies it purchases, as well as any surplus or unused Beaumont Basin adjudicated supplies. The City’s stored imported water supplies are maintained in the City’s Beaumont Basin Stored Water account and accumulate over time if not pumped. To date, the City has already accumulated approximately 25,000 AF in storage.

Tables 1.7A-C summarize the City's projected available supplies from all five groundwater basins, as well as the City's projected future recycled water supply, in normal, single dry and multiple dry years. As required by Water Code section 10910 *et seq*., the City's assessment of water supply availability takes into account fluctuations in the availability of each of the City's supplies under varying hydrologic conditions. Tables 1.7A, 1.7B and 1.7C provide the same information, but reflect differences in the availability of the City's Banning Basin and Banning Bench supplies in normal, single dry and multiple dry years. All other supplies are projected to remain the same across all water year types. Water supplies are projected for the 35-year study period used in this WSA.

The City's Beaumont Basin supply includes both the City's projected annual pumping right (or "Production Right"[17]) pursuant to the Beaumont Basin Judgment and the City's imported water supply in storage — e.g. not produced to serve demand in prior years and remaining in the City's "Stored Water account." The City's Beaumont Basin supply does not include any potential "New Yield" derived from stormwater flows derived from the Project and recharged into the Beaumont Basin as permitted by the Beaumont Basin Judgment. The City's Stored Water account balance represents the City's total available supply from the Beaumont Basin at any point in time and therefore is used to reflect the City's Beaumont Basin supply for purposes of comparing supply and demand. The City's projected Beaumont Basin Stored Water account balance is calculated based on the City's anticipated future pumping in the basin and therefore already takes into account a portion of the City's projected demand. (*See* Appendix C.)

To ensure a reliable estimate of the City's projected supplies, this WSA makes a number of conservative assumptions with respect to its assessment of the City's existing and future water supplies, which are noted throughout this WSA.

Table 1.7A. Total Projected City Water Supplies (*Average Year*) (AF)

Supply Source	2015	2020	2025	2030	2035	2040	2045
Beaumont Basin (Stored Water Account Balance)	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	1,130	1,130	1,130	1,130	1,130	1,130	1,130
Banning Bench Basin	1,960	1,960	1,960	1,960	1,960	1,960	1,960
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**53,686**	**63,166**	**71,612**	**79,303**	**86,290**	**92,975**	**99,615**

[17] With respect to the Beaumont Basin, all defined terms have the same meaning as provided in the Beaumont Basin Judgment (Appendix B).

Table 1.7B. Total Projected City Water Supplies (*Single Dry Year*) (AF)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Beaumont Basin (Stored Water Account Balance)	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	1,103	1,103	1,103	1,103	1,103	1,103	1,103
Banning Bench Basin	733	733	733	733	733	733	733
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**52,432**	**61,912**	**70,358**	**78,049**	**85,036**	**91,721**	**98,361**

Table 1.7C. Total Projected City Water Supplies (*Multiple Dry Year*) (AF)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Beaumont Basin (Stored Water Account Balance)	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	843	843	843	843	843	843	843
Banning Bench Basin	598	598	598	598	598	598	598
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**52,037**	**61,517**	**69,963**	**77,654**	**84,641**	**91,326**	**97,966**

Unlike the City's Draft 2010 UWMP, this WSA does not include return flows from irrigation as a supply source given its relatively insignificant contribution to the City's total supply. Also, it should be noted that the Draft 2010 UWMP sums the City's projected water supplies for the period 2015-2035 separately from the quantity of water the City intends to store in the Beaumont Basin,[18] whereas this WSA combines all available supplies, as illustrated in Tables 1.7A-C, for purposes of comparing the City's total projected supply and demand. A comparison of the City's Draft 2010 UWMP, Tables 5-2, 5-3 and 5-4 with this WSA's Tables 1.7A-C demonstrates that after 2035, the City will begin to draw water from its Stored Water account (i.e., unpumped City

[18] *See* Draft 2010 UWMP, pp. 45, 75-80 (summing the City's projected water supplies) and p. 53 (estimating the quantity of water in storage in the City's Stored Water account for the period 2004-2035).

Production Rights and imported water stored in the basin) to meet increasing demand.[19] Despite increasing demand over time, the City's Stored Water account balance will continue to increase such that the City is projected to have at least 80,000 AF in storage by 2045.

1.8 Comparison of Water Supplies and Demands

The analyses contained in this WSA are summarized in Tables 1.8A, B and C below, which compare the total available water supplies, including water banked in the City's Stored Water Account, with water demands for the Project, in addition to the City's existing and other planned future demands.

Table 1.8A Comparison of Projected City Supplies (*Normal Year*) and Demand (With and Without Project) (AFY)

Supply Source	2015	2020	2025	2030	2035	2040	2045
Without Project							
Supplies	53,686	63,166	71,612	79,303	86,290	92,975	99,615
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	44,452	54,570	62,277	69,129	75,218	80,812	86,008
With Project							
Supplies	53,686	63,166	71,612	79,303	86,290	92,975	99,615
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	43,310	52,983	60,369	66,890	72,585	77,840	82,905

19 *See also* Draft 2010 UWMP, p. 54 ("as demand increases, additional water will be extracted as needed from the Beaumont Storage Unit to meet demand.").

Table 1.8B Comparison of Projected City Supplies (*Single Dry Year*) and Demand (With and Without Project) (AFY)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Without Project							
Supplies	52,432	61,912	70,358	78,049	85,036	91,721	98,361
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	43,198	53,316	61,023	67,875	73,964	79,558	84,754
With Project							
Supplies	52,432	61,912	70,358	78,049	85,036	91,721	98,361
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	42,056	51,729	59,115	65,636	71,331	76,586	81,651

Table 1.8C Comparison of Projected City Supplies (*Multiple Dry Year*) and Demand (With and Without Project) (AFY)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Without Project							
Supplies	52,037	61,517	69,963	77,654	84,641	91,326	97,966
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	42,803	52,921	60,628	67,480	73,569	79,163	84,359
With Project							
Supplies	52,037	61,517	69,963	77,654	84,641	91,326	97,966
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	41,661	10,183	58,720	65,241	70,936	76,191	81,256

As illustrated by Tables 1.8A, B and C, this WSA concludes that the City will have sufficient water supplies available during normal, single dry and multiple dry years during a 35-year projection to meet the projected water demand associated with the Project, in addition to the City's existing and planned future uses. Therefore, sufficient water supplies are available to serve the Project.

2. INTRODUCTION

2.1 Project Applicability

The WSA law requires that, as part of the environmental review conducted for a qualifying project pursuant to the California Environmental Quality Act (CEQA), the "public water system" proposed to serve the project must prepare and approve a "water supply assessment" of the reliability of water supplies to serve the project, in addition to the public water system's existing and planned future uses, considering normal, single dry and multiple dry years over a 20-year horizon.

The Project is a qualifying "project" within the meaning of Water Code section 10912(a) because it is a residential development of more than 500 dwelling units. The City has determined that the Project is subject to CEQA pursuant to section 21080 of the California Public Resources Code. As such, preparation of this WSA is required.

In this case, the governing body of the public water system — the City — is also the "lead agency" for purposes of the Project's compliance with CEQA. Upon the City's approval of this WSA, it will be incorporated into the CEQA document — and Environmental Impact Report (EIR) — being prepared for the Project (the Project EIR). Thereafter, the City will be required to determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands for the Project, in addition to existing and planned future uses.[20]

2.1.1 35-Year Projection

This WSA evaluates the City's water supply availability and demands for a period of up to 15 years beyond the 20-year planning horizon required by law. The WSA law requires that a WSA must assess whether the water supplier's (in this case, the City's) total projected water supplies during normal, single dry and multiple dry years "during a 20-year projection" are sufficient to meet the City's total projected water demands. While the law does not identify the start date for the projection, the Department of Water Resources (DWR) has concluded that it is reasonable to assume that the 20-year projection begins with the year in which the WSA is prepared.[21] This is consistent with the Urban Water Management Planning law, which also requires at least a 20-year projection, "or as far as data is available."[22]

However, because a WSA is a component of the larger environmental analysis required by CEQA, the City has elected to utilize a longer planning period to ensure consistency between the planning projections utilized in both the EIR and this WSA for the Project. In this case, the Project is anticipated to buildout over 30 years. The greatest water

[20] Cal. Water Code § 10911(b)-(c).
[21] DWR's Guidebook for Implementation of Senate Bill 610 and 221 of 2001 refers to "the next 20 years." (California Department of Water Resources, Guidebook for Implementation of Senate Bill 610 and 221 of 2001 (2003), p. 79.)
[22] Cal. Water Code § 10631(a).

supply use will occur at buildout. As such, the City has elected to use a 34-year planning projection (or 2045, if the EIR is published in 2011) for the WSA as well.

UWMPs are prepared and updated every five years, and data must be presented in five-year increments. Given the close relationship between UWMPs and WSAs — WSAs are permitted to rely on UWMPs — and for ease of reference and comparison, the City's WSA correlates to the same five-year increments as the City's UWMP — i.e., 2010, 2015, 2020, etc. to 2045.

2.2 Applicable Legal Requirements

The basic requirement is that a WSA must "include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."[23] A WSA must identify the water supply entitlements, water rights or water service contracts related to the planned water supplies for the project, as demonstrated by written contracts, capital financing plans, federal, state and local permits for construction of infrastructure, and regulatory approvals required to be able to convey or deliver the water supplies.[24]

If the water demand for a proposed project is accounted for in an adopted UWMP, the public water system may incorporate the plan information into the WSA, in whole or in part, into the evidentiary record.[25] If there is no current UWMP or the current UWMP does not account for the project's projected water demand, the WSA must be based on the available evidentiary record.[26]

If a project's water supply includes groundwater, the WSA must include the following information:

> (1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.
>
> (2) A description of any groundwater basin or basins from which the proposed project will be supplied. 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 public water system, or the city or county if either is required to comply with this part

23 Cal. Water Code § 10910(c)(3).
24 *See* Cal. Water Code § 10910(d)(2).
25 *See* Cal. Water Code § 10910(c)(2).
26 *See* Cal. Water Code § 10910(c)(3).

pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. 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 public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.[27]

In addition to the WSA law's statutory requirements, the California Supreme Court has set forth several general principles for analyzing the sufficiency of water supplies for new development.[28] First, an environmental review document cannot simply ignore or assume a solution to any water supply constraint or limitation. Second, a review document for a large project to be built over a period of years cannot limit its analysis to water supplies needed for the first stage or first few years, but must assume that the

[27] Cal. Water Code § 10910(f).

[28] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal.4th 412, 430-32 (2007).

entire project will be built, and it must analyze the impacts of supplying water to the entire project. Third, future water supplies must bear a likelihood of actually proving available; speculative sources and unrealistic allocations are generally insufficient. An environmental review document must include a reasoned analysis of the circumstances affecting the likelihood of availability for each water supply source. Finally, CEQA requires some analysis of the environmental impacts of possible alternative supplies that may be needed to supplement any uncertainty that may exist. Nonetheless, an analysis of alternative supplies is not necessary if it is clear that future water supplies will likely be available. The review document may not simply assume that if the primary future water supply fails, the development will not proceed.[29]

For a WSA to be adequate when based on water supplies that are not yet available to the public water system, these future supplies need not be definitely assured through signed, enforceable agreements and already built or approved treatment and delivery infrastructure. Rather, it is expected that land use and water supply planning will occur through roughly contemporaneous processes for those future supplies. In this regard, the Supreme Court in *Vineyard* highlighted the distinction between WSAs that are part of the environmental review process and written verifications that are required for final subdivision map approval. In contrast to WSAs, written verifications must be based on firm indications that water will be available in the future, as evidenced by written contracts, approved financing programs and reasonably anticipated regulatory approvals. A WSA provides sufficient certainty if it demonstrates a reasonable likelihood that such contracts, financing programs and regulatory approvals will be obtained in the future.[30]

A recent decision by the First Appellate District Court of Appeal interpreted the WSA requirements for assessing groundwater sufficiency for a proposed project in Sonoma County that would rely upon unadjudicated groundwater. At issue in *O.W.L. Foundation v. City of Rohnert Park (O.W.L.)*[31] was whether a WSA that relies on a groundwater supply must include an assessment of all basin users' demands, and a comparison of

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[29] For example, one recent California Court of Appeal decision, *Santa Clarita Organization for Planning the Environment v. County of Los Angeles*, 157 Cal.App.4th 149 (2007), has applied the principles set forth in *Vineyard* in its analysis of the County of Los Angeles' water supply assessment for a proposed mixed residential and commercial development. In doing so, the court held that the environmental impact report at issue in the case satisfied *Vineyard*'s third principle because the "record contains substantial evidence demonstrating a reasonable likelihood that [the challenged water supply] will be available for the project's near-and long-term needs." (*Santa Clarita*, 157 Cal.App.4th at 162.) The court also held that "some legal uncertainty" — in that case, uncertainty involving the pendency of litigation related to the water supply — did not trigger the requirement of analyzing possible alternative supplies under the fourth principle, since the degree of uncertainty was insubstantial. (*Santa Clarita,* 157 Cal.App.4th at 162-163.) Therefore, the water supply analysis was found to be legally adequate. Further, the court clarified that the fourth principle in *Vineyard*, which requires the analysis of a replacement or alternative water source, is only required if it is "impossible to confidently determine" that anticipated future water sources will be available." (*Santa Clarita,* 157 Cal.App.4th at 162.)

[30] *See Vineyard*, 40 Cal.4th at 432-34.

[31] *O.W.L. Foundation v. City of Rohnert Park,* 168 Cal.App.4th 568 (2008).

that demand to the basin's safe yield.[32] The court held that Water Code section 10910(f)(5) does not prescribe a particular method for assessing groundwater sufficiency, and thus affords "substantial discretion to the water supplier and its experts to select a methodology appropriate for assessing groundwater sufficiency for a proposed project."[33] According to the *O.W.L.* court's reasoning, WSAs that rely on unadjudicated groundwater need not analyze all groundwater pumping by all users in the entire basin or sub-basin. Further, the court concluded that a "DWR basin or subbasin boundary is not the only appropriate boundary for analyzing the sufficiency of a groundwater supply."[34] Accordingly, a local water supplier has the discretion to determine the appropriate geographical area to support a WSA based on technical and practical factors, and to use its own method to conduct a groundwater sufficiency analysis.

32 "Safe yield" is a water management construct that describes the sustainable supply of a groundwater basin and is defined herein as the amount of water that can be withdrawn from a groundwater basin annually without producing an undesirable result. (*San Fernando*, 13 Cal.3d at 278.)

33 *O.W.L.,* 168 Cal.App.4th at 592-93.

34 *O.W.L.*, 168 Cal.App.4th at 594.

3. THE CITY OF BANNING

The Project's development area is within the boundaries and municipal service area of the City. The City owns, operates and maintains the public water system within the City boundaries and proposes to be the public water supplier for the Project. As such, and as permitted by Water Code section 10910(b), the City is the preparer of this WSA.

3.1 Water System

The City's predecessor, the Banning Water Company, was formed in 1884 to serve water to City customers for domestic and irrigation purposes.[35] In 1967, the City acquired the Banning Water Company and, as a result, became the primary public water supplier for the area now located within the City's boundaries. Most recently, in 1997, the City purchased the Mountain Water Company, which previously served water to City customers from groundwater wells.

The City is located in the San Gorgonio Pass area of Riverside County at an elevation of approximately 2,500 feet above sea level. The westernmost part of the City's planning area is located at the summit of the San Gorgonio Pass that divides two major watersheds: the Santa Ana River Watershed and the Salton Sea Watershed.

Like all public water suppliers in California, the City's water supplies and demands are affected by seasonal and hydrologic variability and geography. The majority of the state's precipitation occurs in the winter months while demand peaks during summer months. California's history is also marked by periods of extreme drought and flooding. The state is also challenged by an uneven distribution of water supply in relation to population concentrations. More than 70% of California's 71 million AF of average annual runoff occurs in the northern part of the state while 75% of the state's urban and agricultural demand occurs south of Sacramento.[36] Thus, the City has developed a diversified water supply portfolio which, together with the ability to transport and store supplemental water supplies, is essential to balancing supply and demand.

Despite these impediments, historically the City has provided reliable water supplies to all of its customers.[37] The City relies on local groundwater supplies, together with supplemental imported supplies, to meet the demands of its customers.

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[35] 2005 UWMP, pp. 1-4.

[36] California Department of Water Resources, California Water Plan Update 2005, Bulletin No. 160-05 (Water Plan Update 2005) (Dec. 2005), pp. 3-1 to 3-4; see also Department of Water Resources, California Water Plan Update 2009, Bulletin No. 160-09 (2010) (Water Plan Update 2009), pp. 4-16 to 4-24.

[37] 2005 UWMP, p. 4; Banning DWR Form 38 (2010).

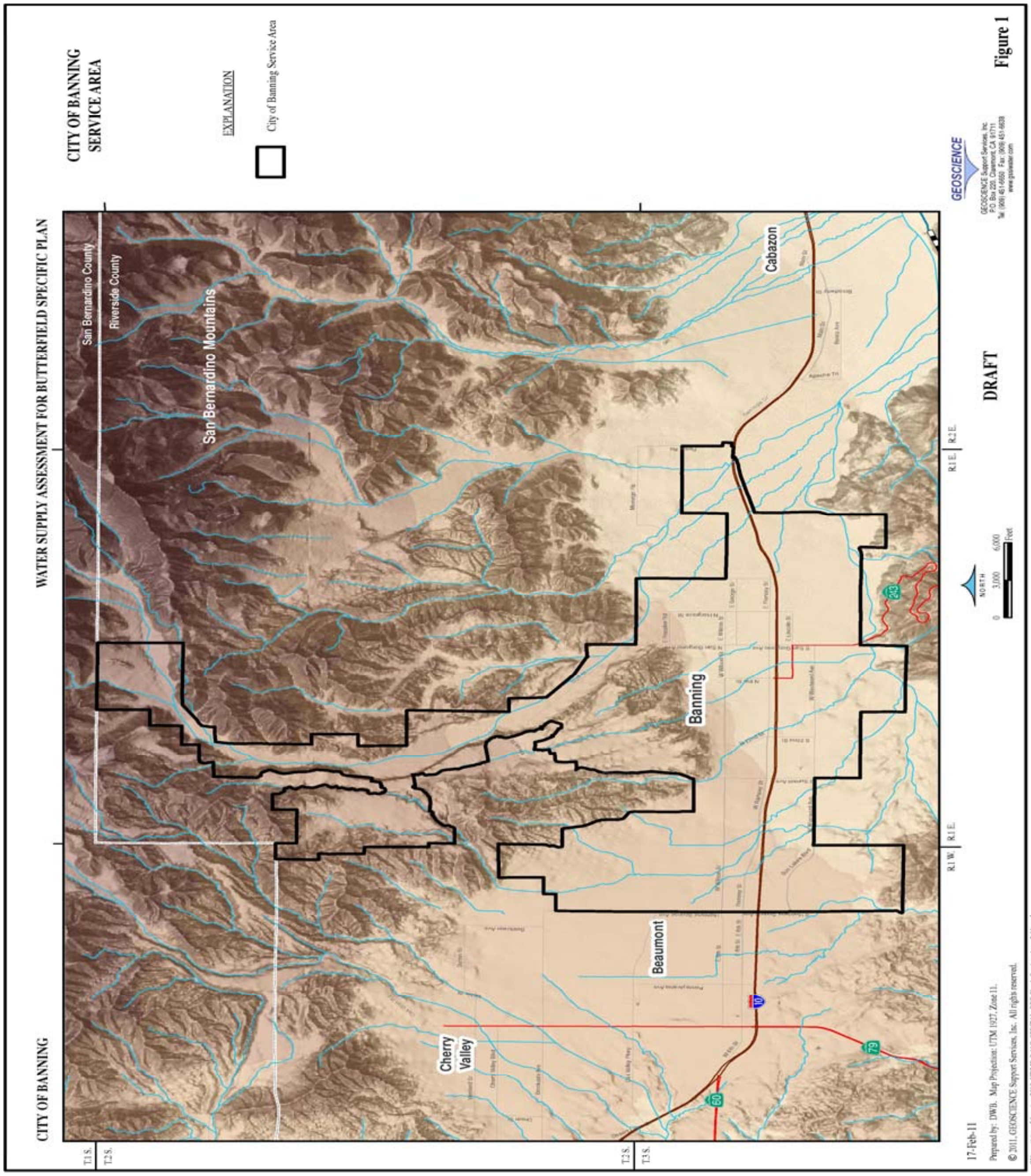
3.2 Service Area

The City's Public Works and Utilities Department provides domestic water service to all areas of the City except for a small portion in the northern area of the City which is served by the Banning Heights Mutual Water Company (BHMWC). The City provides water service within the Banning planning area, which covers approximately 22 square miles, including approximately 29,603 people, via approximately 11,006 metered connections.[38] The City maintains pressure throughout the system on a system-wide basis.[39] All sources of supply, including surface water and imported water supplies that are percolated into local groundwater basins, are produced via the City's groundwater production wells that are located throughout the City. (See Table 6.1.1; see also Appendix D, Figure 6: Well Locations.)

Figure 3.2 is a map of the City's current service area.

38 2005 UWMP, p. 1-4; 2010 Census.
39 2005 UWMP, p. 6-3.

Figure 3.2: City of Banning Service Area Map[40]



40 The City's service area has not changed since 2005.

3.3 Current Service Connections and Metered Water Use

According to the City's Public Water System Statistics for Calendar Year 2010, the City has a total of 11,006 service connections. These are comprised of 10,077 single-family residential connections, 206 multi-family residential connections, 662 commercial/institutional connections, two industrial connections, 37 landscape irrigation connections, and 22 "other" connections.[41]

The following tables illustrate the City's current water production and metered water use.

Table 3.3A. Total Water Production Into City System for Calendar Year 2010 (AF)[42]	
Groundwater (wells)[43]	8,330.21
Surface Water[44]	0
Imported Water (pumped from storage in the Beaumont Basin)	148.41
Untreated Water	0
Secondary Treated Wastewater[45]	0
Recycled Water (Tertiary Treated Wastewater)	0
Total Potable	**8,478.62**

41 Banning DWR Form 38 (Calendar Year 2010).
42 Banning DWR Form 38 (Calendar Year 2010).
43 The City pumps groundwater from five groundwater basins – the Beaumont, Banning Bench, Banning Canyon, and Cabazon basins.
44 City's surface water supplies are recharged into the Banning Canyon Basin and pumped indirectly as groundwater. (See further discussion below in Section 6.) Presently, the City does not separately account for this supply.
45 City's treated wastewater supplies are recharged into the Cabazon Basin and pumped indirectly as groundwater. This supply is accounted for as groundwater pumped from the Cabazon Basin. (See further discussion below in Section 6.1.6.6.7.)

Table 3.3B. City Metered Water Deliveries Calendar Year 2010 (AF)[46]	
Single-Family Residential	4,411.54
Multi-Family Residential	119.98
Commercial/Institutional	1907.62
Industrial	94.72
Landscape Irrigation	939.03
Other	30.54
Agricultural Irrigation	0
Wholesale	82.19
Total	**7,585.62**

Taken together, the statistics in Tables 3.3A and 3.3B show that in 2010, water loss in the City's system between production and deliveries was 10.5%. The average City water system loss from 2005 to 2010 was 7.8%. This loss was calculated by comparing the City's records for "Total Water Into the System" (production) with "Metered Water Delivery records."[47]

3.4 Weather

The Banning area has a Mediterranean climate, characterized by hot, dry summers and short, mild, moist winters. Annual precipitation ranges from a minimum of 6.4 inches (1999) to a maximum of 36.37 inches (1978), with an average precipitation of 17.92 inches per year. Average summer temperatures range from a high of 90 to 100 degrees Fahrenheit with lows from the 50s to 60s Fahrenheit. Average winter temperatures range from a high of 60 to 65 degrees Fahrenheit to lows between 38 and 40 degrees Fahrenheit. Table 3.4 reflects the City's average monthly climate. The year 2010 saw a substantial increase in rainfall from 2009. In 2010, total precipitation measured at the City's Well #7 was 39.59 inches, compared to 9.05 inches in 2009.[48] At the City's Well #C5, total precipitation for 2010 was 29.86 inches, compared to 6.95 inches in 2009.[49]

46 Banning DWR Form 38.
47 Banning DWR Form 38, 2005-2009.
48 City of Banning Year End Water Production Report 2010, Prepared by Pat Logan, p. 5.
49 City of Banning Year End Water Production Report 2010, Prepared by Pat Logan, p. 5.

Table 3.4. Average Climate Data for City[50]				
Month	**Maximum Temperature (°F)**	**Minimum Temperature (°F)**	**Precipitation (inches per month)**	**ETo (inches per month)**
January	60.5	38.6	3.76	2.49
February	63.6	39.1	3.44	2.91
March	66.2	40.0	3.12	4.16
April	72.5	42.8	1.36	5.27
May	78.8	47.7	0.63	5.94
June	88.0	52.5	0.15	6.56
July	95.6	58.4	0.23	7.22
August	95.5	58.9	0.21	6.92
September	90.6	55.8	0.51	5.35
October	80.7	49.3	0.59	4.05
November	69.4	43.1	1.65	2.94
December	62.0	39.2	2.09	2.56
Annual	**77.0**	**47.1**	**17.74**	**56.37**

[50] The evapotranspiration (ETo) values are the monthly and annual averages for 1985-2010 as measured at California Irrigation Management Information System (CIMIS) Station 44 at U.C. Riverside in Riverside, California. The next closest CIMIS station to the City of Banning is located in Cathedral City and it has comparable ETo values. ETo ranges from a high of 7.22 inches in the month of July to a low of 2.49 inches in January. The average temperature values are for the period of 1948 to 2001 at the Beaumont 1E Station, National Climatic Data Center (NCDC) Cooperative Observer Program (COOP) Station 040609. As seen with ETo, the average maximum temperature of 95.6°F occurs in July and the average minimum temperature of 38.6°F occurs in January.

4. PROJECT DESCRIPTION

4.1 Deutsch Specific Plan

The planning process for the Project, formerly known as the Deutsch project, began in October 1981. In April 1984, a comprehensive entitlement program was initiated by Pardee Home's predecessor-in-interest, Deutsch Corporation, that included preparation of a General Plan Amendment, Specific Plan, Zoning and EIR. Those studies were completed in October 1984. On April 18, 1985, the City Council certified the Final EIR, and on June 25, 1985, the Council approved a General Plan Amendment, Specific Plan, Zoning and Pre-Zoning for the property. A majority of the specific plan area was annexed to the City in 1985. On October 26, 1993, the City certified a new EIR, and on November 9, 1993, adopted an amended Specific Plan (Specific Plan Amendment No. 1992-03) by Ordinance No. 1133, which became known as the Deutsch Specific Plan.

The following is a timeline of the Deutsch Specific Plan:

1981 Initiation of the Deutsch Specific Plan.

1985 Certification of the Deutsch Specific Plan Final EIR; approval of the General Plan Amendment and Specific Plan.

1985 Annexation of a majority of the project area into the City of Banning.

1992 Initiation of Specific Plan Amendment.

1993 Certification of Final EIR; approval of Specific Plan Amendment and Development Agreement.

1995 Annexation of remaining Deutsch Specific Plan project area into the City of Banning.

The Deutsch Specific Plan, as approved by Ordinance No. 1133, included estate, single-family, patio home, apartment and senior housing land uses, allowing a total of 5,400 dwelling units. The approved Specific Plan also included commercial sites (25 acres), school sites (24 acres), a fire station (one acre), parks (75 acres), a golf course (193 acres), and backbone roadways (83 acres).

On May 6, 1994, Pardee Home's predecessors-in-interest entered into a development agreement with the City committing both parties to the development program described in the Specific Plan. The agreement, which remains in effect today, exempts the Specific Plan from changes to codes, plans, resolutions, or voter-approved initiatives that might yield a different development scenario. The approved and executed Development Agreement outlines the City's responsibilities as well as the construction requirements for specified public improvements, facilities and services.

4.2 Butterfield Specific Plan

The current proposed Project — the Butterfield Specific Plan — constitutes the second amendment to the original Specific Plan and would replace all previously approved specific plans and zoning for the property. The Project proposes residential development, a golf course, parks, open space, school sites and commercial uses similar to the previously adopted Deutsch Specific Plan.

Because the Deutsch Specific Plan has been approved by the City since 1985, City planning documents, including the City's General Plan, 2005 UWMP and forthcoming draft 2010 UWMP have anticipated development of the Project. The proposed Project maintains similar uses in similar amounts that were previously approved in the 1993 Deutsch Specific Plan. For example, the Project would allow a maximum of 5,387 dwelling units as compared to the 5,400 dwelling units allowed in the 1993 Deutsch Specific Plan.

4.2.1 Project Location

The Project site is located in the Upland Pass Area, north of Interstate 10 within the northwestern portion of the City, adjacent to the easternmost boundary of the City of Beaumont and unincorporated areas within the County of Riverside. The Project site is generally bounded by unincorporated Riverside County and the San Bernardino National Forest to the north and Northeast, Highland Home Road, the Morongo Indian Reservation, and the Banning Bench to the east, Wilson Street to the south, and Highland Springs Avenue and the City of Beaumont to the west.

4.2.2 Project Components

The overall Project Area encompasses 1,543 acres of residential and non-residential land. The Project proposes residential and commercial uses, parks, open space, school sites, and a golf course. The total acreage proposed for development is 1,543 acres with a maximum of 5,387 dwelling units, resulting in a gross density over the entire site of 3.5 dwelling units per acre (du/ac). The residential planning areas encompass approximately 60.8% of the Project site.

The Project also proposes: (1) 36 acres (2.3% of the Project site area) of commercial space to accommodate retail and service uses for the proposed Project and surrounding areas; (2) two elementary school sites on approximately 23 acres (1.5% of the Project area); and (3) an 18-hole golf course and clubhouse on approximately 254 acres (located throughout the central portions of the Project area and comprising 16.5% of the Project site).

4.3 Water Supply Infrastructure for Project

The Project proposes construction of several water supply, water quality and drainage control features that are described in this section. The Project will include a comprehensive water supply system, sewer improvements, drainage control and flood protection measures to serve future Project development and Project residents. The Project will be integrated into the City's potable water system. Accordingly, the ultimate size and location for the Project water storage tanks and pipes will be based on effectively balancing deliveries and water pressure zone requirements for the Project as well as the City. The timing of these improvements will coincide with the number of homes under construction and other proposed non-residential development, to ensure that adequate pressures and water flows can be achieved.

Prior to construction, the Project will obtain all necessary streambed alteration permits, including but not limited to applicable permits from the U.S. Army Corps of Engineers (USACE), the California Regional Water Quality Control Board (Regional Board) and the California Department of Fish and Game (DFG).

4.3.1 Connection to City Water Supply System

The Project proposes three potable water pump stations and in-tract water pipelines that will connect to the City's existing system at Highland Home Road and Wilson Street, as well as the proposed system at "C" Street and Wilson Street. The Project will also provide opportunities for three potential potable water interties with the Beaumont-Cherry Valley Water District (BCVWD) along Highland Springs Avenue. The City and the BCVWD jointly operate three existing water wells west of Highland Springs Avenue.

The Project proposes construction of three storage tanks for the storage of potable water (with a total potential storage capacity of approximately 5 million gallons [mg]), including reservoirs serving the lower Foothill West Zone, the proposed Project Pressure Zone I, and the highest proposed Project Pressure Zone II. All of the reservoirs would likely be located within the Project area. The proposed Foothill West Zone reservoir would be located in the vicinity of Planning Areas (PAs) 50, 51 or 68 at a minimum pad elevation of 2,790 feet. The proposed Project Zone I and Zone II reservoirs will be located on the east side of PA 73 and will have pad elevations of 3,038 feet and 3,205 feet respectively.

4.3.2 North Basin Reservoir

Project proponents will construct a large surface reservoir — "the North Basin Reservoir" — at the Project site during the initial phase of the Project in conjunction with the improvement of Smith Creek and construction of the golf course. It will be located at the northern limits of Smith Creek in the Project, in PA 71, where Smith Creek enters the site.

The North Basin Reservoir will have multiple functions: (1) to detain flows from expected 100-year storm events flowing in from Smith Creek and to release this stormwater in an acceptable controlled manner;[51] (2) to detain sediment from off-site

[51] Here, stormwater includes runoff from storm events that flow in Smith Creek, including runoff coming down the creek from upstream of the Project. The definition of stormwater or stormwater runoff is the amount of surface water produced from precipitation, measured after evaporation, evapotranspiration,

upstream flows from Smith Creek; and (3) to establish a recreational lake, suitable for potential shore fishing, picnicking and hiking.[52] The surface area of the proposed North Basin Reservoir will be approximately 15 acres. The reservoir will have a proposed capacity of 290 AF of which 145 AF will be dedicated to flood control/stormwater control.

4.3.3 Drainage System: Realignment of Smith Creek and Drainage Improvements

A portion of the southerly area of the Project is located within a 100-year flood plain area as designated by the Federal Emergency Management Agency (FEMA). The Project's drainage and stormwater management plan, which includes improvement and realignment of Smith Creek, will remove flooding threats and in turn, result in the reclassification of the area as a non-flood plain area. The Project proponent will apply to FEMA to change these flood plain designations.

The Project proposes a system of drainage improvements, which will utilize the available capacity of both Smith Creek and Pershing Channel to transport controlled Project drainage[53] (stormwater and urban runoff) from and through the Project site in its developed condition. A major component of the drainage system is the re-alignment and improvement of Smith Creek, which will convey drainage via (1) basins, (2) realigned drainage ways restored to a natural-type condition, and (3) small culverts. The improvements are a function of the proposed golf course design. After realignment, Smith Creek will consist of a large open soil bottom with vegetated channel side sections that will run generally in a north to south direction through the golf course.

Basin and channel features at Smith Creek's site entry and exit points and through the golf course's open space area, integrated with the realigned Smith Creek, will help regulate the volume and velocity of drainage flows for the Smith Creek-drained portion of the site. This will help regulate dispersal of drainage flows throughout the Project site. During significant storm events, stormwater will spread over the top of its channel and onto golf course fairways and open space. By spreading the flows, the wetted perimeter will increase, slowing flows and enhancing natural recharge. Where necessary, some limited detention along Smith Creek may be designed to further control release of onsite stormwater and urban runoff. However, the Project will not appropriate or divert native flows from Smith Creek as the drainage system is designed to allow existing flows to continue to flow through Smith Creek. The Project will only capture increased drainage flows from development and treat urban runoff from the

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and percolation. (California Coastal Commission, Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities (Feb. 2002), p. 1.2 (2002 CCC Model Urban Runoff Program).)

[52] In the event the City constructs the Banning Pipeline (described further below in section 6.1.5 of this WSA), the City may also use the North Basin Reservoir to collect and store imported water from the Pass Agency.

[53] Project drainage consists of both urban runoff and stormwater. For purposes of this WSA, the terms are used interchangeably.

Project pursuant to the Riverside County National Pollutant Discharge Elimination System (NPDES) permit requirements.

4.3.4 Project Water Quality and Recharge Basins

Before Project drainage enters Smith Creek or Pershing Channel it will pass through water quality treatment facilities, which will likely consist of vegetated detention basins or vegetated flow through swales. The swales and basins will typically be located within the golf course open space area near Smith Creek and its tributaries. The basic drainage facilities will be required for development to occur on the Project site to control drainage, treat it, and affect the necessary adjustments to the current Flood Plain Mapping designation. A portion of the increased drainage stormwater flows in the Project site could also be captured and directed to Project recharge basins or ponds (see below) located in the expanded central golf course areas of the Project for groundwater recharge purposes to the Beaumont groundwater basin which underlies the Project site.

Onsite runoff from developed areas of the Project, including drainage and nuisance flows (urban runoff)[54] will be collected in proposed storm drain systems and transmitted to proposed water quality treatment facilities for first flush flow treatment prior to being further transmitted to Smith Creek or Pershing Channel. During dry weather, water also flows into gutters and storm drains as a result of runoff from excess irrigation and overspray, residential car washing, and other activities.[55] The North Basin Reservoir will detain upstream runoff such that flows leaving the Project area at the south end (via the Wilson Street culvert), including in the developed condition, will be equal to or less than existing conditions.

Portions of the golf course areas will drain directly to Smith Creek. Some onsite Project increased runoff may be directed to proposed Project recharge basins after first flush amounts are run through the proposed water quality treatment facilities, but generally the proposed groundwater recharge basins are designed to receive water in a controlled and metered manner from pipelines bringing water from the North Basin Reservoir.

The Project proponent will construct several groundwater recharge basins to maximize the capture of increases in drainage runoff from the project and stormwater. These recharge basins will occur either in line with Smith Creek or its tributaries. The Smith Creek recharge components and those improvements to the tributary stream courses will be constructed in the first five years of Project construction. The Project proposes an onsite groundwater recharge system to act as a partial offset (approximately 117 AFY at buildout) to the additional demand for domestic water posed by the Project (see Section 6.1.5.9.4.).

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[54] 2002 CCC Model Urban Runoff Program, p. 1.2; CalTrans Storm Water Management Plan (2003) pp. 1-2 to 1-3.

[55] 2002 CCC Model Urban Runoff Program, p. 1.2.

Preliminarily there are five general areas in and around the proposed golf course open space area that have been designated for construction of the recharge basins. The basins will be designed to store approximately 24 to 36 inches of water within their banks. To reflect Project demands and based on estimated percolation rates of one to two feet per day, the recharge basin's surface area will be approximately 13 acres. The basins would operate approximately nine months out the year on a staggered schedule, which allows for their maintenance and upkeep. The recharge basins as proposed with the initial design would have the capacity to recharge 3,500 to 7,000 AFY of water, if and when a supply is available.[56]

4.4 Satellite "Package" Recycled Plant

As a possible alternative to the City's planned Phase I Upgrade of its Main Treatment Plant, one option for providing wastewater treatment and recycled water supplies to the Project is to site and construct a satellite wastewater treatment plant within the Project area (see further discussion of recycled water in Section 6.4 below). The satellite plant would require approximately two to five acres and would be located at the southern end of Project PA 11. At this location, the satellite plant could receive wastewater gravity flows from the Project, as well as neighboring residential developments, treat them to tertiary levels and pump recycled water into the Project's recycled water system for non-potable uses. Recycled water could be delivered to the Project golf course, landscaped open spaces, park areas, school fields, parkways, and greenbelts through a piping system.

If constructed, the satellite plant would be sized to treat approximately 1.7 to 2.0 million gallons per day (mgd) and would be designed to provide future expansion for the City's other non-potable demands. The satellite facility would consist of a membrane bioreactor (MBR), filters, a 1.0 MG storage tank, a disinfection unit with a pump station unit to transfer tertiary treated water to the Project's recycled water distribution system, which includes a storage pond in the golf course. The storage pond will provide storage for the golf course and other irrigation demands and will have its own pumping system that will pressurize the proposed irrigation system.

At buildout, it is estimated that the Project will produce appropriately 840,550 gpd or 942 AFY of wastewater flows.[57] In addition, approximately 650 AFY of existing wastewater flows from surrounding areas could be diverted and treated by the satellite plant.[58] In total, 1,592 AFY of wastewater flows could be available to the satellite plant for recycled water generation. Based on the accepted standard of a 75% factor for converting wastewater into recycled water, the satellite plant could convert 1,592 AFY of

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[56] Geoscience Support Services, Inc., Preliminary Geohydrologic Evaluation of Artificial Recharge Potential-Proposed Butterfield Development, Banning, California (Feb. 28, 2007), at pp. 10-11 (13 acres multiplied 1-2 AF/day (conservatively) x 270 days).

[57] 5,387 DU x 139.3 GPD wastewater flow per unit (net of anticipated water conservation) + 101 AFY of wastewater flows from non-residential uses (commercial, schools, club houses, recreation centers).

[58] The 650 AFY of existing wastewater flows originate from existing development in the far western portion of the City, north of the freeway and south of the Butterfield Specific Plan area.

wastewater into approximately 1,194 AFY of recycled water at buildout. At buildout, the Project's non-potable net water demands are projected to be 1,321 AFY. Therefore, if constructed, the satellite plant could produce, at buildout, recycled water to serve a majority of the Project's non-potable demands. A detailed discussion of this alternative recycled water supply, along with needed approvals, is provided in Section 6.4 below.

All Project wastewater not converted into recycled water will be diverted into the sewer system at Wilson Street where it will be allowed to flow to the City's main wastewater treatment plant at the southeast end of the City for further treatment.

4.5 Project Water Demand

4.5.1 Total Demand

This section describes the Project's projected water demand by land use type. The Butterfield Specific Plan will be constructed in five phases over an estimated 30 years, with an estimated average of 180 dwelling units developed per year. The Project's projected total gross[59] water demand at buildout is approximately 4,224 AFY, which includes 2,880 AFY for potable uses. The Project's gross *non-potable* demand at buildout, which includes golf course and landscape irrigation (parks and greenbelts), is approximately 1,344 AFY.

Table 4.5.1 sets forth the Project's projected gross potable and non-potable water demands at buildout. Water demands for residential uses are based on the proposed maximum number of dwelling units, coupled with a water use factor of 0.52 AFY per dwelling unit. The water use factor is explained further below in Section 5.1. Water demands for non-residential uses are calculated using the net acres for each use coupled with generally accepted water use factors based on current requirements, explained below in Table 4.5.1.

59 Gross water demands do not reflect any expected and required new conservation measures.

Table 4.5.1. Projected Water Demands for the Project at Buildout (2045)[60]					
Land Use	Net Dwelling Units	Net Acres	Water Use Factor	Water Use (GPD)[†]	Water Use (AFY)
Potable Water Use					
Residential					
All Residential Units	5,387	937.4	0.52 AFY/DU	2,500,884	2,801
Non-Residential					
Schools[a] (40% of area)	N/A	9.2	1.76 AFY/AC	14,456	16
Commercial/Office[b]	N/A	36	1.21 AFY/AC	38,889	44
Golf Course Club House	N/A	4.3	1.21 AFY/AC	4,645	5
Golf Course Greens[c]	N/A	4	3.44 AFY/AC	12,285	14
Irrigated Areas—Non-Potable Water Use					
Parks	N/A	66.5	3.44 AFY/AC	204,232	229
School Landscaping/Fields	N/A	13.8	3.44 AFY/AC	42,382	47
Golf Course	N/A	245.6	3.44 AFY/AC	754,276	845
Other Common Open Space					
South Channel Area (PA 19)[d]	N/A	7.9	2,885 GPD/AC	22,792	26
North Basin Landscape Area (PA 71)[e]	N/A	15	2,490 GPD/AC	37,350	42
Landscape Easement (PA 74)[f]	N/A	4.4	2,490 GPD/AC	10,956	12
Fire Protection and Slope Areas[g]	N/A	25	1,000 GPD/AC	25,000	28
Water Tank Landscaping	N/A	3	1,000	3,000	3

60 Notes:

a. The potable water use factor for schools is a factor used for Public Facilities in the City of Banning May 2002 Water System Hydraulic Modeling Report (irrigation demand is accounted for separately). The 2005 UWMP also uses the 1.76 AFY per acre factor, as well as the Pass Agency 2009 Supplemental Water Supply Planning Study.

b. The potable water use factor for commercial use, including the golf course clubhouse, is a factor used for commercial land use in the City of Banning's 2002 Water System Hydraulic Modeling Report. The 2005 UWMP also uses the 1.21 AFY/AC factor, as well as the Pass Agency 2009 Supplemental Water Supply Planning Study.

c. Due to the sensitive nature of the Project's golf course greens, the 4 acres of greens will require potable water. However, the majority of the golf course's landscaping (fairways and roughs) will be irrigated with non-potable supplies. The water use factor for golf course greens, tees, fairways, roughs, parks and school fields is used in the City of Banning's 2002 Water System Hydraulic Modeling Report. The 2005 UWMP also uses the 3.44 AFY/AC factor for golf courses, which could be a blended factor for all golf course landscaping, not just turf.

d. The water use factor for the South Channel area is a blended factor based on 50% of the area being planted with irrigated reinforced turf mat for the channel and low water use plants with drip irrigation in the other 50% of this area.

e. The water use factor for the North Basin (PA 71) is based on use of medium water use plants with drip irrigation in this area. Based on this factor, it is expected that this area would meet the City's MAWA as allowed by Banning Municipal Code Chapter 17.32 (Landscaping Standards).

f. The water use factor for the landscaped easement area (PA 74) is based on use of medium water use plants with drip irrigation in these areas. Based on this factor, it is expected that this area would meet the City's MAWA as allowed by Banning Municipal Code Chapter 17.32 (Landscaping Standards).

g. The water use factor for the open space fuel modification slope areas and the water tank landscaping is based on the use of low water use plants with drip irrigation. Based on this factor, it is expected that these areas would meet the City's MAWA as allowed by Banning Municipal Code Chapter 17.32 (Landscaping Standards).

h. The water use factor for the major street parkways and medians areas is based on the use of medium water use plants with drip irrigation. Based on this factor, it is expected that these areas would meet the City's MAWA as allowed by Banning Municipal Code Chapter 17.32 (Landscaping Standards).

Major Street Parkways and Medians Landscaping[h]	N/A	40	2,490 GPD/AC	99,600	112
Total Potable Water Demands				2,571,159	2,880
Total Non-Potable Water Demands				1,199,587	1,344
Total Gross Water Demands for the Project				**3,770,746**	**4,224**

4.5.2 Timing of Water Demands

While the water demands for the Project will all occur within the 35-year timeframe analyzed in this WSA, they will not arise at a single point in time. The Project is expected to be developed in fives phases, so that water demands associated with the Project would start in 2013 to 2014 and reach their full levels at expected Project buildout in 2045. The projected gross potable and non-potable demands for the Project's residential and non-residential uses are set forth in five-year increments in Table 4.5.2 below. Acreage and daily water use for each land use type is provided in Appendix E.

Table 4.5.2. Projected Water Demands for the Project in Five-Year Increments[61]

Potable Water Use					Irrigated Areas – Non-Potable Water Use						
		All Residential Units (Average) (11)	Non-Residential Subtotal[62]	Total Potable Water Demands	Parks	School Landscaping/ Fields (60% of area)	Golf Course	Other Common Open Space Subtotal	Major Street, Parkways & Medians Landscape	Total Non-Potable Water Demands	Total Gross Water Demands for Project
2015	Water Use (AFY)	281	19	300	10	0	845	71	28	953	1,253
2020	Water Use (AFY)	747	71	818	78	24	845	71	56	1,073	1,891
2025	Water Use (AFY)	1,214	71	1,284	118	24	845	71	56	1,113	2,398
2030	Water Use (AFY)	1,713	80	1,793	138	24	845	71	84	1,161	2,955
2035	Water Use (AFY)	2,148	71	2,218	203	24	84	94	112	1,277	3,496
2040	Water Use (AFY)	2,615	79	2,693	229	47	845	94	112	1,326	4,019
2045	Water Use (AFY)	2,801	79	2,880	229	47	845	111	112	1,344	4,224

[61] The Project's water demands are projected based on land use type because Project-specific land use information is available. City-wide projections are based on the methods used in the City's population and housing growth projections as described in Sections 5.2.3 and 5.2.4 of this WSA. City-wide water demands are projected by customer type and household unit growth, as derived from population growth projections. Specific land-use information for future development is not available.

[62] Nonresidential potable uses include schools, commercial and office space, and the golf course's greens.

5. THE CITY'S HISTORICAL AND PROJECTED WATER DEMANDS

5.1 Historical Water Demands

This section describes the City's historical water demands, which are recorded in Public Water Statistics forms that the City files annually with DWR (DWR Form 38). The City calculated average water delivery per residential unit based on the following: (1) 2005–2010 records for water deliveries and total water into the system (water production); (2) California Department of Finance (DOF) occupied housing unit estimates; and (3) 2010 Census data.[63] During this period, the City's average residential unit used 0.48 AFY. This number was calculated by dividing total annual residential water use in the City (Table 5.1A) by the number of residential housing units (Table 5.1B).

During the same six-year period, the City's average water system loss was 7.8%. Water system loss may include main flushing, fire flows, water hydrant testing, street cleaning, system maintenance, and leaks. The City applied this loss factor to the average residential unit demand factor of 0.48 AFY, which increases the average residential demand factor to 0.52 AFY per residential unit.[64]

The City's historical water service demands for 2005 to 2010 are summarized in Table 5.1A below. This table includes demands for all types of customers within the City.

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[63] Draft 2010 UWMP, p. 26. The 2005 UWMP used a total average residential water demand factor of 0.67 AFY per household unit, which was based on the City's 1994 Water Master Plan. This 1994 average residential water demand does not reflect the City's actual residential water use pursuant to recent City records. In addition, the 2005 UWMP indicated the City's estimated water system loss was approximately 8%. Current City records indicate that the average system loss is approximately 7.8%.

[64] *See also* Draft 2010 UWMP, pp. 25-26.

Table 5.1.A. Historical Water Demand (AFY)						
Customer Type	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Single Family Residential	4,985	5,211	5,340	4,928	4,760	4,412
Multi-Family Residential	102	255	263	246	250	120
Total Residential	5,087	5,466	5,603	5,174	5,010	4,532
Commercial / Institutional	2,400	2,492	2,596	2284	2,176	1,908
Industrial	123	128	81	73	115	95
Landscape Irrigation	1,052	1,074	952	1,157	1,079	939
Agricultural Irrigation	0	0	0	0	0	0
Total Non-Residential	3,575	3,694	3,629	3,514	3,370	2,942
Other	13	116	98	63	261	31
Wholesale to Other Agencies	100	126	107	87	89	82
Water System Losses	644 (6.8%)	837 (8.2%)	806 (7.9%)	767 (8%)	521 (5.6%)	893 (10.5%)
Total	9,419	10,239	10,243	9,605	9,251	8,479

Table 5.1B sets forth the number of occupied households within the City for this same five-year period.

Table 5.1B. City Household Units[65]						
Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Occupied Household Units	10,554	10,.643	10,655	10,665	10,667	10,838

65 State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark, Table 2: January 2010 Cities and Counties Ranked by Size, Numeric, and Percent Change (May 2010). Year 2010 per 2010 Census data, occupied housing units (households) in Banning.

5.2 Projected City Water Demands

5.2.1 Planned Future Uses

The WSA law requires the City to evaluate the projected water demand associated with the proposed Project (see Section 4.5), in addition to the City's existing (see Sections 5.2.4 and 5.2.5) and planned future uses. "Planned future uses" is not defined by the WSA law. However, DWR has concluded that "it would be a reasonable interpretation that planned future uses are those that would be undertaken within the same time frame as the project under consideration." The WSA Guidebook provides the following examples of planned future uses:

- Projects that are expected to be completed during the same time frame as the proposed project. These include all new demands ranging from an individual single-family home to large-scale developments.
- Proposed developments that have a reserved (or entitlement to) future water supply and are considered to be moving toward construction. Proposed projects that are included in a general or specific plan need not be included if the lead agency determines that they are not likely to begin construction during the period under consideration.
- Projects which are not subject to local planning regulation — for example, US military installations, University of California, reservation lands of federally recognized Indian tribes, or lands held in trust for those tribes, etc.[66]

5.2.2 Significant and Unprecedented Slowing of Real Estate Developments Due to the Great Recession and Financial Crisis of 2007-2010

The water demands for the City have been updated to reflect actual, realized growth within the City since 2005. The City's 2005 UWMP future projections for population, housing development and water demands were overstated because the 2005 UWMP was released before the California housing bubble, which increased foreclosure rates in 2006–2007 among United States (U.S.) homeowners, including thousands of homeowners in Riverside County, and led to a banking crisis in 2008. The collapse of the U.S. Housing Bubble directly impacted home valuations, mortgage markets, home builders, real estate, and banks, and led to a nationwide recession. As foreclosures increased, construction permits declined. In 2007, 1.9% of California homes were in foreclosure, nearly twice the national average of 1%. Likewise, the number of construction permits for residential units declined 35%, relative to 2006 — falling 49% from their 2004 peak.

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[66] California Department of Water Resources, Guidebook for Implementation of Senate Bill 610 and 221 of 2001 (Oct. 2003), p. 23.

The recession has chilled residential development in the area to such an extent that only a small fraction of what the City's 2005 UWMP and 2006 General Plan anticipated is now going forward. The majority of the new housing projects that are in the development pipeline in the City and surrounding areas have stalled. From 2006, when the City's general plan was adopted, through last year, new housing starts in the Riverside/San Bernardino/Ontario metropolitan area are down 83.4%.[67] In other words, homebuilders are developing less than 17% of the amount of homes that they were when the General Plan was adopted. And new home sales have all but stopped: they are down by 98.9%.[68] Simply put, the growth in residential housing that the General Plan and 2005 UWMP provided for is not happening as fast as the City anticipated when it prepared its 2005 UWMP.

The City's previous water demand and growth projections did not account for the near total halt in residential development that the current recession occasioned. In 2006, the General Plan estimated that 16,191 new housing units would be built within the City limits over the plan's buildout (20,543 new units total within the City's limits, sphere of influence, and planning area) to accommodate population growth.[69] Two years later, the Housing Element Update described the City's objective of having 1,779 newly constructed housing units between 2008 and 2014, for an average of nearly 300 new housing units a year.[70] Because the historical growth patterns that the 2005 UWMP and the General Plan relied on did not account for the current recession and the stagnation of 2006 residential-housing development that has resulted, both water demand and population projections were overstated. Accordingly, this WSA provides updated water demand projections for the City that are based on actual, realized growth for the period 2005 to 2010, and that reflect the impact of the recession. This information is provided below in Sections 5.2.4–5.2.5.

5.2.3 Projected Population of the City

This section projects City population growth from 2015 to 2045 based on a 2.0% annual growth rate. In 2010, the City served 29,603 people.[71] Its population is projected to grow to 59,203 by 2045 based on a 2% average annual growth rate. For this WSA, the City used its Housing Element projections, coupled with 1990-2010 Census data to

[67] Housing data provided by the California Building Industry Association (CBIA) (Aug. 16, 2010) (2010 CBIA Housing Data).
[68] 2010 CBIA Housing Data.
[69] City of Banning 2006 General Plan (adopted Jan. 31, 2006), p. III-14 (2006 General Plan).
[70] City of Banning 2008-2014 Draft Housing Element of the General Plan (Dec. 2008), pp. III-105 to III-106 (2008-2014 Draft Housing Element).
[71] 2010 U.S. Census data.

calculate a 2.0% average annual population growth rate.[72] This is a reasonable rate for projecting the City's population from 2015 until 2045.[73]

The growth rates used in the City's 2005 UWMP[74] reflect the higher growth rates experienced in Riverside County and nearby cities such as Beaumont and Calimesa during that period, but do not reflect the lower growth rates within the City as explained in the City's Housing Element: "[a]mong the five cities located in the surrounding area, the City of Banning, in Riverside County, [wa]s fifth in numerical growth and sixth in the percentage of growth in population between 1990 and 2008 (Table III-25)."[75] Accordingly, the 2.0% average annual population growth rate used in this WSA reflects average growth over a longer period of time and current trends as documented by the City and DOF, which correlate with growth within the City itself and not within the larger regional area.

The population projections in Table 5.2.3 below are based on the latest 2010 Census population data published by the DOF and the 2.0% average annual growth rate described above.[76]

Table 5.2.3. Projected City Population Growth (Based on 2% Average Annual Growth Rate)[77]

	2015	2020	2025	2030	2035	2040	2045
Population	32,684	36,086	39,842	43,989	48,567	53,622	59,203

5.2.4 Projected Residential Housing Units

This section summarizes the City's projected residential household unit growth from 2015 to 2045 based on 2010 Census data that indicates there were 10,838 occupied housing units or households in the City in 2010. Future household growth is based on population growth. The City's population estimates for the years 2015 to 2045 in Table 5.2.3 above have been converted to residential household units using a conversion factor of 2.7 persons-per-household. The City's 2008 Draft Housing Element indicates that the average persons-per-household factor is trending to 2.7.[78] The 2.7 factor is

[72] From 1990 to 2008, the City's average annual growth rate was 1.84% per Census data. The City's 2008 Draft Housing Element projected the City's average annual population growth rate from 2008 to 2014 at 2.0067%. 2008-2014 Draft Housing Element, pp. III-117 to III-118.

[73] The projected population growth rate of 2% is lower than the 2.7% annual growth rate used in the 2005 UWMP for the reasons described above in section 5.2.3.

[74] The 2005 UWMP population estimates for years 2000 to 2030 were based on Southern California Association of Governments' (SCAG) outdated 2004 Regional Transportation Plan (RTP) Population Growth Forecast, which is higher than what is projected in the City's and DOF's more recent reports. The 2004 SCAG RTP forecasts are indicative of the higher growth rate that the region experienced in 2004.

[75] 2008-2014 Draft Housing Element, p. III-117.

[76] *See also* Draft 2010 UWMP, pp. 18-19 (uses the same population estimates and projections).

[77] *See also* Draft 2010 UWMP, pp. 18, 25 (population projections are based on a 2% growth rate).

[78] 2008-2014 Draft Housing Element, pp. III-125.

used because it represents a recent analysis of City trends, as indicated in recent DOF estimates and 2010 Census data .[79]

The average annual future growth rate of household units in the City is projected to be 2.0%, the same as the projected population growth rate. The household unit average annual growth rate in the City from 1990 to 2008 was 1.98% according to the Draft Housing Element.[80] The updated DOF estimates from the end of 2009 indicate an average annual growth rate of occupied housing units (households) of 2.0%.[81]

Table 5.2.4 projects the estimated number of household units within the City from 2015 until 2045. The estimates are based on the 2.0% growth rate in population and household units from DOF's updated January 1, 2010 estimates, 2010 Census data, and the Banning 2008 Draft Housing Element.[82]

Table 5.2.4. Projected Increase in City's Residential Household Units[83]

	2010	2015	2020	2025	2030	2035	2040	2045
Household Units	10,838	12,105	13,365	14,756	16,292	17,988	19,860	21,927

The City predicts that by 2045, it will have 21,927 household units. The City's 2006 General Plan includes a projected buildout of 31,503 residential housing units in the entire General Plan planning area (see Table III-2 in the General Plan). However, the General Plan does not provide an estimated City buildout year or an estimated annual growth rate. Applying the average annual growth rate of 2.0%, residential buildout as projected in the General Plan would not occur until 2064 (the General Plan's estimated population at buildout will be reached in 2061), beyond this WSA's planning period.

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79 The City's 2006 General Plan Land Use Element uses an average 2.6 persons-per-household factor. However, the 2.7 factor from the 2008 Draft Housing Element is used here because it represents a more recent analysis of City trends.

80 2008-2014 Draft Housing Element, p. III-125.

81 State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark, Table 2: January 2010 Cities and Counties Ranked by Size, Numeric, and Percent Change (May 2010).

82 The 2005 UWMP includes household unit estimates for years 2000 to 2030, which are based on SCAG 2004 RTP Forecasts. The 2005 UWMP household unit projection estimates equate to an approximate average annual household growth rate of 2.7% from years 2005 to 2030, which is higher than what is projected in the City's Draft Housing Element. The 2005 UWMP household growth rate is higher because it uses higher population growth rates (see the Section 5.2.5, discussion above) and a lower persons-per-household factor ranging from 2.4 to 2.7. The 2005 UWMP indicates the persons-per-household factor is trending downward. However, the City's Draft Housing Element indicates the factor is trending higher into the 2.7 range, and the updated California DOF estimates and 2010 Census data for the City released in 2010 and 2011 respectively also indicate the factor is trending higher in the 2.7 range. Therefore, a 2.7 persons-per-household factor is used in this WSA.

83 *See also* Draft 2010 UWMP, p. 18.

Therefore the General Plan's predictions are not inconsistent with the City's housing unit projections in this WSA.[84]

5.2.4.1 Proposed Development Projects (or "Planned Future Uses") Within the City

For purposes of corroborating the City's projected increases in residential units (see Section 5.2.4 above), this section identifies specific development projects that are anticipated to occur within City limits.

Table 5.2.4.1 lists and describes planned future uses within the City. These projects have received at least some basic level of entitlement approval by the City, but are generally not yet under construction. One exception is the Fiesta Development project that previously underwent some limited construction. However, all work is currently postponed and Fiesta, the previous developer, is no longer involved or owns the property.

The City's 2005 UWMP included a list of 32 development projects that, at the time, were either in the review process, approved, under construction or built.[85] The proposed Project was included as a proposed amendment to the previously approved Deutsch Property Specific Plan. Table 5.2.4.1 below updates the 2005 UWMP list by excluding the following: (1) projects that have been completed; (2) projects with applications that have been withdrawn or terminated; and (3) projects with approvals that have been rescinded or have expired. Projects that fall within these last two examples include the Five Bridges project (formerly referred to as Sunset Crossroads), for which applications were withdrawn and terminated, and the Black Bench project for which all approvals were rescinded.[86]

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84 *See also* Draft 2010 UWMP, pp. 29-32.

85 See 2005 UWMP, Table 1-5.

86 City of Banning, Project Activity, Residential, Commercial and Industrial, posted October 2010, available at http://banning.ca.us/index.aspx?nid=54.

Table 5.2.4.1. Specific Planned Future Development Within City[87]		
Project	**Status**	**No. of DU's**
Butterfield Specific Plan (Pardee Homes)	Approved Specific Plan, EIR and Development Agreement SP Amendment and EIR in review process	5,400
Loma Linda Specific Plan	Approved Specific Plan and EIR Project on hold	944
C. W. Tefft (Property Ownership subject to change)	Approved Tentative Tract Map – on-hold (subject to expiration)	478
Fiesta Development (Property Ownership subject to change)	Approved Tentative Tract Map – on-hold (subject to expiration)	303
St. Boniface/Gilman project	Approved	172
Madrid	Approved	44
Barbour Villas	Approved	36
Tahiti Group	Approved	30
TMS Homes	Approved	23
VicSeth Construction	Approved	21
Nordquist	Approved	19
Rifai	Approved	19
Rocehell & Oberg	Approved	10
VicSeth Construction	Approved	10
Charter Management/Galleher	Approved	9
Martin	Approved	6
HLDC	Approved	26
Silverstone	Approved	14
Linc Business Park	Approved	21
Levya	Approved	2
Gordon	Approved	8
Oman/BBC	Approved	104
Kohavi	Approved	4
Total Projected Dwelling (Housing) Units		**7,703**

87 City of Banning, Project Activity, Residential, Commercial and Industrial, posted October 2010, available at http://banning.ca.us/index.aspx?nid=54 (updated by City in 2011).

The City's 21,927 housing units projected by the year 2045 in Table 5.2.4 above include 10,838 existing units (pursuant to the 2010 Census data), as well as 11,089 future units. These 11,089 units include the 7,703 residential housing units anticipated for the projects identified above in Table 5.2.4.1, which includes the Project. This demonstrates that the City's household projections, which are based on a 2% growth rate, are consistent with the number of housing units currently in the planning phase. Further, the City's projections also account for 3,386 additional future units that are not currently in the planning phase but may be constructed during the 35-year planning period.

5.2.5 Projected Water Demand by Customer Type

This section summarizes the City's projected water demand. These projections are based on the methods used in the City's population and housing growth projections as described in Sections 5.2.3 and 5.2.4 of this WSA, respectively. Water demands are projected by customer type and household unit growth, as derived from population growth projections. These projections are then converted to gross projected residential water demand. Residential water demand is then converted to total projected City water demand (including non-residential uses, commercial/ institutional, industrial, public, irrigation, and other uses). The City's 2005 UWMP used, as one of its methods, a similar population growth method to project City water demand.[88] Further comparison with the 2005 UWMP projected water demands by population growth is discussed below and in Section 5.3 of this WSA.

5.2.5.1 Residential Water Demand Factor

To project residential water demand, the City uses an average residential water demand factor of 0.52 AFY per household unit.[89] This factor is based on the City's residential water demands over the past six years (2005-2010) as previously discussed in Section 5.1 and reflected in Tables 5.1A and 5.1B of this WSA. This factor does not include projected water conservation/efficiency allowances, which are discussed further below in Section 5.3.

5.2.5.2 Total City Water Demand Factor

The City's projected residential water use comprises, on average, 58.5% of the City's total water demand.[90] This average percentage is based on the City's historical demands over the past six years (2005-2010), as reflected in Table 5.1A of this WSA. Gross total water demand is then calculated based on the residential demand for each projected year (City's residential household units x 0.52 AFY). The City's total water demand, in addition to residential demand, includes commercial, industrial, public facilities and irrigation for parks, parkways, medians, golf courses and other public

[88] *See also* Draft 2010 UWMP, pp. 25-27.
[89] *See also* Draft 2010 UWMP, pp. 27, 29.
[90] *See also* Draft 2010 UWMP, p. 26.

landscaped areas. The City's average non-residential demand is 41.5% of the City's total demand.

The 2005 UWMP used the same method to calculate the City's total water demand, setting residential demand at 59% of total City water demand.[91] This factor is very close to the current projected factor of 58.5%, which is based on recent City records. However, City water demand estimates in the current projection are lower than the 2005 UWMP because the City's updated population, household growth and residential demand projections are based on more recent data and records as noted previously.

Table 5.2.5.2 sets forth the City's gross projected water demand for both residential and non-residential uses before conservation allowances are applied.

Table 5.2.5.2 Gross Projected City Water Demand (AFY)[92]

	2010[93]	2015	2020	2025	2030	2035	2040	2045
Gross Residential Demand (58.5%:2015+)	5,060	6,295	6,950	7,673	8,472	9,354	10,327	11,402
Gross Non-Residential Demand (41.5%:2015+) (includes commercial, industrial, public, irrigation and other non-residential uses)	3,419	4,465	4,930	5,444	6,010	6,635	7,326	48,089
Gross City Demand (100%)	**8,479**	**10,760**	**11,880**	**13,117**	**14,482**	**15,989**	**17,653**	**19,491**

5.3 Conservation and Demand Management

Water conservation is a primary element of the City's long-term strategy for meeting its customers' water needs. The goals of the City's water conservation program are to reduce water demands, demonstrate a commitment to best management practices (BMPs), and ensure reliable water supplies.[94]

This section calculates the City's net demand projections by incorporating demand reductions for residential and non-residential development in the City, including the Project. This WSA includes two methods for calculating net demand: (1) target reductions based on California Governor Schwarzenegger's 20x2020 Plan (section 5.3.1); and (2) focused, incremental demand reductions based on existing conservation programs and requirements for new and existing development (section 5.3.2).

91 *See also* Draft 2010 UWMP, p. 26.

92 The residential and non-residential numbers in this table are greater than the numbers in Table 5.1.A, because the numbers here include a loss factor, whereas in Table 5.1.A the loss factor is not added in until the end; *see also* Draft 2010 UWMP, p. 27.

93 The 2010 numbers reflect actual City demands for calendar year 2010. DWR Form 38 (2010).

94 City of Banning, Clean & Green: Report and Recommendations (June 2008) (Clean & Green Report), pp. 10-11; 2005 UWMP, pp. 7-2 to 7-11; Banning, Cal., Mun. Code ch. 13.16.030 (2010).

This WSA assumes that demand will remain constant, even in dry years. This approach is conservative because water use generally declines in dry years due to public notification of drought conditions and voluntary and mandatory conservation actions. For example, during drought periods, the City may implement the following programs to encourage conservation: (1) recommending voluntary conservation actions; (2) prohibiting certain water uses, such as washing driveways; (3) limiting irrigation to nighttime hours; and (4) restricting certain water uses to specific days of the week.[95]

5.3.1 Demand Reductions Based on Per Capita Water Use Targets (20x2020)

The Water Conservation Act of 2009, also known as Governor Schwarzenegger's 20x2020 Plan[96] requires urban retail water suppliers to develop urban water use targets in order to achieve a 20% reduction in per capita water use by December 31, 2020. In order to achieve this goal, the act established an interim goal of a 10% reduction in per capita water use by 2015. Under the new law, the City must develop its urban water use targets and interim urban water use targets by July 1, 2011.[97] The City has committed to meeting the 10% and 20% targets.[98] The Act provides that per capita reductions can be accomplished through any combination of increased water conservation and improved water use efficiency to offset potable demand.

In 2010, DWR released its final methodologies for calculating water savings to comply with the law in a report entitled *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (for Consistent Implementation of the Water Conservation Act of 2009 [SBx7-7]*).[99] The report includes instructions on how to calculate baseline water use and also provides steps to calculate gross water use, service area population, base daily per capita water use, compliance daily per capita water use, indoor residential use, landscape area water use, baseline commercial and industrial use, and adjustment factors.[100]

Using DWR's methodologies, the City's average per capita water use for the ten-year baseline period between 2001-2010 is 315 GPD/capita.[101] This is a very conservative

[95] 2005 UWMP, pp. 6-4 to 6-7; *see also* Draft 2010 UWMP, pp. 81-89.

[96] The Water Conservation Act of 2009 is codified at Water Code section 10608, *et seq*.

[97] Cal. Water Code § 10608.20; *see also* Draft 2010 UWMP, p. 25.

[98] *See also* Draft 2010 UWMP, pp. 25, 38-39.

[99] California Department of Water Resources, Division of Statewide Integrated Water Management, Water Use and Efficiency Branch, Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use *(For the Consistent Implementation of the Water Conservation Act of 2009)* (October 1, 2010) (20 x 2020 Methodologies Report).

[100] 20 x 2020 Methodologies Report.

[101] This was calculated using City population estimates published by DOF for the 10-year period of 2001 through 2009, the 2010 Census data for the 2010 population, and using City records for the total gross water use during that same period. This 10-year baseline is used only for purposes of calculating the baseline for compliance with the Water Conservation Act of 2009 and not for calculating future demands for purposes of this WSA, which are based on the most recent six years of historical City water records; *see also* Draft 2010 UWMP, pp. 38-39 (uses a baseline per capita use of 315 gp/du).

baseline as it is much higher than average baselines in regions with similar water use patterns. Current water use and conservation targets vary among the regions due to many factors, such as land use patterns (lot sizes, square footage of irrigated landscape), the age and condition of the water distribution infrastructure (water losses), and industrial and socioeconomic characteristics (the cost of water and income level of residents).[102] Although the average baseline (1995-2005) in the Colorado River Hydrologic Region is 346 GPD/capita, this region includes the Coachella and Imperial Valleys, which support large agricultural economies and therefore have higher water demands per capita.[103] In contrast, the City supplies water for primarily residential and commercial purposes. Accordingly, its water use patterns are similar to those found in the neighboring South Coast Hydrologic Region where the baseline (1995-2005) is 180 GPD/capita and in other regions with similar water use patterns.[104]

A 20% target reduction in the City's baseline would result in a new baseline of 252 gpd/capita.[105] Table 5.3.1 below shows estimated water demands based on population growth incorporating the 20x2020 reductions. The new baseline per capita water use was multiplied by population estimates provided in Table 5.2.3 to calculate the City's net demand in five-year increments. Both for purposes of this WSA and the City's 2010 UWMP, the City has estimated that total savings utilizing the 20x2020 reductions from the baseline in 2015, 2020, and 2045 are 384 AFY, 1,697 AFY and 2,781 AFY respectively. (Compare Table 5.2.5.2 with Table 5.3.1.)

Table 5.3.1. Net Projected City Water Demand (AFY) Applying 20X2020 Conservation Targets

Year	2015	2020	2025	2030	2035	2040	2045
Population	32,684	36,086	39,842	43,989	48,567	53,622	59,203
Per Capita Water Use (gpcd)	283.4	252	252	252	252	252	252
Net City Demand	**10,376**	**10,183**	**11,243**	**12,413**	**13,705**	**15,135**	**16,710**

As Table 5.3.1 illustrates, because of the City's conservation efforts, City demand will not increase as quickly as population, and over time, demand per capita will decrease or flat line. This is a common trend in Southern California. For example, today the Metropolitan Water District's (MWD) service area is using about the same amount of

[102] Department of Water Resources, 20x20 Water Conservation Plan, p. 4 (Feb. 2010).
[103] Department of Water Resources, 20x20 Water Conservation Plan, p. 14 (Feb. 2010).
[104] Other regions include similar baselines. For example, San Jose region's baseline is 180 GPD/capita. East Bay Municipal Water District's baseline from 1995-2004 was 165 GPD/capita, where 2003-2007 saw a per capita use of 159 gallons per day. And in the Southern California region, MWD's baseline is 177 GPD/capita. (San Jose Municipal Water System, Water Use Targets In Urban Water Management Plan (Revised March 18, 2011); SBx7-7 20x2020 Water Conservation Initiatives, Contra Costa County Water Task Force (July 20, 2010); Deven Upadhyay, Metropolitan Water District, Water Resource Management Group (Feb. 2011).)
[105] *See also* Draft 2010 UWMP, pp. 38-39.

water as it used 15 years ago despite an almost 30% growth in its population. MWD's Regional 2010 UWMP shows that continuing growth increases demand, but that with conservation efforts, demand trends down from 2006.[106] This is consistent with trends in City water demand, which have been declining since 2006 while growth increases.

5.3.2 Demand Reductions Based on Incremental Conservation Methodology

To corroborate the reasonableness of the City's 20x2020 conservation targets and corresponding net demand calculations (see Section 5.3.1 above), this section calculates projected net demand using a second methodology — application of specific City and state conservation requirements. This section summarizes the City's demand reductions based on incremental savings methodology. A more detailed description of this analysis is provided in Appendix F.

The City has been committed to water conservation for many years, as is reflected by its existing water demands. The City's existing conservation programs — described in this section and in Appendix F — are a component of the City's baseline water use. Since the early 1990's the City has passed a number of water conservation ordinances to reduce water consumption for indoor and outdoor use, as well as to restrict water use during water supply emergencies.[107] The combined result of implementing these ordinances, together with other official City programs and state-wide requirements, has been considerable and will continue to result in additional savings as new homes are constructed, remodeled and sold.

The City-focused or incremental method of calculating demand reductions is based on a recent six-year baseline for average residential use, as opposed to per capita use over a longer baseline. The City's average residential use, or baseline, is 0.52 AFY/du. This baseline includes some of the City's existing conservation requirements because 28% of the City's residences were built after 1992 — the year in which new requirements for plumbing were enacted. However, City records indicate that approximately 72% of the City's homes were built prior to 1992 and therefore likely have less efficient plumbing fixtures than those built after 1992.[108] To calculate future residential demands, indoor and outdoor conservation factors are applied to the 0.52 AFY/DU baseline. As described in this section and Appendix F, many of the City's existing conservation requirements apply only to new homes and not to existing homes.

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[106] See MWD's Regional 2010 UWMP, Exhibit A.

[107] *See, e.g.*, Banning, Cal., Mun. Code ch. 13.16.020 (2010).

[108] The City examined title records for houses built prior to 1992. Because, however, the new plumbing code requirements did not take effect until 1994, the percentage of homes that were built prior to 1994 and contain inefficient plumbing fixtures is greater than 72%. These additional homes provide the City with increased conservation opportunities as the homes are retrofitted.

5.3.2.1 Demand Reductions in Indoor Water Use

The City projects that new residences will use 40% less water than existing residences. This reduction for new residences results from: (1) the City's existing indoor water use regulations; (2) the state's plumbing code requirements enacted in 1992, which require efficient plumbing fixtures in all new construction (such as low-flow shower heads and faucets and low-flush toilets) as of January 1, 1994;[109] and (3) from post-1992 requirements and the 2010 California Green Building Standards Code (CGBSC), which sets additional standards for fixture flow rates in new construction[110] The CGBSC standards came into effect in 2011 and require an additional 20% reduction in indoor residential water use.[111] These new standards are enforced by the City as required.

There are also new state rules that will impact existing indoor residential uses. In 2009, new rules were imposed to require pre-1994 residential and commercial development to replace all non-compliant plumbing fixtures with water-conserving fixtures starting in 2014 in a phased approach through 2019.[112] By January 1, 2017, property owners must replace all noncompliant plumbing fixtures in single-family residences with water-conserving plumbing fixtures.[113] While retrofitting older properties will be gradual, it will further reduce demand beyond the average 20% indoor reduction projected in this WSA resulting from 1992 plumbing code changes. The City projects that shortly after 2035, all 7,000 homes in its service area that were built prior to 1994 will be retrofitted as homes are transferred or remodeled. (See Appendix F.) Therefore, Table 5.3.2.3A below incorporates a 20% indoor water reduction factor to existing homes that will replace noncompliant plumbing fixtures at the time of sale. (See also Appendix F.)

5.3.2.2 Demand Reductions In Outdoor Water Use

The City's conservation efforts are projected to reduce outdoor water use of a new residential unit by 38%. Twenty-five percent of this reduction is a result of the City's new landscape standards for new development and the remaining 13% reduction will come from requirements that new residences install weather or soil moisture based irrigation controllers.

On January 26, 2010, the Banning City Council adopted Resolution No. 2010-06, making the required findings that the City's water efficient landscape ordinance and existing municipal code sections are as effective as the state's Model Water Efficient Landscape Ordinance, as required by law.[114] (Attached as Appendix G.) The goal of the City's ordinance is to reduce water use to the lowest practical amount by setting

[109] *See* H.R. No. 776, 102nd Cong., 2d Sess. (1992) [requiring faucets, showerheads and toilets manufactured after January 1, 1994 to meet certain requirements]; Stats. 1992, ch. 1347, § 1 (S.B. 1224) [amending Cal. Health & Safety Code, § 17921.3 to require that all toilets or urinals sold or installed in the state as of January 1, 1994 must meet certain requirements].

[110] 2010 California Green Building Standards Code, Cal. Code Regs., tit. 24, § 101 *et seq*.

[111] Cal. Code Regs. tit. 24, § 4.303.1.

[112] SB 407, codified at Cal. Civ. Code §§ 1101.4, 1101.5.

[113] Cal. Civ. Code § 1101.4(b).

[114] Water Conservation in Landscaping Act of 2006 (AB 1881).

maximum water use limits and by establishing provisions for water management practices and water waste prevention for established landscapes. The City's Landscape Standards set new maximum applied water allowance (MAWA) requirements for new landscapes and require documentation of MAWA calculations based on a new formula.

The 2010 CGBSC now requires new residences to install weather or soil moisture irrigation controllers starting in 2011. Studies have shown that these controllers result in an additional 13% water savings.[115] Accordingly, beginning in 2011, all landscape irrigation demand for future residential development will be reduced an additional 13%.

The CGBSC also includes standards for non-residential buildings, such as the installation of metering devices and water budgets for landscape irrigation. In addition, the Banning Municipal Code also contains standards for water efficiency that must be implemented for all non-residential landscaping plans.[116] These standards apply to all new projects, redevelopment projects, and project modifications which add 25% or more to a structure's building area.[117]

5.3.2.3 Net City Demands

This section calculates the City's projected net water demand from 2015 to 2045 using the incremental method that is based on City-specific and state-mandated conservation programs (see also Appendix F). The City's gross projected water demand includes the projected water demand associated with the Project (see below) in addition to the City's existing and planned future uses.

Table 5.3.2.3A quantifies projected reductions in the City's residential demand as a result of conservation measures for new and existing residences, and non-residential uses. In 2010, the City's gross water demand was 8,479 AFY. Thirty-five years later, in 2045, the City projects that its gross water demand will be 19,491 AFY. However, with implementation of conservation measures, the City will reduce its demand over time: by 257 AFY in 2015; and by 3,422 AFY in 2045.

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[115] Water Use in the California Residential Home study prepared by ConSol Consulting in January 2009 indicates weather/soil moisture irrigation controllers will reduce irrigation (outdoor) water use by 13% (based on previous Irvine Ranch Water District studies).

[116] Banning, Cal. Mun. Code, ch. 13.16.020(A).

[117] Banning, Cal. Mun. Code, ch. 17.24.020.

Table 5.3.2.3A. Projected Reductions in City Water Demand Resulting From Conservation Measures for New and Existing Residences and Non-Residential Uses (AFY)							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
New Residential Indoor	132	263	407	567	744	938	1,153
New Residential Outdoor	125	250	387	539	706	891	1,096
Existing Residential (pre-1992) Indoor	0	75	168	261	355	364	364
Total Residential Demand Reduction	257	588	962	1,367	1,805	2,193	2,613
Non-Residential (commercial, industrial, institutional, public, indoor and outdoor)	0	493	544	601	664	733	809
Total City Demand Reduction	257	1,081	1,506	1,968	2,469	2,926	3,422

Table 5.3.2.3B summarizes the net total projected City water demand after incremental conservation measures are applied to the City's recent historic average of 0.52 AFY of water per household factor (discussed in section 5.1). The projected indoor and outdoor water demand reduction factors result in an overall residential demand reduction factor of 39% for future new residences, which equates to an average water demand factor of 0.32 AFY per new residential household.

Table 5.3.2.3B. Net Projected City Water Demand (AFY)[118] Incremental Conservation							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Gross Projected Water Demand	10,760	11,880	13,117	14,482	15,989	17,653	19,491
Demand Savings from Conservation	257	1,081	1,506	1,968	2,469	2,926	3,422
Net Total Demand	10,503	10,800	11,610	12,513	13,521	14,727	16,069

Table 5.3.2.3B demonstrates that the City's incremental conservation projections are nearly identical to the City's 20x2020 conservation target projections, and therefore support the conclusion that the City's 20x2020 conservation projections are reasonable and can be achieved. Table 5.3.1 (20x2020 Projections) is used for purposes of

[118] *See also* Draft 2010 UWMP, p. 37 (net water demands are lower than the net demands used in this WSA, except for year 2035, as the Draft 2010 UWMP net demands are based solely on target per capita reductions under the Water Conservation Act of 2009 (20x2020).). This WSA's incremental method results in a higher demand until 2035, and a lower demand in year 2045, but that difference is immaterial for purposes of comparing supply and demand. For example, in 2045, the 20x2020 demand projection is 16,710 AFY and the net demand projection is 16,069 AFY.

comparing supply and demand (see Tables 1.8A-C and 7A-C) because (1) the 20x2020's net demand projection at buildout is higher and therefore more conservative than the incremental method's projection; (2) the City has committed to achieving the 20x2020 targets; and (3) using this method will ensure consistency with the City's Draft 2010 UWMP.

5.3.2.4 Net Project Demand

The incremental methodology is also used to calculate the Project's projected net demands after conservation measures are applied. This methodology is used to project the Project's specific net demands because the incremental method provides a more precise calculation of the Project's net demands. Specific land-use information, such as the size of the golf course and parks, is available for the Project; whereas only average City-wide land-use projections are available for other future demand.

Table 5.3.2.4 Net Projected Project Water Demand (AFY)
Incremental Conservation

	2015	2020	2025	2030	2035	2040	2045
Gross Projected Water Demand	1,253	1,891	2,398	2,913	3,496	4,019	4,224
Demand Savings from Conservation	111	304	490	674	863	1,047	1,121
Net Total Demand	1,142	1,587	1,908	2,239	2,633	2,972	3,103

5.4 Water Quality

An additional factor affecting water demands is that the City plans to utilize both potable and non-potable sources of supply to serve Project demands. Indoor water uses for residential and commercial spaces, such as water for drinking, cooking and sanitation, require water treated to potable standards, while irrigation of exterior spaces may utilize high quality recycled water that does not meet potable standards. California law encourages the use of recycled water when it is available in an adequate quality and at a reasonable cost, in order to conserve and optimize use of the state's valuable water resources.[119] The City will seek to promote this conservation policy by using recycled water to meet all or a portion of the Project's non-potable demands. (See further discussion in section 6.4. Further, detailed information regarding water quality and wastewater treatment is found in Appendix H to this WSA.)

The City's 2009 Annual Water Quality Report illustrates that the City has met all requirements set by the U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) Services Standards.[120] CDPH regulations require analysis for some 150 regulated and unregulated contaminants.

[119] *See* Cal. Water Code §§ 13550 *et seq*.
[120] City of Banning 2009 Annual Water Quality Report, pp. 1-2, available at http://banning.ca.us/DocumentView.aspx?DID=738 (Banning 2009 Annual Water Quality Report).

The only contaminants in the water supply are listed below and all data is from the most resent monitoring completed in compliance with CDPH Services regulations.[121] In some cases, CDPH has allowed the City to monitor less frequently for certain contaminants because the City's system is not vulnerable to these contaminants or levels were not expected to fluctuate significantly from year to year. The chart below shows the City's 2009 water quality sampling results.[122]

Sampling Results

Table 1 - SAMPLING RESULTS SHOWING THE DETECTION OF COLIFORMBACTERIA

Microbiological Contaminants	BANNING: Highest No. of detections	BANNING: No. of months in violation	BCVWD: Highest No. of detections	BCVWD: No. of months in violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria	(In a month) 0	0	(In a month) 0	0	More than 1 sample in a month with a detection	0	Naturally present in the environment
Fecal Coliform or E.coli	(In the year) 0	0	(In the year) 0	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or E. coli	0	Human and animal fecal waste

Table 2 - SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper	BANNING: No. of samples collected	BANNING: 90th percentile level detected	BCVWD: No. of samples collected	BCVWD: 90th percentile level detected	No. sites exceeding AL	AL	PHG	Typical Source of Contaminant
Lead (ppb)	30	N/D	30	N/D	0	15	2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm)	30	0.16	30	0.18	0	1.3	0.17	Internal corrosion of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives

Table 3 - SAMPLING RESULTS FOR SODIUM AND HARDNESS

Chemical or Constituent (and reporting units)	Banning: Sample Date	Banning: Level Detected	Banning: Range of Detections	BCVWD: Sample Date	BCVWD: Level Detected	BCVWD: Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sodium (mg/l)	2009	19	5.6 - 49	2009	16.85	24-Nov	none	none	Generally found in ground and surface water
Hardness (mg/l)	2009	128	45 - 180	2009	167	110-210	none	none	Generally found in ground and surface water

Table 4 - DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	Banning: Sample Date	Banning: Level Detected	Banning: Range of Detections	BCVWD: Sample Date	BCVWD: Level Detected	BCVWD: Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Trihalomethanes** (ppb)	2009	2.08	1.7 - 2.7	2009	1.5	0 - 1.9	80	N/A	By product of drinking water chlorination
Haloacetic Acid** (ppb)	2009	ND	ND	2009	6	0 - 6.4	60	NS	By product of drinking water chlorination
Gross Alpha (pCi/l)	2009	1	0.23-2.21	2009	1.5	1.27-1.74	15	0	Erosion of natural deposits
Turbidity (NTU)	2009	0.33	<0.2-0.48	2009	0.25	0.2 - 0.68	5	N/A	Soil runoff

121 Banning 2009 Annual Water Quality Report.
122 Banning 2009 Annual Water Quality Report.

Arsenic (ppb)	2009	3	<2-3.3	2009	N/A	N/A	50	N/A	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Floride (mg/l)	2009	0.5	0.2 - 0.8	2009	0.43	0.3 - 0.5	1	N/A	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3) (mg/l)	2009	5	1 - 9.4	2009	6.3	2.7 - 18	45	N/A	Runoff and leaching from fertilizeruse; leaching from septic tanks and sewage; erosion of natural deposits
Lead (Pb) (ug/L)	2009	ND	ND				N/A	2	Internal corrosion of household plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

Table 5 - DECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL**	**PHG (MCLG)**	**Typical Source of Contaminant**
Color (units)	2009	ND	ND	2009	N/D	N/D	15	N/A	Naturally -occurring organic materials
Odor (units	2009	ND	ND	2009	N/D	N/D	3	3	Naturally -occurring organic materials
Chloride (mg/l)	2009	6	1.4 - 14	2009	8	4 - 22	500	500	Runoff/leaching from natural deposits; seawater influence
Sulfate (mg/l)	2009	16	Mar-37	2009	22.53	8.5 - 43	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Total Desolved Solids (mg/l)	2009	197	140 - 250	2009	228.57	170-300	1000	N/A	Runoff/leaching from natural deposits; industrial wastes
Specific Conductance (umhos/cm) (micromhos per centimeter)	2009	332	290 - 450	2009	422.85	340-550	1600	1600	Substances that form ions when in water; seawater influence
Copper (ppb)	2009	ND	ND	2009	N/A	N/A	1000	170	Internal corrosion of household plumbing systems; erison of natural deposits; leaching from wood preservatives
MBAS (Foaming agents) (mg/l)	2009	ND	ND	2009	0.101	0.07-0.14	0.5	N/A	municipal and Industrial waste discharge

Table 6 - GENERAL MINERAL, PHYSICAL

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL**	**PHG (MCLG)**	**Typical Source of Contaminant**
Calcium (mg/l)	2009	34	14 - 42	2009	43	29 - 55	N/A	N/A	
Magnesium (mg/l)	2009	10	1.9 - 17	2009	28	8.4 - 18	N/A	N/A	
Potassium (mg/l)	2009	2	1 - 3.7	2009	1.47	1.1 - 2.0	N/A	N/A	
Total Alk (mg/l)	2009	141	110 - 170	2009	172.8	140 - 190	N/A	N/A	
Bicarbonate (mg/l)	2009	171	130 - 210	2009	213.84	180-230	N/A	N/A	
PH (Std. Units)	2009	8	7.2 - 8.3	2009	7.3	6.8 - 7.8	N/A	N/A	
Total Chromium (ppb)	2009	9	19-Feb	2009	7.4	3.5 - 18	50	100	

6. EXISTING AND FUTURE WATER SUPPLIES

The City manages a diverse and robust water supply portfolio. The City's use of a combination of local and imported supplies, and conjunctive use of groundwater and surface water supplies, maximizes the City's ability to reliably deliver water supplies to its customers. The City's current water supplies include:

- groundwater pumped from wells in five local groundwater basins or storage units (the Banning, Banning Bench and Banning Canyon basins (collectively, the "Banning Basins," the Cabazon Basin and the Beaumont Basin);

- surface water supplies diverted from tributaries to the Whitewater River and artificially recharged into underlying groundwater basins; and

- imported water purchased from the Pass Agency and artificially recharged into the Beaumont Basin and stored for later use.

The City plans to supplement its existing supplies by:

- increasing the City's groundwater pumping from the Cabazon Basin to capture treated wastewater supplies percolated into the Cabazon Basin;

- increasing purchases of imported water and storing those supplies in the City's Beaumont Basin Stored Water account; and

- recycling up to 1,680 AFY for non-potable purposes.

These supplies are described in detail in this section of the WSA. The City's water supply system is fully integrated. As such, any combination of these existing and future supplies may be used to serve existing and future demands throughout the City, including the Project.

The City's forthcoming 2010 UWMP also describes the following additional sources of the City's supply: return flows from recycled water irrigation and return flows from potable water irrigation. As these projected supplies are not anticipated to be significant, this WSA does not rely on these additional sources of supply.

6.1 Groundwater

In support of preparation of this WSA and the City's forthcoming 2010 UWMP, the City conducted an extensive investigation of the City's groundwater supplies — the Banning, Banning Bench, Banning Canyon, Cabazon and Beaumont basins. The City's study — *Maximum Perennial Yield Estimates for the Banning and Cabazon Storage Units, and Available Water Supply from the Beaumont Basin*, prepared by Geoscience Support Services, Inc. (March 29, 2011) (2011 Geoscience Report) — is attached to this WSA as Appendix D and incorporated herein by this reference. Geoscience also conducted a prior groundwater study for the City in 2003.[123] Numerous other investigations of the water resources in the San Gorgonio Pass area are described in the 2011 Geoscience Report.[124]

The City's water resource area is located within the San Gorgonio Pass area in Riverside, California. It includes an approximately 158-square mile watershed area in the San Gorgonio Pass and within the immediate highland areas of the San Bernardino and San Jacinto Mountains overlying the San Gorgonio Pass groundwater basin.[125] The San Gorgonio Pass basin is bounded on the north by the San Bernardino Mountains and by semi-permeable rocks, and on the south by the San Jacinto Mountains. A surface drainage divide between the Colorado River and South Coastal Hydrologic Study Areas bounds the basin on the west. The eastern boundary is formed by a bedrock constriction that creates a groundwater cascade into the Indio Basin.[126]

The San Gorgonio Pass Basin is further divided into multiple sub-basins or "storage units."[127] It includes the following five hydraulically-connected basins: the Beaumont, Banning, Banning Bench, Banning Canyon and Cabazon basins. (See 2011 Geoscience Report, Figure 1: Regional Setting.)[128] The boundaries of these basins have evolved over time and most recently have been defined by the USGS on the basis of mapped or inferred faults divided into defined aquifers.[129] These boundaries have been generally accepted and are reflected in recent investigations of the San Gorgonio Pass area, including the 2011 Geoscience Report and the City's forthcoming 2010

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[123] *See* Determination of Maximum Perennial Yield for the City of Banning, Geoscience Support Services, Inc., November 12, 2003.

[124] 2011 Geoscience Report, pp. 6-8.

[125] *See generally*, California Department of Water Resources, Bulletin 118 (2003) (Bulletin 118): Hydrologic Region Colorado River, Coachella Valley Groundwater Basin (2004) (Bulletin 118: Colorado River, Coachella Valley Groundwater Basin).

[126] Bulletin 118: Colorado River, Coachella Valley Groundwater Basin.

[127] This report uses the terms "basin" and "storage unit" interchangeably as they have the same technical and legal meanings. A groundwater "basin" is defined by DWR as "an alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and a definable bottom." (Bulletin 118, p. 88.) Boundaries are based on the best information available to DWR and are subject to revision as more information is collected and evaluated. (Bulletin 118, p. 89.) "A [groundwater] subbasin is created by dividing a groundwater basin into smaller units using geologic and hydrologic barriers or, more commonly, institutional boundaries...." (Bulletin 118, p. 90.) Subbasins are drawn for the purpose of managing water resources as well as collecting and analyzing data, among other things. The designation of a subbasin boundary is flexible and can change over time. (Bulletin 118, p. 90; *see also O.W.L.,* 168 Cal.App.4th at 587 [discussing concept of sub-basins within a larger basin defined by DWR in its Bulletin 118].) Courts have used the term "basin" to characterize a subbasin which technically may be delineated as a "storage unit." (*See, e.g.*, *Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (Cal.App.4th Dist. 2010) 190 Cal.App. 4th 316, 329-330 [applying the term "basin" for what the USGS calls the "Beaumont Storage Unit" in the 2006 USGS Report at page 18].)

[128] DWR has not separately identified each of the San Gorgonio Pass basin's multiple subbasins. (See generally, Bulletin 118, San Gorgonio Pass Basin.)

[129] 2006 USGS Report, pp 18-19.

UWMP.[130] The City relies on all five of these groundwater basins to supply its existing water demands.

The City's 2005 UWMP describes the City's current and projected water supplies, including groundwater from five groundwater basins, but based on out-dated boundaries of these basins. This WSA, and the Cities' Draft 2010 UWMP update and replace the 2005 UWMP's description of the City's groundwater supplies. DWR's most current groundwater bulletin (No. 118) does not contain a description of these basins.[131]

6.1.1 City's Groundwater Wells

The City owns and operates groundwater wells in all five basins described above. The City currently produces groundwater from 24 wells.[132] An additional five wells are available but not equipped and one well has been abandoned. (See Table 6.1.1 below.)

In 2003, the City and BCVWD entered into an agreement to jointly construct and operate wells in the Beaumont Basin.[133] The Agreement provides that each of the wells must have a minimum capacity of 2,000 gpm. Pursuant to the Agreement, the parties jointly own and operate the wells and BCVWD is primarily responsible for maintaining them. To date, 3 wells have been constructed in the Beaumont Basin pursuant to this agreement.

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[130] 2011 Geoscience Report, pp. 2, 6-8, 14, 17; see also Draft 2010 UWMP, p. 41.
[131] Bulletin 118: Colorado River, Coachella Valley Groundwater Basin.
[132] 2011 Geoscience Report, p. 11.
[133] Agreement Between the City of Banning and BCVWD (Dec. 23, 2003).

Table 6.1.1 City Wells and Production Capacity[134]

Basin/ Storage Unit	Active Wells								Inactive Wells		
	No. of Wells	Well I.D.	Design Capacity		Historic High Capacity		Historic Low Capacity[135]		No. of Wells	Well ID	Total Design Capacity (gpm/af)
			GPM	AF	GPM	AF	GPM	AF			
Banning	4	M10	850	1,371	800	1,290	500	806.5	0		
		M11	700	1,129	600	968	500	806.5			
		M12	1,000	1,613	1,000	1,613	950	1,532			
		C5	1,100	1,774	1,100	1,774	900	1,452			
Total			**3,650**	**5,887**	**3,500**	**5,645**	**2,850**	**4,597**			
Banning Bench	3	1	1,500	2,420	1,500	2,420	1250	2016	0		
		2	650	1,048	650	1,048	500	806.5			
		3	1,500	2,420	1,500	2,420	1000	1,613			
			1,500[136]	*2,420*	*1,200*	*1,935*	*500*	*806.5*			
Total			**3,650**	**5,888**	**3,650**	**5,888**	**2,750**	**4,436**			
Banning Canyon	8	4	3,000	4,839	1,200	1,936	600	968	0	6 (des-troyed)	
		5	2,500	4,032	1,500	2,419.5	550	887			
		7	1,500	2,419.5	1,500	2,419.5	550	887			
		8	1,500	2,419.5	1,500	2,419.5	550	887			
		9	800	1,290	500	806.5	400	645			
		10	1,100	1,774	1,000	1,613	600	968			
		11	1,000	1,613	700	1,129	500	806.5			
		12	700	1,129	700	1,129	500	806.5			
Total			**12,100**	**19,517**	**8,600**	**13,872**	**4,250**	**6,855**			
Cabazon	1	C6	1,000	1,613	900	1,452	850	1,371	1	R1	1,500
Total	**1**		**1,000**	**1,613**	**900**	**1,452**	**850**	**1,371**			
Beau-mont[137]	8	M3	900	1,452	950	1,532	800	1,290	4	M2	NA
		M7	300	484	250	403	225	363		M5	NA
		C2A	1,200	1,935	1,100	1,774	1,000	1,613		M8	NA
		C3	1,200	1,935	1,000	1,613	900	1,452		M9	800
		C4	1,500	2,419.5	1,350	2,177.7	1,200	1,935			
		24	3,000	4,839	1,000	1,613	1,000	1,613			
		25	3,000	4,839	1,000	1,613	1,000	1,613			
		26	3,200	5,162	1,000	1,613	1,000	1,613			
Total			**14,300**	**23,066**	**7,650**	**12,339**	**7,125**	**11,493**			
Total	**24**		**34,700**	**55,971**	**24,300**	**39,196**	**17,825**	**28,752**	**5**		

134 The classification of wells into storage units in Table 6.1.1 reflects the most recent storage unit classifications. (See 2011 Geoscience Report, at pp. 11, 24, 44-45.) These classifications differ slightly from those reflected in the City of Banning Year End Water Production Report 2010, Prepared by Pat Logan, p. 8. Tables 6.1.2 and 6.1.5.4 reflect total groundwater production based on the classification of storage units used Table 6.1.1, and therefore are consistent.

135 Historic low flow is anticipated as a worst case scenario to account for dry year conditions.

136 Well 3 has the capability to operate as an electric or pelton well, however only one can operate at a time and therefore is only considered one well. The values for the pelton well are shown for reference only and are not included in the total design capacity or the total reliable capacity totals.

137 Wells 24, 25 and 26 are co-owned and operated by the City and BCVWD. Total combined reliable capacity is estimated to be 6,000 gpm. The City is entitled to half (3,000 gpm) of the reliable capacity.

6.1.2 City's Groundwater Production

The City's historical groundwater production from all five basins is presented in Table 6.1.2. [138] Tables 2 and 3 of the 2011 Geoscience Report present available groundwater production data for all other producers in the Banning, Banning Bench, Banning Canyon, and Cabazon Basins. The Beaumont Basin Watermaster accounts for, and annually reports on, all users' pumping from the Beaumont Basin.

Table 6.1.2. Summary of City's Historical Groundwater Production by Basin (AF)[139]

Year	Banning	Cabazon	Banning Bench	Banning Canyon	Beaumont		Total
					Banning Wells	BCVWD/Banning Shared Wells	
1960	0	0	1,938	1,530	575	0	4,043
1961	0	0	1,461	1,683	1,084	0	4,227
1962	0	0	1,588	1,275	1,065	0	3,928
1963	0	0	1,485	1,066	1,066	0	3,617
1964	0	0	1,609	1,237	1,139	0	3,984
1965	0	0	1,845	1,045	797	0	3,687
1966	0	0	2,401	1,134	350	0	3,885
1967	0	0	2,436	1,154	42	0	3,632
1968	0	0	2,453	1,230	219	0	3,902
1969	0	0	2,869	1,493	330	0	4,692
1970	0	0	2,908	1,230	207	0	4,345
1971	0	0	2,260	1,905	333	0	4,498
1972	0	0	2,646	2,136	261	0	5,043
1973	0	0	1,791	3,749	267	0	5,807
1974	0	0	2,458	3,651	455	0	6,564
1975	0	0	1,813	3,614	406	0	5,834
1976	0	0	1,393	4,205	312	0	5,910
1977	0	0	860	3,846	224	0	4,930
1978	0	0	2,745	2,998	289	0	6,032
1979	0	0	2,018	3,828	91	0	5,937
1980	0	0	3,246	3,524	93	0	6,864
1981	0	0	3,431	3,625	10	0	7,066
1982	0	0	2,511	3,343	576	0	6,430

[138] City of Banning Production Data; see also 2011 Geoscience Report, Table 7.a.
[139] City of Banning Production Data.

Table 6.1.2. Summary of City's Historical Groundwater Production by Basin (AF)[139]							
Year	Banning	Cabazon	Banning Bench	Banning Canyon	Beaumont		Total
					Banning Wells	BCVWD/Banning Shared Wells	
1983	0	0	4,153	2,678	1	0	6,832
1984	0	0	2,371	4,419	0	0	6,791
1985	0	0	2,605	3,898	13	0	6,516
1986	0	0	1,689	4,682	60	0	6,432
1987	0	0	2,179	4,471	1,082	0	7,732
1988	0	0	1,635	4,727	1,913	0	8,274
1989	0	0	1,057	4,640	2,730	0	8,427
1990	0	0	561	3,448	2,034	0	6,043
1991	0	0	408	4,146	2,874	0	7,428
1992	406	0	1,266	4,266	1,798	0	7,736
1993	445	0	1,246	4,773	1,743	0	8,207
1994	96	0	1,657	3,925	1,719	0	7,398
1995	225	0	1,289	5,007	960	0	7,480
1996	115	0	3,785	4,245	502	0	8,647
1997	135	0	3,065	4,713	746	0	8,658
1998	180	0	2,117	4,925	1,201	0	8,423
1999	424	0	1,910	4,756	1,887	0	8,976
2000	586	0	696	4,837	3,409	0	9,528
2001	839	0	364	5,451	3,376	0	10,030
2002	1,103	0	733	2,940	4,941	36	9,753
2003	2,381	0	877	2,370	4,430	0	10,058
2004	1,782	323	1,245	3,291	3,221	383	10,245
2005	1,267	219	2,369	3,577	1,501	377	9,310
2006	1,217	612	2,924	3,445	1,372	639	10,210
2007	1,311	1,202	2,124	2,640	2,373	589	10,239
2008	1,311	914	1,430	3,161	2,639	778	10,233
2009	1,806	982	1,341	2,767	1,834	520	9,251
2010[140]	1,218	1,472	3,888	565	1,223	148	8,514

[140] City of Banning Year End Water Production Report 2010, Prepared by Pat Logan, p. 7.

6.1.3 Groundwater Basin Management

In California, regulation of groundwater has largely been left to local authorities because the state has not implemented a comprehensive statewide program to regulate or manage groundwater resources. Typically, local groundwater management strategies include monitoring groundwater levels and production amounts, cooperative arrangements among pumpers to minimize or eliminate problem conditions, and, where applicable, conjunctive use of groundwater and surface water supplies, as further described below. However, this type of groundwater management is voluntary. The degree of groundwater management in any basin is often dependent on water availability and demand.

There are several basic methods for managing groundwater in California. First, local agencies may be authorized to manage groundwater pursuant to the Water Code or other special act. No such agency exists in the San Gorgonio Pass area.

Second, local governments may adopt groundwater management plans pursuant to Water Code 10750, *et seq*. (AB 3030 plan). No local government has adopted a groundwater management plan for any of the basins from which the City pumps groundwater.[141]

Third, cities and counties imbued with "police powers" (Cal. Const., art. XI § 7) are authorized to make and enforce within their limits all local, police, sanitary, and other ordinances and regulations not in conflict with the general laws. Generally, cities and counties have been held to possess some police power authority relating to groundwater matters.[142] The City has not adopted a groundwater ordinance.

The fourth form of groundwater management is an adjudication by a court. In an adjudication of a groundwater basin, a court determines and quantifies the rights of all parties to the action claiming an interest in the supply and enters an injunction against any party's pumping in excess of its declared rights. The parties' rights are expressed in the form of a court judgment and typically the court retains continuing jurisdiction over the basin to address future issues.[143] Persons and entities who are not parties to the litigation are not bound by the resulting judgment.[144] As further described below, the Beaumont Basin is an adjudicated basin. As such, the use of groundwater and available storage space in the Beaumont Basin is subject to the terms of a court imposed judgment (see Section 6.1.5.2 below). The Banning, Banning Bench, Banning

[141] *See* Cal. Water Code §§ 10750 *et seq.* (providing authority for adoption of groundwater management plans); *see generally*, Bulletin 118.

[142] *In re Maas*, 219 Cal. 422, 424 (1993); *Baldwin v. Tehama County*, 31 Cal.App.4th 166 (1994) (upholding a county ordinance prohibiting the export of groundwater from the county).

[143] *See City of Lodi v. East Bay Municipal Utility Dist.*, 7 Cal.2d 316, 341, 344 (1936); *Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist.*, 3 Cal. 2d 489, 524-25 (1935).

[144] *See* Code Civ. Proc. § 1908(a)(2) (a judgment in an action will be conclusive between the parties and their successors in interest); Code Civ. Proc. § 389 (judgment cannot bind absent indispensable parties); *Duffey v. Superior Court*, 3 Cal.App. 4th 425, 433-34 (1992) (absent property owners will not be bound by a judgment, unless an exception to the compulsory joinder rule applies).

Canyon and Cabazon Basins have not been adjudicated. As such, the City's production of water from these basins is subject to the common law (see Section 6.1.4 below).

6.1.3.1 Conjunctive Use

As noted above, "conjunctive use" of groundwater basins is one form of groundwater management. Conjunctive use refers to the coordinated use of surface and groundwater supplies to improve water supply reliability.[145] More specifically, conjunctive use means "the temporary storage of water in a groundwater aquifer through intentional recharge and subsequent extraction for later use."[146] California currently utilizes various types of conjunctive use projects as a method of improving the overall reliability of water.[147] The California legislature finds that the "conjunctive management of surface water and groundwater is an effective way to improve the reliability of water supply for all sectors in California."[148] In a coordinated operation, conditions of hydrologic surplus can support the banking of surface waters (e.g., imported water, storm runoff, surplus spring flows, or reclaimed water) when they are plentiful and use of a groundwater aquifer to meet a larger share of demand during periods of drought.[149]

Although a specific project or program may be extremely complex, there are several components common to conjunctive management projects. The first is to recharge surplus surface water when it is available to increase groundwater in storage. The surplus surface water used for recharge may be local runoff, imported water, stored surface water, or recycled water.[150] Recharge may be accomplished in two ways: (1) "direct recharge" of an aquifer by conducting surface water into the ground either by spreading water on permeable surface areas, or by directly injecting water into the groundwater basin through aquifer storage and recovery (ASR) facilities (*i.e.*, wells that can be used to inject and extract water); and (2) recharging by "in-lieu recharge," i.e., means increasing the amount of groundwater available in an aquifer by substituting surface water supplies to a user who would otherwise pump groundwater.[151] The second component is to reduce surface water use in dry years/seasons when surface supplies are scarce by switching to groundwater, thereby creating space ("dewatered storage space")[152] in the aquifer for artificial replenishment during the next wet period. This use of the stored groundwater may take place through direct extraction and use –

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145 Bulletin 118, Glossary, p. 100.
146 Water Code § 79171(a); *see also Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal.4th 412, 423 (2007).
147 *See* Bulletin 118, p. 49.
148 Cal. Water Code § 79170.
149 *See* Bulletin 118, p. 98.
150 Bulletin 118, p. 100.
151 Cal. Water Code § 79171(a)(1)-(2).
152 Dewatered storage space is the amount of available storage space between the current water levels and the historically high water tables. In most basins, this amount must be distinguished from the available storage that may be used to store additional water, which is substantially less because of concerns for water quality, surface flooding, and other adverse physical consequences that may result from high water tables.

i.e., pumping the water back to a conveyance facility, or through exchange of another water supply.[153]

State policy favors conjunctive use projects.[154] Precipitation in much of California occurs unevenly over wet and dry periods. Storage facilities are necessary to capture the precipitation when it is available. Management of a groundwater basin's available storage space is a cost-effective means of ensuring adequate water supplies during drought periods.[155] It is generally far less expensive than developing surface storage, and almost completely avoids the evaporation associated with surface storage.[156] Further, in light of environmental and land-use constraints, California has limited opportunities to develop additional surface storage. Because of these constraints, underground storage in already available aquifers has emerged as a well-recognized solution to the problem of finding new storage capacity.[157] Thus, as California's water demands continue to increase throughout the State while the reliability of imported surface supplies continues to decrease, maximum beneficial use of available subterranean storage space has become a fundamental water management tool.[158] "Well planned conjunctive management not only increases the reliability and the overall amount of water supply in a region, but provides other benefits such as flood management, environmental water use, and water quality improvement."[159]

The availability of dewatered storage space in the Beaumont and Cabazon Basins has created a valuable opportunity for the City to implement conjunctive use programs in these basins. Beginning in 2007, the City began recharging the Beaumont Basin with imported water purchased from the Pass Agency. That water is stored in the City's Beaumont Basin Stored Water account (discussed further below in Section 6.1.5.5) and may be produced from City groundwater wells in the Beaumont Basin at any time. Similarly, the City recharges the Cabazon Basin with treated wastewater spread in the City's percolation ponds and may extract that water at a later time. (See further discussion below in Sections 6.4.2, 6.4.3.)

6.1.4 Groundwater Rights

In California, waters found beneath the surface of the ground may be legally classified as either "percolating groundwater" or "subterranean streams flowing through known and definite channels," which are legally classified as surface waters because of their stream-like characteristics.[160] Surface waters, including subterranean streams, lie

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[153] Bulletin 118, p. 100; *see* DWR, California Water Plan Update 2009 (Dec. 2009) (Water Plan Update 2009), p. 8-18.
[154] State Water Resources Control Board Order No. WR 2009-0063-Exec (Dec. 7, 2009).
[155] Water Plan Update 2009, pp. 8-19, 8-20.
[156] *See, e.g.*, Water Plan Update 2009, p. 8-23.
[157] *See* U.S. Army Corps of Engineers, Elements of Conjunctive Use Water Supply, Hydrologic Engineering Center Research Document No. 27, Davis, California (1988).
[158] Water Plan Update 2009, p. 8-5; *see also* Bulletin 118, pp. 49, 98, 100.
[159] Department of Water Resources, California Water Plan (2009) Vol. 2, Ch. 8, "Conjunctive Management and Groundwater Storage," p. 8-5.
[160] Cal. Water Code § 1200.

within the permitting jurisdiction of the State Water Resources Control Board (SWRCB), but percolating groundwater is not subject to any statewide permitting system or management program to regulate the use or appropriation of water.

California law recognizes three basic types of water rights to a groundwater basin's native supply: overlying, appropriative and prescriptive. Native groundwater is percolating groundwater that occurs naturally and is not imported or otherwise developed. Absent an adjudication of a groundwater basin, common law governs the right to use and extract groundwater from a basin. The Banning, Banning Bench, Banning Canyon and Cabazon storage units are unadjudicated groundwater basins and therefore are subject to these common law rules.

The City has a legal right to extract groundwater from the Banning, Banning Bench, Banning Canyon and Cabazon storage units. It is important that these groundwater supplies be properly managed to serve as a reliable long-term supply for the City, and groundwater rights serve as the basis for most management of groundwater resources.

6.1.4.1 Overlying Rights

The owner of real property overlying a groundwater aquifer possesses a right as part and parcel of the land to extract groundwater from beneath the property for use on overlying land within the watershed.[161] An overlying owner may extract water from one point on the property and use it anywhere on the same parcel so long as the use occurs within the watershed or drainage area of the basin.[162] Additionally, so long as the property owner's land actually overlies a portion of the aquifer, there is no legal requirement that the extraction well be located within the four corners of the property.[163] There is no requirement that an overlying landowner continuously use the water to maintain a vested right because the right is part and parcel of the land.[164] The overlying right consists of a present right to use water for existing and prospective uses.[165] Thus, the right may remain unexercised or dormant, unless a court adjudication[166] provides otherwise.

An overlying owner's groundwater right is correlative with all other overlying users' rights, which means that the overlying owner is limited to a proportional and reasonable share of the common supply.[167] Absent a court adjudication of groundwater rights, the overlying owner is not limited to any specific quantity of water because, by definition, the amount of water to which the overlying owner is entitled fluctuates with the present need of the owner.[168] Instead of a quantified right, the correlative right is a right to a

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161 *See City of Barstow v. Mojave Water Agency*, 23 Cal.4th 1224, 1240 (2000).
162 *See* Scott S. Slater, California Water Law & Policy § 3.02 (2006).
163 *See Hildreth v. Montecito Creek Water Co.*, 139 Cal. 22, 29 (1903).
164 *City of Pasadena v. City of Alhambra,* 33 Cal.2d 908, 925 (1949).
165 *See Peabody v. City of Vallejo*, 2 Cal.2d 351 (1935).
166 In an adjudication, a court officially determines the rights of all parties claiming an interest in the supply and enters an injunction against any party's pumping in excess of their rights.
167 *See Katz v. Walkinshaw*, 141 Cal. 116 (1903).
168 *See Prather v. Hoberg*, 24 Cal.2d 549, 559-60 (1944).

proportional share of the total basin water supply, which is limited by the equal and mutual rights of the other overlying landowners.[169]

An overlying owner enjoys the paramount status and benefit of the overlying right only as long as the water is used for proper overlying uses. Overlying owners, like all water users, are subject to the constitutional prohibition against waste and unreasonable use of water.[170] Therefore, all overlying uses must be reasonable, e.g., the manner and method of the use must not be wasteful, and for beneficial purposes, e.g., domestic, irrigation or municipal and industrial use.

6.1.4.2 Appropriative Rights

California recognizes the doctrine of prior appropriation of surface water and groundwater. Appropriative rights confer a superior right to the person who first puts the resources to beneficial use. Appropriative rights, unlike overlying rights, are not based on ownership of land, but are created by the extraction and use (appropriation) of groundwater. Formation of an appropriative groundwater right requires that three elements be satisfied: (1) an intent to appropriate water; (2) actual extraction of groundwater; and (3) application of the extracted water to reasonable and beneficial use.[171] All groundwater rights are protectable property rights, whether they are adjudicated or unadjudicated.[172]

Unlike overlying rights, appropriative rights are quantified, based upon the amount of extraction and use that has been established. Appropriative rights are more flexible in the place of use than overlying rights, but are subordinate in priority in case of shortage of the water supply, so that appropriative groundwater rights may be used only if there is surplus water available in a basin after satisfaction of all overlying groundwater rights.[173] The one exception to this latter rule is that appropriative rights may move their priority ahead of overlying rights, if the appropriative rights develop into prescriptive rights (see further discussion below).[174] A landowner's overlying right is subject to loss by prescription by an appropriator, such as a city or other public water provider. An appropriator may prescript against an overlying owner by wrongfully taking non-surplus water — i.e., water to which the appropriator would not otherwise be entitled.[175]

A city situated over a groundwater basin, such as the City of Banning, possesses rights not as an overlying owner but as an appropriator under the theory that the City is the administrator of such public use and has become substituted to the individual rights of

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169 *See Barstow*, 23 Cal.4th at 1241.
170 Cal. Const. art. X § 2.
171 *See* Slater, *supra*, at Part E § 2.09.
172 *See In the Matter of Application 30532*, SWRCB Order No. WR 2001-07, at *4 (May 2, 2001).
173 *See City of Los Angeles v. City of San Fernando*, 14 Cal.3d 199, 285-86 (1975) (*San Fernando*); *City of Pasadena*, 33 Cal.2d at 928-32.
174 *See generally Barstow*, *supra*, 23 Cal.4th 1224; *San Fernando*, 14 Cal.3d 199.
175 Additionally, an overlying owner may obtain a prescriptive right against another overlying owner by using the water for non-overlying purposes – i.e., as an appropriator.

owners for the benefit of all.[176] Accordingly, the City's appropriative rights may be quantified based upon the amount of extraction and use that has been established in each basin. Further, because of its status as a municipality, the City has the right to extract water from a basin to meet the current and future demands of the communities that it has dedicated its water rights and facilities to serve.[177]

Pursuant to Water Code sections 4999 through 5008, each person in Riverside County who extracts groundwater in excess of 25 acre-feet in any year shall file with the SWRCB a "Notice of Extraction and Diversion of Water." Failure to file such a notice shall be deemed equivalent for all purposes to nonuse for such year of any groundwater use.[178] The City has complied with these requirements and has filed notice of its groundwater extractions in every year since its wells first came into operation. The first Notice of Extraction and Diversion was filed by the City in 1980, and the City has filed consistently for each of its wells since that date.[179]

6.1.4.3 Prescriptive Rights

For an appropriator to establish a prescriptive right, the appropriator must establish that it appropriated water in excess of the basin's safe yield for at least five years pre-dating the filing of any action to determine the parties' rights in the basin, and that overlying owners had notice (actual or constructive) of the adverse taking.[180] The primary indication of a groundwater basin that may be subject to the acquisition of prescriptive rights is the existence of an overdraft, a condition that results from groundwater extractions that exceed the basin's safe yield.

Overlying owners may partially interrupt a claim of prescription to the extent that they engage in "self-help" (i.e., pumping during the prescriptive period). Although there are very few judicial precedents on which to base the general rule, the case law does suggest that overlying owners who exercise and preserve their rights in the face of prescription, preserve their overlying rights,[181] and that those parties who have never pumped, or who have failed to engage in "self-help" during an overdraft period, may be deprioritized or subject to reduction in times of shortage.[182] When and if shortage conditions arise with respect to any given groundwater resource, it would appear that

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[176] *City of San Bernardino v. City of Riverside*, 186 Cal. 7, 24-25 (1921).
[177] Cal. Water Code §§ 106, 106.5.
[178] Cal. Water Code § 5001.
[179] State Water Resources Control Board eWRIMS database, "Groundwater Recordations," City of Banning.
[180] A prescriptive right is established only by proof of each and all of the following five elements: (a) actual; (b) open and notorious (such that the overlying owner has actual or constructive notice of the adverse claim and use); (c) continuous and uninterrupted for the statutory period of five years; (d) under a claim of right; and (e) hostile and adverse to the original owner (proved by the existence of an overdraft condition). *See generally, Barstow*, 23 Cal.4th 1224; *San Fernando,* 14 Cal.3d 199.
[181] *Barstow*, 23 Cal.4th at 1241; *Hi-Desert County Water Dist. v. Blue Skies Country Club*, 23 Cal.App.4th 1723, 1727 (1994); *Tehachapi-Cummings County Water Dist. v. Armstrong*, 49 Cal.App.3d 992, 996 (1975).
[182] *See Hi-Desert*, 23 Cal.App.4th 1723; *Barstow*, 23 Cal.4th at 1249, n. 13.

those parties who have demonstrated consistent, long-term, reasonable and beneficial uses of water over a long-term, may be better off. At the very least, an historical reliance on the groundwater supply provides the court with some measure of the right, normally an unquantified right. Subject to the limitations stemming from the overlying owner's self-help, appropriators like the City may acquire prescriptive rights.

6.1.4.4 Priorities to Native Groundwater

In times of surplus (i.e., not overdraft), an overlying owner's right to make reasonable and beneficial use of the groundwater beneath the land is paramount to the right of groundwater appropriators — those that extract water for use on non-overlying land.[183] The overlying property owner's right is prior and paramount to an appropriator's, even if the overlying owner has not yet made use of his overlying right (i.e., the right is classified as "dormant" or unexercised).[184] Until the overlying owner uses the entire water supply, however, the appropriator has the right to use any surplus. The overlying owner's priority status will support an injunction against junior users so long as the overlying owner is vigilant in the protection of his rights.[185]

During periods of shortage, percolating groundwater may be allocated by a court in accordance with the following hierarchy of rights in descending order of priority: prescriptive, overlying, and appropriative.[186] Therefore, to the extent that an appropriator has acquired a prescriptive right, his right may be satisfied first. Overlying owners, to the extent that they have lost all or a portion of their rights by way of prescription, could have their use reduced. In the absence of the vesting of prescriptive rights, such as may only be obtained under overdraft conditions, overlying rights are prior and paramount to all others in a basin.

6.1.4.5 Rights to Imported and Reclaimed Water

Developed water is new water added to the native supply from nontributary or foreign sources. Developed water includes all water that is not a natural part of a water system. Foreign (or "imported") water is a type of developed water — it is water imported from outside the basin as in the case of SWP water.[187] Generally, downstream riparians have no rights in water that is "foreign" to the watershed or "developed" from a storage facility, and therefore there is no need to obtain a permit for the supply so long as the developer does not relinquish dominion or control over the developed water.[188] The developer's rights extend to return flows generated from use of the supply, as well as to

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[183] *California Water Service Co. v. Edward Sidebotham & Sons, Inc.*, 224 Cal.App.2d 715, 725 (1964).

[184] *Burr v. Maclay Rancho Water Co.*, 154 Cal. 428, 438 (1908) (holding that an overlying property owner who has not yet made use of his overlying right can obtain a declaratory judgment protecting that paramount right from another party obtaining a prescriptive right to the water).

[185] *Wright v. Goleta Water Dist.*, 174 Cal.App.3d 74, 90-94 (1985).

[186] *Barstow*, 23 Cal.4th 1224; *Tehachapi*, 49 Cal.App.3d 992.

[187] *Stevens v. Oakdale Irrigation Dist.*, 13 Cal.2d 343 (1939).

[188] *See Crane v. Stevinson*, 5 Cal.2d 387 (1936); *Haun v. DeVaurs*, 97 Cal.App.2d 841 (1950); *In the Matter of Application 28550 et al, SWRCB WR 95-11* (1995).

the supply generated from the developer's treatment and discharge of the supply.[189] The importer of foreign water into a watercourse has no obligation to downstream water rights holders to release the water, and he may instead dispose of the water under a contract.[190]

The same reasoning applies to groundwater basins.[191] Developed water belongs exclusively to the developer, who may extract it at any time.[192] Even though these waters may be mixed with native sources, the act of commingling developed water does not reduce the developer's rights in the supply.[193] The person introducing the developed water into a basin has the exclusive right to extract that amount of water that he contributes to the groundwater supply.[194] Overlying rights to pump native supplies of groundwater in a basin do not attach to developed water that is stored within a groundwater basin.[195]

Reclaimed water may be a developed water supply and therefore subject to the same rules. Once water is sent to a wastewater treatment facility and reaches the facility, the owner of the facility owns the return flows from the treated water. A wastewater treatment plant (WWTP) generally will hold the exclusive right to the treated wastewater as against anyone who has discharged the water into the treatment system or who is using the water under a service contract, unless otherwise provided by agreement.[196] Thus, the City, as owner of a WWTP, holds the exclusive right to the treated wastewater against anybody who supplies the water discharged into the wastewater systems.[197] To the extent that the reclaimed water supply is a developed water supply — e,g., not part of the native supply — other legal users (such as overlying owners and appropriators) have no right to return flows from the reclaimed supply, and thus no basis to object to modification of the reclaimed supply.[198]

6.1.4.5.1 The Right to Use of Dewatered Storage Space

[189] *Stevens, supra*, 13 Cal.2d at 350.
[190] *Haun*, 97 Cal.App.2d 841.
[191] *See Barstow*, 23 Cal.4th at 1240 [overlying rights analogous to riparian rights].
[192] *San Fernando*, 14 Cal.3d at 256-264, 288, 293-94; *Glendale*, 23 Cal.2d at 76-77; *see also* Cal. Water Code § 7075.
[193] *See, e.g., San Fernando*, 14 Cal.3d 199.
[194] *See San Fernando,* 14 Cal.3d at 262-64; *City of Los Angeles v. City of Glendale*, 23 Cal.2d 68, 76-77; *see also Stevens* ,13 Cal.2d 343.
[195] *Los Osos Valley Associates v. City of San Luis Obispo*, 30 Cal.App.4th 1670 (1994).
[196] Cal. Water Code § 1210; *see generally In Matter of Treated Waste Water Change Petition WW-20 of El Dorado Irrigation District,* SWRCB Order No. 95-9 (1995*;* In the Matter of Water Right Application 29408 and Waste Water Change Petition WW-6, City of Thousand Oaks (1997) D-1638 (Thousand Oaks).
[197] "The owner of a wastewater treatment plant…shall hold the exclusive right to the treated wastewater as against anyone who has supplied the water discharged into the wastewater collection and treatment system, including a person using water under a water service contract, unless otherwise provided by agreement." (Cal. Water Code § 1210.)
[198] Slater, supra, p. 7-15; *Scott v. Fruit Growers Supply Co*. (1927) 202 Cal. 47, 55; Thousand Oaks, D-1638.

Dewatered storage space in a groundwater basin is a public resource that may be available for use on terms generally applicable to the surface channels and reservoirs.[199] The right to engage in subsurface storage of imported or developed water, as well as the right to recapture the supply from the groundwater basin, is widely accepted in the law.[200] The fact that the artificially replenished water has commingled with the native supply does not affect the developing entity's right of recapture; the right is quantified by the amount the artificial replenishment has augmented the basin's retrievable native water supply.[201] Unless the developed supply is abandoned,[202] the developer maintains an exclusive right to recapture both the developed water that is directly introduced to the water supply and to return flows generated by the delivery and application of the water upon the land.[203]

It is widely recognized that the introduction and later recapture of developed water is limited by the "no injury" rule.[204] That is, such activities cannot injure existing lawful users of water.[205] For example, the "no injury rule" will also likely prevent the developer from introducing developed water that materially harms the water quality of the native groundwater supply.[206] Storage projects could harm a basin's water quality by either introducing lesser quality water into the basin or by mobilizing and spreading contaminants.

Subject to these qualifications, the City has considerable discretion in the use, reuse and transfer of imported and developed water that it places into subterranean storage. The developed water doctrine can be relied upon by the City to recapture those quantities of water that it introduces into the retrievable groundwater supply, thereby augmenting the native supply. As further described below, the City intends to maximize all storage opportunities throughout the San Gorgonio Pass area. Presently, the City conducts storage operations in both the Beaumont Basin, pursuant to the Beaumont Basin Judgment, and the Cabazon Basin, pursuant to the common law principles described above.

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199 Slater, *supra*, p. 7-23.

200 *Central and West Basin Replenishment District v. Southern California Water Co.* (2003) 109 Cal.App.4th 891; *City of Los Angeles v. City of Glendale* (1943) 23 Cal.2d 68, 76-78.

201 *San Fernando*, 14 Cal.3d at 262, 290.

202 Abandonment depends on proof of an intent to relinquish permanently the possession and enjoyment of a property right. (*Lindblom v. Round Valley Water Co.*, 178 Cal. 450, 455 (1918).) The courts have taken a liberal interpretation of abandonment of developed water, holding that abandonment only occurs after the developer manifests a clear intent to relinquish control of the developed water. (*Stevens,* 13 Cal.2d at 350-53.) Further, the developer can avoid any abandonment by recapturing the developed water from a stream or groundwater basin at any point where the developer can obtain access, provided no injury results to lawful users of native supplies. (*San Fernando*, 14 Cal.3d at 262-64; *Glendale*, 23 Cal.2d 68, 76-77; *Stevens,* 13 Cal.2d at 350-53.)

203 *San Fernando*, 14 Cal. 3d at 262-64; *Stevens,* 13 Cal.2d 343; *Haun v. DeVaurs*, 97 Cal.App.2d 841 (1950).

204 *See* Slater, *supra*, pp. 7-20, 7-22.

205 *Scott,* 202 Cal. 47 at 53; Thousand Oaks, D-1638.

206 Slater, *supra*, p. 7-22.

6.1.5 Beaumont Basin

6.1.5.1 Description of the Beaumont Basin

The Beaumont Basin is located within a high alluvial plateau that is bounded by the San Andreas Fault and the San Bernardino Mountains to the north, and the San Jacinto Fault and the San Timoteo Badlands to the south. The eastern portion of the City overlies the Beaumont Basin. (See 2011 Geoscience Report, Fig. 1: Regional Setting.) As illustrated in Figure 6.1.5.1, the Project site lies entirely over the Beaumont Basin.

The Beaumont Basin is located within a semi-arid region with definitive wet and dry periods.[207] Precipitation in the region occurs as snow or rainfall in the San Bernardino Mountains and primarily as rainfall over the Basin. The average annual precipitation, as measured by the Beaumont station rain gauge, from 1920 to 2008, was 17.8 inches.[208] 2009 was one of the driest years on record with a total precipitation of approximately 8 inches.[209]

There are three significant surface drainage systems that overlie the Beaumont Basin: (1) the San Timoteo Creek drainage, which is part of the Upper Santa Ana River watershed; (2) the Potrero Creek drainage, which is part of the San Jacinto watershed; and (3) the Smith Creek drainage, which is part of the White Water River watershed.[210] The San Timoteo Creek drainage is largest of the three and consists of Little San Gorgonio Creek, Noble Creek, and numerous sub-drainages.[211] In this system, surface water flows originate in the San Bernardino Mountains. Most of the streams and creeks in this area are dry for most of the year with the exception of periodic discharge associated with rainfall events and urban runoff.[212]

The water-bearing sediments of the Beaumont Basin consist of two general units of unconsolidated to semi-consolidated gravels, sands, silts, and clays: (1) older San Timoteo Formation outcrops in the southwest along San Timoteo Creek and in the Singleton and Banning Bench Basins that bound the Beaumont Basin to the north; and (2) younger overlying Quaternary Alluvium that is relatively un-deformed and forms the ground surface of most of the Beaumont Basin.[213] The non-water-bearing, consolidated bedrock that bounds, underlies, or outcrops within the Beaumont area consists primarily of Pre-Tertiary crystalline igneous and metamorphic rocks.[214] Numerous faults form the boundaries of the Beaumont Basin. These faults form barriers to groundwater flow.[215]

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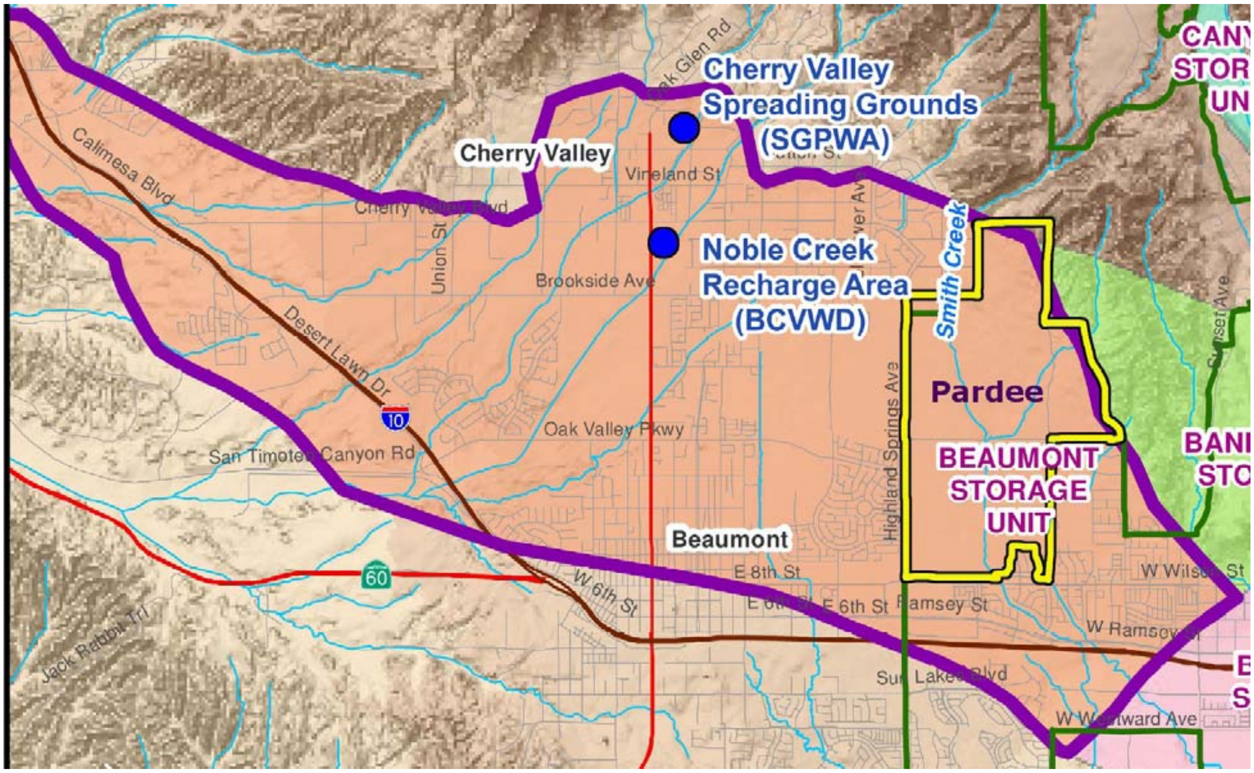
[207] Beaumont Basin Watermaster, Biennial Engineer's Report, July 2003 to June 2008 (Revised February 2010) (Second Biennial Engineer's Report), p. 2-1.
[208] Second Biennial Engineer's Report, p. 2-1.
[209] Pass Agency, Report on Water Conditions (Reporting Period 2009), at 3.1.
[210] Second Biennial Engineer's Report, p. 2-1.
[211] Second Biennial Engineer's Report, p. 2-1.
[212] Second Biennial Engineer's Report, p. 2-1.
[213] Second Biennial Engineer's Report, p. 2-2.
[214] Second Biennial Engineer's Report, p. 2-2.
[215] Second Biennial Engineer's Report, p. 2-2.

Figure 6.1.5.1. Relationship Between Project Site and Beaumont Basin



The Beaumont Basin is the largest basin in the area. Additionally, its relatively good hydraulic properties and significant saturated thickness make it the most productive groundwater basin in the area.[216] Approximately 50% of the groundwater produced in the region is pumped from the Beaumont Basin.[217]

Groundwater flow typically follows the surface drainage patterns from higher elevations in the northern region to lower elevations in the south and southwest. From the Banning Fault, at the mouth of Edgar Canyon, groundwater within the Beaumont Basin flows southward under a relatively minor gradient toward the City of Beaumont where the groundwater flow divides. Groundwater east of this divide flows southeastward, discharging as underflow into the Banning Basin. Groundwater west of this divide flows westward, discharging as underflow into the San Timoteo Canyon sub-basin or as rising water at springs and seeps in the tributaries of San Timoteo Creek.

[216] Second Biennial Engineer's Report, p. 2-2.
[217] Pass Agency, Report on Water Conditions (Reporting Period 2009), at 4.1.

The sources of recharge to the Beaumont Basin include:

- Infiltration of flow within unlined streams
- Underflow from seepage across faults, including the Banning and Cherry Valley Faults, and through riverbed deposits in front of mountain creeks, such as the Little San Gorgonio, Noble, Marshall, and Smith Creeks
- Deep percolation of precipitation and returns from use
- Septic tank discharge in the Cherry Valley area

Groundwater discharges from the Beaumont Basin primarily occur via:

- Groundwater production
- Rising water in San Timoteo Creek
- Subsurface outflow to adjacent groundwater sub-basins
- Evapotranspiration

6.1.5.2 Beaumont Basin Adjudication

As noted above, the Beaumont Basin is an adjudicated groundwater basin.[218] In 2003, the San Timoteo Watershed Management Authority (STWMA) filed a lawsuit in the Riverside County Superior Court to adjudicate pumping and storage rights in the Beaumont Basin (County of Riverside Case No. RIC 389197). To resolve the lawsuit, the STWMA, along with other pumpers, created a stipulated agreement to establish pumping rights among overlying and appropriative pumpers. In February 2004, the Stipulated Agreement was approved by the Court (Judgment Pursuant to Stipulation Adjudicating Groundwater Rights in the Beaumont Basin, *San Timoteo Watershed Management Agency v. City of Banning et al.*, Riverside County Sup. Ct., Case No. RIC 389197 (Feb. 4, 2004) (Beaumont Basin Judgment).)

The Beaumont Basin Judgment expressly provides that the purpose of the Judgment — a "physical solution" —

> is to establish a legal and practical means for making the maximum reasonable and beneficial use of the waters of the Beaumont Basin, to facilitate conjunctive utilization of the surface, ground and Supplemental Waters, and to satisfy the requirements of water users having rights in, or who are dependent upon, the Beaumont Basin.[219]

[218] Judgment Pursuant to Stipulation Adjudicating Groundwater Rights in the Beaumont Basin, *San Timoteo Watershed Management Agency v. City of Banning et al.*, Riverside County Sup. Ct., Case No. RIC 389197 (Feb. 4, 2004) (Beaumont Basin Judgment).

[219] Beaumont Basin Judgment, Part V, ¶ 1.

Pursuant to the Beaumont Basin Judgment, the Court appointed a watermaster which is the Court's special master for the Beaumont Basin.[220] The Beaumont Basin Watermaster (Watermaster) is a multi-party agency consisting of representatives from the Cities of Banning and Beaumont, the BCVWD, the YVWD, and the South Mesa Mutual Water Company (SMMWC).[221] The Watermaster is responsible for managing the Beaumont Basin and administering adjudicated water rights pursuant to the Court's continuing jurisdiction.[222] The Watermaster is responsible for accounting for groundwater production from the Basin and management of use of the basin's available storage space, among other things.[223]

6.1.5.3 Parties to the Adjudication

Parties to the Beaumont Basin Judgment include both overlying landowners (Overlying Parties[224]) and water purveyors (Appropriator Parties). Pardee Homes is an overlying owner — it owns 1,543 acres overlying the Beaumont Basin. Neither Pardee Homes, nor its predecessor-in-interest, Deutsch Corporation, was joined to the STWMA litigation referenced above and therefore Pardee Homes is not a party to the Beaumont Basin Judgment.

There are five Appropriators under the Judgment: the City, the City of Beaumont, the BCVWD, the SMMWC, and the YVWD.[225] The Appropriators' respective water rights under the Judgment are set forth in Exhibit C of the Judgment. The City's share of the Safe Yield of the Beaumont Basin, after the rights of the Overlying Owners are satisfied, is 31.43%.

6.1.5.4 Groundwater Production

The largest pumpers in the Beaumont Basin are the City, BCVWD, YVWD and the East Valley Golf Club, formerly the Southern California Section of the Professional Golfer's Association.[226] Watermaster reports that "[d]uring the six years since the adjudication of the Basin, a total of 100,701 AF of water has been pumped. Of this, 80,498 AF was pumped by Appropriators, and 20,203 AF was pumped by Overlying Producers. The minimum production during the six-year period was 14,064 AF in 2005 (fiscal 2004/05),

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[220] *U.S. v. Clifford Matley Family* Trust, 354 F.3d 1154, 1161 (9th Cir. 2004) (Court-appointed watermasters perform administrative and adjudicatory functions and are analogous to special masters). The composition of the watermaster and the scope of the watermaster's exact duties vary among the adjudications, inherent in the nature of equity. (*Glendale,* 23 Cal.2d at 81; *Orchard v. Cecil F. White Ranches, Inc.*, 97 Cal.App.2d. 35, 45-46 (1950).)

[221] Beaumont Basin Judgment, Part VI, ¶ 4; Sixth Annual Report of the Beaumont Basin Watermaster, Wildermuth Environmental (April 2010) (Sixth Annual Report of Watermaster), p. 2-1.

[222] Beaumont Basin Judgment, Part VI, ¶ 5.

[223] Beaumont Basin Judgment, Part VI. The Watermaster operates under the Judgment and a formal set of Rules and Regulations, Rules and Regulations of the Beaumont Basin Watermaster, adopted June 8, 2004, amended September 2008) (Watermaster Rules and Regulations).

[224] With reference to the Beaumont Basin Judgment, all defined terms used in this WSA – Overlying Owner, Appropriator, Production Right, etc. – have the same meaning as set forth in the Judgment itself.

[225] Beaumont Basin Judgment, Part I, ¶ 2; *see also*, Exh. C.

[226] Sixth Annual Report of Watermaster, p. 3-1, Tables 1-3.

and the maximum production was 19,405 AF in 2008 (fiscal 2007/08). The average production across all six years is 16,784 AF."[227]

The peak production year for the Beaumont Basin was 2003. The Pass Agency reports that production in the basin decreased about 9% in 2008 from 2007, a similar decrease occurred from 2006 to 2007.[228] The decreases represent a reduction in pumping by the YVWD. The largest appropriator, the BCVWD, which serves the City of Beaumont and the community of Cherry Valley, also reduced groundwater production during this period.[229] On average, the City has produced approximately 2,514 AFY from the Beaumont Basin. The City's actual historical production from the Basin is provided in Table 6.1.2 above.[230]

Along with measuring historical pumping, Watermaster also projects groundwater pumping in the Beaumont Basin through the year 2020, which are based on the Appropriators own projections.[231] "The projections for overlying pumpers reflect the transition of overlying water rights to appropriative water rights for the overliers that will transfer their water rights because of changing land uses and the use of recycled water in lieu of groundwater."[232] While groundwater pumping by Overlying Owners is expected to decrease through 2020, pumping by the City, BCVWD and YVWD is projected to increase through 2020.[233] Groundwater not pumped by Overlying Parties will be allocated to the Appropriators (see Section 6.1.5.8.2 below). Additionally, "[a]ny groundwater that the City of Banning, the BCVWD, the YVWD pump from the Beaumont Basin beyond the safe yield will be offset by the use of the temporary surplus and the recharge of imported water, recycled water, stormwater, and urban runoff."[234]

6.1.5.5 Conjunctive Use in the Beaumont Basin

The Beaumont Basin Judgment expressly provides for the beneficial use of the basin's available storage capacity by any person or entity.

> There exists in the Beaumont Basin a substantial amount of available Groundwater Storage Capacity. Such Capacity can be reasonably used for Stored Water and Conjunctive Use . . . . There shall be reserved for Conjunctive Use a

[227] Sixth Annual Report of Watermaster, p. 3-2.
[228] Pass Agency's Annual Report on Water Conditions for 2008 (Dec. 2009); see also Pass Agency, Report on Water Conditions (Reporting Period 2009), at 4.1.
[229] Pass Agency's Annual Report on Water Conditions for 2008 (Dec. 2009), p. 8.
[230] Currently, the Watermaster maintains all records by "water year." Given that the City maintains its water use records on a calendar year basis, this WSA translates all "water years" into calendar years for ease of comparison. For purposes of this WSA, water year 2009-10 = calendar year 2010. The Watermaster is in the process of converting its reporting to a calendar year basis as well.
[231] Sixth Annual Report of Watermaster, p. 3-1.
[232] Sixth Annual Report of Watermaster, p. 3-1.
[233] Sixth Annual Report of Watermaster, p. 3-1.
[234] Sixth Annual Report of Watermaster, p. 3-1.

minimum of 200,000 acre feet of Groundwater Storage Capacity . . . .[235]

All groundwater storage capacity is subject to the Watermaster's regulation. As such, no party may make reasonable beneficial use of the storage capacity for supplemental water in the Basin without a written "Groundwater Storage Agreement" with the Watermaster.[236] Accordingly, if a party does not have a current Groundwater Storage Agreement with Watermaster, all flows that it attempts to store in the basin are abandoned and become subject to appropriation by right holders within the basin.[237]

Currently, two facilities recharge imported water to the Basin: (1) the Little San Gorgonio Creek Spreading Ponds, operated by the Pass Agency; and (2) the BCVWD's Noble Creek Recharge Facility, which is used by both BCVWD and the City.[238] Imported water that is recharged into the Beaumont Basin may be pumped via wells or stored in a party's Stored Water account for later use.

Watermaster calculates all additions, extractions and losses of all water stored and maintains an annual accounting.[239] "The first applications and agreements to store unused Appropriator production rights were approved in fiscal 2005/06. During that year, Watermaster approved applications and agreements to store unused rights from the first two years of operations for the City, BCVWD, SMMWC, and YVWD. Beaumont obtained a Stored Water account with the Watermaster in fiscal 2007/08. To date, the total amount of storage authorized by Watermaster is 157,000 AF."[240] As of July 1, 2009, the volume of water in all Stored Water accounts was 33,848 AF.[241]

The City's Beaumont Basin water supply is conjunctively managed. The City is uniquely situated to take advantage of this management technique because it overlies the Beaumont Basin and has adjudicated production and storage rights in the basin. The Beaumont Basin Judgment expressly promotes conjunctive use. Further, the City has an approved Groundwater Storage Agreement with the Watermaster permitting it to store up to 80,000 AF in the Beaumont Basin.[242] This confirmed storage right permits the City's ability to maximize the beneficial use of water through conjunctive use. The City's increased conjunctive use of the Beaumont Basin provides numerous benefits to the City and its existing and future customers, including improving overall water supply reliability, improved operational flexibility, more efficient use of supplemental supplies during wetter than normal years, increased basin yield, and reduced water supply costs over time.

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235 Beaumont Basin Judgment, Part V, ¶ 5(U).
236 Beaumont Basin Judgment, Part V, ¶ 5(B).
237 *See* Beaumont Basin Judgment, Part III, ¶ 3; Watermaster Rules and Regulations, Rule 6.2.
238 Sixth Annual Report of Watermaster, p. 3-3.
239 Watermaster Rules and Regulations, Rules 3-4.
240 Sixth Annual Report of Watermaster, p. 3-4.
241 Sixth Annual Report of Watermaster, p. 3-4.
242 Minutes of the Beaumont Basin Watermaster Meeting (Sep. 14, 2010).

6.1.5.6 Groundwater Monitoring Programs

The Beaumont Basin is actively monitored and has been for many years. Watermaster collects data on production, water levels and water quality from the Appropriators and other cooperating agencies to monitor and understand the basin.[243] Each pumper is required to periodically file a report showing the total production from each well during the preceding reporting period.[244] Watermaster also monitors the water quality and levels of wells and storage throughout the basin.[245] This data allows Watermaster to perform scientific and engineering analyses to "ensure that the Watermaster's responsibilities of maintaining and improving the water supply, maintaining and improving water quality, and monitoring and understanding the basin are fulfilled."[246] Watermaster's database includes "well location, construction, lithology, specific capacity, groundwater level and water quality information."[247]

Watermaster compiles information on production and recharge into an annual report.[248] Every two years, the Watermaster prepares an engineering report on the state of the Basin's water resources, including changes in groundwater elevation, storage and quality. Watermaster released its Sixth Annual Report of the Beaumont Basin in April 2010 and its revised Second Biennial Engineer's Report in February 2010.[249]

Additionally, Watermaster has initiated two studies to further understand the state of the Basin and the impacts from operation of the Basin: the subsidence monitoring and groundwater level monitoring programs.[250] In 2004, Watermaster adopted a resolution to further the management of the Beaumont Basin.[251] On behalf of Watermaster, STWMA developed a monitoring program to study subsidence as a result of past pumping. "The preliminary results of the program indicated very little, if any, subsidence has occurred as a result of historic pumping and overdraft."[252] Annual ground level surveys are conducted to monitor future land subsidence.[253] These studies support the conclusion that the Watermaster's management of the basin, on behalf of the court, has stabilized the basin such that the permitted uses may continue without undesirable affects.

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[243] Sixth Annual Report of Watermaster, p. 1-2.
[244] Beaumont Basin Judgment, Part VI, ¶ 6(A).
[245] Sixth Annual Report of Watermaster, p. 1-2.
[246] Second Biennial Engineer's Report, p. 3-1.
[247] Beaumont Basin Watermaster, Biennial Engineer's Report, July 2003 to June 2006 (June 2007) (First Biennial Engineer's Report), p. 2-1.
[248] Beaumont Basin Judgment, Part VI, ¶ 6(B).
[249] Second Biennial Engineer's Report, p. 2-1.
[250] First Biennial Engineer's Report, p. 2-1.
[251] Beaumont Basin Watermaster Resolution No. 2004-07, A Resolution of the Beaumont Basin Watermaster in Support of AB 303 Grant Applications That Further the Management of the Beaumont Basin (Nov. 4, 2004).
[252] Second Biennial Engineer's Report, p. 2-1.
[253] First Biennial Engineer's Report, p. 2-1.

In 2006-2007, Watermaster initiated a groundwater level monitoring program to "determine the location of subsurface groundwater barriers and to collect consistent long-term groundwater level information for its own use and for the use of pumpers in the Beaumont Basin."[254] To accomplish this, Watermaster established a groundwater level monitoring network and installed pressure transducers and data logs in 10 wells to record groundwater levels every 15 minutes.[255] Also, in 2006, Watermaster made an effort to update regional well information and to identify new wells that could be used for water level and quality monitoring.[256]

The USGS also monitors numerous wells throughout the Beaumont Basin every spring and fall.[257] USGS has developed a groundwater flow model of the Beaumont Basin that can be used to develop an understanding of the potential hydrologic effects of different water management alternatives on groundwater levels and movement in the Beaumont Basin. [258]

The Pass Agency also monitors conditions in the several basins within its boundaries, including the Beaumont Basin. The Pass Agency publishes a report on conditions within these basin annually.[259]

6.1.5.7 State of the Beaumont Basin

The present Safe Yield of the Beaumont Basin, as designated by the Judgment, is 8,650 AFY.[260] The Judgment also established a Temporary Surplus, allowing 16,000 AFY of additional pumping by the Appropriators for each of the first 10 years of Watermaster operations (a total of 160,000).[261] The purpose of the Temporary Surplus is to establish a controlled drawdown of water levels in the basin, thus creating room for the safe storage of supplemental water and reducing outflow from the basin. With the temporary surplus, the annual Operating Yield of the basin is 24,650 AFY through fiscal year 2012/13.[262] In 2014, and every 10 years thereafter, Watermaster will re-determine the Safe Yield and the Beaumont Basin will be managed to the updated Safe Yield.[263]

Watermaster measures changes in groundwater storage by studying Basin operations such as increased pumping or recharge of water.[264] These changes are calculated from

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[254] First Biennial Engineer's Report, p. 2-1.
[255] First Biennial Engineer's Report, p. 2-1-2-2.
[256] Second Biennial Engineer's Report, p. 3-3.
[257] First Biennial Engineer's Report, p. 2-3.
[258] United States Geological Survey, Scientific Investigations Report 2006-5026, Geology, Ground-Water Hydrology, Geochemistry, and Ground-Water Simulation of the Beaumont and Banning Storage Unites, San Gorgonio Pass Area, Riverside County, California (2006) (USGS 2006 Report).
[259] *See, e.g.,* Pass Agency, Report on Water Conditions (Reporting Period 2009).
[260] *See also*, Pass Agency's 2010 UWMP pp. 3-4, 3-6.
[261] Second Biennial Engineer's Report, p. 4-1.
[262] Sixth Annual Report of Watermaster, p. 3-2.
[263] Second Biennial Engineer's Report, p. 4-1.
[264] Second Biennial Engineer's Report, p. 4-2.

changes in groundwater elevations and the specific yield of the aquifer.[265] Watermaster defines specific yield as "the quantity of water that a unit volume of an aquifer, after being saturated, will yield by gravity."[266] For the first five years after the Basin was adjudicated, Watermaster planned for a change in storage of -80,000 AF, "assuming that each Party to the Judgment would pump their entire water right each year."[267] In its Biennial Engineer's Report, Watermaster has concluded that the planned-for change in storage is about 8,000 acre-feet greater than the realized change.[268] This positive change was due to decreased pumping and increased replenishment. First, the majority of the Overlying Owners and Appropriators did not pump their entire quantified right during this period. Second, the Pass Agency has recharged 4,190 AF of water into the Beaumont Basin since 2003.[269]

Watermaster reports that since the adjudication, "groundwater levels declined an average of about 22 feet across the Beaumont Basin. Water level declines in the western end of the Basin averaged about 16 feet, while declines in the eastern end averaged about 31 feet. The greatest groundwater level decline was observed at BCVWD Well 02; since fall 2003, water levels at BCVWD Well 02 have declined by about 60 feet."[270] However, "[g]roundwater elevations were expected to decline over the study period as groundwater production has exceeded the safe yield of the Beaumont Basin…" The purpose of the Judgment's Temporary Surplus is to "create room for the safe storage of supplemental water and to reduce losses from the basin to surrounding basins."[271] Watermaster also reports that fall 2003 and fall 2008 contours "show that groundwater low patterns remain consistent."[272] However, the City's increase in pumping "in the southeast end of the Beaumont Basin have begun to interrupt this general flow pattern." Flow patterns in this end of the basin will continue to change as two new production wells that were recently constructed by the BCVWD go on-line and as the City continues to increase its pumping."[273]

In February 2010, given that production had not been as great as expected, Watermaster reported that conditions "suggest[s] that the safe yield of the Beaumont Basin, as designated in the Judgment, may be underestimated by approximately 1,600 acre-ft/year."[274] Although Watermaster has not officially determined the Safe Yield pursuant to the Judgment for the post 2013 period,[275] its current data strongly suggests that the Beaumont Basin Safe Yield will increase when formally adjusted in 2013. Most

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265 Second Biennial Engineer's Report, p. 4-2.
266 Second Biennial Engineer's Report, p. 4-2.
267 Second Biennial Engineer's Report, p. 4-2.
268 Second Biennial Engineer's Report, p. 4-3.
269 Sixth Annual Report of Watermaster, Table 6.
270 Sixth Annual Report of Watermaster, p. 3-4.
271 Sixth Annual Report of Watermaster, p. 3-2.
272 Second Biennial Engineer's Report, p. 4-2.
273 Second Biennial Engineer's Report, p. 4-2.
274 Second Biennial Engineer's Report, p. 4-3.
275 The Judgment requires that the Safe Yield of the basin shall be redetermined at least every 10 years beginning 10 years after the date of the entry of Judgment. (Beaumont Basin Judgment, Part V, ¶ 5(V).)

recently, the Watermaster determined that the "developed" yield of the basin was approximately 10,290 AFY.

> "Safe yield is a water management construct that describes the sustainable supply of a groundwater basin and is defined herein as the amount of water that can be withdrawn from a groundwater basin annually without producing an undesirable result. . . . The developed yield is the yield developed over a period of time. . . . The safe yield of the basin is equal to the developed yield if there are no undesirable results of effects. . . . . From 2003 to 2008, the developed yield of the basin was about 10,290 acre-ft/yr. This exceeds the [existing] safe yield of the basin by about 1,640 acre-ft/yr. Watermaster currently plans to re-determine the safe yield after June 2013."[276]

The Watermaster's latest report does not identify undesirable results associated with annual production of 8,650 AF, or even 10,290 AF.[277] Water levels rose slightly in 2009.[278] Watermaster has not reported any appreciable land subsidence over the Beaumont Basin.[279]

Further, given that the City, BCVWD and YVWD have collectively requested up to 6,350 AF of imported water from the Pass Agency by 2011 (see Section 6.3.4A), the use of that water on lands overlying the Beaumont Basin will generate return flows that will augment the basin's yield over time. Every applicant that orders imported water from the Pass Agency agrees that return flows are to be "dedicated to overdraft elimination uses that may be required by the Judgment."[280] Typically, return flows can amount to as much as 25% of the quantity of water initially used. As such, these return flows augment the Basin's yield, thereby increasing the Basin's Safe Yield over time. Because the Beaumont Basin Judgment requires that the Watermaster re-determine the basin's Safe Yield every 10 years, future Safe Yield determinations are anticipated to reflect increases in yield resulting from the dedication of return flows generated from the use of imported water over the Beaumont Basin.

The Pass Agency's 2009 Report On Water Conditions within its boundaries reports that the Beaumont Basin's Safe Yield may be lower. "Prior studies have pointed to an estimated long-term annual safe yield of about 5,000 to 6,100 acre-feet per year for the Beaumont Basin (Boyle Engineering, 1995; Boyle Engineering, 2002)."[281] The Pass Agency's 2010 UWMP assumes the basin's Safe Yield is 8,650 AFY.[282] Given that the

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276 Second Biennial Engineer's Report, p. 4-4.
277 *See generally*, Second Biennial Engineer's Report.
278 Pass Agency, Report on Water Conditions (Reporting Period 2009), at 4.3, 6.0
279 Pass Agency, Report on Water Conditions (Reporting Period 2009), at 4.3.
280 Rules and Regulations for Pass Agency Water Service, Rule 4.09.
281 Pass Agency, Report on Water Conditions (Reporting Period 2009), at 4.2.
282 Pass Agency, 2010 UWMP, p. 3-6.

studies referenced in the 2009 report are significantly older than the Watermaster's own analyses, coupled with the fact that the basin has been under the active management of the court and Watermaster since the basin was adjudicated in 2004, the City reasonably relies on the Watermaster's more current analysis.

The Watermaster is responsible for managing the Beaumont Basin and administering adjudicated water rights pursuant to the Court's continuing jurisdiction. Unless and until the Watermaster adjusts the Safe Yield pursuant to the Judgment, the City assumes that the Beaumont Basin's Safe Yield for the study period will be no more than 8,650 AFY. Given the fact that the Watermaster's most recent investigations of the Beaumont Basin indicate that the basin's Safe Yield may be as high as 10,290 AFY, the projected yield for the study period is a conservative estimate.

6.1.5.8 The City's Beaumont Basin Supply (2004 – 2013)

The City is a party to the Beaumont Basin Judgment — an Appropriator.[283] The City's appropriative right is 31.43% of the Appropriators' share of the Basin's Safe Yield — e.g., the surplus remaining after Overlying Parties' rights are satisfied. The City's annual Production Right — the quantity of water that the City is authorized to pump in any given year — consists of:

- The City's share of the Operating Yield, as may be determined by Watermaster;
- 31.43% of any Unused Overlying Production;
- Any water acquired from the City from another party to the Judgment (transfer of water); and
- Any New Yield created by the City;
- plus any water withdrawn from the City's Stored Water account.[284]

Importantly, the City's annual Production Right, and thus its Beaumont Basin supply, already takes into account fluctuations based on water years (normal, single dry or multiple dry).[285]

6.1.5.8.1 The City's Share of the Operating Yield

The Beaumont Basin's Judgment establishes the Beaumont Basin's Safe Yield at 8,650 AFY through 2013.[286] The City's share of the Operating Yield — 5,910 AFY through 2013 — represents the maximum quantity of water that it can pump annually without incurring a replenishment obligation.[287] This amount includes the City's share of Temporary Surplus defined in the Judgment as "the amount of groundwater that can be

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[283] Beaumont Basin Judgment, Part I, ¶ 3, Exh. C.

[284] Beaumont Basin Judgment, Part I, ¶ 3, Part III, ¶ 2.

[285] Long-term changes in precipitation may influence the Beaumont Basin's Safe Yield which is adjusted every ten years by the Watermaster.

[286] Beaumont Basin Judgment, Exh. B; *see also*, Pass Agency's 2010 UWMP, pp. 3-4, 3-6 to 3-7.

[287] Beaumont Basin Judgment, Part V, ¶ 4.

pumped annual in excess of safe yield from a groundwater basin necessary to create enough additional storage capacity to prevent the waste of water."[288] The Temporary Surplus in the Basin was decreed to be 160,000 AF and was allocated over the first ten years of the physical solution at 16,000 AFY.[289] The temporary surplus is split among the Appropriators in accordance with their respective percentage share of the unused safe yield.[290] During fiscal year 2008/09, the Appropriators pumped a total of 13,635 AF, which accounted for approximately 83% of the total production from the Basin.[291]

6.1.5.8.2 Unused Overlying Production

The Judgments limits the combined total overlying rights to the Basin's Safe Yield. However, historically, the Overlying Parties have produced less than their aggregate adjudicated rights. The Judgment provides that commencing in 2008-2009, and continuing ever year thereafter, any water that is allocated as part of the Safe Yield to the Overlying Parties during the prior five years but that is not used will be reallocated to the Appropriators[292] based on each Appropriator's share of the Operating Safe Yield.[293]

On September 9, 2009, the Watermaster adopted Rule & Regulation 7.8, entitled *Availability of Unused Overlying Production and Allocation to the Appropriator Parties*. This rule defines the process for allocation of unused Overlying Production to the Appropriator Parties. "So long as an Overlying Party's groundwater does not exceed five times their share of the safe yield in any five-year period, the amount of groundwater not produced by that Overlying Party becomes available for allocation to the Appropriator Parties."[294] The unused water is reallocated based on each Appropriator's percentage share of the operating safe yield.[295] The City's share of the Safe Yield is 31.43%.

Under Rule & Regulation 7.8, the unused Overlying Production will be allocated according to the following schedule:

288 Beaumont Basin Judgment, Part I, ¶ 3(M).
289 Beaumont Basin Judgment, Exh. C, Part III, ¶ 1.
290 Beaumont Basin Judgment, Exh. C, Part III, ¶ 2.
291 Sixth Annual Report of Watermaster, p. 3-2.
292 Sixth Annual Report of Watermaster, pp. 3-1 to 3-2.
293 Sixth Annual Report of Watermaster, pp. 3-1 to 3-2.
294 Beaumont Basin Judgment, Part V, ¶ 4; Watermaster Rules and Regulations, Rule 7.8.
295 Watermaster Rules and Regulations, Rule 7.8.

Table 6.1.5.8.2. Unused Overlying Production Allocated to Appropriators[296]	
Available Unused Overlying Production in Fiscal Year	Will be Allocated to the Appropriator Parties in Fiscal Year
2003/04	2008/09
2004/05	2009/10
2005/06	2010/11
2006/07	2011/12
2007/08	2012/13
2008/09	2013/14
2009/10	2014/15
2010/11	2015/16
2011/12	2016/17
2012/13	2017/18

For example, in fiscal year 2008/09, a total of 4,471 AF unproduced Overlying water rights from fiscal year 2003/04 was allocated to the Stored Water accounts of the Appropriator Parties.[297] The 5,742 AF of un-produced Overlying water rights during the 2009/2010 reporting period will be allocated to the Appropriator Parties in fiscal 2013/14.[298] The City received 1,405 AF of Unused Overlying Production in fiscal year 2008/09 and 1,645 AF in 2009/10.[299] In fiscal year 2010/2011, it will receive 1,659 AF of Unused Overlying Water; 1618 AF in fiscal year 2011/12; 1,830 AF in fiscal year 2012/13; and 1,805 in fiscal year 2013/14.[300]

6.1.5.8.3 Transfers

The Beaumont Basin Judgment permits any Appropriator to transfer all or any portion of its Appropriator's Production Right or Operating Yield that is surplus to its needs to another Appropriator.[301] Any proposed transfer must be approved by Watermaster.[302] The City purchased 1,500 AF from the SMMWC in 2007.

6.1.5.8.4 New Yield

New Yield is defined as "proven increases in quantities greater than the historical level of contribution from certain recharge sources."[303] New Yield may originate from "the

296 Watermaster Rules and Regulations, Rule 7.8.
297 Sixth Annual Report of Watermaster, p. 3-3.
298 Sixth Annual Report of Watermaster, p. 3-3.
299 Sixth Annual Report of Watermaster, Table 4.
300 Sixth Annual Report of Watermaster, Table 4.
301 Watermaster Rules and Regulations, Rule 7.3.
302 Watermaster Rules and Regulations, Rule 7.4.
303 Watermaster Rules and Regulations, Rule 4.2(a).

increased capture of rising water, increased capture of available stormflow, and other management activities that occur after February 20, 2003, as determined by Watermaster."[304] Recharge of the Beaumont Basin with New Yield water "shall be credited to the Party that creates the New Yield."[305] All recharge of New Yield is subject to Watermaster approval obtained by an application to recharge New Yield.[306] After Watermaster makes an independent scientific assessment of the New Yield created by each proposed project, it will allocate the water on an annual basis based on monitoring data and review by the Watermaster.[307]

The City's Beaumont Basin Production Right for the years 2010–2014, not including water available for pumping from the City's Stored Water account — e.g., the City's minimum Production Right, is presented in Table 6.1.5.8.4.

Table 6.1.5.8.4. City's Beaumont Basin Production Right (2010 to 2014) (Not Including Stored Water Account) (AF)

Year	2010	2011	2012	2013	2014 (projected)
Total Safe Yield of Basin	8,650	8,650	8,650	8,650	8,650
City's Allocation (31.43%) of Operating Yield[308]	5,029	5,029	5,029	5,029	0
City's Allocation (31.43%) of Unused Overlying Production	1,645[309]	1,659	1,618	1,830	1,804
Transfers	0	unknown	unknown	unknown	unknown
New Yield	0	unknown	unknown	unknown	unknown
Estimated *Minimum* Beaumont Basin Production Right	6,674	6,688	6,647	6,859	1,804

6.1.5.9 City's Beaumont Basin Supply (2015-2045)

As discussed above, the City's adjudicated right in the Beaumont Basin — it's annual Production Right — consists of:

- The City's share of the Operating Yield, as may be determined by Watermaster;
- 31.43% of any Unused Overlying Production;
- Any water acquired from the City from another party to the Judgment (transfer of water); and
- Any New Yield created by the City;

304 Watermaster Rules and Regulations, Rule 4.2(a).
305 Beaumont Basin Judgment, Part VI, ¶ 5(v).
306 Watermaster Rules and Regulations, Rule 5.
307 Beaumont Basin Judgment, Part VI, ¶ 5(v).
308 Beaumont Basin Judgment, Exhibit C, Column 5, per year from 2004 to 2013.
309 For 2010-2014, Watermaster's allocation to Banning per Sixth Annual Report of Watermaster, Table 5.

- Plus any water withdrawn from the City's Stored Water account.[310]

In the absence of the Watermaster's final determination of Safe Yield for the period 2014–2023, which information will not be available until 2014, and in the absence of the Watermaster's Safe Yield determination for the periods 2024–2033, 2034–2043 and 2044–2054, which information will not be available until the first year of each of those periods,[311] this WSA assumes that the Basin's Safe Yield will remain the same for the entire period of time covered by this WSA. This assumption is reasonable and appropriate because the best available information to date indicates that the Beaumont Basin's Safe Yield may be as high as 10,290 AFY.

6.1.5.9.1 City's Share of Operating Yield

The City cannot predict whether the Watermaster will recommend, and the Court will approve, continuation of the temporary surplus or Operating Yield beyond 2014. As such, this WSA conservatively assumes that the City's share of the Operating Yield beyond 2014 will be 0. In the event that the basin's Safe Yield is increased, as appears may be the case, the City's production right would increase correspondingly.

6.1.5.9.2 Unused Overlying Production

Beginning in 2014, the City will be entitled to pump 31.43% of the Unused Overlying Production. The City cannot predict the precise quantity of Unused Overlying Production that will be available to it. However, based on the City's understanding of land uses within the boundaries of the Beaumont Basin, the City anticipates that the total quantity of unused overlying yield is anticipated to decrease through 2015, thereby increasing the quantity of Unused Overlying Production available to the Appropriators, and thus the City's share. Thereafter, as lands are developed and Overlying Water Rights are transferred to other retail water providers in return for service (see Judgment, at III.3), the quantity of Unused Overlying Production will decrease, and therefore the City's share will decrease. The City's projected share of the Unused Overlying Production is presented in Table 6.1.5.9.2. The City has reviewed and confirmed these projections with the Watermaster.[312]

[310] Beaumont Basin Judgment, Part I, ¶ 3, Part III, ¶ 2.
[311] Beaumont Basin Judgment, Part I, ¶ 3, Part VI, ¶ 5(Y); *see also* Exh. C.
[312] City's projected Beaumont Basin Production Right, for the period 2004 – 2040, are on file with the City's consultant, Geoscience Support Services.

Table 6.1.5.9.2. City's Allocation of Unused Overlying Production (2015-2045) (AF)							
Year	2015	2020	2025	2030	2035	2040	2045
Estimated Safe Yield of Basin	8,650	8,650	8,650	8,650	8,650	8,650	8,650
City's Allocation (31.43%) of Unused Overlying Production	1,805	1,635	1,478	1,328	1,194	1,178	1,162[313]

6.1.5.9.3 Transfers

This WSA assumes that the City will not purchase any additional Beaumont Basin rights in the future.

6.1.5.9.4 New Yield

The City recognizes that stormwater detention provides an important future additional water supply for the City. The 2011 Geoscience Report (see Appendix D) recommends that the City capture stormwater run-off from mountain front watersheds as well as capture of urban runoff.[314] Further, the Beaumont Basin Judgment expressly authorizes the City to capture stormwater supplies and to recharge the Beaumont Basin with those supplies. Accordingly, the Project will capture stormwater that presently is lost to the Beaumont Basin and it will retain and recharge those flows into the Beaumont Basin on behalf of the City. To permit crediting of this additional New Yield to the Beaumont Basin, the City will obtain the Watermaster's approval as required by the Judgment.

The Project at buildout is estimated to create an increased average annual stormwater drainage runoff of approximately 470 AFY in the developed condition as compared to the existing undeveloped site condition. This estimated increase in runoff is calculated using average annual precipitation values for the area, hydrologic soil groups information per the Riverside County Flood Control & Water Conservation District (RCFC&WCD), and runoff coefficient information from RCFC&WCD in the undeveloped and developed (proposed Project) conditions.[315] A portion of this increased runoff will percolate into the Beaumont Basin as it flows over pervious areas (open ground, unpaved areas, landscape areas) and water quality features (soft bottomed channels and Smith Creek), or as it collects in proposed infiltration or recharge basins. Stormwater flows in Smith Creek from upstream (north) of the Project will be detained in the proposed North Basin Reservoir in an amount, when they occur, equal to the

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313 Watermaster's most recent projections (on file with the City) are available through 2040 only. Although the percentage of decrease in the City's Appropriative Right is projected to get smaller over time, for purposes of this WSA, the City conservatively assumes that the City's right will continue to decrease by an additional 1.34% by 2040, the same percentage of decrease as the Watermaster projects between 2039 and 2040.

314 2011 Geoscience Report, p. 47.

315 RCFC&WCD, Stormwater Quality: BMP Design Handbook (July 21, 2006).

increase in runoff amount. These flows could be piped to the Project's planned recharge basins to recharge groundwater.

Table 6.1.5.9.4A quantifies the City's projected New Yield resulting from salvage of stormwater flows that would be created by the Project, if approved. The portion of this stormwater supply that will seep naturally into the ground and percolate into the Beaumont Basin is approximately 25% of the increased runoff calculated amounts (25% of the ultimate 470 AFY at buildout = 117 AFY). The percentage of runoff that will recharge the basin is a conservative number that reflects that the Project is not designed to capture 100% of the increased runoff and direct it to Project recharge basins (discussed above in section 4.3). Because capturing additional runoff would require significant storm events to generate flows, would occur infrequently and irregularly and would be difficult to calculate, these flows are not included in the quantification of stormwater recharge.

Table 6.1.5.9.4A. City's New Yield (Project Stormwater Only) (AF)

Year	2010	2015	2020	2025	2030	2035	2040	2045
Projected Increase in Stormwater Runoff from Project	0	130	204	237	296	376	458	470
Projected New Yield Derived from Recharge of Project Stormwater Into Beaumont Basin	0	32	51	59	74	94	114	117

If the Project is approved and constructed, the City will request Watermaster approval and credit for this New Yield supply pursuant to the Beaumont Basin Judgment, Part VI, 5, V. If approved by the Watermaster, New Yield will be credited to the City's Beaumont Basin Stored Water account on an annual basis. No other approvals are required.

The City's Beaumont Basin Production Right for the years 2015–2045, not including water available for pumping from the City's Stored Water account — e.g., the City's minimum Production Right, is presented in Table 6.1.5.9.4B. Table 6.1.5.9.4B presents both the "with Project" (includes New Yield proposed to be created as a result of development of the Project) and "without Project" conditions (assumes no New Yield).

Table 6.1.5.9.4B. City's Beaumont Basin Production Right (2015 to 2045) (With and Without Project) (Not Including Stored Water Account) (AF)							
Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Estimated Safe Yield of Basin	8,650	8,650	8,650	8,650	8,650	8,650	8,650
City's Allocation (31.43%) of Operating Yield	0	0	0	0	0	0	0
[+] City's Allocation (31.43%) of Unused Overlying Production	1,805	1,635	1,478	1,328	1,194	1,178	1,162
[+] Transfers	unknown	unknown	unknown	unknown	unknown	unknown	unknown
[+] New Yield	unknown	unknown	unknown	unknown	unknown	unknown	unknown
[=] Estimated *Minimum* Beaumont Basin Production Right (without Project)	1,805	1,635	1,478	1,328	1,194	1,178	1,162
[+] New Yield from Project Storm Water	32	51	59	74	94	114	117
[=] Estimated *Minimum* Beaumont Basin Production Right (with Project)	1,837	1,686	1,537	1,402	1,288	1,292	1,279

For purposes of comparing the City's total supplies and demands over the study period for this WSA, the City conservatively assumes that no New Yield will be available to it, either as a result of approval and development of the Project, or as a result of other stormwater capture and recharge efforts elsewhere in the City. As such, this WSA does not include New Yield in the City's Beaumont Basin Production Right.

6.1.5.10 City's Stored Water Account

As discussed above, the City's annual Production Right includes water that the City may elect to withdraw from its Stored Water account. The City's Groundwater Storage Agreement with the Watermaster permits the storage of up to 80,000 AF in the Beaumont Basin.[316] Pursuant to the Judgment, any quantity of water not pumped by an Appropriator is carried over into that party's authorized Stored Water account. Additionally, any party may store imported water or New Yield in an authorized Stored Water account. As a result, the City may use its Stored Water account to bank water over time.

Beginning in 2004, the City began storing imported water purchased from the Pass Agency and delivered to the Noble Creek Recharge Facility. To date, the City's pumping from the Beaumont Basin has been less than the City's annual Production Right.[317] As such, the City's Stored Water account has been steadily increasing over time. Table 6.1.5.10A shows the City's ending account balance for 2009, as calculated

[316] Minutes of Beaumont Basin Watermaster Meeting (Sept. 14, 2010).
[317] Sixth Annual Report of Watermaster, Table 7.

by the Watermaster, and estimates the City's ending account balance for 2010, as this information is not yet available from the Watermaster.

Table 6.1.5.10A. City's Beaumont Basin Stored Water Account Balance (2010) (AF)	
Beginning Account Balance[318]	18,138
(+) Beaumont Basin Production Right (see Table 6.1.5.8.4.)	6,674
(+) Imported Water Delivered to Beaumont Basin[319]	1,200
(-) Banning's Production from Beaumont Basin (see Table 6.1.2 [1,223 + 148])	1,372
(=) Ending Account Balance (Total Quantity of Water in Storage)	24,640

The City's annual Production Right (Table 6.1.5.9.4B) and any Stored Water account balance carries over from year to year and is not subject to loss or diminution, other than by the City's own pumping.[320] Further, the City is not limited by the quantity of water it withdraws from its Stored Water account in any year.[321] This aspect of the Beaumont Basin Judgment is fundamental to the City's conjunctive management of surface and groundwater resources. By allowing the City to carry-over its annual Production Right in the Beaumont Basin, and to store imported supplies whenever available, the City banks water supply for later use in dry years and times of shortage, thereby increasing the City's overall water supply reliability.

As previously discussed, the City's water supply and distribution is fully integrated. The City pumps water from its 24 groundwater wells to storage facilities located throughout the City to maintain pressure. To the extent operationally feasible, in any given year for the study period, with or without the Project, the City will prioritize its groundwater production as follows: first, from its non-Beaumont Basin supplies – i.e., each of the three Banning Basins and the Cabazon Basin (see Section 6.1.6 below) and recycled water supplies – and second from its Beaumont Basin supplies. This is because the City's adjudicated rights in the Beaumont Basin carry-over from year and are not lost. The City intends to maximize its beneficial use of groundwater pursuant to its appropriative and developed water rights in the Banning Basins and Cabazon Basin, to

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318 For 2009, the Sixth Annual Report of Watermaster, Table 7 reported an ending account balance for 2009 of 18,584. The City is in the process of verifying its account balance with the Watermaster. Possible reasons for the difference between the Watermaster's reported 18,584 AF and Table 6.1.5.10A's 18,138 AF include: calendar vs. water year reporting periods; under-reporting of the actual quantities of imported water purchased by the City; under-reporting of the actual quantities of water produced by the City from all wells, including the City's and BCVWD's shared wells; and discrepancies in the Watermaster's calculation of the City's 2009 Production Right. This WSA relies on an ending account balance of 18,138 AF for 2009, which is less than, and therefore more conservative than, the Watermaster's reported 18,584 AF. (See also 2011 Geoscience Report, at p. 42.)

319 The City's purchased 1,338 AF in 2010 from the Pass Agency. (See Table 6.3.4B.) However, because Watermaster records report recharge of only 1,200 AF, this WSA conservatively uses the Watermaster's lower figure. The City is in the process of updating the Watermaster's records.

320 *See generally*, Beaumont Basin Judgment, Part VI.

321 See Watermaster Rules and Regulations, Rules 6.2, 6.4 and 6.7

the extent operationally feasible, which in turn will permit the greatest increases over time in the City's Stored Water account balances.

The City's projected quantity of water in storage at any time is expressed as the following equation:

Water in storage = Beginning Stored Water Account Balance + [Beaumont Basin Production Right + imported water] – City's Beaumont Basin pumping

The City's demand for its Beaumont Basin supply, relative to all other supplies, and thus the City's production from the Beaumont Basin, will depend on a number of factors: the extent to which other sources of supply have been utilized, the timing and distribution of new demand over time within the City's system, the operational capacity of the City's wells throughout its system, among other things.

Table 6.1.5.10B presents the City's projected account balances for its Beaumont Basin Stored Water account for the study period. The City's projections are based on the following assumptions: (1) the City, beginning in 2015, will purchase 2,595 AFY, on average, of imported water (see discussion below in Section 6.3.6.2) and store that supply in the City's approved Stored Water account; and (2) the City will continue to pump groundwater from the Beaumont Basin for the study period at a rate equal to its historical average annual pumping from the basin (2,514 AFY). [322]

The City's ability to reliably purchase 2,595 AFY, on average, of imported water, is discussed in detail in Section 6.3.6. Additionally, as result of the City's participation in the Maximum Benefits Program for the Basin Management Zone (BMZ) (described in Section 6.5.2.2.2.2), the City will be required to recharge a minimum quantity of imported water to offset its use of recycled water applied in the BMZ. To offset TDS from the deep percolation of applied recycled water, it is projected that the City will need to recharge 1,116 AFY, on average, of imported water, or a total of 34,624 acre-ft between 2010 and 2040.[323]

The City's assumption that its pumping from the Beaumont Basin will continue at historical averages is consistent with the City's intent to prioritize pumping from its non-Beaumont Basin supplies to permit the City's maximum beneficial use of its approved Stored Water account of 80,000 AF. By maintaining historical average annual levels of pumping from the Beaumont Basin, the City will be able to fill its stored water account by 2040.

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[322] See 2011 Geoscience Report, p. 43.

[323] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011, Table G7b.

Table 6.1.5.10B. City's Beaumont Basin Stored Water Account Balances (2011-2045) (AF)[324]											
	2011	2012	2013	2014	2015	2020	2025	2030	2035	2040	2045
Beginning Account Balance	24,640	30,112	35,543	41,186	41,775	51,205	59,585	67,138	73,963	80,338	86,633
[+] Beaumont Basin Minimum Production Right (without Project) (Tables 6.1.5.8.4, 6.1.5.9.4B)	6,688	6,647	6,859	1,805	1,805	1,635	1,478	1,328	1,194	1,178	1,162
[+] Purchased Imported Water Delivered to Beaumont Basin (Table 6.3.4B)	1,298	1,298	1,298	1,298[325]	2,595	2,595	2,595	2,595	2,595	2,595	2,595
[-] Projected Average Annual Pumping from Beaumont Basin	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514	2,514
[=] Ending Account Balance	30,112	35,543	41,186	41,775	43,661	52,921	61,124	68,547	75,238	81,597	87,876

Given the projections presented in Table 6.1.5.10B above, the City's Stored Water account balance will exceed its authorized Stored Water account of 80,000 AF by 2040. If that occurs, the City will be required to amend its agreement with the Watermaster to permit increased storage in the basin. No other environmental review or approvals are required.

The Beaumont Basin Judgment provides for the reservation of a minimum of 200,000 AF of Groundwater Storage Capacity in the basin, provided that such amount may be reduced as necessary to prevent injury to existing water rights or existing uses of water within the Basin, and to prevent the waste of water. The Judgment grants a priority and preference to the City and other Producers within the basin over storage for export.[326] Based on the information presently available to the City, the City reasonably assumes that the City may store at least 80,000 AF of water in its Beaumont Basin Stored Water account for the duration of this study period, and possibly more.

Given the City's integrated water supply and distribution system, groundwater produced from the Beaumont Basin may serve the Project, if approved. The City's annual Beaumont Basin Production Right, together with any water in the City's Beaumont Basin Stored Water account (i.e., stored imported water and unpumped Beaumont Basin

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324 Appendix C to this WSA presents the City's projected Stored Water account balances for all years for the study period.

325 The City's projected Stored Water Account balances in Table 6.1.5.10B differ slightly from those presented in the 2011 Geoscience Report, at p. 42, as a result of the fact that this WSA assumes that EBXII will not be completed until the end of 2014 and therefore the City will not be able to increase imported water purchases to 2,595 AFY, on average, until 2015. The 2011 Geoscience Report assumes increased imported water purchases will begin in 2014. See Appendix C.

326 Beaumont Basin Judgment, Part VI, § 5.

Production Rights), may be used to serve the City's anticipated existing and future demand, including the Project.

6.1.5.11 Reliability Assessment for Beaumont Basin

As described above, annually, the City has the right to pump its adjudicated Production Right, plus any water banked in its Stored Water account, from the Beaumont Basin. The City's Beaumont Basin supplies are of the highest reliability. The following factors support this conclusion:

- The total reliable capacity of the City's existing wells in the Beaumont Basin are more than adequate to permit the City's production of this WSA's projected available Beaumont Basin supplies to meet existing and future demands.

- The City's Beaumont Basin production and storage rights are adjudicated by a court as set forth in the Beaumont Basin Judgment.

- The Beaumont Basin is subject to the continuing jurisdiction of the Court and is actively managed and monitored by the Court's appointed Watermaster. The Watermaster assesses the basin's conditions annually, and, pursuant to the Judgment, is required to re-determine the Basin's Safe Yield every 10 years.

- The Watermaster's most recent annual report indicates that the Basin's Safe Yield may be underestimated by approximately 1,600 AFY. If, in 2013, the Watermaster increase's the basin's Safe Yield, the City's right under the Judgment would also increase over quantities projected in this WSA.

- Under the Judgment, the City's Production Right is the same under a single dry year, multiple dry year or normal year. In other words, the Judgment already accounts for different hydrologic scenarios. As such, the City may rely on its adjudicated Production Right in all types of years.

- The City has an approved Groundwater Storage Agreement that authorizes it to store up to 80,000 AF in the Beaumont Basin. The City's unpumped Production Rights, together with any imported water that the City recharges to the basin or any developed New Yield, may be stored for later use.

- The City's currently maintains approximately 25,000 AF in its Stored Water account. As the City continues to purchase imported water from the Pass Agency, the City's Stored Water account balance will increase over time.

- In the event the City maintains current average pumping from the Beaumont Basin (approximately 2,514 AFY), even if its annual Production Right decreases in 2014 as projected in this WSA, the City will accrue a balance of approximately 80,000 AF in its Stored Water account by 2045 for use in meeting demands throughout the City.

- The City is not limited by the quantity of water it withdraws from its Stored Water account in any year. Therefore, the City may increase pumping from the Beaumont Basin to withdraw water from storage to meet increased demands. The City's existing wells in the Beaumont Basin have a combined total reliable capacity of 7,125 AFY, nearly three times the capacity of the City's historical average annual pumping from the basin.
- The Beaumont Basin Judgment expressly authorizes the City's conjunctive use of the basin, thereby providing a buffer against shortages in dry years and improving the reliability of the City's water supply over time.
- No other environmental review or approvals are required to exercise the City's production and storage rights in the Beaumont Basin.

6.1.6 Banning, Banning Bench, Banning Canyon and Cabazon Basins

In addition to the Beaumont Basin, the City also produces groundwater from the Banning, Banning Bench, Banning Canyon (together, the "Banning Basins") and Cabazon Basins to serve its existing demands. Unlike the Beaumont Basin, groundwater rights in the Banning, Banning Bench, Banning Canyon and Cabazon Basins have not been the subject of a court adjudication and no groundwater management plan has been adopted by any agency. Thus, each of these basins is unregulated. All four are discussed together in this section.

6.1.6.1 Technical Studies and Evaluations

Geoscience's 2011 Report represents the most recent and comprehensive analysis of the Banning, Banning Bench, Banning Canyon, and Cabazon basins. DWR's most current bulletin does not include an evaluation of conditions existing in any of these basins.[327] The 2011 Geoscience Report consists of:

- Comprehensive analysis of previous studies, and collection of current data;
- Evaluation of data to delineate the aquifer systems in the ground water resource area of the City;
- Preparation of a detailed geohydrologic basemap;
- Evaluation of the maximum perennial yield using multiple methods for the Banning, Banning Bench, and Banning Canyon storage units (collectively, the "Banning Basins");

[327] See Bulletin 118: Colorado River, Coachella Valley Groundwater Basin.

- Evaluation of the maximum perennial yield using the hydrologic budget method for the Cabazon storage unit; and

- Assessment of the anticipated available water supply from the Beaumont Basin.[328]

The report also makes several recommendations for actions that the City may wish to take to ensure the continuing reliability of its groundwater supplies from the studied groundwater sources.[329] These include the following:

- To increase the available water supply, continuing and/or increasing the diversion of water from the Whitewater River into the Banning Canyon from the Flume (Canyon subunit) should be pursued. A maximum water right of 13.26 cfs exists for the diversion. (See Section 6.2.1 below.)

- Diversions to Banning Canyon should be gauged as well as diversion from the San Gorgonio River into the off-stream recharge basins in Banning Canyon.

- The ground water levels in Well R-1 [the City's inactive well in the Cabazon Basin] should be included as part of the monitoring effort of the City of Banning. In addition, ground water quality data should be collected on an annual basis to allow development of ground water quality trends in this area of the Cabazon Storage Unit.

- Ground water pumping should be managed in order to develop a continuing history of groundwater extractions in the unadjudicated storage units of the San Gorgonio Pass Ground Water Basin (Banning, Banning Bench, Banning Canyon, and Cabazon Storage Units).

- Potential capture of stormwater run-off from mountain front watersheds as well as capture of urban run-off should be included in long-term planning for development of additional water supply.

- For the future, managing the ground water basin through an annual ground water audit should be considered for long-term planning and operation. This process involves evaluating ground water level trends, production rates, ground water quality or other aquifer/well/pump considerations from the previous year (through use of a on-going ground water monitoring and data collection system). The water audit should be performed six months prior to the start of the water accounting year, and information from this audit will be used to make recommendations for pumping in the following year. This management approach focuses more on maintaining ground water levels within acceptable limits rather

[328] 2011 Geoscience Report, p. 5.
[329] 2011 Geoscience Report, pp. 46-47.

than maintaining pumping within a predetermined safe yield; although refinement of the safe yield is part of the audit process.

- Future groundwater management strategy should include development of a ground water model to allow accurate simulation of ground water flow and ground water quality (including potential impacts by recharge of recycled water) in the City of Banning ground water resource area.[330]

Geoscience employed data collection and compilation procedures designed to ensure data accuracy and thoroughness. Data gathering consisted of two phases: (1) obtaining historical data from public water providers and private users within the study area; and (2) supplementing historical data with previous data relied upon in prior investigations and from other agencies in the area. Where possible, both the original field data and resulting tabular compilations and reports were obtained. Data compilation consisted of three phases: data entry, data checking, and analysis of the data for incongruous and statistically inconsistent data.[331] The 2011 Geoscience Report is based on the following data and information:

- Driller's logs;
- Geophysical borehole logs;
- Well completion data, including total casing depths and screen intervals;
- Pumping test data;
- Available well production data for all known users in the area;
- Water level data;
- Water quality data;
- Wastewater percolation data;
- Climatic data;
- Geologic reports and maps;
- Previous geohydrologic investigations in the Beaumont, Banning and Cabazon areas; and
- Beaumont Basin adjudication, including the court judgment and numerous Watermaster reports.[332]

Geoscience undertook a rigorous review and analysis of the data collected.[333] The 2011 Geoscience Report's findings and conclusions are summarized in this WSA.

6.1.6.2 Description of the Banning and Cabazon Basins

Like the Beaumont Basin, discussed above, the Banning Basins and the Cabazon Basin are also sub-basins within the larger San Gorgonio Pass groundwater basin. As illustrated in 2011 Geoscience Report, Figure 9: City of Banning Hydrologic Subunits

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[330] 2011 Geoscience Report, pp. 46-47.
[331] 2011 Geoscience Report, p. 28.
[332] 2011 Geoscience Report, pp. 5-6.
[333] 2011 Geoscience Report, p. 28.

and Ground Water Storage Units, the Banning Basins lie north to south beneath the central portion of the City. The Cabazon Basin adjoins to the east, also underlying the City, and is located at the easternmost portion of the San Gorgonio Pass Subbasin. The Banning fault forms the boundary between the Banning Canyon and the Banning Bench Basins; the Banning Barrier fault divides the Banning Bench and Banning Basins; and the Central Banning Barrier fault and the Eastern Banning Barrier fault further define the Banning Basin. (See 2011 Geoscience Report, Figure 8a: Surficial Geology.) "The storage unit boundaries are defined by bedrock outcrops and geologic faults, which were delineated based on significant differences in static water levels between wells or lack of pumping effects observed across storage unit boundaries."[334]

The Banning and Cabazon Basins are hydraulically connected generally across the fault boundaries, which imply that the faults which form the storage unit boundaries leak, allowing movement of ground water from one basin to the adjacent basin. The existence of the faults impedes, but does not prevent, the flow of groundwater from one basin to the other.[335] Groundwater in this area flows easterly from the Banning Storage Unit into the Cabazon Basin and then into the Whitewater River Basin to the east of the San Gorgonio Basin. Further discussion of the four basins' geology and geohydrology is provided in Chapter 5 of the 2011 Geoscience Report. Recharge and discharge components for the four basins are also discussed in Chapter 5 of the 2011 Geoscience Report (see 2011 Geoscience Report, Section 5.4.4.) and are summarized below in Table 6.1.6.2.

Table 6.1.6.2. Summary of Basin Recharge and Discharge Components for Unadjudicated Basins

Basin	Recharge	Discharge
Banning	♦ Infiltration of precipitation ♦ Surface water infiltration ♦ Underflow from the Beaumont Basin	♦ Pumping
Banning Bench	♦ Infiltration of precipitation ♦ Surface water infiltration ♦ Underflow from the Banning Canyon Basin	♦ Pumping ♦ Outflow to the Cabazon Basin
Banning Canyon	♦ Infiltration of precipitation ♦ Surface water infiltration	♦ Pumping ♦ Outflow to the Banning Bench
Cabazon[336]	♦ Infiltration of precipitation ♦ Surface water infiltration ♦ Underflow from the Banning Basin ♦ Underflow from the Banning Bench Basin ♦ Treated Wastewater	♦ Pumping ♦ Outflow to the Indio Subbasin (to the east) ♦ Outflow to the San Jacinto Tunnel

334 2011 Geoscience Report, p. 8.
335 2011 Geoscience Report, pp. 18-19.
336 *See also* the figure on page 44 of the 2011 Geoscience Report.

6.1.6.3 City's Groundwater Wells and Historical Production in the Banning and Cabazon Basins

The 2011 Geoscience Report identifies the locations of all known groundwater wells in the Banning and Cabazon Basins. (2011 Geoscience Report, Figure 6: Well Locations.) The location of the City's groundwater production wells was verified by a field investigation in 2003 using global positioning system technology.[337] The City's active production wells are identified by well number in Table 6.1.1 above, as well as in 2011 Geoscience Report, Figure 6.

The City's production from the Banning Basin began in 1992. Between 1992 and 2009, the City's annual production from the Banning Basin increased, on average, by 102 AFY. The City's highest annual production was 2,381 AFY in 2003. (Table 6.1.2 above.)

The City's production from the Banning Bench Basin began in 1959. Between 1959 and 2009, the City's annual production from the Banning Bench Basin has decreased, on average, by -14 AFY. The City's highest annual production occurred in 1983 with 4,153 AFY. (See 2011 Geoscience Report, Figure 7c; see also Table 6.1.2 above.)

The City's production from the Banning Canyon Basin began in 1959. Between 1959 and 2009, the City's annual production from the Banning Canyon Basin has increased, on average, by 13 AFY. The City's highest annual production occurred in 2001 with 5,451 AFY. (See 2011 Geoscience Report, Figure 7d; see also Table 6.1.2 above.)

The City's production from the Cabazon Basin began in 1989. Between 1989 and 2009, the City's annual production from the Cabazon Basin has increased, on average, by 217 AFY. The City's highest annual production occurred in 2007 with 1,202 AFY. (See 2011 Geoscience Report, Figure 7e; see also Table 6.1.2 above.)

6.1.6.4 Geoscience Evaluation of the "Safe Yield" of the Banning and Cabazon Basins

The 2011 Geoscience Report calculates the maximum perennial yield for each of the Banning Basins and the Cabazon Basin. The report defines "maximum perennial yield" as "the long-term average quantity of ground water that can be extracted from a ground water basin on an average annual basis without causing undesirable results, including the gradual reduction of natural ground water in storage over long-term hydrologic cycles, and adverse impact to ground water quality."[338] "Maximum perennial yield" has the same meaning as "safe yield," which is the term most often employed by the courts.[339] The report also identifies the quantity of water available to the City from the three Banning Basins and the Cabazon Basin in the future.

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[337] 2011 Geoscience Report, pp. 28-29.
[338] 2011 Geoscience Report, p. 1.
[339] *San Fernando*, 14 Cal.3d at 278-79.

As further described in Chapter 6 of the 2011 Geoscience Report, Geoscience used two methods of calculating maximum perennial yield for the three Banning Basins — the Zero Net Draft Method and the Hill Method. (See 2011 Geoscience Report, Chp. 6.) Both methods consider total production from a basin and its effects on water level elevations. The Hill Method plots annual pumping versus average water-level change to determine the pumping amount associated with zero water-level change. A third method — the zero water-level change method — defines safe yield as the average amount of pumpage over a long period of time, provided the groundwater-storage elevation is the same at the beginning and end of this long period of pumping. For the Cabazon Basin, Geoscience employed a hydrologic balance or water budget to calculate that basin's maximum perennial yield. All three methods are commonly employed in groundwater evaluations for purposes of determining maximum perennial yield and are accepted by groundwater professionals.[340]

Geoscience's 2011 Report calculates the maximum perennial yield of the three Banning Basins and the Cabazon Basin, and projects the quantity of water available to be developed by the City in the future. Geoscience's assessment is based on the historical conditions in those basins, which included dry and wet hydrologic cycles. The concepts of "maximum perennial yield" and "safe yield," by definition, include a representative sample of a range of hydrologic and precipitation conditions to evaluate the equation of hydrologic equilibrium.[341] As conditions may change in the future, so also may the safe yields of those basins. In other words, a safe yield analysis presents a snap-shot view of a groundwater basin's conditions.

Geoscience's analysis and resulting estimates of maximum perennial yield for the three Banning Basins and the Cabazon Basin are described in detail in Chapter 7 of the 2010 Geoscience Report. Geoscience's conclusions are presented in Table 6.1.6.4.

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[340] *See* Robert A. Corbitt, Standard Handbook of Environmental Engineering (1989), pp. 77-78; *see also* Robert Bowen, Groundwater (1980); D.K. Todd, Ground-Water Hydrology, 1st ed. (1959).

[341] *San Fernando*, 14 Cal.3d at 279 ("The adjustment of chief importance here was the use of a 29-year base period, consisting of the water years 1928-1929 through 1956-1957, for the computation of all items dependent upon precipitation. This 29-year period was selected as one for which (1) adequate hydrological data was available and (2) precipitation figures were representative, in both average level and fluctuations, of the 85 years for which weather records were relatively complete."); see also Todd, Groundwater Hydrology (2d ed. 1980), p. 361; Freeze and Cherry, Groundwater (1979), p. 204 (factoring a long-term hydrologic budget equation).

Table 6.1.6.4. Maximum Perennial Yield of Banning Basins and Cabazon Basin and Projected Available Supply for City (AFY)[342]		
Basin/Storage Unit	**Maximum Perennial Yield[343]**	**City's Projected Available Supply[344]**
Banning	1,130	1,130
Banning Bench	1,960	1,960
Banning Canyon	4,070	4,070
Subtotal (Banning Basins combined)	7,160	7,160
Cabazon	5,265	2,515[345]
Total	**12,460**	**9,675**

6.1.6.5 Historical Groundwater Level Trends

An essential component of Geoscience's maximum perennial yield analysis was its review and analysis of water levels over time. Geoscience's investigation evaluated changes in water levels from 1940 to 2008, which included wet, dry and average precipitation. As described above, the Net Zero and Hill methodologies for determining maximum perennial yield include an analysis of groundwater levels over time. In the Cabazon Basin, Geoscience conducted a separate review of historical groundwater levels to evaluate changes in groundwater in storage. The results of these analyses are illustrated in Appendix B of the 2011 Geoscience Report. Geoscience's review and analysis of historical groundwater trends confirms that each of the Banning Basins and the Cabazon Basin do not show evidence of long-term declines[346] — i.e., water levels appear to remain the same, despite increases in pumping over the historical period and despite pumping in excess of each of the basin's maximum perennial yields.[347] (Compare maximum perennial yield and historical pumping.) Geoscience concluded that:

> [s]tatic water level elevations have been observed to fluctuate as much as 80 to 100 feet, and when plotted again the cumulative departure from mean precipitation, it is

[342] 2011 Geoscience Report, p. 45; *see also* Pass Agency's 2010 UWMP, pp. 3-2 to 3-9.
[343] 2011 Geoscience Report, p. 4.
[344] 2011 Geoscience Report, p. 44.
[345] The 2011 Geoscience Report also concludes that an additional water supply for the Cabazon Basin may be developed by reducing subsurface outflow to the Indio Subbasin by constructing a series of new wells. This would increase the quantity of water available to the City for extraction to approximately 4,055 AFY. (2011 Geoscience Report, p. 40.) These additional quantities are not included in this WSA as they are still under investigation by the City.
[346] *But see* Pass Agency's 2010 UWMP, pp. 3-4 and 3-6 (stating: "Historical trends in water level have declined in the Banning groundwater basin, especially in the West Banning storage unit, where most well pumping occurs" and "During dry years, water levels in the Banning Canyon storage unit decline and limit the ability to extract groundwater by about 33 percent.")
[347] 2011 Geoscience Report, p. 46.

> observed that there is a direct relationship of precipitation trends and groundwater elevation trends. An increase in cumulative departure is mirrored by an increased in water level elevations, and a decrease in cumulative departure from mean precipitation is mirrored by a decrease in ground water elevations.[348]

With respect to the Cabazon Basin, Geoscience concluded that "[o]verall, the long-term change in ground water in storage (based on hydrographs and precipitation) appears to remain the same (i.e., no long-term declines or increases)."[349]

6.1.6.6 City's Groundwater Rights

6.1.6.6.1 Banning, Banning Bench and Banning Canyon Basins Rights

As discussed above, appropriative rights, unlike overlying rights, are not based on land ownership, but are created by the extraction and use (appropriation) of groundwater. Formation of an appropriative groundwater right requires that three elements be satisfied: (1) an intent to appropriate water; (2) actual extraction of groundwater; and (3) application of the extracted water to reasonable and beneficial use. Unlike overlying rights, appropriative rights are quantified, based upon the amount of extraction and use that have been established. Appropriative rights are more flexible in the place of use than overlying rights, but are subordinate in priority in the event of shortage of the water supply, so that appropriative groundwater rights may be used only if there is surplus water available in a basin after satisfaction of all overlying groundwater rights.[350]

As evidenced by Geoscience's 2011 investigation of the Banning Basins and Cabazon Basin, groundwater extracted from these four basins by the City is percolating groundwater and does not originate in a subterranean stream.[351] Therefore, groundwater that is extracted from each of these basins is not subject to the jurisdiction of the SWRCB, but is governed by common law principles and local management. Unlike the Beaumont Basin, none of these basins has been adjudicated. In the Banning, Banning Bench, Banning Canyon and Cabazon basins, the City possesses rights as an appropriator under the theory that the City is the administrator of such public use.[352]

In each of the three Banning Basins, the City is the only major pumper. The 2011 Geoscience Report indicates that other private users may have wells in the Banning Bench and Banning Canyon Basins, however, any groundwater production by these

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348 2011 Geoscience Report, p. 21.
349 2011 Geoscience Report, p. 39; Appendix B: Well Hydrographs.
350 *See San Fernando*, 14 Cal.3d at 285-86; *Pasadena*, 33 Cal.2d at 928-32.
351 *See generally* 2011 Geoscience Report, § 5.4 (describing the aquifer systems within which water is contained and the movement of water between basins).
352 *City of San Bernardino v. City of Riverside*, 186 Cal. 7 (1921).

users is so small as to be considered immaterial.[353] As a result of the City's historical reasonable production and beneficial use of water from each basin, the City has established appropriative rights to each basin's native yield. The 2011 Geoscience Report concludes that none of these basins are in overdraft. As such, the entire safe yield of each basin is surplus to the needs of overlying owners. Absent competition for the supply, the City may pump without restriction from each of the three Banning Basins, provided the water is applied to reasonable and beneficial uses.

Based on the City's longstanding extraction of groundwater from each of the Banning Basins, the City's application of such water to beneficial domestic, municipal and industrial uses, and dedication of that water to public use, the City has established paramount appropriative rights in each of the three basins. Since the quantity of appropriative rights is measured by actual reasonable and beneficial extractions, the City currently possesses appropriative rights in each of these basins to the extent of the City's highest historical pumping. (See Table 6.1.2.)

Absent an adjudication and judicial quantification of all parties' rights in each of the Banning Basins, the City's rights are governed by the common law rules. Theoretically, in the event of a shortage of water in any of the Banning Basins — i.e., insufficient yield to satisfy the demands of all users — the City's appropriative groundwater rights would be subordinate to any overlying rights in any of the Banning Basins. However, given that the number of known overlying uses is so small as to be immaterial to the safe yield of the Banning Basins, the City reasonably anticipates that the City's appropriative rights in the Banning Basins are sufficient to permit the City's average annual pumping to the full extent of each basin's safe yield.

6.1.6.6.2 Cabazon Basin Rights

The City currently extracts groundwater from the Cabazon Basin via a single groundwater well (C-6). A second well (R-1) may be equipped for production at any time. The combined total design capacity of wells C-6 and R-1 is 4,035.2 AFY. The City initiated groundwater extractions from the Cabazon Basin in 2004, and reasonably and beneficially used this water for municipal and industrial purposes. The City has produced 710 AFY (on average) from the Cabazon Basin. Since 2004, the City's highest groundwater production was 1,125 AF in 2007. The City has been recharging the Cabazon Basin with treated wastewaters spread in the City's recharge ponds overlying the Cabazon Basin since 1999. To date, the City has recharged and stored 2,655 AFY, on average, in the Cabazon Basin. As such, the City has established an appropriative right in the Cabazon Basin, as well as an exclusive right to all treated wastewater it recharges and stores in the Cabazon Basin.

Geoscience has concluded that well levels in the Cabazon Basin do not evidence overdraft conditions — long-term decline, but instead fluctuate with precipitation. "Overall, the long-term change in ground water in storage (based on the hydrographs

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[353] 2011 Geoscience Report, Table 2.

and precipitation) appears to remain the same (i.e., no long-term declines or increases)."[354] As such, the City's continued production of 710 AFY, on average, is not anticipated to cause lowering of water levels. Further, Geoscience has concluded that the maximum perennial yield of the Cabazon Basin permits the City to increase groundwater production by approximately 1,805 AFY, on average, or up to 2,515 AFY, on average, based on existing conditions, without causing undesirable results and without impairing the rights of other users.[355]

The City's existing and proposed future pumping from the Cabazon Basin is supported by both appropriative and developed water rights. Given that the Cabazon Basin has not been adjudicated, the City's rights in and to the Cabazon supply have not been quantified by a court. In the event of a shortage — insufficient supply to meet the demands of all users — exercise of the City's appropriative water rights may be curtailed in whole or in part. This is because the City's appropriative groundwater rights in the Cabazon Basin are subordinate to prior right holders, such as federally reserved water rights, overlying rights and senior appropriative water rights. On the other hand, to the extent the City has augmented the yield of the Cabazon Basin with treated wastewaters that are not part of the native supply, the City's right to that supply is exclusive and not subject to reduction. The City is entitled to extract all developed water supplies that it stores in the Cabazon Basin, so long as it does not injure other legal users in the process.

6.1.6.7 City's Banning Basin Supply

This section summarizes the City's projected supplies from the three Banning Basins for all water year types for the study period. Given the City's integrated water supply and distribution system, groundwater produced from the Banning Basins may be used to serve the Project.[356] The City does not propose increases in its pumping from any of the three Banning Basins — e.g., the projected average annual available supply for the study period is consistent with the City's historical production from these basins and the City's rights in each basin.

Based on precipitation and production data presented in the 2011 Geoscience Report, Appendix D and Table 2, respectively, this WSA calculates single dry and multiple dry year supplies for each of the City's groundwater supplies. Due to a lack of production data within Banning and Cabazon basins that correlate with precipitation records, only the period for which both production and precipitation records were available were used in this analysis. Historical production records have shown the Banning Canyon, Beaumont, and Cabazon basins to have no production limitations during dry years — e.g., the City may rely on the projected average annual supply in all water year types. However, available data demonstrates that production in Banning and Banning Bench basins is limited during dry and multiple dry year events. It is assumed that well

354 2011 Geoscience Report, p. 39.
355 2011 Geoscience Report, p. 44.
356 2011 Geoscience Report, p. 44.

capacities in these basins decreased as water levels decreased. The average production during single and multiple dry years were used to determine water supplies for the Banning and Banning Bench basins for single dry, and multiple dry years.

Table 6.1.6.7 presents the City's projected available supply from the Banning, Banning Bench and Banning Canyon Basins for all water year types. As described above in Section 6.1.6.4, Geoscience has determined that the City reasonably may rely on the entire safe yield of each of the Banning, Banning Bench and Banning Canyon Basins and the supply from these basins is projected to stay the same throughout the study period as basin conditions are not anticipated to change.

Table 6.1.6.7. City's Projected Banning Basin Supplies (2015 – 2045) (All Year Types) (AF)

Basin/Storage Unit	Average ("Normal") Years (based on Maximum Perennial Yield)	Single Dry Years	Multiple Dry Years
Banning	1,130	1,103	843
Banning Bench	1,960	733	598
Banning Canyon	4,070	4,070	4,070
Total	**7,160**	**5,906**	**5,511**

The City's existing wells in the Banning, Banning Bench and Banning Canyon Basins provide sufficient capacity to produce the average available supply from each of the Banning Basins, as shown in Table 6.1.6.7A. No environmental review or approvals are required to continue the City's operations in all three of the Banning Basins.

6.1.6.8 City's Cabazon Basin Supply

This section summarizes the City's projected supplies from the Cabazon Basin for all water year types for the study period. Given the City's integrated water supply and distribution system, groundwater produced from the Cabazon Basin may be used to serve the Project.[357] As described in the Geoscience Report, the City intends to increase pumping from the Cabazon Basin pursuant to the City's appropriative and developed water rights in the basin.

Table 6.1.6.8 presents the City's projected available supply from the Cabazon Basin for all water year types for the study period. As noted above, pumping from the Cabazon Basin is not affected by water year type. However, the projected available surplus, and thus the City's projected available supply from the Cabazon Basin, is anticipated to change over time. This is because the City's recharge of treated wastewater to the basin — an important element of the basin's hydrologic balance (see 2011 Geoscience Report, p. 39) — will fluctuate over time as a result of the City's development of

[357] 2011 Geoscience Report, p. 44.

recycled water. Historically, wastewater flows percolated into the Cabazon Basin have averaged 2,656 AFY.

By 2015, the City will complete the first phase of an upgrade to its Main Treatment Plant. This project will allow the City to provide tertiary treatment to a portion of the wastewater flows generated within the City, thereby allowing those tertiary treated supplies to be delivered directly to serve non-potable demands. As a result, the quantity of wastewater flows available for recharge into the Cabazon Basin will change over time.[358] Flows will decrease when recycled water comes on line (2015), but will increase by the end of the study period as growth occurs, permitting the City to produce more water from the basin, as show in Table 6.1.6.8.

The City intends to develop all historical and future water it percolates into the Cabazon Basin. In addition, the City intends to develop additional groundwater supplies from the Cabazon Basin as part of its conjunctive management of the basin. Groundwater extractions from the Cabazon Basin will be that amount that will not result in adverse impacts to the Basin. It is expected that this amount may vary with both location and hydrologic condition.

[358] Compare Table 6.1.6.8 (projected treated wastewater flows available for recharge into Cabazon Basin) and 2011 Geoscience Report, pages 37-39 (average annual inflow from percolation of treated wastewater over the period 1999-2009 = 2,656 AFY). A more detailed discussion of the City's recycled water supply is provided in Section 6.4.

Table 6.1.6.8. City's Projected Cabazon Basin Supply (2011 – 2045) (All Year Types) (AF)											
Year	2011	2012	2013	2014	2015	2020	2025	2030	2035	2040	2045
Population	30,195	30,799	31,415	32,043	32,684	36,086	39,842	43,989	48,567	53,622	59,203
WW Flows per day per Capita without Conservation (gallons)[359]	84.6	84.6	84.6	84.6	84.6	84.6	84.6	84.6	84.6	84.6	84.6
WW Flows per day per Capita with Conservation (gallons)[360]	84.09	83.57	83.06	82.56	82.08	79.78	77.70	75.81	74.10	72.56	71.16
WW Flows with Conservation[361]	2,844	2,883	2,923	2,964	3,005	3,225	3,468	3,736	4,032	4,358	4,719
Phase I Recycled Water for Non-Potable Use	0	0	0	0	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Wastewater Percolated into Cabazon Basin (see also Table 6.4.2.2.1)	2,844	2,883	2,923	2,964	1,325	1,545	1,788	2,056	2,352	2,678	3,039
Change in Storage in Cabazon Basin[362]	1,994	2,033	2,073	2,114	475	695	938	1,206	1,502	1,828	2,189
Projected Available Supply[363]	2,704	2,743	2,783	2,824	1,185	1,405	1,648	1,916	2,212	2,538	2,899

359 Projected future wastewater volumes were estimated using a population growth of 2% per year. The average wastewater per capita for the period 2005-2010 was estimated to be 84.6 gallons per capita per day (gpcd). Therefore, the volume of projected wastewater was estimated by multiplying the population by 84.6 gal/day.

360 The potential reduction in wastewater flows due to the increasing impact of water conservation measures was estimated by assuming 40% reduction on water demands on all residential developments to serve *new* population growth and 10% for non-residential. Using wastewater flow estimates from Table 2.6 of the Carollo Engineers 2006 Sewering System Study and land use estimates provided in the City's General Plan, it is estimated that 73% of wastewater flows come from residential and 27% of the wastewater flow is projected to come from non-residential sources. To account for the effects of conservation, the percentage conservation was applied to future projected residential and non-residential water usage to estimate potential future wastewater generation.

361 With the onset of water conservation measures previously implemented and future conservation, it is anticipated that wastewater flows will decrease from approximately 82 gpcd in 2015 to 71 gpcd by 2035.

362 Change in Storage is calculated based on the water balance formulation provided in the 2011 Geoscience Report.

363 Groundwater in the Cabazon Basin available for production by the City is the change in storage within the Maximum Perennial Yield plus the average extraction by the City from Well C-6. As an example, the change in storage for the Cabazon Storage Unit for the year 2030 with wastewater percolation reductions due to conservations and the use of recycled water outside the Cabazon Basin (1,680 acre-ft/yr) is 1,206 AF + 710 AF = 1,916 AFY available for development by the City.

The historical capacity of C-6 is 900 gpm (1,452.7 AFY) (850 gpm/1,372 AFY reliable capacity in dry years) and alone will be insufficient to produce the entire quantity of projected yield from the Cabazon Basin for the study period. The City's second well (R-1), which has a design capacity of 1,500 gpm/2,421.1 AFY, may be equipped for production at any time. However, given the location of R-1 in close proximity to the City's Main Treatment Plant, it is possible that the RWQCB may conclude that the R-1 well is under the direct influence of surface water and therefore may only be used for non-potable uses.

No environmental review or approvals would be required for the City's continued groundwater production from C-6 for potable uses and the City's use of R-1 for non-potable uses. In the event the City wishes to construct a second potable well in the Cabazon Basin, it must obtain a ministerial permit from the Riverside County Department of Environmental Health.[364] The City has allocated $5.9 million for the construction of additional wells as necessary to serve future development and to augment existing supply.[365]

Geoscience considered whether the City's projected increase in the City's pumping, within the basin's safe yield, would impact neighboring wells and concluded:

> "The closest non-City of Banning pumping well to Well R-1 is located approximately one mile away. Based on a storage coefficient of between 0.15 and 0.17 and a transmissivity of 49,900 gpd/ft, additional pumping from R-1 could result in a drawdown at the closest well of approximately 1.2 to 1.4 feet after one year of continuous pumping from R-1. This additional drawdown would not result [sic] any significant impact to the well or operation of the well. If any additional well is constructed to maximize use of the Cabazon Storage Unit for ground water development, the well can be located so as to not result in impacts to existing wells."[366]

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[364] Riverside County Ordinance No. 682 (as amended through 682.4) regulates the construction, reconstruction, abandonment, and destruction of wells. The Riverside County Department of Environmental Health is responsible for issuing well drilling permits. A valid permit along with the payment of all applicable fees is required before a well is drilled or reconstructed.[364] Standards for the construction or reconstruction of wells are the standards recommended in DWR's Bulletin No. 74-81, Chapter II, and Bulletin No. 74-90, as amended by the State. (Riverside County Ordinance No. 682, § 10.) Wells must be located an adequate distance from all potential sources of contamination and pollution, with a 50-foot minimum distance from sewers and a 100-foot minimum distance from septic tanks, seepage pits, and animal or fowl enclosures. (Riverside County Ordinance No. 682, § 15.) In Riverside County, issuance of a well construction permit is a ministerial act. Additionally, Water Code section 13750 requires that a Well Completion Report be filed with DWR for all newly constructed wells. A site inspection by DWR is required prior to issuance of a permit for a well that is to be part of a public water system or other wells that possess a high potential for contamination. The same requirements would apply to the City's construction of a new well in the other basins as well.

[365] City of Banning, Capital Improvement Program: 2007-2012 (Jan. 8, 2008), p. 2.

[366] 2011 Geoscience Report, p.40.

The City's proposed increases in pumping from the Cabazon Basin, as projected in Table 6.1.6.8, are consistent with the City's combined appropriative and developed water rights in the basin and Geoscience's projected available supply available for development, and may be accomplished in a manner that does not injure prior right holders — i.e., proposed increases are within the basin's safe yield and well impacts are not anticipated. The City may construct one or more additional groundwater wells for this purpose. No approvals are required to increase the City's pumping in the Cabazon Basin. The Project EIR evaluates the environmental impacts of the City's proposed increase in pumping.

6.1.6.9 Reliability Assessment for Banning, Banning Bench, Banning Canyon and Cabazon Basins

Given the City's integrated water supply and distribution system, groundwater produced from the Banning, Banning Bench, Banning Canyon and Cabazon Basins may serve the Project, if approved. The City's projected available supply in the Banning, Banning Bench, Banning Canyon and Cabazon basins, for the study period, is highly reliable. The following factors support this conclusion.

- Geoscience has conducted an extensive technical analysis of the Banning, Banning Bench, Banning Canyon and Cabazon Basins. Geoscience has calculated the maximum perennial yield for all four basins.

- Geoscience has concluded that water levels in all four basins evidence long-term stability and that all four basins are in a balanced condition — e.g., not in overdraft. As such, the City is entitled to pump the water that is surplus to the needs of prior right holders.

- The City is the only major user in the Banning Basins and holds vested appropriative rights in all three basins. Other small private wells exist, but any groundwater production by them is de minimus and immaterial to the long-term reliability of the resource for the City. Geoscience has concluded that the average annual water supply available to the City from the Banning, Banning Bench and Banning Canyon Basins is equal to the maximum perennial yield of those basins.

- The City has the exclusive right to pump all developed water supplies (secondary treated wastewater from the City's Main Treatment Plant) that it recharges to the Cabazon Basin, so long as it does not injure other users. To date, the City's average annual groundwater pumping from the Cabazon Basin is significantly less than the total quantity of water that the City is percolating and recharging into the Cabazon Basin on an annual basis. Geoscience has concluded that surplus water exists in the basin and that the City may increase its production from the Cabazon Basin by 1,805 AFY without causing undesirable results.

- The City's Banning Canyon and Cabazon basins supplies are not subject to production limitations during single or multiple dry years — e.g., the City may rely on the projected average annual supply in all water year types.

- The City's Banning and Banning Bench basin supplies are limited during dry and multiple dry year events. This WSA projects future availability of these supplies for single dry and multiple dry years based on actual historical production during single and multiple dry years in the hydrologic record.

- The total amount of groundwater in storage in the Banning Basins and the Cabazon Basin, collectively, is estimated to be approximately 1.1 – 1.2 million AF. As such, in dry years, if necessary to meet demands, the City may temporarily increase pumping in one or more of the Banning Canyon and Cabazon Basins in excess of the City's projected available water supplies for each of those basins to offset shortages in the availability of other supplies, particularly the City's Banning Basin, Banning Bench Basin and imported water supplies, which are anticipated to decrease in dry years.

- The total reliable capacity of the City's existing wells in each of the three Banning Basins is more than adequate to permit the City's production of this WSA's projected available supplies from each of the three Banning Basins to meet existing and future demands.

- The total reliable capacity of the City's existing wells in the Cabazon Basin is adequate to permit the City's production of the City's projected available supply from the Cabazon Basin, but water produced from the City's R1 well may not be suitable for potable demands. An additional well would be required to increase the City's capacity to produce potable water supplies from the Cabazon Basin. The City has sufficient funding dedicated for this purpose.

- Due to the nature of groundwater, it is a highly reliable source of supply. Groundwater is stored in aquifers, which act as natural, long-term storage reservoirs, making water available year-round and during both wet and dry hydrologic conditions. Geoscience's evaluation of the maximum perennial yield of the Banning, Banning Bench, Banning Canyon and Cabazon Basins was based on a long-term hydrologic record that included wet, single dry and multiple dry years.

- No other approvals are required to exercise the City's production rights in the Banning, Banning Bench, Banning Canyon or Cabazon basins. In the event the City elects to drill one or more wells in the Banning, Banning Bench, Banning Canyon or Cabazon basins, it must first obtain a well permit from the County, a ministerial action.

6.2 Surface Water

6.2.1 Background

Surface water flows into the City's service area from steep mountain areas into the sands and gravels in the canyons and the San Gorgonio Pass area.[367] In the early 1900s, Consolidated Reservoir and Power Company (Consolidated) built a hydroelectric project that included water conveyance facilities to divert water from the Whitewater River. Beginning in 1913, Consolidated began diverting surface water from both the South Fork and the East Fork tributaries of the Whitewater River into the Banning Canyon via a 13-mile flume system.[368] The flume is a concrete-lined conveyance system that diverts water along the mountain slopes down through two hydroelectric powerhouses into the Banning Canyon.[369] Diversions of surface water from the upper reaches of the Whitewater River into Banning Canyon began in 1913.[370]

On January 13, 1913, Consolidated entered into an agreement to provide water from the hydroelectric project to Banning Water Company (BWC).[371] Under this agreement, Consolidated agreed to discharge water for the benefit of BWC. This agreement entitled BWC to receive the remainder of any water not needed by Consolidated for "propelling machinery to develop power, to furnish water for domestic purposes for irrigation, and for impounding in reservoirs for any such uses."[372] The January 13, 1913 agreement did not quantify BWC's right. BWC used this remaining water for domestic and irrigation purposes.

On December 30, 1913, Consolidated entered into a second agreement with BHMWC. Under this agreement, Consolidated transferred certain water conveyance facilities and appropriative water rights that it owned in the Whitewater Flume to BHMWC, but reserved the right to use all water necessary to generate power at its hydroelectric facilities.[373] BWC maintained its prior right to all discharges of wastewater that Consolidated did not need for its power generation purposes. The agreement expressly states that all of BHMWC's rights are subject to the prior contract between Consolidated and the BWC.[374] The December 30, 1913 agreement did not quantify BHMWC's appropriative rights to the Whitewater Flume.[375]

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[367] 2011 Geoscience Report, p. 18.
[368] Pass Agency, Report on Water Conditions, Reporting Period 2004-2005, p. 10.
[369] 2011 Geoscience Report, p. 19.
[370] 2011 Geoscience Report, p. 18.
[371] Agreement Between Consolidated Reservoir & Power Company and Banning Water Company, dated Jan. 10, 1913, p. 1.
[372] Agreement Between Banning Heights Mutual Water Company and Consolidated Reservoir and Power Company, dated Dec. 30, 1913, p. 1; *see also* Agreement Between Consolidated Reservoir and Power Company and Banning Water Company, dated Jan. 10, 1913, p. 1.
[373] Agreement Between Banning Heights Mutual Water Company and Consolidated Reservoir and Power Company, dated Dec. 30, 1913, p. 1.
[374] "The foregoing rights are hereby granted to second party and its successors or assigns, subject to the contract heretofore made by the said first party with the Banning Water Company, relating to waste water,

On April 23, 1928, the Division of Water Rights of the SWRCB determined that San Gorgonio Power Company (then the successor-in-interest to Consolidated), BWC and BHMWC were jointly entitled to divert 13.26 cfs of the natural flows of the Whitewater River into the project water conveyance facilities, subject to the provisions of the 1913 Agreements.

A December 9, 1938 judgment entitled *In the Matter of the Determination of the Relative Rights, Based Upon Prior Appropriation, of the Various Claimants to the Waters of Whitewater River and its Tributaries*, County of Riverside Superior Court, incorporated by reference the prior April 23, 1928 Division of Water Rights determination, thereby affirming the three parties' joint right to divert 13.26 cfs of the natural flows of the Whitewater River, subject to the provisions of the 1913 Agreements.

The City is the successor-in-interest to BWC, and thus to BWC's share of the 13.26 cfs of the natural flows of the Whitewater River. Since 1961, the three parties — Southern California Edison (SCE), successor-in-interest to Consolidated, BHMWC and the City — have collectively diverted an average of 1,500 AFY into the Banning Canyon Basin.[376]

6.2.2 Diversion Facilities

SCE operated the hydroelectric project until 1998. In 1998, a 900,000 gallon steel forebay tank failed, along with the project canal. On June 20, 2002, BHMWC entered into an agreement with SCE whereby SCE agreed to construct, operate and maintain temporary diversion facilities at SCE's cost.

The current water conveyance facilities include the water diversion structures on the East and South Forks of the Whitewater River and Black Wheel Creek in the San Bernardino National Forest. These structures connect to a concrete flume and pipe system that proceeds into an area called Raywood Flat. At Raywood Flat, the water flows in a westerly direction down the Burnt Canyon natural channel. Near the confluence of Burnt Canyon and Sawmill Creek, SCE diverts the water through a diversion structure and temporary pipeline that crosses Banning Canyon and back into the project's concrete flume at a point called Powerhouse 1. The water proceeds through the flowline, the penstocks for a point called Powerhouse 2, and from there to the BHMWC storage tank. BHMWC diverts approximately 1,000 AFY into the San Gorgonio River below the second powerhouse. BHMWC owns and operates the pipeline from Powerhouse 2 to the BHMWC storage tank.[377]

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and nothing herein shall in any manner interfere with or affect the terms of such contract and the rights of the Banning Water Company thereunder."

[375] *See* Agreement Between Consolidated Reservoir and Power Company and Banning Water Company, dated Jan. 10, 1913, p. 1-2; Agreement Between Banning Heights Mutual Water Company and Consolidated Reservoir and Power Company, dated Dec. 30, 1913, p. 1-2.

[376] 2011 Geoscience Report, p. 19.

[377] Agreement for Transfer of San Gorgonio Hydroelectric Project No. 344 Water Conveyance Facilities Between Southern California Edison Company, San Gorgonio Pass Water Agency, Banning Heights

Pursuant to the January 10, 1913 Agreement, SCE discharges to the San Gorgonio River Canyon at or between the head of Black Canyon and a point below the lower power plant. SCE spreads water for the City's use from the diversion facilities into Burnt Canyon, located in San Gorgonio River Canyon.

6.2.2.1 Four-Party Agreement

Starting in early 2002, the City, BHMWC and the Pass Agency entered into negotiations with SCE to develop an agreement to provide for SCE's repair and upgrades to the flume system before transferring the facilities pursuant to a Federal Energy Regulatory Commission (FERC) surrender license.

On March 31, 2008, the Pass Agency adopted Resolution 2008-05, *A Resolution Affirming the Agency's Position on Ownership of the Whitewater Flume and Water Rights in the Whitewater Basin*. The Resolution affirmed Pass Agency's position that it has no interest in ownership of the flume system or water rights.

On July 6, 2010, the four parties executed the *Agreement for Transfer of San Gorgonio Hydroelectric Project No. 344 Water Conveyance Facilities*, also referred to as the Four-Party Agreement. The Four-Party Agreement exclusively relates to the repair and upgrade of the flume facilities and specifically excludes "alter[ing] the allocation among the Parties of the rights to the waters of the Whitewater River under the Flume Agreements." The Four-Party Agreement provides that BHMWC and the City will later enter into an implementation agreement to determine how title to the facilities and the one-acre parcel is to be taken. The agreement has four major components:

1. It transfers title to certain water conveyance facilities that divert water from the Whitewater River and Black Wheel Creek (Facilities), a 20-foot wide right-of-way for the facilities, and a one-acre parcel of property to the City, BHMWC and the Pass Agency.

2. It requires SCE to repair the Facilities prior to the transfer of title in accordance with the Statement of Work attached to the Agreement.

3. It releases SCE from any obligation to operate or maintain the Facilities after it has performed the required repairs to the satisfaction of the participating entities.

4. It requires the participating entities — the City, BHMWC and the Pass Agency — to jointly own, operate and maintain the Facilities after the repairs have been made to their satisfaction.

Mutual Water Company, and City of Banning, dated January 17, 2008, p. 2-3; Agreement for Transfer of San Gorgonio Hydroelectric Project No. 344 Water Conveyance Facilities Between Southern California Edison Company and Banning Heights Mutual Water Company, 2008 Draft, pp. 2-3.

In October 2010, SCE filed a FERC 344 surrender license to surrender SCE's owned portion of the Whitewater Flume. As of December 2010, FERC is reviewing the surrender application for completeness. The United States Forest Service has notified the City that a Use Permit will be required for continued operation and maintenance of the flume after SCE surrenders the license, which will require compliance with CEQA.[378]

6.2.3 City Diversion of Surface Water Rights

The City continues to divert surface water flows tributary to the Whitewater River into its recharge basin located in the Banning Canyon approximately one mile north of the Banning Bench Basin. The 2011 Geoscience Report concludes that it is uncertain how much of the surface water supply diverted by the City recharges the Banning Canyon Basin because the diverted flows are not metered.[379] However, Geoscience's maximum perennial yield estimates for the Banning Canyon Basin include surface water supplies that the City diverts and recharges as an inflow component.[380] In other words, when the City produces groundwater from the Banning Canyon Basin, a portion of that supply originated as surface water flows tributary to the Whitewater River. This WSA does not separately account for this supply because it is already a component of the City's groundwater supplies.

In the future, the City intends to meter its surface water diversions and recharge operations in the Banning Canyon to maximize beneficial use of its surface water rights.

6.3 Imported Water

6.3.1 San Gorgonio Pass Water Agency

The City receives imported water from the Pass Agency, one of 29 SWP contractors. The Pass Agency is a wholesale water agency whose service area encompasses the City of Banning, as well as the cities of Beaumont and Calimesa, the community of Cherry Valley, the Morongo Indian Reservation and portions of the Cabazon area.[381] The Pass Agency's mission is to import supplemental water, to sell that water to local water districts within its service area, and to protect and enhance local water supplies for use by present and future water users.[382] The Pass Agency sells imported water to three local water retailers within its service area: the City, BCVWD and YVWD.

[378] Pass Agency Board of Directors Engineering Workshop Agenda Packet (Nov. 8, 2010).
[379] 2011 Geoscience Report, p.19.
[380] 2011 Geoscience Report, p. 36.
[381] The San Gorgonio Pass Water Agency Act was passed in 1961 by the California State Legislature. The Act created the Agency and defined its powers. *See generally* Cal. Water Code Appendix § 102-2.
[382] Cal. Water Code Appendix § 102-15.

6.3.2 Existing Imported Water Supplies

6.3.2.1 State Water Project Contract

The Pass Agency has a contract with DWR that entitles it to water from the SWP.[383] Each SWP contract contains a "Table A" amount, "which states the maximum annual delivery amount over the period of the contract."[384] The Pass Agency's contractual SWP Table A amount is 17,300 AFY.[385] The contract was recently amended to provide for increases from 2008 through 2010 to Table A amounts to 17,300 AFY. The Pass Agency has ordered its full Table A entitlement for 2010 and beyond.[386]

Article 21 of the SWP contracts allows the contractors to receive additional SWP deliveries under the following specific conditions:

1. The water is available only when it does not interfere with Table A allocations and SWP operations;

2. The water is available only when excess water is available in the Sacramento-San Joaquin River Delta (Delta);

3. The water is available only when conveyance capacity is not being used for SWP purposes or scheduled SWP deliveries; and

4. The water cannot be stored within the SWP system. In other words, the contractors must be able to use the Article 21 water delivery or be able to store it in their own systems.[387]

Article 21 water is typically only available between December through March, the wet months of the year. The Pass Agency is entitled to purchase additional SWP supplies, pursuant to Article 21, when these conditions are satisfied. The Beaumont Basin provides local storage for all imported water supplies, including any additional Article 21 water.

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383 *See* Contract Between the State of California Department of Water Resources and the San Gorgonio Pass Water Agency For a Water Supply (November 16, 1962), as amended through Amendment No. 18, available at http://www.swpao.water.ca.gov/wsc/pdfs/Pass Agency_O_C.pdf.

384 Pass Agency, Supplemental Water Supply Planning Study (Oct. 2009), p. ES-1.

385 Table A quantities are not guarantees of annual delivery amounts but are used to allocate individual contractors' portions of the total amount of water available to be delivered. (California Department of Water Resources, State Water Project Reliability Report 2007 (Aug. 2008) (2007 SWP Reliability Report), p.10.)

386 California Department of Water Resources, State Water Project Reliability Report 2009 (Aug. 2010) (2009 SWP Reliability Report), pp. 10, 32. In 1993, the Pass Agency prepared and certified its Importation Project Environmental Impact Report dated November 1993 and Addendum No. 1 dated June 1996.

387 2007 SWP Reliability Report, pp. 11, 27.

6.3.2.2 Yuba Accord

In 2008 the Pass Agency Board voted to participate in the Yuba County Accord Water Purchase Program to augment the Pass Agency's Table A allotment each year.[388] The Yuba Accord is an agreement between the Yuba County Water Agency (YWCA) and DWR to make certain water available to DWR each year, while DWR, in turn would contract with one or more SWP Contractors for the purchase of that water. The Pass Agency signed the Yuba Accord Dry Water Purchase Program Agreement, which is valid until 2014. The Yuba Accord provides an additional source of imported water to the Pass Agency.

In 2009, the Pass Agency Board of Directors approved two amendments (Amendments 1 and 2) to the Program Agreement. In 2009 Pass Agency received approximately 5% of its water (about 300 AF) through this agreement.

In early 2010, the Pass Agency Board voted unanimously to approve Amendment 3.[389] Amendment 3 allowing additional groundwater — approximately 65,000-71,000 AF — to be made available to participating contractors.[390]

In April 2010, DWR proposed a new amendment to the Program Agreement (Amendment 4).[391] Amendment 4 has not yet been drafted. This proposal would retain the most basic terms of Amendments 2 and 3, but would not specify a price for the groundwater substitution water, instead leaving determination of price to the participating contractors, YCWA and DWR based on market price each year. Approving this amendment does not obligate the contractors and the Pass Agency to purchase such water. In October 2010, the Pass Agency authorized the general manager to approve Amendment No. 4 when it became available.[392] If all 21 participating contractors do not sign Amendment 4, then the water will not be made available through the Yuba Accord.

6.3.3 Historical Imported Water Deliveries

The Pass Agency began importing water in 2003. Table 6.3.3 summaries all imported water deliveries to the Pass Agency to date.

[388] Resolution #2008-04, Authorizing Participation in the Yuba County Water Purchase Agreement for the Yuba Accord, March 17, 2008.
[389] California Department of Water Resources, Draft Proposal for Amendment 3 to Yuba Water Accord Purchase Agreement (April 12, 2010).
[390] Pass Agency Board of Directors Meeting Minutes (March 15, 2010) (Board unanimously approved Pass Agency participation in Dry Year Purchase Program).
[391] California Department of Water Resources, Draft Proposal for Amendment 4 to Yuba Water Accord Purchase Agreement (April 12, 2010).
[392] Pass Agency Board of Directors Meeting Minutes (Oct. 4, 2010).

Table 6.3.3. Historical Imported Water Deliveries to Pass Agency by Supply Source (AF)[393]				
Year	Total[394]	Table A	Yuba	Other
2003	116	116	0	0
2004	814	814	0	0
2005	687	687	0	0
2006	4,420	4,420	0	0
2007	4815	4,815	0	0
2008	4,905	4,749	156	0
2009	6,609	6,302	307	652
2010[395]	1,992	1,992	0	0
Totals	**24,358**	**23,895**	**463**	**652**

As Table 6.3.3. illustrates, deliveries of SWP water to the Pass Agency have increased substantially in the past five years. As noted above, the Pass Agency has requested delivery of its full 17,300 AFY Table A entitlement. When available, as much as 17,300 AFY may be delivered to the Pass Agency. As such, imported water deliveries will continue to increase in the future.

6.3.4 City's Right to Purchase Imported Water

The Pass Agency establishes and charges rates for delivery of SWP water sufficient to cover its variable costs for delivery of Pass Agency water, internal Pass Agency costs and other delivery costs determined by the Pass Agency Board of Directors to be reasonable.[396] In April 2008, the Pass Agency increased its water rates to $277 per AF.[397] This amount was raised to $317/AF effective July 1, 2009.[398]

Along with payment of water rates, water suppliers must comply with the Pass Agency's Ordinance No. 8, by submitting applications for Pass Agency water service. The

393 California Department of Water Resources, Notice to State Water Project Contractors, Number 09-07 (May 20, 2009) [40% for 2009]; Notice to State Water Project Contractors, Number 10-11 (June 22, 2010) [50% for 2010]; Notice to State Water Project Contractors, Number 09-07 (May 20, 2009) [40% for 2009]; Notice to State Water Project Contractors, Number 10-11 (June 22, 2010) [50% for 2010]; Notice to State Water Project Contractors, Notice No. 10-14 (Dec. 16, 2010) [50% for 2011]; Notice to State Water Project Contractors, Notice No 11-05 (March 15, 2011) [70% for 2011].)

394 SGPWA Report on Water Conditions 2009, Table 4.

395 Deliveries through May 2010. Correspondence with Jeff Davis, General Manager of Pass Agency (July 27, 2010).

396 Rules and Regulations for Pass Agency Water Service § 4.01.

397 Pass Agency Resolution 2008-06, adopted April 21, 2008.

398 Resolution 2009-03, Resolution of the Board of Directors of the San Gorgonio Pass Water Agency Establishing Wholesale Water Rates; Pass Agency Resolution 2008-06, adopted April 21, 2008. This amount was raised to $317 per acre-foot effective July 1, 2009.

applications must include the "amount, rate, location, time and manner of delivery of the Pass Agency Water; description of delivery facilities, capacity and flow rates."[399] To be approved, the water service application must meet the following three criteria: (1) the water will be used in the Pass Agency's service area; (2) the water will be used to recharge the Beaumont Basin; and (3) the applicant will dedicate all return flows from recharge operations to overdraft mitigation.[400]

In November 2006, the City submitted its initial application for water service to the Pass Agency.[401] An addendum to the Pass Agency Water Importation Project Final Environmental Impact Report was prepared to address the City's application for Pass Agency water service.[402] The City's application was approved on February 5, 2007.[403] To date, the following agencies have applied to the Pass Agency for the following quantities of imported water:

Table 6.3.4A. Applications for Retail Water Sales (AF)

Year	YVWD[404]	BCVWD	City of Banning
2007	500	1,250	1,200
2008	700	2,870	1,200
2009	1,000	2,000	1,800
2010	1,500	2,000	1,800
2011	1,650	2,300	2,400
2012	1,900	N/A	N/A
Totals	**7,250**	**10,420**	**8,400**

The City's Application for Service from the Pass Agency allows the City to request modification—either more or less—of its allocation of imported water annually.[405] Any modification is subject to approval by the Pass Agency based on the availability of

399 Rules and Regulations for Pass Agency Water Service § 3.01.
400 Pass Agency, Ordinance 8: Rules and Regulations for Pass Agency Water Service (adopted February 7, 2005).
401 Pass Agency, Memorandum from General Manager to Board of Directors re Water Service Application from the City of Banning (Feb. 5, 2007).
402 Addendum No. 3 to the Pass Agency Water Importation Project Final Environmental Impact Report, prepared by CDM Consulting for the Pass Agency (Jan. 31, 2007).
403 Pass Agency Resolution 2007-4, Resolution Approving Water Service for the City of Banning.
404 YVWD Application for Pass Agency Water Service (July 16, 2006). YVWD applied for water to be used for direct deliveries (95%), groundwater recharge (4%) and agricultural uses (1%). While not required, YVWD has also provided the City with additional estimated annual deliveries until 2012: (a) 2011: 1,650 AF, (b) 2012: 1,900 AF.
405 Rules and Regulations for Pass Agency Water Service, Rule 4.02.

water.[406] As a retailer within the Pass Agency's service area, the City has the right to buy as much water as the Pass Agency has available — e.g., it is not constrained by the amount requested in its Application for Service. The City will file a new Application for Service with the Pass Agency for the period 2012 – 2016.

In July 2007, the City began purchasing imported water supplies from the Pass Agency. Historical retail water sales are listed below in Table 6.3.4B. In two of the past three years, the City purchased more imported water from the Pass Agency than it had requested in its Application for Service.

Table 6.3.4B. Pass Agency, Historical Retail Water Sales (AF)[407]

Year	YVWD	BCVWD	City of Banning
2005	46	0	0
2006	158	3,501	0
2007	114	4,501	0
2008	287	2,372	1,534
2009	274	2,741	2,741
2010	87	1,338	1,338[408]
Totals	**966**	**14,451**	**5,613**

As further described below in Section 6.1.6 and in Appendix I, the Pass Agency's SWP entitlement is not guaranteed ever year due to climatic variability, environmental limitations and other factors. As such, the Pass Agency application provides that "[d]ue to the annual variable nature of the Pass Agency water supply, Pass Agency water deliveries do not constitute a vested right to a fixed amount of Pass Agency water each year or to any specific level of pressure."[409] Further, Pass Agency water deliveries are "subject to all of the terms and conditions of Pass Agency's SWP contract with DWR, including delivery interruption by reason of DWR and/or Pass Agency's requirements for maintenance and operation of its facilities or by reason of demand by Purchasers in excess of Pass Agency's Table A amount."[410]

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406 Rules and Regulations for Pass Agency Water Service, Rule 3.02.
407 Correspondence with Jeff Davis, General Manager of Pass Agency (July 27, 2010). See also, Pass Agency's 2010 UWMP, p. 3-12.
408 Through June 2010. Correspondence with Jeff Davis, General Manager of Pass Agency (July 27, 2010).
409 Pass Agency Application of Water Service in Accordance with Pass Agency Ordinance No. 8.
410 Rules and Regulations for Pass Agency Water Service, Rule 4.04.

6.3.5 Imported Water Supply Facilities

6.3.5.1 SWP and East Branch Extension (Phases I & II)

SWP supplies are diverted from the Feather River at Lake Oroville, released and conveyed through the Delta and rediverted at the Harvey O. Banks Delta Pumping Plant for conveyance through the California Aqueduct to Southern California. Each contractor is responsible for the importation of water from Lake Oroville and the Delta through the SWP into its service area. The Pass Agency's SWP supply is transported through the East Branch Extension pipeline of the California Aqueduct — Phase 1 (EBXI) to Pass Agency's service area. The Pass Agency owns capacity rights in pipelines, reservoirs and pump stations, collectively known as EBX.[411] The first phase of this pipeline was completed in 2003 and consists of a combination of existing pipelines, three new pipeline reaches, three new pump stations and a new reservoir. EBXI is capable of conveying 8,650 AFY (16 cfs) of SWP water to the Pass Agency service area — approximately one-half of the Pass Agency's Table A entitlement of 17,300 AFY. [412] Nevertheless, the Pass Agency has ordered its full Table A entitlement of 17,300 AF for 2010 and beyond.[413] This will permit the Pass Agency to make full use of its existing delivery system, even if its entitlement is reduced by 50%.

The Pass Agency will be able to take its maximum annual capacity (17,300 AF) following completion of Phase II of the East Branch Extension (EBXII) in late 2013.[414] EBXII will connect the Foothill Pipeline with the Crafton Hills Pump Station, which consist of approximately six (6) miles of new large-diameter pipeline, a new pump station, construction of a new reservoir and enlargement of the existing Crafton Hills Pump Station.[415] EBXII will install a new pipeline across the Santa Ana River that would increase water delivery capacity of the system, plus additional water amounts that may be available under Article 21 or the Yuba Accord.[416] Completion of EBXII will provide the region with greater system operating flexibility by increasing the water storage and transmission capacity of the system, which in turn will increase off-peak pumping capabilities, allowing Pass Agency to take delivery of the entire 17,300 AFY.[417]

DWR circulated the Draft EIR for EBXII from August 1, 2008 through September 15, 2008. The Final EIR (FEIR) was certified and the project approved on March 6, 2009.[418]

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[411] Water Rate Study for Pass Agency, Prepared by David Taussig & Associates, Inc. (Oct. 23, 2008), p. 32.

[412] Pass Agency entered into an agreement with the DWR and the San Bernardino Valley Municipal Water District (SBVMWD) to limit its importations to this amount until the Pass Agency and SBVMWD successfully complete the environmental review process for EBXII.

[413] 2009 SWP Reliability Report, pp. 10, 32.

[414] Pass Agency Engineering Workshop Agenda (March 8, 2010), "East Branch Extension Program Summary of Detailed Schedules."

[415] EBXII FEIR (Jan. 2009), pp. 2-1 to 2-3.

[416] EBXII FEIR (Jan. 2009), p. 1-13.

[417] EBXII FEIR (Jan. 2009), p. ES-3.

[418] EBXII FEIR available at http://www.water.ca.gov/engineering/Projects/Current/EBX_PhaseII/.

Currently, pipeline design for EBXII is estimated to be nearly 50% complete, and specific plans and specifications are being analyzed.

SGPWA's recent updates on construction at its Engineering Workshops have provided revised schedules for completion. Presently, although there have been delays in bidding and design, obtaining permits and rights-of-way, EBXII is generally proceeding on schedule. Pass Agency continues to wait on necessary permits from USFWS. While such permits typically are issued within 145 days, Pass Agency has been awaiting on a permit for well over a year.[419] Pass Agency claims that USFWS has exceeded the time allowed them by law to grant the permit, which is resulting in further delays in construction.[420] Various rights-of-way must also be obtained for the pipeline, and according to Pass Agency, approvals for these rights-of-way are progressing along on schedule.[421] Most of the right-of-way issues have been resolved.[422] The Pass Agency, BCVWD and DWR are presently working hard to keep to the December 2013 online date for EBXII.[423]

Currently, the majority of construction including American National Standards Institute (ANSI) Ball Valves, ANSI Butterfly Valves, American Water Works Association (AWWA) Butterfly Valves, Energy Dissipating Valves, Transformers for the Citrus Pump Station, Switchyard Equipment for the Citrus Pump Station, and the Citrus Reservoir are scheduled for completion by December 31, 2012.[424] The schedules for initial construction of the switchgear for the Citrus and Crafton Hills Pump Stations, as well as Mentone Pipeline element of the project, are not scheduled to be completed until March through May 2013.[425] Full completion of the Citrus, Crafton Hills and Cherry Valley Pump Stations is currently estimated at July 30, 2014.[426] From this point on, SGPWA will be able to take its full allotment—17,300 AFY—from the SWP.

6.3.5.2 Delivery Facilities for Imported Supplies

To date, the City has taken delivery of all imported water supplies that it purchased indirectly at the Noble Creek Recharge Facility (Noble Recharge Facility), which is owned and operated by the BCVWD. The water is delivered to the Noble Recharge Facility, percolates into the Beaumont Basin allowing for natural treatment of the water, and is stored in the City's Beaumont Basin Stored Water account (see discussion in Section 6.1.5.10) for later extraction via City wells in the Beaumont Basin (see discussion in Section 6.1.5.10) and use within the City's service area.

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419 Pass Agency Board of Directors Meeting Minutes (Nov. 1, 2010).
420 Pass Agency Board of Directors Meeting Minutes (Feb. 22, 2011).
421 Pass Agency Board of Directors Meeting Minutes (Nov. 1, 2010).
422 Pass Agency Board of Directors Meeting Minutes (Feb. 22, 2011).
423 Pass Agency Board of Directors Meeting Minutes (Oct. 4, 2010).
424 San Gorgonio Pass Water Agency Engineering Workshop Agenda for March 8, 2010, "East Branch Extension Program Summary of Detailed Schedules."
425 San Gorgonio Pass Water Agency Engineering Workshop Agenda for March 8, 2010, "East Branch Extension Program Summary of Detailed Schedules."
426 San Gorgonio Pass Water Agency Engineering Workshop Agenda for March 8, 2010, "East Branch Extension Program Summary of Detailed Schedules."

The Noble Recharge Facility, which is located on 80 acres of District-owned land east of Beaumont Avenue between Brookside Avenue and Cherry Valley Boulevard, overlies and recharges the Beaumont Basin. BCVWD certified the Final Environmental Impact Report and approved construction of the Noble Recharge Facility in March 2003.[427]

The first phase of the Noble Recharge Facility project, which was completed and put into operation in October 2006, is located on the northwest side of the property, consists of 23 acres of recharge ponds, and has a recharge capacity of approximately 25,200 AFY if operated to allow time to restore the basins and perform routine maintenance (to account for decreases in recharge rates over time, BCVWD states that the capacity is 20,000 AFY) [428] — more than sufficient to take delivery of the Pass Agency's entire 17,300 AFY of Table A entitlement if the City were to purchase such water. The 24-inch pipeline from EBX to the recharge facilities has the capacity to convey 21,700 AFY to the facilities if operated full time.[429] To convey the Pass Agency's Table A water, the pipeline would need to operate for 296 days per year or about 81% of the time.[430] Once EBXII is completed, the Pass Agency can import 17,300 AFY, and the BCVWD will be able to use the full capacity of the Phase 1 facilities by recharging imported water, including Article 21 water, plus recycled water and local stormwater.[431] As of August 24, 2010, 19,276 AF have been recharged.[432] BCVWD maintains daily records of the flow rate and amount recharged in each pond.

The second phase of the project has not yet been constructed. The project's final EIR indicates that the second phase will be constructed on the southeast side of concrete-lined Noble Creek Channel and will include between 30 to 35 acres of ponds, resulting in a total recharge facility of approximately 55 to 58 acres.[433] Timing for completion of the second phase is unknown.

The City will continue to take delivery of the imported water that it purchases from the Pass Agency at the Noble Recharge Facility. Presently, the City is engaged in discussions with the BCVWD to memorialize the City's use of the Noble Recharge

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427 BCVWD, Final Environmental Impact Report, Groundwater Recharge Program, March 2003, p. 2-1.

428 BCVWD, Final Environmental Impact Report, Groundwater Recharge Program, March 2003, p. 2-1.

429 San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011.

430 San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011, p. 4.

431 San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011, p. 4.

432 San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011.

433 *See* BCVWD, Final Environmental Impact Report, Groundwater Recharge Program, March 2003, pp. 1-1, 2-1; *see also* http://www.bcvwd.org/recharge.asp.

Facility pursuant to a proposed lease, fee or purchase arrangement with the BCVWD.[434] Options include: (1) a direct outright purchase of a portion of the capacity of the facilities and then a sharing of the operation and maintenance (O&M) costs; (2) a "per acre-foot" recharge "fee"; and (3) a lease of a certain amount of capacity for an extended term and a share in the O&M costs on the facility.[435] Approval by all parties to the proposed agreement would be required. No additional environmental review or approvals would be required to permit the City's continued use of the facility.

As an alternative, or in addition, to its use of the Noble Recharge Facilities, the City may elect to construct a pipeline connecting the termination of the SWP pipeline at the Pass Agency's spreading grounds on Little San Gorgonio Creek near Orchard Street with the Project site (the "SWP Pipeline Extension"). This proposed 24-inch SWP pipeline extension would proceed eastward near Orchard Street, and cross Oak Glen Road and Noble Creek, turning southward along Noble Street for approximately one-half mile. From Noble Street near the intersection of High Street, the SWP line could follow either of three potential alignments to reach Brookside Avenue near its intersection with Bellflower Avenue.[436] Three alternative alignments have also been considered. One option (Alternative A) would continue the SWP pipeline southward along Noble Street and eastward along Brookside Avenue. Alternative B represents a Cherry Avenue/Brookside Avenue alignment. Finally, Alternative C documents a potential High Street/Bellflower Avenue alignment.[437] From the Brookside Avenue/ Bellflower Avenue intersection, each alternative would conclude the SWP Pipeline Extension by continuing easterly along Brookside Avenue to connect with the Project's North Basin Reservoir in Planning Area 71.

Construction of the SWP Pipeline Extension would require a variety of approvals from local, State and potentially Federal agencies. The primary approvals necessary include a Specific Plan Amendment, a General Plan Amendment and Zone Change, Amended Development Agreement, and Tentative Tract Maps (TTM 34896 and others) and Design Review. The SWP Pipeline Extension will require potentially an improvement plan approval for infrastructure from the City, potentially encroachment plans from Caltrans and SCE, grading and infrastructure permits from the City, flood control review from the Riverside County Flood Control and Water Conservation District, a permit for use of State Water Project facilities from the Department of Water Resources, approval from the Pass Agency, and possibly approval by SBVMWD. The SWP Pipeline Extension is described in the EIR for the Project.

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[434] San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011.

[435] San Gorgonio Pass Water Agency Engineering Workshop for February 14, 2011, "Discussion Points for Lease of Capacity in BCVWD Recharge Facilities to San Gorgonio Pass Water Agency," Revised January 5, 2011, p. 2.

[436] Butterfield Specific Plan (Draft December 23, 2010), Section 3.5.3.

[437] Butterfield Specific Plan (Draft December 23, 2010), Section 3.5.3.

Funding for the SWP Pipeline Extension would come from City's connection fees. Connection fees are currently required as per the City's Ordinance Nos. 1320 and 1321. The water connection fees are based upon the benefits and costs to provide services to projects, such as water transmission pipelines, reservoirs, wastewater treatment plants, and the City's purchase of imported water supplies.[438] This connection fee is currently imposed on new development by the City to pay for increased supplies and necessary infrastructure to meet demands for new development.[439]

6.3.6 Reliability of Imported Supplies

6.3.6.1 State Water Project Supply

Like all SWP contractors, the Pass Agency's SWP supplies are subject to delivery reliability limitations. Table A entitlements from the SWP represent the maximum water available to SWP contractors and subcontractors, rather than the reliable annual yield of the Project. The ability of the SWP to deliver water to its contractors in any given year depends on rainfall, size of snowpack, runoff, water in storage and pumping capacity in the Delta, among other factors. Actual delivery varies from year to year and is described as a percentage of the contractual entitlement. For example, in a dry year, the Pass Agency may receive 62% or less of its 17,300 AFY Table A entitlement. In such a year, the City's ability to purchase imported water supplies from the Pass Agency would also be affected.

The Department of Water Resources (DWR) issues SWP reliability reports every two years to assist local agencies, cities and counties using SWP water for planning purposes.[440] In August 2010, DWR released the final version of the 2009 SWP Delivery Reliability Report (2009 Reliability Report),[441] which estimates the current and future reliability of SWP supplies. DWR uses a computer model of the SWP system to evaluate the issues affecting SWP exports from the Delta and how those issues may affect the long-term availability and reliability of SWP deliveries to contractors. The model simulates future SWP deliveries based on assumptions about 2009 (current) and future conditions.

To ensure a conservative analysis, the 2009 Reliability Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors affecting SWP supplies, including but not limited to: water quality constraints and fishery protections, discussed further in Appendix I.[442] This new report considers several new factors: (1)

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[438] Banning, Ordinance No. 1320, Banning Mun. Code, 13.08.050; see also, Banning, "Water Connection Fee," http://banning.ca.us/index.aspx?NID=193.

[439] See Banning, "Water Connection Fee," http://banning.ca.us/index.aspx?NID=193

[440] DWR is legally obligated to prepare the SWP delivery reliability reports every two years as the result of a court-approved settlement agreement in the wake of the 3rd Circuit Court of Appeals ruling in the "Monterey Amendments" case in 2009.

[441] The full report can be accessed at this web address: http://baydeltaoffice.water.ca.gov/swpreliability/.

[442] *See* 2009 SWP Reliability Report, pp. 13-14.

the operational restrictions of the delta smelt and salmon biological opinions (BiOp) issued by United States Fish and Wildlife Services (USFWS) in December 2008 and the National Marine Fisheries Services (NMFS) in 2009; (2) and sea level rise, which has the potential to require additional water to be released to repel salinity from entering the Delta.[443] Notably, the 2009 Reliability Report assumes that all of these restrictions and limitations will remain in place over the next 20 years and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses incorporate assumptions intended to account for potential supply shortfalls related to global climate change, Delta levee failure and other seismic events. These and other factors result in DWR presenting a conservative projection of SWP delivery reliability in its 2009 Reliability Report.

The 2009 Reliability Report contains a table summarizing the updated estimated delivery amounts for wet and dry years and present information on the estimated probability of SWP Table A delivery amounts currently and twenty years in the future. DWR's Final 2009 Report provides the following estimated delivery amounts:[444]

Table 6.3.6.1A. Deliveries from Delta Under Current and Future Conditions

	Table A Delivery from Delta Under Current Conditions	Table A Delivery from Delta Under Future Conditions
	2009 Report	2009 Report
Average Delivery	60 %	60 %
Maximum Delivery	81 %	97 %
Minimum Delivery	7 %	11 %

Every year, DWR makes initial and final allocations about the quantity of water the State Water Contractors will receive. In 2008, the SWP allocation was 35 percent of each agency's contracted amount. For calendar year 2009, the initial SWP allocation was set at 15 percent of contracted amounts. This estimate was adjusted upwards to 20 percent, 30 percent and 40 percent of contracted amounts through May 2009, where it remained at 40 percent for the rest of the year. In November 2009, DWR announced that for 2010 State Water Contractors would receive only 5 percent of their requested water. In February 2010, this number was increased to 15 percent. After a series of late season storms, however, the final 2010 SWP allocation was 50 percent.[445] In

443 California Department of Water Resources, State Water Project Delivery Reliability Report 2009, August 2010, p. 5.

444 California Department of Water Resources, State Water Project Delivery Reliability Report 2009, August 2010, p. 56.

445 Department of Water Resources, News Release, "Late Spring Weather Allows DWR to Increase Water Allocation" (June 23, 2010).

November 2010, DWR announced a 2011 initial SWP allocation of 25 percent.[446] After a winter of unexpected heavy rains and several prior increases in the allocation, the 2011 SWP allocation was raised to 70 percent in March 2011.[447]

Potential deliveries under *future* conditions are estimated at the 2029 level and are also based on the assumption that no changes will be made in either the way water is conveyed across the Delta or in the operational rules. However, the analysis of future conditions incorporates a climate change scenario from DWR's 2009 report, *Using Future Climate Projections to Support Water Resources Decision Making in California*, which represents the median effects of 12 climate change scenarios.[448] Under future conditions, annual SWP Table A deliveries from the Delta also average 60% of the maximum Table A amount. "Future Conditions" refer to conditions that are assumed to be in effect by 2029. "These conditions include the effects of climate change and the same requirements of the biological opinions assumed under Current Conditions."[449] DWR selected 2029 as a representative year of future water reliability in the long-term future.[450] The climate scenario for determining the 2029 Future Conditions water year assumes and integrates projections of climate and hydrology for the year 2050.[451] As such, DWR's long-term average reliability of 60% under future conditions applies for all years in this WSA's study period (2010 – 2045). DWR's climate change analysis is further described in Section 6.5.

Table 6.3.6.1B summarizes DWR's projected deliveries to Pass Agency under both current and future conditions for all hydrologic conditions (long-term average, wet and dry conditions). DWR's analysis indicates that the long-term average reliability for delivery of SWP supplies to Pass Agency is 64% under current conditions, and 60% under future conditions. As such, the Pass Agency's, and thus the City's, imported water supply is, at a minimum average, 60% reliable. In multiple wet years, the Pass Agency may receive as much as 100% of its Table A entitlement of 17,300 AFY. In a single dry year, the Pass Agency may receive as little as 10% of its Table A entitlement under future conditions, and as little as 6% under current conditions.

[446] Department of Water Resources, News Release, "DWR Releases Initial 2011 State Water Project Allocation" (November 22, 2010).
[447] Department of Water Resources, News Release, "State Water Project Allocation Increases to 70 Percent" (March 16, 2011).
[448] 2009 SWP Reliability Report, pp. 20, 29-31.
[449] 2009 SWP Reliability Report, p. 46.
[450] 2009 SWP Reliability Report, Summary, p. 1.
[451] 2009 SWP Reliability Report, p 51.

Table 6.3.6.1B. DWR's Total Projected Water Year Deliveries to Pass Agency (AF)[452]				
	2009 Conditions[454]		Future Conditions[455]	
Water Year Type[453]	Year(s)	Projected SWP Delivery	Year(s)	Projected SWP Delivery
2-Year Wet Year	1982-1983	100%	1982-1983	95-100%
4-Year Wet Year	1980-1983	49-100%	1980-1983	57-100%
6-Year Wet Year	1978-1983	49-100%	1978-1983	57-100%
10-Year Wet Year	1978-1987	38-100%	1978-1987	26-100%
2-Year Drought	1976-1977	6-56%	1976-1977	10-62%
4-Year Drought	1931-1934	30-39%	1931-1934	30-39%
6-Year Drought	1929-1934	28-39%	1929-1934	32-41%
Single Dry Year	1977	6%	1977	10%
Average Year	Long-Term Average	64%	Long-Term Average	60%

6.3.6.2 Pass Agency Supply

As discussed above, the Pass Agency has requested delivery of its full Table A entitlement of 17,300 AFY. Presently, delivery of that supply it limited by the capacity of EBX1. By 2015, and completion of EBXII, the Pass Agency will have sufficient capacity to take delivery of 17,300 AFY. No additional environmental review or approvals are required.

Table 6.3.6.2 presents the Pass Agency's projected Table A deliveries through 2045. These projections are based on the 2009 Reliability Report's projections for different water type years based on *future* conditions.

452 2009 SWP Reliability Report, p. 44; methodology confirmed by Dustin Jones of Department of Water Resources Bay-Delta Office, Mar. 1, 2011.

453 Representative Water Year types and corresponding range of years taken from 2009 SWP Reliability Report, p. 53, and Delivery Estimates for Each Contractor, at http://baydeltaoffice.water.ca.gov/swpreliability/

454 Department of Water Resources, 2009 SWP Reliability Report, Delivery Estimates for San Gorgonio Pass Water Agency, 2009 Values, available at http://baydeltaoffice.water.ca.gov/swpreliability/ContractorDRR_2009_rev080510.xls

455 Department of Water Resources, 2009 SWP Reliability Report, Delivery Estimates for San Gorgonio Pass Water Agency, 2029 Values, available at http://baydeltaoffice.water.ca.gov/swpreliability/ContractorDRR_2029_MWArev082610.xls

Table 6.3.6.2. Pass Agency Projected State Water Project, Table A Deliveries (AF)[456]								
Year		**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Table A Entitlement		17,300	17,300	17,300	17,300	17,300	17,300	17,300
Average Year (Long-Term Average)[457]		10,380	10,380	10,380	10,380	10,380	10,380	10,380
2-Year Wet Year (1982-83)	Min (95%)	16,435	16,435	16,435	16,435	16,435	16,435	16,435
	Max (100%)	17,300	17,300	17,300	17,300	17,300	17,300	17,300
4-Year Wet Year (1980-83)	Min (57%)	9,861	9,861	9,861	9,861	9,861	9,861	9,861
	Max (100%)	17,300	17,300	17,300	17,300	17,300	17,300	17,300
6-Year Wet Year (1978-83)	Min (57%)	9,861	9,861	9,861	9,861	9,861	9,861	9,861
	Max (100%)	17,300	17,300	17,300	17,300	17,300	17,300	17,300
10-Year Wet Year (1978-87)	Min (26%)	4,498	4,498	4,498	4,498	4,498	4,498	4,498
	Max (100%)	17,300	17,300	17,300	17,300	17,300	17,300	17,300
2-Year Dry Year (1976-77)	Min (10%)	1,730	1,730	1,730	1,730	1,730	1,730	1,730
	Max (62%)	10,726	10,726	10,726	10,726	10,726	10,726	10,726
4-Year Dry Year (1931-34)	Min (30%)	5,190	5,190	5,190	5,190	5,190	5,190	5,190
	Max (39%)	6,747	6,747	6,747	6,747	6,747	6,747	6,747
6-Year Dry Year (1929-34)	Min (32%)	5,536	5,536	5,536	5,536	5,536	5,536	5,536
	Max (41%)	7,093	7,093	7,093	7,093	7,093	7,093	7,093
Single Dry Year (1977) (10%)		1,730	1,730	1,730	1,730	1,730	1,730	1,730

6.3.6.3 City Supply

As described above, the City intends to purchase as much imported water as the Pass Agency makes available to it and to store that supply in its Beaumont Basin Stored Water account for later use.

The Pass Agency's policy is to make all imported water supplies available to local retail water suppliers on an equal basis.[458] To date, only three agencies have indicated their

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[456] Department of Water Resources, 2009 SWP Reliability Report, Delivery Estimates for San Gorgonio Pass Water Agency, 2029 Values, available at http://baydeltaoffice.water.ca.gov/swpreliability/ContractorDRR_2029_MWArev082610.xls

[457] Representative Water Year types and corresponding range of years taken from 2009 SWP Reliability Report, p. 53, and Delivery Estimates for Each Contractor, available at http://baydeltaoffice.water.ca.gov/swpreliability/; Methodology confirmed by telephone conversation with Dustin Jones of Department of Water Resources Bay-Delta Office, Mar. 1, 2011.

[458] See San Gorgonio Pass Water Agency Law, Wat. Code Appendix, § 101-15; Pass Agency Strategic Plan (2006), p. 2.

intent to purchase imported water supplies from the Pass Agency, thereby suggesting that as much as 33% of the Pass Agency supply would be available for purchase by the City.[459] Historically, the City has purchased more than 25% of the available supply. (See Table 6.3.4A. above.) The City's planning area, 23,555 acres of land, represents approximately 25% of the total 94,220 acres within the Pass Agency jurisdiction and 33.8% of the 69,708 developable acres within the Pass Agency.[460] As such, the City anticipates that the City will have at least 25% of the demand for imported water supplies within the region. For these reasons, it is reasonable to assume that the City may continue to purchase from the Pass Agency at least 25% of all imported water supplies delivered to the Pass Agency.

The Pass Agency has indicated an intention to reserve from sale to the local retail water suppliers up to 2,000 AFY for the Pass Agency's own direct groundwater recharge/replenishment activities.[461] However, no policy or rule has been adopted by the Pass Agency, or another entity with authority to do so, that reserves from sale any quantity of imported water supply before its use. As such, this WSA assumes that all water delivered to the Pass Agency will be made available for sale to local retail water suppliers.[462]

To date, the Pass Agency is not authorized to store water in the Beaumont Basin pursuant to the Beaumont Basin Judgment. However, the Pass Agency already engages in indirect replenishment of the Beaumont Basin. All *return flows* generated from the sale of imported water are dedicated to the Beaumont Basin, thereby augmenting the basin's safe yield over time. (See Section 6.4.4. [describing the City's Application for Service].)[463] Therefore, whether the Pass Agency recharges the basin directly (e.g., by reserving from sale water that is percolated into the basin) or indirectly by requiring retail water suppliers to dedicate their return flows to the basin, the result is

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459 The 2005 UWMP projected that the City may rely on as much as 38% of the Pass Agency's Table A entitlement. (2005 UWMP, p. 2-10.)

460 Pass Agency, 2009 Supplemental Water Supply Planning Study, p. 2-1.

461 See, e.g., Wildermuth, Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011, p. 7.

462 See also, Draft 2010 UWMP, p. 67.

463 The Pass Agency's authorizing legislation provides that "in allocating water received from the State Water Project pursuant to this act, the highest priority shall be given to eliminating groundwater overdraft conditions within any agency or district receiving the water." (Wat. Code § 101-15.5.) In turn, Pass Agency's Ordinance No. 8, Rules and Regulations for Water Service provides that "SGPWA sale of water and dedication of Return Flows resulting from use of such SGPWA Water to eliminate Overdraft in SGPWA groundwater basins provides the highest priority that is reasonably available to eliminate overdraft conditions." Ordinance No. 8 defines "Return Flows" as "amounts of SGPWA water that return to surface or groundwater after initial use by a retail customer by irrigation or disposal through onsite waste disposal." (Ordinance No. 8, section 2.01(d).) "SGPWA water" is defined as "Water imported by SGPWA from outside the boundaries of SGPWA for sale to retail agencies within SGPWA or water otherwise "authorized" and developed by SGPWA pursuant to its Act…." (Ordinance No. 8, section 2.01(f).) Section 4.09 of Ordinance No. 8 states that "SGPWA expressly reserves the right to Return Flows that are received by any groundwater basin determined to be in Overdraft for the purpose of eliminating Overdraft in such basin." Accordingly, Pass Agency is authorized to require the dedication of *return flows* generated from the use of imported water (i.e., after initial use by retail water suppliers).

the same – the basin's Safe Yield will increase over time to the benefit of water right holders like the City.

Assuming the City may purchase up to 25% of the Pass Agency supply, the City's projected average annual share of SWP Table A[464] water through the year 2013 is calculated as:

8,650 afy (EBX-I only) x 60% (SWP reliability factor) x 25% (City's share)

The City's projected average annual share of SWP Table A entitlement from 2014 - 2045 is calculated as follows:

17,300 AFY (with EBXII) x 60% (SWP reliability factor) x 25% (City's share)

Table 6.3.6.3 presents the City's projected Table A purchases from the Pass Agency based on the assumption that the City may purchase up to 25% of the Pass Agency's supply. As above, these projections are based on the 2009 Reliability Report's projections for different water type years based on *future* conditions.

[464] Article 21 and Yuba Accord supplies are comparatively insignificant and therefore the City has conservatively elected not to include these additional supplies in the City's calculations of the projected imported water supplies that will be available to it for purchase.

Table 6.3.6.3. City's Projected State Water Project, Table A Deliveries (AF)[465]								
Year		**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Pass Agency Table A Entitlement		17,300	17,300	17,300	17,300	17,300	17,300	17,300
Average Year (Long-Term Average)[466]		2,595	2,595	2,595	2,595	2,595	2,595	2,595
2-Year Wet Year (1982-83)	Min (95%)	4,109	4,109	4,109	4,109	4,109	4,109	4,109
	Max (100%)	4,325	4,325	4,325	4,325	4,325	4,325	4,325
4-Year Wet Year (1980-83)	Min (57%)	2,465	2,465	2,465	2,465	2,465	2,465	2,465
	Max (100%)	4,325	4,325	4,325	4,325	4,325	4,325	4,325
6-Year Wet Year (1978-83)	Min (57%)	2,465	2,465	2,465	2,465	2,465	2,465	2,465
	Max (100%)	4,325	4,325	4,325	4,325	4,325	4,325	4,325
10-Year Wet Year (1978-87)	Min (26%)	1,124.5	1,124.5	1,124.5	1,124.5	1,124.5	1,124.5	1,124.5
	Max (100%)	4,325	4,325	4,325	4,325	4,325	4,325	4,325
2-Year Dry Year (1976-77)	Min (10%)	432.5	432.5	432.5	432.5	432.5	432.5	432.5
	Max (62%)	2,681.5	2,681.5	2,681.5	2,681.5	2,681.5	2,681.5	2,681.5
4-Year Dry Year (1931-34)	Min (30%)	1,297.5	1,297.5	1,297.5	1,297.5	1,297.5	1,297.5	1,297.5
	Max (39%)	1,687	1,687	1,687	1,687	1,687	1,687	1,687
6-Year Dry Year (1929-34)	Min (32%)	1,384	1,384	1,384	1,384	1,384	1,384	1,384
	Max (41%)	1,773	1,773	1,773	1,773	1,773	1,773	1,773
Single Dry Year (1977) (10%)		432.5	432.5	432.5	432.5	432.5	432.5	432.5

Table 6.3.6.3 demonstrates that the City can reliably expect to receive 2,595 AFY, on average over the long term, of imported water supplies, assuming that the City's share of the Pass Agency supplies is 25%.

The City intends to continue its conjunctive management of its imported (surface) and local groundwater supplies to improve the City's overall water supply reliability and to ensure adequate supplies are available to serve the City's demands in dry and multiple dry years. As a result, single and multiple dry years will have little or no effect on the

465 Applying City 25% delivery share of Pass Agency projected deliveries in Representative Water Year types and corresponding range of years taken from 2009 SWP Reliability Report, p. 53, and Delivery Estimates for Each Contractor, available at http://baydeltaoffice.water.ca.gov/swpreliability/

466 Figures are calculated as follows: For 2010 City Projected Long-Term Average: [2010 Table A Entitlement = 8,650] x 60% Long-Term Average = 5,190 x [25% City allocation] =1,297. For 2010 City Projected Minimum 2-Year Wet Scenario: [2010 Table A Entitlement = 8,650] x 95% Minimum of 2-Year Wet Scenario = 8,217.5 x [25% City allocation] = 2,054. Calculations are applied consistently across all water-year scenarios.

City's ability to reliably provide water service to its customers. This is because the City will continue to purchase all of the imported water that is made available to it for purchase, especially in wet years, and store those supplies for use in future dry years. For example, in wet years when the Pass Agency receives as much as 93% of its Table A entitlement of 17,300 AF, the City may purchase 25% or more of that supply which it can store in its Beaumont Basin Stored Water account for use in dry years. Alternatively, in dry years, when the Pass Agency receives as little as 1,730 AF, the City may be entitled to purchase less than 500 AF. The occurrence of a single or multiple dry years would result in a slower accumulation of water in storage in the Beaumont Basin; the occurrence of one or more wet years would result in a faster accumulation of water in storage. However, as projected by DWR, over the long term, the City reasonably may expect to purchase 2,595 AFY, on average, for the duration of the study period.

The City does not take direct delivery of the imported water supplies that it purchases. As a result of the City's conjunctive management of its imported and groundwater supplies, single or multiple dry years will not affect the City's ability to pump groundwater from the Beaumont Basin and will not affect the overall reliability of the City's supply in the future.

6.3.7 City's Projected Imported Water Supply

The City will continue to increase its imported water supply purchases from the Pass Agency when those supplies are available.[467] The City will continue to take indirect delivery of all imported water supplies at BCVWD's Noble Avenue Recharge Facilities. In the event the City enters into an agreement with the BCVWD, and possibly other parties, for the City's long-term use of the Noble Avenue Recharge Facilities, approval by all contracting parties' will be required. However, no additional environmental review or other approvals will be required as the Noble Avenue Recharge Facilities are the subject of a final certified EIR.

The City will continue to bank all imported water supplies purchased by it in the City's Beaumont Basin Stored Water account to serve existing and future demands and for use in years when the City's local supplies are insufficient.

For 2012, and at least every five years thereafter, the City must file an amended Application for Service with the Pass Agency requesting the increased purchases. The City's request is subject to the Pass Agency's approval, which will be based on the availability of the supply to meet all requested demands.[468] In addition to the Pass

[467] California Department of Water Resources, Notice to State Water Project Contractors, Number 09-07 (May 20, 2009) [40% for 2009]; Notice to State Water Project Contractors, Number 10-11 (June 22, 2010) [50% for 2010]; Notice to State Water Project Contractors, Number 09-07 (May 20, 2009) [40% for 2009]; Notice to State Water Project Contractors, Number 10-11 (June 22, 2010) [50% for 2010]; Notice to State Water Project Contractors, Notice No. 10-14 (Dec. 16, 2010) [50% for 2011]; Notice to State Water Project Contractors, Notice No 11-05 (March 15, 2011) [70% for 2011].)

[468] Pass Agency Rules and Regulations for Water Service, Section 3.02.

Agency's approval of the amended Application for Service, delivery of the Pass Agency's Table A entitlement of 17,300 AFY will depend on DWR's construction of EBXII. No additional environmental review or other approvals are required.

The City will continue to fund all imported water supply purchases with the funds derived from the imposition of the City's connection fee on all new development, including the Project and water rates. Connection fees are currently required as per the City's Ordinance Nos. 1320 and 1321. The water connection fees are based upon the benefits and costs to provide services to projects, such as water transmission pipelines, reservoirs, wastewater treatment plants, and the City's purchase of imported water supplies.[469] This connection fee is currently imposed on new development by the City to pay for increased supplies and necessary infrastructure to meet demands for new development.[470] The Project, if approved, will be subject to the City's connection fees. In addition, the City will continue to fund imported water supply purchases from its water rates, which increased in October 2010.[471] The City's current water rate structure includes three-tiered commodity rates that apply to all customer classes and a monthly service charge based on meter size.[472] To support its water and wastewater rate increase, the City commissioned and relied on a 2010 Water And Wastewater Rate Study that considered the City's historical and future purchases of imported water from the Pass Agency and recommended that water rates be increased over a five-year period.[473] The 2010 Water And Wastewater Rate Study projected that the City would increase imported water purchases by 2015.[474] The City's rate increase, which is based on the Study's recommended five-year rate plan, allows it to purchase these additional imported water supplies.[475]

Table 6.3.7 summarizes the City's projected imported water supply purchases for the study period. Beginning in 2015, the City will purchase 2,656 AFY, on average, of imported water from the Pass Agency. For purposes of this WSA, the City conservatively assumes that only Table A entitlement will be available for purchase by the City. As Yuba Accord and other supplies are made available to the Pass Agency, the City may increase its purchases of imported water in any year.

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[469] Banning, Ordinance No. 1320, Banning Mun. Code, 13.08.050; see also, Banning, "Water Connection Fee," http://banning.ca.us/index.aspx?NID=193

[470] See Banning, "Water Connection Fee," http://banning.ca.us/index.aspx?NID=193

[471] Banning City Council Meeting Minutes (Oct. 12, 2010); City of Banning Ordinance No. 1428 (Oct. 2010); see also, City of Banning, Council Workshop, Water and Wastewater Rates Study, Faftelis Financial Consultants (June 22, 2010), p. 4.

[472] City of Banning, Council Workshop, Water and Wastewater Rates Study (June 22, 2010), p. 14.

[473] City of Banning, Council Workshop, Water and Wastewater Rates Study, Faftelis Financial Consultants (June 22, 2010), pp. 13–14; City of Banning Ordinance No. 1428 (Oct. 2010) (Attaches and relies on Water and Wastewater Rates Study.)

[474] City of Banning, Council Workshop, Water and Wastewater Rates Study, Faftelis Financial Consultants (June 22, 2010), p. 14.

[475] Banning City Council Meeting Minutes (Oct. 12, 2010); City of Banning Ordinance No. 1428 (Oct. 2010) (Options A and B were rejected because it would have required the City to reduce the amount of water purchased.); Water and Wastewater Rates Study, Faftelis Financial Consultants (June 22, 2010), pp. 13–14.

Table 6.3.7. City's Projected Average Annual Imported Water Purchases (AF)							
Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Table A	2,595	2,595	2,595	2,595	2,595	2,595	2,595
Yuba	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	2,595	2,595	2,595	2,595	2,595	2,595	2,595

6.4 Recycled Water

6.4.1 City's Non-Potable Water Demands

There is considerable potential for the use of recycled water use in the City. Presently, all City no-potable demands are served with potable water supplies. Therefore, the City's generation of recycled water supplies to serve non-potable demands will reduce the City's demand for potable supplies by an equivalent amount. The City plans to shift all non-potable demands — irrigation of golf courses, parks, medians and greenbelts — to recycled water to the extent feasible.[476]

Table 6.4.1A summarizes the City's projected non-potable water demands — for which recycled water can be supplied — through 2045, excluding the Project's non-potable water demands. The demand projections included in Table 6.4.1A assume that the City's population will grow as projected in Table 5.2.3 of this WSA.

A detailed depiction of the Project's gross non-potable demands are set forth in Table 4.5.1 above and summarized in Table 6.4.1.B below includes a slight adjustment down (10%) in non-potable demand for Project parks to account for anticipated conservation measures. All other aspects of the Project's estimated non-potable water demand in Tables 4.5.1 and 4.5.2 include minimum conservation measures factored in. The Project's non-potable demand is projected to be 953 AFY in 2015 and will increase to 1,321 in 2045. The Project's non-potable demand includes: the golf course, parks, school landscaping/fields, common open space, the South Channel Area, the North Basin Landscape Area, wildland fire protection fuel modification and slope areas, water tank landscaping and major street parkways and median landscaping.

[476] City of Banning, 2006 Recycled Water Master Plan, p. 6.

Table 6.4.1.A Project's Projected Net Non-Potable Water Demands (AFY)[477]							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Landscaping	107	220	256	302	412	458	476
Golf Course	845	845	845	845	845	845	845
Total	952	1,065	1,101	1,147	1,257	1,302	1,321

Table 6.4.1.B City's Total Projected Non-Potable Water Demand (AFY)							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Total	2,962	3,261	3,560	3,859	4,158	4,458	4,757

6.4.2 City's Recycled Water Supplies

6.4.2.1 City's Existing Recycled Supplies

The City's Main Wastewater Treatment Plant has the capacity to treat up to 3.6 mgd (4,035 AFY) of wastewater to secondary standards. Presently, the City treats approximately 2.5 mgd (2,800 AFY) of wastewater to secondary levels (i.e., not suitable for recycled use).[478] The treated wastewater is sent to the City's Cabazon recharge percolation pond where it is allowed to infiltrate into and recharge the Cabazon Basin.[479] Presently, the City does not produce tertiary treated recycled water supplies for direct non-potable use. All non-potable demands are served with potable water supplies.

6.4.2.2 City's Future Recycled Water Supplies

6.4.2.2.1 Main Treatment Plant, Phase I Upgrade

As the City's anticipated growth occurs (see Section 5.2.5 and Table 5.2.3) the City will make improvements to the Main Treatment Plant, both to expand its capacity to treat additional wastewater flows generated, as well as to upgrade to tertiary treatment a portion of the wastewater. The plant's headworks are designed to accommodate a future capacity of 7.8 mgd (8,743 AFY) as upgrades are made.[480] Recycled water may be used for direct use — i.e., irrigation of golf courses, commercial planting areas, greenbelts, parks, playgrounds and school yards. The City's recycled water goals are to: (1) produce high quality recycled water in a cost effective manner; (2) use the recycled water supplies for direct non-potable purposes to the greatest extent possible;

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[477] See Tables 4.5.1 and 4.5.2 of this WSA, except as noted above. The numbers in this table account for a 10% reduction in non-potable demand for the Project's parks as a result of conservation measures.
[478] City of Banning, 2006 Recycled Water Master Plan, p. 31.
[479] City of Banning, 2006 Recycled Water Master Plan, p. 31.
[480] City of Banning, 2006 Recycled Water Master Plan, p. 31.

and (3) recharge the local groundwater basins with surplus recycled water for recovery of potable water.[481]

By 2015, the City will complete construction of its Phase I Upgrade of the Main Treatment Plant (Phase I Upgrade). The Phase I Upgrade will increase the total capacity of the plant to 5.1 mgd (5,717 AFY) and convert the level of treatment from secondary to tertiary treatment for 1.5 mgd of wastewater flows into recycled water.[482] The City's Phase I Upgrade will produce an estimated 1,680 AFY of recycled water. (See Table 6.4.2.2.1 below (Tertiary Treated Recycled Water Produced).) The Phase I Upgrade project also includes construction of approximately five miles of recycled water pipeline that would connect the Main Treatment Plant with the Sun Lakes housing development to the west, and deliver tertiary treated recycled water directly to serve existing non-potable demands. The pipeline alignment would be primarily along existing roadways and within the City's right-of-way. The project also includes a pump station and a storage reservoir.

The City will continue to treat the remaining wastewater flows generated within the City to secondary standards and continue to percolate these secondary treated supplies into the Cabazon Basin at the City's Cabazon percolation ponds. (See Table 6.4.2.2.1 below (Secondary Treated Wastewater Produced).) In the event there is not sufficient demand for direct delivery of tertiary treated recycled water, the City may elect to store some or all of these supplies as well.

Table 6.4.2.2.1 shows the City's total projected wastewater flows for the study period, projected tertiary treated recycled water supplies resulting from the City's Phase I Upgrade project, and the quantity of secondary treated wastewater available for groundwater storage for the study period.

Table 6.4.2.2.1 City's Projected Recycled Water Supplies for Main Treatment Plant, Phase I Upgrade Only (AFY)

	2015	2020	2025	2030	2035	2040	2045
Total Projected City Wastewater Flows (With Project)	3,005	3,225	3,468	3,736	4,032	4,358	4,719
Tertiary Treated Recycled Water Produced	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Secondary Treated Wastewater Produced (see also Table 6.1.6.8)[483]	1,325	1,545	1,788	2,056	2,352	2,678	3,039

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481 City of Banning, Water Recycling Facility Near Sun Lakes Development, Feasibility Workshop (July 13, 2010), by Parsons Engineering (2010 Parsons Feasibility Workshop).

482 City of Banning, An Approach for Recycled Water Use Optimization, Westward Water Recycling Facility (October 25, 2010), by Parsons Engineering.

483 "Secondary Treated Wastewater Produced" = Total Projected City Wastewater Flows based on average per capita wastewater generation per City records (84.6 gallon per day per capita) over last six

6.4.2.2.1.1 Project-Specific Facilities

In the event the City elects to provide tertiary treated recycled water supplies to the Project for direct non-potable use, the City would be required to extend the recycled water line included in the Phase I Upgrade (discussed above) to the Project. This feed line would head north up Sunset Avenue, under the I-10 freeway, up to Wilson Street, and then west in Wilson to the Project site (Extended Recycled Water Pipeline). The Extended Recycled Water Pipeline is not part of the Phase I Upgrade project, but is shown and described in the City's 2006 Recycled Water Master Plan. It would allow the City to direct recycled water supplies from the Main Treatment Plant to the Project to serve the Project's non-potable demands, in whole or in part.

6.4.2.2.1.2 Environmental Review, Funding and Permitting

The City has completed environmental review for the Phase I Upgrade. On May 27, 2008, the City Council adopted the Initial Study/Mitigation Negative Declaration-Wastewater Treatment Plant Expansion and Phase I Recycled Water System with a Mitigation Monitoring and Reporting Program.[484]

Several agencies have jurisdiction over reclamation[485] projects and the discharge of recycled water, including the SWRCB, local Regional Water Quality Control Boards (Regional Boards) and the California Department of Public Health (CDPH). Recycled water that is used for groundwater recharge of domestic water supply aquifers by surface spreading "shall be at all times of a quality that fully protects public health."[486] Instead of setting a specific criterion, the CDPH recommends to the Regional Boards that proposed groundwater recharge reuse projects be made on a case-by-case basis.[487]

To use recycled water generated by the Phase I Upgrade, the City must file a Report of Waste Discharge with the Regional Board.[488] Each Regional Board prescribes waste discharge requirements for proposed uses of recycled water which relate to the conditions in the use area.[489] The requirements implement relevant water quality

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years (2005-2010) multiplied by the projected population per Table 5.2.3, adjusted for anticipated future water use conservation (-) the Tertiary Treated Recycled Water Produced (1,680 AFY).

[484] City of Banning, Water/Wastewater Utilities Department, Initial Study/Mitigation Negative Declaration, Wastewater Treatment Plant Expansion and Phase I Recycled Water System (May 2008); Banning City Council Resolution 2008-050, Adopting the Initial Study/Mitigation Negative Declaration-Wastewater Treatment Plant Expansion and Phase I Recycled Water System with a Mitigation Monitoring and Reporting Program (May 27, 2008).

[485] Recycled water and reclaimed water have the same meaning.

[486] Cal. Code Regs. tit. 22 § 60320.

[487] Cal. Code Regs. tit. 22 § 60320.

[488] Cal. Water Code § 13522.5.

[489] Cal. Water Code § 13260.

control plans, take into consideration beneficial uses to be protected, and establish water quality objectives reasonably required for that purpose.[490] Waste Discharge Requirements (WDRs) are issued by the Regional Board in conjunction with water recycling requirements. WDRs condition a waste discharger's use — specifically, when, where, and how the recycled water is to be used.

The Cabazon Basin is within the jurisdiction of the Colorado Regional Water Quality Control Board (Region 7).[491] Region 7 encourages wastewater reclamation and reuse is encouraged.[492] The Region 7 Basin Plan provides that, "Waste Discharge Requirements would be necessary where potential public and worker contact is high and where reclaimed water is used in large amounts."[493] Region 7 has no specific water quality objectives for the San Gorgonio Hydrologic Subunit (includes the Cabazon Basin and Banning Basins, but not the Beaumont Basin) that would limit the recharge of secondary or tertiary treated effluent to the basins.[494]

Currently, the City has a Regional Board WDR Order that allows it to discharge 2.3 mgd (or 2578 AFY) of secondary treated water into 10 infiltration basins overlying the Cabazon Basin.[495] The WDR Order requires the City to comply with certain effluent limitations and to monitor effluent and sample groundwater.[496] The City submits monitoring reports to the Regional Board on a monthly, quarterly and annual basis.[497] If the City plans to change the quality or increase the quantity of wastewater treated and discharged to Cabazon Basin, it must report this information to the Regional Board and obtain revised requirements before any modifications are implemented.[498]

The City's direct use of recycled water will likely be considered significant and require WDRs. The City is in the process of obtaining its Regional Board permits and has

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490 Cal. Water Code § 13260.

491 DWR, Bulletin 118 (Cabazon Basin is a subbasin of the San Gorgonio Pass Subbasin), http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/7-21.04.pdf

492 Colorado River Basin Regional Water Quality Control Board (Region 7) Basin Plan, § II-D.

493 Colorado River Basin Regional Water Quality Control Board (Region 7) Basin Plan, § II-D..

494 See Colorado River Basin Regional Water Quality Control Board (Region 7) Basin Plan.

495 Colorado River Basin Regional Water Quality Control Board Order No. 01-022, "Waste Discharge Requirements for City of Banning, Operator of Banning Wastewater Treatment Plant, Banning, Riverside County", May 9, 2011.

496 Colorado River Basin Regional Water Quality Control Board Order No. 01-022, "Waste Discharge Requirements for City of Banning, Operator of Banning Wastewater Treatment Plant, Banning, Riverside County", May 9, 2011, pp. 3-8.

497 Colorado River Basin Regional Water Quality Control Board Monitoring and Reporting Program No. 01-022, for City of Banning, Operator of Banning Wastewater Treatment Plant, Banning, Riverside County, May 9, 2011.

498 Colorado River Basin Regional Water Quality Control Board Order No. 01-022, "Waste Discharge Requirements for City of Banning, Operator of Banning Wastewater Treatment Plant, Banning, Riverside County", May 9, 2011, p. 4 (§ D(4).)

submitted Wastewater Discharge and Water Quality Reports to the Regional Board to allow it to directly use tertiary treated recycled water in its service area.[499]

The Phase 1 Upgrade will treat 1.5 mgd of wastewater flows to Title 22 tertiary standards. The CDPH has enacted uniform criteria for recycled water based on the use of the water. For example, recycled water that is used for surface irrigation of parks and playgrounds, residential landscaping and unrestricted access golf courses must be treated to a tertiary level.[500] The City's Title 22 Engineering Report has been approved by the CDPH.[501] The City has submitted its application for a permit to operate and construct the plant to the South Coast Air Quality Management District.[502] The City does not anticipate obstacles in securing these remaining approvals for the Phase I Upgrade.

The cost of the Phase I Upgrade is estimated to be $35.5 million[503] and is included in the City's Capital Improvement Plan.[504] The City increased its water and sewer rates in September 2010 to finance the recycled water system.[505] Additionally, the City has applied for a State Revolving Fund (SRF) loan to the SWRCB to help finance the upgrade.[506]

The SRF Loan Program is partially funded by the USEPA and subject to federal environmental regulations. Additional environmental analyses are associated with the SRF loan application process for the Phase I Upgrade, including: compliance with the Endangered Species Act; General Conformity Rule of the Clean Air Act; National Historic Preservation Act; Sections 401 and 404 of the Clean Water Act (Wetland Protection); Coastal Zone Management Act; Farmland Protection Policy Act; Floodplain Management; and, Wild and Scenic Rivers Act.[507] The USEPA uses an applicant's CEQA compliance document as the compliance base for California's SRF Loan

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499 Second Amendment to Agreement for Consultant Services Between the City of Banning and Parsons Water & Infrastructure, Inc. (June 10, 2008).

500 Cal. Code Regs. tit. 22 § 60304; Cal. Water Code § 13521.

501 City of Banning, Revised Title 22 Engineering Report for the City of Banning 1.5 MGD Reclamation Facility Expansion, (August 12, 2009); California Department of Public Health, Approval of Revised Title 22 Engineering Report for the City of Banning 1.5 MGD Reclamation Facility Expansion (Aug. 31, 2009).

502 City of Banning, Initial Study/Mitigated Negative Declaration, Wastewater Treatment Plant Expansion and Phase I Recycled Water System (May 2008), p. 16.

503 2010 Parsons Feasibility Workshop.

504 City of Banning, Water/Wastewater Utilities Department, Initial Study/Mitigation Negative Declaration, Wastewater Treatment Plant Expansion and Phase I Recycled Water System (May 2008); Banning City Council Resolution 2008-050, Adopting the Initial Study/Mitigation Negative Declaration-Wastewater Treatment Plant Expansion and Phase I Recycled Water System with a Mitigation Monitoring and Reporting Program (May 27, 2008).

505 Banning City Council Meeting Minutes (Oct. 12, 2010); City of Banning Ordinance No. 1428 (Oct. 2010); see also, City of Banning, Council Workshop, Water and Wastewater Rates Study (June 22, 2010), p. 4.

506 Second Amendment to Agreement for Consultant Services Between the City of Banning and Parsons Water & Infrastructure, Inc. (June 10, 2008).

507 Draft 2010 UWMP, pp 64-65.

Program (commonly referred to as "CEQA-Plus").[508] The State Water Resources Control Board, Division of Financial Assistance, is a Responsible Agency that will act on behalf of the USEPA to review and consider the CEQA-Plus document before approving the project's funding. The Board will make a determination as to the adequacy of the CEQA document and seek concurrence from federal agencies on compliance with federal regulations.[509] The CEQA document is also transmitted to the State Clearinghouse for State agency review as well. The City is currently in the process of undertaking these additional required environmental analyses that are part of the CEQA-Plus process.[510]

Design plans for the Phase I Upgrade are complete, but construction has not yet begun. The City anticipates that the Phase I Upgrade will be completed and operational by 2015 and will be produce up to 1,680 AFY of tertiary-treated recycled water.[511]

Environmental review of the Project-specific facilities — i.e., the Extended Recycled Water Pipeline — is undertaken in the Project's EIR. Construction of the Extended Recycled Water Pipeline would require street encroachment permits from the City of Banning because the pipeline would be located in city streets. The Extended Recycled Water Pipeline would be constructed as part of the Project and funded by the Project Proponent in lieu of the payment of Citywide Sewer Facilities fees, Domestic Water Fees and in the event the fee is adopted, recycled water fees.

6.4.2.2.2 Satellite Treatment Plant

As an alternative to the Phase I Upgrade, the City may construct a satellite wastewater treatment plant in a location separate from the Main Treatment Plant to serve existing or proposed non-potable uses in the western portion of the City. One possible location for the satellite treatment plant is the Project site itself and therefore is described in the Project EIR (Butterfield Satellite Plant).

The Butterfield Satellite Plant's membrane bioreactor process would have the capacity to treat approximately 1,592 AFY of wastewater and to produce 1,194 AFY of tertiary treated recycled water, based on the availability of wastewater flows from the Project alone (see discussion below in Section 6.4.2.2.2.1). All recycled water produced by the Butterfield Satellite Plant could be used on the Project site to serve the Project's non-potable demands. Recycled water would be stored in on-site storage facilities to be used directly for irrigation purposes.

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[508] State Water Resources Control Board, "SRF & CEQA-Plus, Environmental Review for State Revolving Fund (SRF) Loan Applicants" (2005).

[509] State Water Resources Control Board, "SRF & CEQA-Plus, Environmental Review for State Revolving Fund (SRF) Loan Applicants" (2005).

[510] See Draft 2010 UWMP, p. 65.

[511] City of Banning, Water/Wastewater Utilities Department, Initial Study/Mitigation Negative Declaration, Wastewater Treatment Plant Expansion and Phase I Recycled Water System (May 2008); Banning City Council Resolution 2008-050, Adopting the Initial Study/Mitigation Negative Declaration-Wastewater Treatment Plant Expansion and Phase I Recycled Water System with a Mitigation Monitoring and Reporting Program (May 27, 2008).

6.4.2.2.2.1 Project-Specific Facilities

At buildout, the Project alone will produce 902 AFY of direct wastewater flows.[512] Therefore, additional wastewater flows would be needed to produce sufficient recycled water to serve the Project's 1,321 AFY of non-potable demand. In the event the City elects to construct the Butterfield Satellite Plant, additionally, the City may direct approximately 650 AFY of existing wastewater flows from areas surrounding the Project — south of the Project, north of the I-10 Freeway, and potentially in a limited area to the east of the Project — to the Butterfield Satellite Plant to supplement wastewater flows generated by the Project itself.

The Project includes construction of a sewer lift station to be located at the corner of Ramsey Street and Omar Street to bring offsite wastewater flows to the Satellite Treat Plant and new off-site force main sewers within Omar and Wilson Streets or within Ramsey Street and Highland Home Road to transport diverted wastewater flows to the Butterfield Satellite Plant (collectively, "Wastewater Capture Facilities"). During the initial phases of Project construction, these additional wastewater flows would provide essential flows necessary to commence the Butterfield Satellite Plant's operation and to generate recycled water to serve non-potable Project demands (i.e., landscape and the golf course).

Table 6.4.2.2.2.1.A summarizes the quantity of wastewater that the Project would produce; the quantity of wastewater flows that could be diverted to the Project from existing sources via the Wastewater Capture Facilities, and the total quantity of recycled water that could be developed on the Project site with construction of the Butterfield Satellite Plant.

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[512] Project wastewater generation is based on 139.3 gpd per Project residential unit (5,387 max. units) and 101 AFY of total wastewater generation from the Project's non-residential uses (commercial, schools, club houses, recreation centers). The Project's projected wastewater flows are based on net demand – e.g., after-residential indoor conservation measures projected for the Project have been applied.

Table 6.4.2.2.2.1.A Projected Tertiary Treated Recycled Water Supply from Butterfield Satellite Plant (AFY)							
Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Project Wastewater Flows[513]	84	285	426	566	707	849	942
(+) Wastewater Flows from Proposed City Capture Facilities (at Ramsey and Omar Streets [514]	650	650	650	650	650	650	650
(=) Total Wastewater Flows Available to Satellite Plant[515]	734	935	1,076	1,216	1,357	1,499	1,592
Total Projected Recycled Supply	551	701	807	912	1,018	1,124	1,194

In the event the City constructs the Butterfield Satellite Plant and redirects 650 AFY of existing wastewater flows to the Project, the Project's non-potable water demands (1,321 AFY) could be partially met by onsite recycled water generation. Throughout the Project's buildout and beyond, based on these estimates and assumptions, the Butterfield Satellite Plant's supplies, alone, would not be sufficient to serve 100% of the Project's non-potable demands. In the event the City does not make additional recycled water available to the Project — for example, by delivery of tertiary treated recycled water from the Main Treatment Plant via the Extended Recycled Water Pipeline — potable water will be used to serve the remaining non-potable demands.

Table 6.4.2.2.2.1B Comparison of Butterfield Satellite Plant's Projected Tertiary Treated Recycled Water Supply and Project's Non-Potable Demand							
Year	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Butterfield Satellite Plant Supply	551	701	807	912	1,018	1,124	1,194
Project Non-Potable Demand	952	1,065	1,101	1,147	1,257	1,303	1,321
Difference (to be Served by Main Treatment Plant via Extended Recycled Pipeline or Potable Supply)	-401	-364	-294	-235	-239	179	-127

513 In the event the Butterfield Satellite Plant is not constructed, 100 percent of these flows would be sent to the City's Main Plant via a sewer line, described in the Project's EIR. In the event the Butterfield Satellite Plant is constructed, the plant would convert approximately 75 percent of all wastewater flows into recycled water. The remaining 25 percent would continue in a proposed Project off-site sewer line to a point where it would bypass the Wastewater Capture Facilities and then be put into existing sewer lines to flow to the Main Treatment Plant.

514 The City's existing wastewater flows at the meter location north of the I-10 Freeway, near Ramsey and Omar Streets, are approximately 650 AFY. This point collects wastewater flows from existing development in the far western portion of the city, north of the freeway and south of the Project area.

515 The Butterfield Satellite Plant could have the capacity to treat up to 2,240 AFY (2.0 mgd) of wastewater, thereby increasing the quantity of recycled water produced to 1,680 AFY (75% of 2,240 AFY). In the event the City elects to divert additional non-Project wastewater flows to the plant (e.g., in excess of the 650 AFY of wastewater flows described in this section), additional recycled water supplies could be generated.

6.4.2.2.2.2 Environmental Review, Permitting and Funding

Environmental review of the Project-specific recycled water facilities, namely, the Butterfield Satellite Plant, the Extended Recycled Water Pipeline, and the Wastewater Capture Facilities, is undertaken in the Project's EIR.

The City will own and operate all recycled water facilities. If the Butterfield Satellite Plant or Extended Recycled Water Pipeline are constructed, they will be constructed by the City and funded by sewer fees generated from projected growth within the City. The Butterfield Satellite Plant is estimated to cost $15 million and the Extended Recycled Water Pipeline is estimated to cost $1.75 million. In the event the Butterfield Satellite Plant is constructed, the Wastewater Capture Facilities will be constructed as part of the Project and funded by the Project Proponent in lieu of the payment of Citywide Sewer Facilities fees, Domestic Water Fees and in the event the fee is adopted, recycled water fees.

The Butterfield Satellite Plant would be within the jurisdiction of the Regional Board, Region 8. To use recycled water, the City must file a Report of Waste Discharge with the Regional Board.[516] Each Regional Board prescribes waste discharge requirements for proposed uses of recycled water which relate to the conditions in the use area.[517] The requirements implement relevant water quality control plans, take into consideration beneficial uses to be protected, and establish water quality objectives reasonably required for that purpose.[518]

The Region 8 Santa Ana Basin Plan was most recently updated in February 2008.[519] The Basin Plan designates beneficial uses, narrative and numerical water quality objectives, and prohibits certain types of discharges. Region 8 has adopted the Policy and Action Plan for Water Reclamation (Resolution No. 77-1). The Reclamation policy recognizes the present and future need for increased amounts of water in California primarily to support growth. This policy commits both the SWRCB and Regional Boards to support reclamation in general and reclamation projects which are consistent with sound principles and demonstrated needs.[520]

The Region 8 Basin Plan establishes recycled water as a beneficial use to be promoted, but requires compliance with detailed waste discharge requirements, including for chlorine, total dissolved solids and oxygen, pH, sulfides, and turbidity, among others.[521] Furthermore, Water Code Section 13243 provides that a Regional Board, in waste

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[516] Cal. Water Code § 13522.5.
[517] Cal. Water Code § 13260.
[518] Cal. Water Code § 13260.
[519] Santa Ana Regional Water Quality Control Board (Region 8), "Notes About the February 2008 Basin Plan Update (Feb. 2008).
[520] Santa Ana Regional Water Quality Control Board (Region 8), Basin Plan, Ch. 2, "Plans and Policies."
[521] Santa Ana Regional Water Quality Control Board (Region 8), Basin Plan, Ch. 4, "Water Quality Objectives"; see also, Order No. R8-2010-0008, Amending Order No. R8-2009-0021, NPDES No. CA 8000409 Waste Discharge and Producer/User Reclamation Requirements et al.

discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, is not permitted. An applicant must apply for an individual order setting waste discharge requirements (WDRs). The steps to obtain an individual order setting WDRs are as follows:

1. File the Report of Waste Discharge form with the necessary supplemental information with the Regional Board at least 120 days before beginning to discharge waste.

2. Regional Board staff reviews the application for completeness and may request additional information.

3. Once the application is complete, staff determines whether to propose adoption of the WDRs, prohibit the discharge, or waive the WDRs.

4. If WDRs are proposed, staff prepares draft WDRs and distributes them to persons and public agencies with known interest in the project for a minimum 30 day comment period. Staff may modify the proposed WDRs based upon comments received from the discharger and interested parties.

5. The Regional Board holds a public hearing with at least a 30 day public notification. If WDRs are uncontested, the notice requirement is only 10 days. The Regional Board may adopt the proposed WDRs or modify and adopt them at the public hearing by majority vote. The entire process for developing and adopting the requirements normally takes about three months.[522]

The City may be restricted from using recycled water that exceeds water quality objectives for Total Dissolved Solids (TDS) and nitrogen. Many permittees location within Region 8, such as the Inland Empire Utilities Agency (IEUA) decided to install reverse-osmosis to remove excess TDS and nitrogen from recycled water supplies. On January 22, 2004, Region 8 adopted Basin Plan Amendment (Resolution No. R8-2004-0001). The Amendment updated the groundwater basin boundaries, and water quality objectives of total dissolved solids (TDS) and nitrogen (N). The updated Basin Plan also incorporated a revised salt and nitrogen management plan, which included revised nitrogen and TDS waste load allocations for discharges to the Santa Ana River and its tributaries, revised findings regarding assimilative capacity in ground water, and a plan for wastewater reclamation in the Region.

The Basin Plan Amendment includes a salt and nutrient management plan for this region and a requirement that a permittee implement a salinity management program including the regulation of new and existing residential self-regenerating water softeners to the extent allowed by law. The salt and nutrient management plan was based on

[522] Santa Ana Regional Water Quality Control Board (Region 8), "Do I Need a Permit? How Do I Get Started?" (2011).

evidence in the record demonstrating that managing salinity inputs in this manner would ensure attainment of water quality objectives and protection of beneficial uses.[523]

To accommodate the reclamation projects in the Region, alternative water quality objectives, "Maximum Benefit" objectives were established in some groundwater basins. In return, the series of commitments of salt removals or mitigation and monitoring programs to ensure that the beneficial uses of the groundwater basins are protected are being undertaken by the participants.[524]

The City has recently enrolled in the Maximum Benefits Program in the Beaumont Management Zone (BMZ).[525] As a participant in the BMZ program the City will be allowed to discharge recycled water of higher TDS (up to 480 mg/L) with the commitment to participate in actions to reduce the TDS concentrations or through a TDS offset using its allocation of imported water.[526] As part of the Maximum Benefits Program, the Regional Board has required BCVWD, the City of Beaumont and YVWD to develop TDS and nitrate-nitrogen concentration projections for the Beaumont Management Zone.[527] The City also participated in this study in anticipation of its use of recycled water within the BMZ. Because the maximum benefit objectives incorporated into the Basin Plan were based on model projections, the Regional Board requires that each new use be evaluated prior to issuing permits for additional recycled water uses and that the Basin Plan be amended to include an updated maximum benefit implementation plan.[528]

On April 29, 2011, the City along with the other participating agencies submitted to the Santa Ana Regional Water Quality Control Board (SARWQCB) an anti-degradation analysis in a draft report entitled "Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone."[529] The report provides projections of TDS and Nitrate-Nitrogen from recycled water use by the agencies from 2010 through 2040 under various scenarios intended to keep the TDS within the BMZ to the Maximum Benefit objective of 330 mg/L.[530] The City will use recycled water for landscape irrigation within the BMZ. The City actively monitors the water quality of

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[523] Order No. R8-2010-0008, Amending Order No. R8-2009-0021, NPDES No. CA 8000409 Waste Discharge and Producer/User Reclamation Requirements et al.

[524] Santa Ana Regional Water Quality Control Board (Region 8), *Santa Ana Region Ground Water Salt Management Plan*.

[525] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011, pp. 1, 3, 5–6; *see* Draft 2010 UWMP, pp. 7, 63-64.

[526] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011; *see* Draft 2010 UWMP, pp. 63-64.

[527] On September 13, 2010, the Regional Board issued an Order requiring that the BCVWD, the City of Beaumont and YVWD prepare an antidegradation analysis ("Order").

[528] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011.

[529] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011.

[530] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011, pp. 1–5.

effluent discharges to the percolation ponds at its WWTP and will continue to do so when the tertiary supply comes on line.[531] Based on the scenarios provided in the above referenced report, offset of TDS from the deep percolation of City applied recycled water, can be accomplished by recharge of 1,116 AFY of imported water. The City has historically purchased and recharged, through its normal water supply operations, more water than is needed to offset the future impact of the application of recycled water into the BMZ. (See Table 6.3.4B.) The City is currently participating in preparation and submittal of the Maximum Benefits commitments for submittal to the SARWQCB. After review and approval, the maximum benefits commitments will become a part of the new Basin Plan Amendment.[532]

6.4.3 Comparison of Projected Non-Potable Supply and Demand

Presently, all of the City's non-potable water demands — approximately 2,664 AFY — are served with potable water supplies. The City intends to produce a significant new supply of recycled water in the near future, whether by construction of the proposed Phase I Upgrade, or a satellite treatment facility in an alternate location, either of which would reduce the City's potable water demands by an equivalent amount.

Table 6.4.3 compares the City's projected tertiary treated recycled water supplies and the City's total non-potable water demands, including the Project. As Table 6.4.3 demonstrates, with completion of the Phase I Upgrade of the City's Main Treatment Plant in 2015, the City will have an additional 1,680 AFY of supply to serve the City's non-potable demands directly, thereby reducing the City's demand for potable supplies by an equivalent amount.

In the event the City elects to construct the Butterfield Satellite Plant, as an alternative to the Phase I Upgrade, the City would generate approximately 1,194 AFY by 2045 to serve non-potable demands. As noted above, the Butterfield Satellite Plant could produce up to 1,680 AFY if sufficient wastewater supplies are made available to it. The City's tertiary treated recycled water supplies, whether produced at the City's Main Treatment Plant after the City's Phase I Upgrade or at the Butterfield Satellite Treatment Plant, may be delivered directly for use on golf courses and other landscape through pipelines constructed as part of the Phase I Upgrade and construction of the Extended Recycled Water Pipeline, and pipelines constructed within the Project.

Under either scenario — Phase I Upgrade or Butterfield Satellite Plant — the City will continue to percolate all secondary treated supplies, and any unused tertiary treated supplies, in its percolation ponds overlying the Cabazon Basin. The Phase I Upgrade would make available additional secondary treated supplies over the course of the study period. As shown in Table 6.4.2.2.1 above, the Phase I Upgrade would generate as much as 3,039 AFY in secondary treated wastewater flows by 2045, which then may be percolated into the Cabazon Basin for later recapture as a potable water supply.

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[531] *See* Draft 2010 UWMP, pp. 63-64.

[532] Wildermuth Environmental Inc., Total Dissolved Solids and Nitrate-Nitrogen Projections for the Beaumont Management Zone, April 29, 2011, Table G7b.

If the City grows, as projected in this WSA, the City's generation of wastewater will grow accordingly. The City's Phase I Upgrade, nor the alternative Butterfield Satellite Treatment Plant, would be sufficient to treat all wastewater flows produced. As such, additional expansion(s) of the City's wastewater treatment facilities will be required. California law requires cities to provide adequate and safe sewer/wastewater treatment services to their inhabitants.

Table 6.4.3 Comparison of City's Total Projected Tertiary Treated Recycled Water Supplies and Non-Potable Demands (AFY)

Year	2015	2020	2025	2030	2035	2040	2045
Main Treatment Plant, Phase I Upgrade Only							
Direct Use Recycled Water Supply	1,680	1,680	1,680	1,680	1,680	1,680	1,680
(-) Total Non-Potable Demand	2,962	3,261	3,560	3,859	4,158	4,458	4,757
Difference	-1,282	-1,581	-1,880	-2,179	-2,478	-2,778	-3,077
Alternative Butterfield Satellite Plant							
Direct Use Recycled Water Supply	551	701	807	912	1,018	1,124	1,194
(-) Total Non-Potable Demand	2,962	3,261	3,560	3,859	4,158	4,458	4,757
Difference	-2,411	-2,560	-2,753	-2,947	-3,140	-3,334	-3,563

6.4.4 Reliability Assessment for Recycled Water Supply

The City's Phase I Upgrade is an approved project with a certified EIR. The City has committed funding for the project and anticipates receipt of all required approvals, described above, and completion of construction by 2015. The Phase I Upgrade will yield 1,680 AFY of tertiary treated recycled water for direct non-potable uses. The Main Treatment Plant will continue to generate secondary treated wastewater flows that the City may percolate into the Cabazon Basin for storage and later extraction.

Although total wastewater flows may be reduced very slightly in a dry year, recycled water is essentially 100 percent reliable during drought events. This is because wastewater flows are primarily generated from indoor water uses which are not reduced significantly during drought conditions. Therefore, it is anticipated that the City should be able to continue to produce and deliver the projected tertiary treated recycled water supply, as described in this WSA, in the future under all hydrologic conditions.

The reliability of the City's recycled water supply is enhanced by the fact that the City has the ability to percolate secondary treated wastewater flow in the Cabazon Basin, and to store and later extract those flows to serve potable water demands throughout the City.

6.5 Water Shortage Emergency Planning[533]

Sections 6.1 – 6.4 of this WSA assess the reliability of each of the City's individual water supplies (groundwater, surface water, imported water and recycled water) during normal, single dry and multiple dry water years. Taken together, the City's diversified portfolio of water supplies and conjunctive management of groundwater and surface (imported) water increases the overall reliability of the City's water supplies during times of water shortage.

Additionally, the City has an extensive set of contingency plans to prepare for and address water shortage emergencies.

1. The City's 24 water production wells are located throughout the service area are fully integrated, which provides the City with the ability to draw on one or more groundwater supplies to supply water in different portions of the City during emergencies. The City's total reliable well capacity in the Beaumont, Banning, Banning Bench and Banning Canyon Basins exceeds the City's projected pumping from each of these basins. This surplus capacity permits the City to increase pumping from any of these basins if another supply becomes temporarily unavailable.

2. The City produces groundwater supplies at a level that meets the City's water demand. However, in single-dry and multiple-dry years, the City can increase production from each of its groundwater supplies to ensure an adequate water supply for its customers. These basins can be operated above their maximum perennial yields during dry years by pumping groundwater from storage. The vast amount of groundwater in storage within the City's area, not including the Beaumont Basin — estimated to be between 1.1 – 1.3 million AF[534] — provides a temporary, but reliable safety margin for the City in the event of a water shortage emergency — such as an earthquake or other catastrophe that interrupts the delivery of imported water to the region.

3. The City has an approved Stored Water account of 80,000 AF in the Beaumont Basin. To date, the City has more than 25,000 AF in storage — approximately 3 years of supply to meet 2010 demands. The City's Stored Water account balance has continued to increase annually since 2004 as the City has banked imported water supplies and unused Beaumont Basin Production rights. The City intends to manage its groundwater production from the Beaumont Basin to maximize the quantity of water in storage and anticipates having at least 80,000 AF in storage by 2040 — more than 5 times the City's projected demands.

4. The City has a 12" emergency inter-tie connection with BCVWD at the western boundary of the service area located at the intersection of Highland Springs Avenue and Sun Lakes Blvd. Many of the City's wells (1, 3, 4, 5, 8, 9, 20, C-2

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533 *See also* Draft 2010 UWMP, pp. 67, 81-89.
534 2011 Geoscience Report, p. 46.

and M-12) have emergency power sources to continue to operate under a power failure. In its Water System Hydraulic Modeling Report (2002), the City's peak water demand was estimated to be 2.24 times the average daily demand, and the City's current emergency water supply will meet its peak water demand on a temporary basis.

5. The City's Water Shortage Contingency Plan (WSCP)[535] sets mandatory conservation for certain water level emergencies. The WSCP outlines a plan of action in the event of a water shortage caused by loss of electrical power, an earthquake, pipeline breakage, or any other potential water shortage caused by a disaster or facility failure that results in the City's inability to meet the water demands of its customers.[536] The plan includes four stages of action, including a rationing plan to achieve reduction goals at each progressive stage of a dramatic water shortage.[537] As enforcement, the City has enacted a series of penalties under City Ordinance 1040, which make violation of any mandatory restriction or conservation requirement either a civil or criminal penalty, depending on a variety of factors.

6. The City also has an Emergency Response Plan, as required by the California Department of Health Services, and has a Security Vulnerability Assessment Report, as required by the Federal EPA. The guidelines of both of these items are presently being followed by the City's Water Utility Department.

7. In the case of a disaster such as an earthquake, the City has its own field crews, equipment, and other materials to make immediate responses and repairs to the water system. Stand-by crews are on call at all times. During all stages of a water shortage, the Water Operations Superintendent monitors supply and demand on a daily basis to determine the level of conservation required.

All of these measures and plans ensure that the City will be able to serve existing and planned future uses, including the Project, in a water shortage emergency.

6.6 The Impact of Climate Change on Water Supplies

Climate change is a global-scale issue. The Intergovernmental Panel on Climate Change (IPCC) defines climate change as:

> a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external

[535] City of Banning Ordinance No. 1040, Banning, Cal. Mun. Code ch. 13.16.020.
[536] Banning, Cal. Mun. Code ch. 13.16.020.
[537] Banning, Cal. Mun. Code ch. 13.16.020.

forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.

A variety of studies indicate that California water supplies have been and will continue to be impacted by climate change. As a result, climate change should be considered in estimating future water demands and evaluating potential water supplies for the region. For surface water sources of supply, climate change can shift the timing of streamflow and alter the way water supply reservoirs are managed (i.e., filling and release). In contrast, climate change impacts on groundwater sources of supply are currently largely unknown due to the high degree of variability of aquifers and site-specific effects, such as surface-groundwater interactions, pumping and rates of recharge.

In order to assess uncertainties in the water supplies relied on by the City, this WSA includes a review of the most recent reports that address the potential effects of climate change on the Delta drainage area and southern California. It also summarizes recommendations offered by state agencies, policy groups and non-governmental organizations, and compares them to the City's existing programs and policies. For a summary of the specific reports reviewing climate change impacts on water resources as a whole, see Appendix J.

Recent climate change reports recognize that impacts on water resources largely depend on the degree of warming and note variations regarding the impact of climate change on local and regional climates. Although climate change impacts are uncertain and cannot be precisely modeled, existing evidence, including the effects of warming in the West over the last century, demonstrate that climate change will likely affect future snowpack accumulation, water supply, runoff patterns, sea level, incidents of flooding and droughts, evapotranspiration rates, water requirements and water temperature. Water supplies in the West will be directly affected by temperature changes, precipitation, humidity and wind speed. Current literature suggests that global warming is likely to significantly affect the hydrologic cycle, changing California's precipitation pattern and amount from that shown by the historical record. In fact, there is evidence that some changes have already occurred, such as Sierra snowmelt starting earlier, more runoff shifting from the spring to the winter, and an increase in winter flooding frequency. These changes would further stress the reliability of existing flood management and water supply systems, such as the SWP.

There is a great deal of uncertainty surrounding temperature rise predictions and the resulting impacts on local and regional climates due to difficulty in predicting future greenhouse gas emissions and the resulting feedback processes in the climate system and hydrological cycle. The authors of all these recent climate change reports recognize that impacts on water resources largely depend on the degree of warming, and concede that there are significant uncertainties regarding the impact of climate change on local and regional climates. While it is difficult to precisely quantify the impacts of climate change on water supplies in the western states, let alone the City's service area,[538] climate change will likely affect water supplies in the West. Accordingly, climate change is considered by state agencies in evaluating potential water supplies and is incorporated into local and statewide water supply management plans.

6.6.1 Climate Change Impacts on the City's Imported Water Supply

DWR is at the forefront of climate change in California and to date has conducted the most comprehensive study of the impacts of climate change on the SWP. The 2009 Reliability Report on the current and future for SWP water supply conditions shows the continuing erosion of the ability of the SWP to deliver water. For current conditions, the dominant factor for these reductions is the restrictive operational requirements contained in the federal biological opinions permitting operation of the project.[539] For future conditions, it is these regulatory requirements and the forecasted effects of climate change that are projected to affect the reliability of SWP water.

As stated in Section 6.3 above, the 2009 Reliability Report specifically addressed the potential effects of climate change upon SWP supplies.[540] For the 2009 studies, changes in runoff patterns and amounts are included with a potential rise in sea level. Sea level rise has the potential to require more water to be released to repel salinity from entering the Delta in order to meet the water quality objectives established for the Delta.[541] The effect of these operational restrictions, in addition to the incorporation of potential climate changes impacts, amounts to an estimated reduction of 970 TAF when the median value for annual SWP deliveries for future conditions in the 2005 report (3,570 TAF) is compared to the updated value in the 2009 Report (2,600 TAF).[542]

In the 2009 DWR Report, *Using Future Climate Projections to Support Water Resources Decision Making in California*, possible climate change effects to SWP and Central Valley Project (CVP) operations were assessed using 12 future climate projections at mid-century and end-of-century.[543] The range of results for the 12 projections is detailed throughout that report. Uncertainties in the results increase as the projections move further into the future. These studies assumed that no changes were made to the existing SWP and CVP infrastructure in the future.

In the 2009 climate change assessment, a three-step streamflow adjustment method was used to estimate inflows to major SWP and CVP reservoirs. An 82-year sequence of reservoir inflows that reflects a wide range of hydrologic variability was determined for

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[538] This approach to analyzing climate change has been approved by the Los Angeles County Superior Court in a recent case that addressed the sufficiency of a water supply assessment in an environmental impact report. (*See Santa Clarita Oak Conservancy, California Oak Foundation, and Santa Clarita Organization for Planning the Environment v. City of Santa Clarita, Statement of Decision*, Case No. BS084677 (Los Angeles Sup. Ct. August 15, 2007).)

[539] An update regarding litigation over these biological opinions is provided in Appendix B.

[540] *See* 2009 SWP Reliability Report, p. iii.

[541] 2009 SWP Reliability Report, p. iii.

[542] 2009 SWP Reliability Report, p. iii.

[543] 2009 SWP Reliability Report, p. 8.

each of the 12 climate projections for both the mid-century and end-of-century analysis periods.[544] Because some water allocation and water quality regulations are based on water year type designations (for example, wet or dry years), these designations were modified as necessary to reflect the future climate projections. Agricultural crop and urban outdoor water demands were adjusted to reflect changes in precipitation. Although there is a wide range of uncertainty in sea level rise projections, for simplicity's sake, sea level rise estimates of one-foot for the mid-century and two-feet for the end of the century were chosen for these impact studies.[545]

In addition to the mid-century and end-of-the-century analysis described above, for its 2009 Reliability Report, DWR estimated potential deliveries for 2029 using one future climate projection which is representative of median effects on the SWP and CVP system based on results from all 12 projections. An important factor in California's water supply reliability is the amount of water stored in reservoirs from year to year. This stored water is like a water supply savings account that allows water managers flexibility during difficult times. This water supply savings account is called reservoir carryover storage, and it is the amount of water remaining in a reservoir at the end of September that is available (carries over) for use the next water year. At mid-century, median reservoir carryover storage is reduced by 15% for the lower greenhouse gas emissions scenario and by 19% for the higher emissions scenario.[546] These reductions in reservoir carryover storage would reduce the systems' flexibility during water shortages.

Under climate change and in some years, water levels in California's main supply reservoirs (Shasta, Oroville, Folsom, and Trinity) could fall below the lowest release outlets making the system vulnerable to operational interruption. By mid-century, it is expected that a water shortage worse than the 1977 drought could occur in one out of every six to eight years.[547] In those years, it is estimated that an additional 575-850 thousand AF of water would be needed to meet current regulatory requirements and to maintain minimum system operations. DWR concluded that this water could be obtained through additional water supplies, reductions in water demands, or a combination of the two. For current conditions, the 2009 report concludes the system is not considered vulnerable to this type of operational interruption.[548]

The City's reliability analysis for imported water (Section 6.3.) applies DWR's reliability analysis for future conditions and therefore already accounts for the potential impacts of climate change on the availability of the City's imported water supply, as predicted by DWR. As such, no further analysis is required.

[544] 2009 SWP Reliability Report, pp. 8, 17.
[545] 2009 SWP Reliability Report, pp. 8, 17.
[546] 2009 Draft SWP Delivery Reliability Report, pp. 17-18.
[547] 2009 SWP Reliability Report, pp. 18-19.
[548] 2009 SWP Reliability Report, p. 19.

6.6.2 Groundwater

While several studies have examined the impact of climate change on California's surface water resources, very little research has been conducted on the impacts of climate change on groundwater, namely "for specific groundwater basins, or for general groundwater recharge characteristics or water quality."[549] In fact, while "historic patterns of groundwater recharge may change considerably,"[550] it is unknown whether recharge rates will increase or decrease.[551] Warmer, wetter winters, leading to an increase in the amount and timing of runoff, could increase groundwater recharge.[552] Increased temperatures, which cause precipitation to fall as rain instead of snow, could increase the intensity of storm runoff that may overflow stream channels and recharge aquifers. In contrast, the intensity of the runoff could result in additional losses to the oceans. Further, this additional runoff may occur when basins are lacking storage space or are already being recharged at maximum capacity.[553] Alternatively, decreases in spring runoff and increases in evapotranspiration due to higher temperatures could reduce the amount of water available for groundwater recharge.[554] Experts also report that climate change may cause increased salinity intrusions and loss of water storage in coastal aquifers.

While there is general consensus in this trend, the magnitudes and onset of impacts discussed in the planning recommendations are "uncertain and are scenario-dependent."[555] One recent report examines the effects of climate change on groundwater in California's Central and West Coast Basins.[556] The report identifies the oft-cited impacts to the state's surface water supply: reduction of annual snowpack, changes in the timing and intensity of precipitation, and sea level rise, but concedes that with regard to groundwater, "[v]ery simply, no one knows for sure, but close monitoring, planning, and responses to changes will likely be necessary."[557]

The 2009 California Water Plan notes that population growth in Southern California promises to compound water management challenges under climate change. By 2030, the population of California is expected to grow by 14 million.[558] Most of this growth will

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[549] Pacific Institute for Studies in Development, Climate Change and California Water Resources: A Survey and Summary of the Literature, prepared for the California Energy Commission, Public Interest Energy Research Program (July 2003), republished in California Water Plan Update (2005), p. 20 (Pacific Institute Survey).

[550] California Department of Water Resources, Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water (October 2008),p. 23.

[551] Pacific Institute Survey.

[552] Pacific Institute Survey.

[553] *See* Pacific Institute Survey, pp. 17-18.

[554] *See* Pacific Institute Survey, pp. 17-18.

[555] California Department of Water Resources, Progress on Incorporating Climate Change into Management of California's Water Resources (Mar. 2008), p. 16.

[556] Water Replenishment District of Southern California, Will Climate Change Affect Groundwater in the Central and West Coast Basins?, Technical Bulletin Volume 10 (Winter 2007).

[557] Water Replenishment District of Southern California, Will Climate Change Affect Groundwater in the Central and West Coast Basins?, Technical Bulletin Volume 10 (Winter 2007) p. 2.

[558] Water Plan Update 2009, p. 54.

occur in Southern California, resulting in a geographic disconnect between demand and supply. Dry Southern California imports water from the wetter north, yet the population in Southern California is growing faster than elsewhere in the state, potentially stressing groundwater aquifers.[559]

In light of these conclusions, both governmental agencies and non-governmental organizations recommend that water decision-makers operate existing water systems to allow for increased flexibility. Other recommendations include incorporating climate change research into infrastructure design, conjunctively managing surface water and groundwater supplies, and integrating water and land use practices. Policymakers and water suppliers in California are currently addressing climate change impacts and developing new ways to cope with the types of variability which are outside the design range of existing infrastructure.

In summary, while climate change is likely to have some impact on the City's groundwater supplies on a long-term basis, the direction and magnitude of that impact is unknown to the scientific community. Compared to surface water supplies, groundwater is likely to be more reliable in the face of climate change. Further, groundwater in storage is likely to be more reliable in the face of climate change.

In order to address the potential impacts of climate change, the City will:

- Continue to manage its imported and surface water supplies conjunctively with its groundwater supplies to maximize all opportunities to store water underground. The Beaumont Basin Judgment facilitates this strategy by authorizing the City to store up to 80,000 AF in the Beaumont Basin for future use.[560]

- As recommended by the 2011 Geoscience Report, continue to assess the average annual supply available from all unadjudicated groundwater supplies (the Banning, Banning Bench, Banning Canyon and Cabazon basins) by conducting an annual groundwater audit and maintaining groundwater levels within acceptable limits rather than maintaining pumping within a predetermined safe yield.

- Continue to monitor expert technical analyses of the impacts of climate change on surface and groundwater supplies and incorporate any recommendations into the City's water supply planning efforts.

- Continue to practice and promote integrated flood management. The City will incorporate climate change findings into infrastructure design and continue to integrate water and land use practices, such as encouraging new developments to capture and treat stormwater onsite. New water

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559 Water Plan Update 2009, p. 54.
560 Minutes of Beaumont Basin Watermaster Meeting (Sep. 14, 2010).

infrastructure will be designed to operate under a wide range of conditions and will consider climate change impacts.

- Continue to diversify its portfolio through increased water use efficiency and aggressive demand reductions achieved by existing and new conservation programs. The development and use of a new recycled water supply will further diversity the City's portfolio and reduce potable water demands.

- Continue to further develop regional alliances with cities, water districts and water agencies to integrate, improve and develop regional water management.

6.7 Summary of Existing and Future Water Supplies

This section of the WSA summarizes all projected existing and future City water supplies, including non-potable supplies. Tables 6.7A, 6.7B and 6.7C summarize anticipated fluctuations in the availability of each of the City's supplies under varying hydrologic conditions — i.e., in normal, single dry, and multiple dry water years.

The City's Beaumont Basin supply includes both the City's projected Production Right and the City's imported water supply in storage — e.g. not produced to serve demand in prior years and remaining in the City's Stored Water account. The City's Beaumont Basin supply does not include any potential "New Yield" derived from stormwater flows derived from the Project and recharged into the Beaumont Basin as permitted by the Beaumont Basin Judgment. The City's Stored Water account balance represents the City's total available supply from the basin at any point in time and therefore is used to reflect the City's Beaumont Basin supply for purposes of comparing supply and demand. The City's projected Beaumont Basin Stored Water account balance is calculated based on the City's anticipated future pumping in the basin and therefore already takes into account a portion of the City's projected demand. Although not subject to change from year to year based on hydrology (except with respect to the availability of imported water for purchase by the City), the City's Beaumont Basin supplies are projected to change from year to year based on the City's calculated rights pursuant to the Judgment and the quantity of imported water that the City purchases annually (see Tables 6.1.5.10A and 6.1.5.10B, and Appendix C).

Reduced availability of imported water supplies in single dry and some multiple dry years does not affect the availability of the City's water supplies to meet projected demand. This is because the City does not take direct delivery of imported water supplies — it stores whatever it purchases, whether more or less than the average annual supply. Over time, the City's conjunctive management of the supply increases its reliability.

The City's Banning Canyon and Cabazon Basin supplies, as well as the City's projected recycled water supply, are projected to remain the same under all water year types.

Only the City's Banning Basin, Banning Bench Basin and imported water supplies are subject to variability based on water year type. (See Section 6.1.6.)

Available water supplies are projected for the entire study period in five-year increments. As described in Section above, Geoscience's 2011 Report calculates the quantity of supply available to the City in each of the Banning Basins and Cabazon Basin based on Geoscience's maximum perennial yield estimates. These estimates are based on the best available information and are assumed to occur for the duration of the study period for the three Banning Basins. Geoscience's projected Cabazon supply has been adjusted to account for decreasing availability of wastewater flows for percolation into the Cabazon Basin as a result of the City's developed of 1,680 AFY of recycled water beginning in 2015.

All projected groundwater supplies, in all year types, are within the safe yields of all basins, either as calculated by Geoscience in the case of the Banning and Cabazon basins, or by Watermaster in the Beaumont Basin, and are supported by the City's water rights in each of the respective basins.

Table 6.7A. Total Projected City Water Supplies (*Average Year*) (AF)

Supply Source	2015	2020	2025	2030	2035	2040	2045
Beaumont Basin (Stored Water Account Balance)[561]	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	1,130	1,130	1,130	1,130	1,130	1,130	1,130
Banning Bench Basin	1,960	1,960	1,960	1,960	1,960	1,960	1,960
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**53,686**	**63,166**	**71,612**	**79,303**	**86,290**	**92,975**	**99,615**

561 Includes City's projected annual Production Right pursuant to Beaumont Basin Judgment and projected State Water Project, Table A imported water in storage — e.g. not produced to serve demand in prior years. Does not include potential New Yield derived from stormwater flows from Project recharged into the Beaumont Basin pursuant to the Beaumont Basin Judgment. (See Section 6.1.)

Table 6.7B. Total Projected City Water Supplies (*Single Dry Year*) (AF)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Beaumont Basin (Stored Water Account Balance)	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	1,103	1,103	1,103	1,103	1,103	1,103	1,103
Banning Bench Basin	733	733	733	733	733	733	733
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**52,432**	**61,912**	**70,358**	**78,049**	**85,036**	**91,721**	**98,361**

Table 6.7C. Total Projected City Water Supplies (*Multiple Dry Year*) (AF)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Beaumont Basin (Stored Water Account Balance)	43,661	52,921	61,124	68,547	75,238	81,597	87,876
Banning Basin	843	843	843	843	843	843	843
Banning Bench Basin	598	598	598	598	598	598	598
Banning Canyon Basin	4,070	4,070	4,070	4,070	4,070	4,070	4,070
Cabazon Basin	1,185	1,405	1,648	1,916	2,212	2,538	2,899
Recycled Water (Phase I Upgrade only)	1,680	1,680	1,680	1,680	1,680	1,680	1,680
Total Supplies	**52,037**	**61,517**	**69,963**	**77,654**	**84,641**	**91,326**	**97,966**

This WSA's projections of water supply availability for the study period are conservative — as specifically noted throughout this text — therefore provide a reasonable expectation as to the likelihood of the City's available supplies for the study period.

7. CONCLUSION (SUPPLY V. DEMAND SUMMARY)

Tables 7A-C summarize the City's assessment of the availability of the City's water supplies during all water year types to meet the water demands for the proposed Project, in addition to the City's existing and planned future uses.

Table 7A. Comparison of Projected City Supplies (*Average Year*) and Demand (With and Without Project) (AFY)

Supply Source	2015	2020	2025	2030	2035	2040	2045
Without Project							
Supplies	53,686	63,166	71,612	79,303	86,290	92,975	99,615
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	44,452	54,570	62,277	69,129	75,218	80,812	86,008
With Project							
Supplies	53,686	63,166	71,612	79,303	86,290	92,975	99,615
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	43,310	52,983	60,369	66,890	72,585	77,840	82,905

Table 7B. Comparison of Projected City Supplies (*Single Dry Year*) and Demand (With and Without Project) (AFY)

Supply Source	2015	2020	2025	2030	2035	2040	2045
Without Project							
Supplies	52,432	61,912	70,358	78,049	85,036	91,721	98,361
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	43,198	53,316	61,023	67,875	73,964	79,558	84,754
With Project							
Supplies	52,432	61,912	70,358	78,049	85,036	91,721	98,361
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	42,056	51,729	59,115	65,636	71,331	76,586	81,651

Table 7C. Comparison of Projected City Supplies (*Multiple Dry Year*) and Demand (With and Without Project) (AFY)							
Supply Source	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Without Project							
Supplies	52,037	61,517	69,963	77,654	84,641	91,326	97,966
Demand (City Net Demand – Project Net Demand)	9,234	8,596	9,335	10,174	11,072	12,163	13,607
Difference	42,803	52,921	60,628	67,480	73,569	79,163	84,359
With Project							
Supplies	52,037	61,517	69,963	77,654	84,641	91,326	97,966
Demand (City Net Demand)	10,376	10,183	11,243	12,413	13,705	15,135	16,710
Difference	41,661	10,183	58,720	65,241	70,936	76,191	81,256

Based on the analysis contained in this WSA, including all appendices, the City concludes that the City will have sufficient water supplies available during normal, single dry and multiple dry years during a 35-year projection to meet the projected water demand associated with the Project, in addition to the City's existing and planned future uses.