

Water Supply Assessment

Alliance California Gateway South Building 3

Background

Senate Bills 610 and 221 amended state law, effective January 1, 2002, to improve the linkage between certain land use decisions made by cities and counties and water supply availability. Both statutes require detailed information regarding supply availability and reliability with respect to certain developments to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county on such projects.

Under SB 610, water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain types of projects, as defined in Water Code § 10912[a] and subject to the California Environmental Quality Act (CEQA).

A fundamental source document for compliance with SB 610 is the Urban Water Management Plan (UWMP). If the UWMP is properly prepared, it can be used by the water supplier to meet the standards set forth in SB 610.

The San Bernardino Municipal Water Department (SBMWD) is the water supplier that is responsible for preparing water supply assessments for the City of San Bernardino (City). The Board of Water Commissioners of the SBMWD approved the 2010 UWMP in June 2011; this document is the primary source of reference for this water supply assessment.

On September 25, 2013, a letter was received by the SBMWD requesting that the Department prepare a water supply assessment pursuant to the provisions of the Water Code § 10910 et seq. for the Alliance California Gateway South Building 3 (see Appendix A). The project applicant, Hillwood Investments (Hillwood), submitted the project for proposed development to the City of San Bernardino's Development Services Department.

Project Description

The Alliance California Gateway South Building 3 is a light industrial warehouse project being proposed on approximately 50 acres of land, located along Orange Show Road. The project area is bound by Orange Show Road to the north, the Santa Ana River to the southeast, the BNSF railroad to the southwest, and Waterman Avenue to the west. The project consists of one warehouse totaling 1,199,360 square feet, with associated on-site drainage facilities. A conceptual site plan is included in Appendix B.

Water Demand Projections

According to Water Code §10910(c)(2), if the projected water demand associated with the proposed project was accounted for in the most recently adopted UWMP, the water supplier may use the demand projections from the UWMP in preparing the water supply assessment.

The water demand projections developed for SBMWD's 2010 UWMP were based on ultimate build-out conditions reflected in the City's 2005 General Plan. The demand projections were based on residential, commercial, industrial and public land uses, and representative water use factors developed from existing billing data.

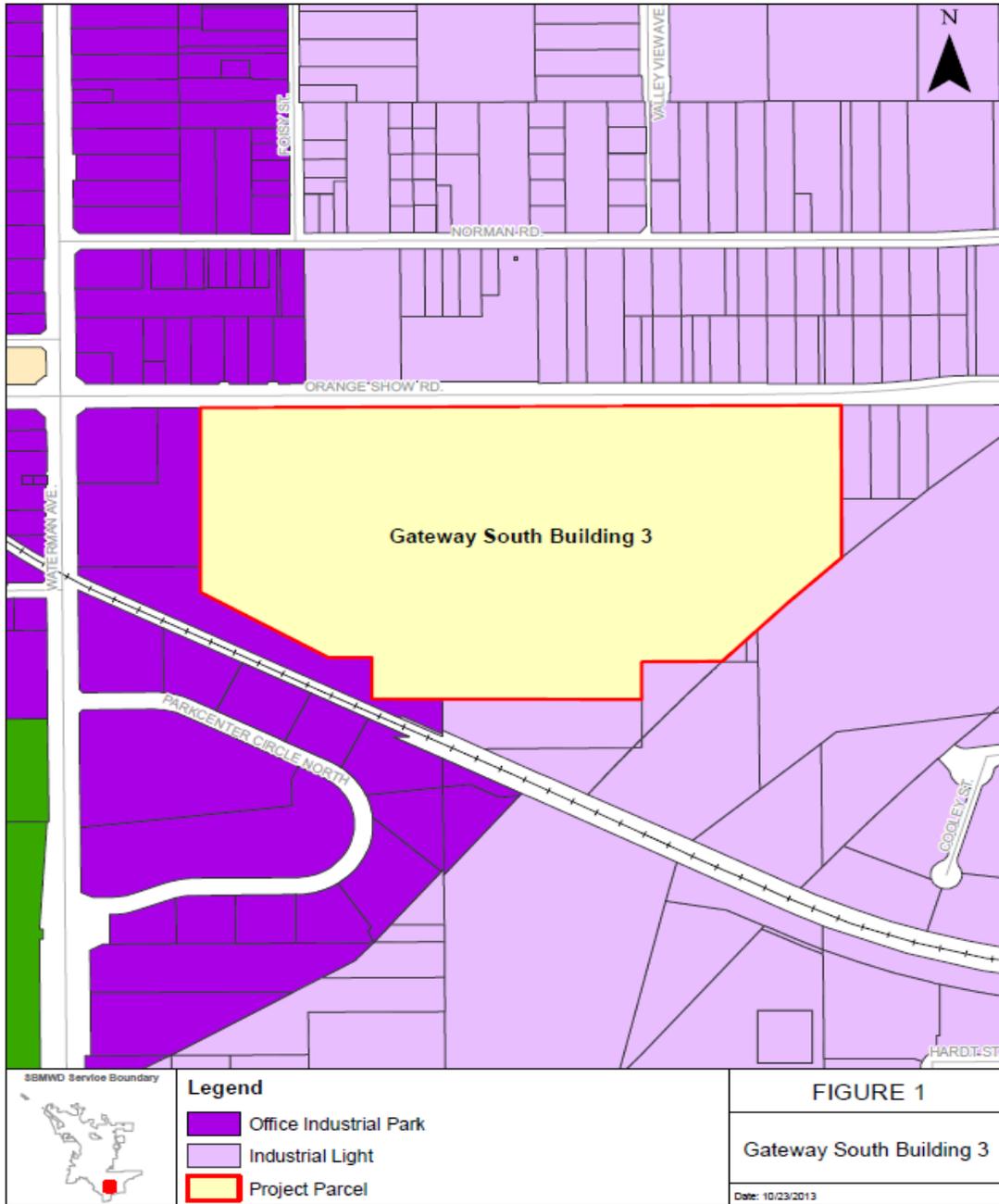
The SBMWD used ultimate build-out conditions from the City's General Plan as the basis for water demand projections in the 2010 UWMP. Therefore, water demands for any proposed project that is consistent with the General Plan (and more specifically the land use districts or zoning) would be included in the total water demand projections of the 2010 UWMP.

The project development is consistent with the City's General Plan land uses, as this area has been zoned for light industrial land use. As submitted by Hillwood in its request for a water supply assessment, overall average water demand for the project is 0.23 million gallons per day (mgd) or 160 gallons per minute (gpm). This demand is comprised of 70 gpm for indoor consumption and 90 gpm for outdoor use. The average daily demand represents an annual demand of approximately 259 acre-feet per year (ac-ft/yr). Demand projections for the project are summarized in Appendix C. Calculations of these demands are consistent with the 2010 UWMP.

The Alliance California Gateway South Building 3 parcels of land are shown in Figure 1, which also shows the land use districts for the City.

The project parcels all fall within the major land use districts in the City's General Plan referred to as:

- IL (Industrial Light) – This land use district allows a variety of light industrial uses, including warehousing/distribution, assembly, light manufacturing, research and development, mini storage, repair facilities conducted within enclosed structures, as well as supporting retail and personal uses.



Climate Conditions

Table 1 summarizes the climate for the City of San Bernardino. The climate of the City is considered arid west.

Table 1
Average Climate Data for SBMWD Service Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Standard Monthly Average ETo (inches) ¹	2.49	2.91	4.16	5.27	5.94	6.56	7.22	6.92	5.35	4.05	2.94	2.56	56.37
Average Rainfall (inches) ²	3.15	4.06	2.53	1.02	0.25	0.07	0.03	0.13	0.25	0.82	1.29	2.41	16.01
Average Temperature (F) ²	55.3	56.4	59.2	63.5	68.9	74.3	79.9	80.7	76.8	69.0	59.9	54.1	-

1.- Obtained from CIMIS Station 44 at UCR as of April 25, 2013.

2.- Weather Station San Bernardino F S 226, Station Number 047723, NOAA 1981-2010 Climate Normals.

Population Projections within SBMWD Service Area

Table 2 presents the population projection for the SBMWD service area. A population growth rate for the area served by SBMWD was defined based on SCAG projected populations for years 2008, 2020, and 2035, as contained in their 2012 Integrated Growth Forecast. It should be noted that the service area is different than that of the City's boundary. Based on GIS data, SBMWD serves 90 percent of the City of San Bernardino. The population growth rate provided by SCAG was applied to existing population in the City of San Bernardino to project population through year 2035. Because SBMWD serves 90 percent of the City, it is assumed that the population served by SBMWD will be 90 percent of the City's population projection.

Table 2
Population Projections for SBMWD Service Area

	2010	2015	2020	2025	2030	2035
Population	187,690	196,453	207,715	213,366	221,400	234,937

Customer Accounts

Table 3 summarizes the projection of customer accounts for SBMWD. These accounts were projected based on land use categories from the City's General Plan and the historical correlation between land use and service accounts.

Table 3
Projection of SBMWD Customer Accounts

Customer Class	Year				
	2012	2015*	2020*	2025*	2030*
Residential	38,111	41,079	42,997	44,616	46,296
Commercial/Industrial	4,734	4,464	4,672	4,848	5,030
Institutional/Governmental	12	87	91	95	98
Other	1,147	1,170	1,225	1,271	1,319
Total	44,004	46,800	48,985	50,830	52,743

*Source: SBMWD Urban Water Management Plan, 2010.

Projected Water Use

The Water Conservation Bill of 2009 (also referred to as SBX7-7) was enacted as part of the November 2009 Comprehensive Water Package. The Water Conservation Bill of 2009 provides the regulatory framework to support a statewide reduction in urban per capita water use. Each retail water supplier must demonstrate compliance with SBX7-7 by determining its existing baseline water consumption and then establish a future water use target in gallons per capita per day and report that information in its 2010 UWMP.

In order to meet the water use targets prescribed by SBX7-7, SBMWD will have to reduce current water use by approximately 10 percent by the year 2015 and by approximately 20 percent by year 2020. Should SBMWD's recycled water program develop prior to 2015, SBMWD would achieve its interim and compliance water use SBX7-7 targets without any additional conservation actions. However, because the recycled water program is in the planning stages, as described below, SBMWD is still planning to undertake additional conservation actions to ensure compliance with SBX7-7.

Table 4 summarizes the total water demand projections for SBMWD, as depicted in the 2010 UWMP. As discussed previously, water demand projections in the 2010 UWMP were based on ultimate build-out conditions presented in the City's General Plan. It should be noted that the projection totals are without Conservation.

Table 4
Annual SBMWD Water Demands (Acre-Feet)

Customer Class	Year				
	2012	2015*	2020*	2025*	2030*
Residential	26,988	35,009	36,644	38,023	39,455
Commercial/Industrial	8,574	8,717	9,124	9,468	9,824
Institutional/Governmental	810	2,328	2,437	2,529	2,624
Landscape	5,540	6,178	6,466	6,710	6,962
Other	3,915	1,029	629	629	629
Future Known Developments		625	2,083	2,083	2,083
Unaccounted/system loss	2,931	3,811	3,666	3,797	3,934
Total	48,758	57,697	61,049	63,239	65,511

* Source: SBMWD Urban Water Management Plan, 2010.

Existing Water Supply

SBMWD's current water supply consists solely of water extracted from the underlying underground aquifer, the Bunker Hill Groundwater Basin (BHG Basin). SBMWD produces its water supply from 57 groundwater wells located throughout its service area. The wells range from 50 to 1,300 feet in depth and have production capacities ranging from 50 to 3,500 gallons per minute (gpm). Table 5 presents historical groundwater pumping for SBMWD.

Table 5
SBMWD Groundwater Pumped (Acre-Feet)

	2005	2006	2007	2008	2009	2010	2011	2012
Groundwater Pumped	48,069	57,141	59,157	56,310	52,357	47,654	48,767	48,758
% of Total Water Supply	100%	100%	100%	100%	100%	100%	100%	100%

Groundwater Management

Management of the BHG Basin is coordinated through the San Bernardino Valley Municipal Water District (Valley District or District), which was formed in 1954 to plan long-range water supply for the San Bernardino Valley including the BHG Basin. Valley District is a State Water Project (SWP) contractor that was incorporated under the Municipal Water District Act of 1911 (California Water Code Section 7100 et. seq., as amended). The District's responsibility for long-range water supply planning includes importing supplemental water and management of the groundwater basins within its boundaries. It has specific responsibilities for monitoring groundwater supplies in the San Bernardino and Colton-Rialto basins and maintaining flows at Riverside Narrows on the Santa Ana River.

The BHG Basin contains in excess of 5 million acre feet (ac-ft) of high-quality water of which approximately 1.5 million ac-ft of water is extractable. The BHG Basin is replenished naturally by local precipitation and by stream flow from rain and snow melt in the San Bernardino Mountains watershed. Water can also be artificially recharged by rerouting stream flows to recharge percolation basins.

Prior to 1963, the lack of native surface water and imported water for many years led to groundwater overdraft within the District's boundaries. In more recent years, increased groundwater recharge has led to high groundwater levels in the lower (southern) portion of the BHG Basin, also known as the pressure zone, where the aquifer is confined and artesian. While groundwater levels in the pressure zone are being managed through increased pumping, they may cause artesian flow in local wells, infrastructure infiltration, and the potential for liquefaction during seismic events. Within the past 70 years, a high groundwater condition has occurred at least three (3) times in the area south and east of the intersection of Mill Street and "D" Street in the City. A high groundwater condition occurs when the groundwater elevation exceeds the ground surface elevation. SBMWD participates with other local water agencies in a dewatering program to lower the water levels in the confined pressure zone. Valley District has sold extracted high groundwater water to downstream water agencies and will likely do so again if high groundwater conditions reoccur.

Since 1970, Valley District has been calculating the change in groundwater storage within the San Bernardino Basin Area (SBBA), which includes the BGH Basin and the Lytle Creek Sub-Basin, using a specific yield model. This model calculates both the cumulative change in groundwater storage and the annual change in storage. The cumulative change in groundwater storage is a measurement of groundwater lost or gained in the SBBA compared to the base year of 1934. The year 1934 was selected by the District as the base year to correspond with the California Department of Water Resources (DWR) base period of 1934-35 through 1959-60. The cumulative change in storage since 1934 for the SBBA is approximately negative 368,000 acre-feet (ac-ft) as illustrated in Figure 2. This figure indicates a slight increase in storage of approximately 53,200 ac-ft over the last three (3) years. However, conditions have been worse in the past, nearing negative 600,000 ac-ft in the mid 1960s. The decrease in cumulative change in storage since 1998 has resulted from an increased reliance on groundwater production combined with below average precipitation. Drier winter months have led to a heavier reliance on pumping during the winter than in the past.

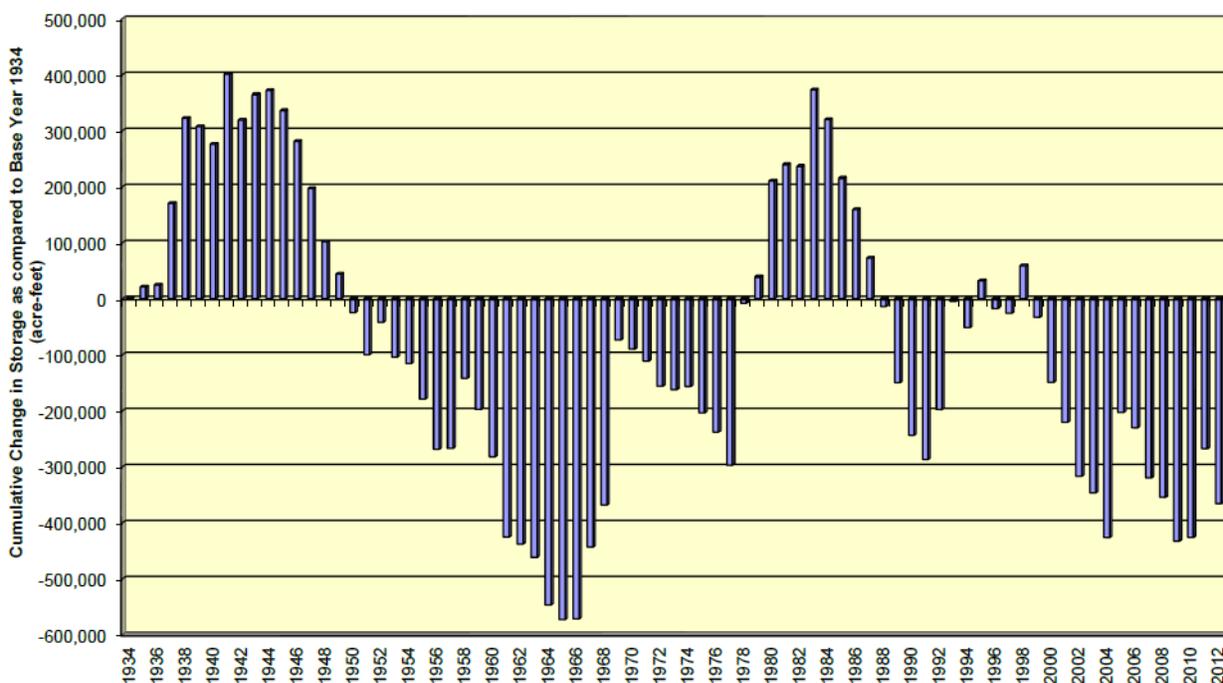


Figure 2
Cumulative Change in Storage for the San Bernardino Basin Area

The annual change in storage is the change in storage from the prior year. For 2012 the amount of storage in the basin declined by approximately 100,000 ac-ft as illustrated in Figure 3. Approximately 58 percent of the total decrease in annual storage is thought to be a result of increased well production and a reduction of natural recharge caused by below average precipitation throughout the SBBA.

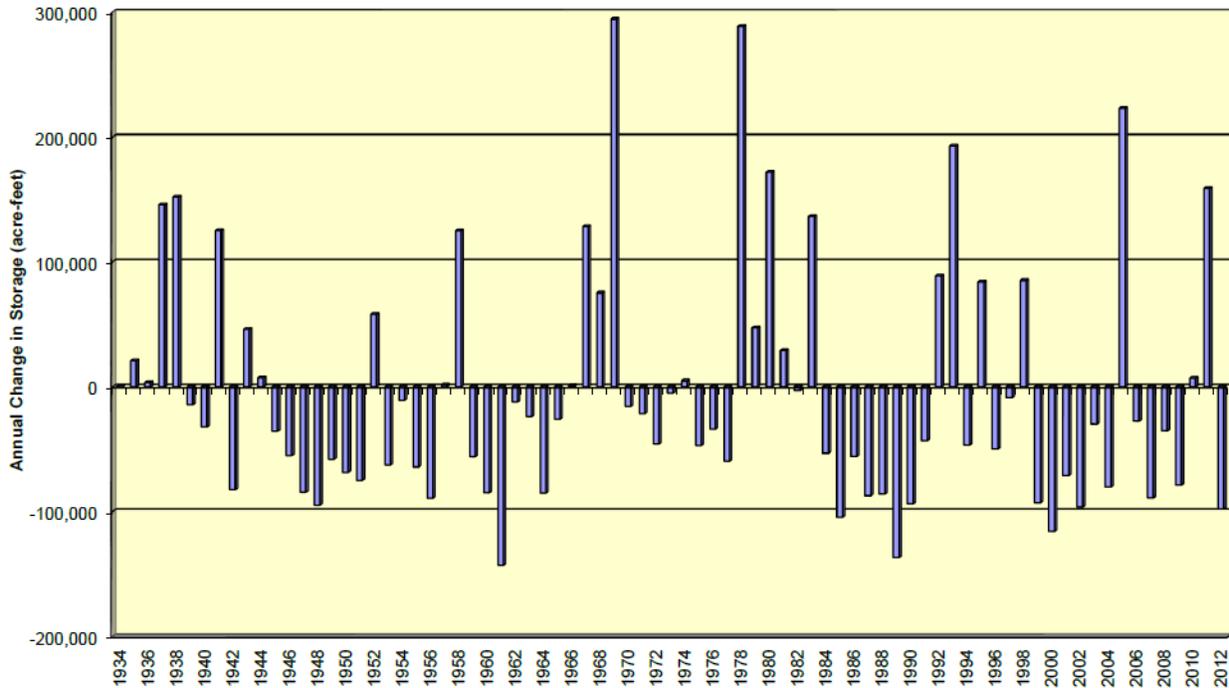


Figure 3
Annual Change in Storage for the San Bernardino Basin Area

In 2011, the verified extractions for the SBBA by other than plaintiff’s agencies within the District’s jurisdiction were 173,544 ac-ft. This is more than the adjusted annual right of 167,238 ac-ft by 6,306 ac-ft, but does not exceed Valley District’s accumulated credits. The accumulated credits result from extractions that are less than Valley District’s adjusted right, during previous years.

Water quality extracted from the BHG Basin by SBMWD is of excellent mineral quality with total dissolved solids (TDS) averaging less than 350 milligrams per liter (mg/L).

Groundwater Judgments

Groundwater management issues (mainly export) in the BHG Basin are primarily governed by the judgment in *Western Municipal Water District et al. v. East San Bernardino County Water District et al.*, entered on April 17, 1969 (Western Judgment). Other adjudications affecting the management of this basin include *City of San Bernardino v. City of Riverside*, County of San Bernardino Case No. 13754; *Orange County Water District v. City of Chino*, County of Orange Case No. 117628 (the Orange County Judgment); and a Consent Decree (Decree) entered in *City of San Bernardino v. United States of America*, United States District Court Central District, CV 96-8867 and CV 96-5205 (consolidated) among the US Environmental Protection Agency, the US Department of the Army, the City of San Bernardino, and the California Department of Toxic Substances. An Integrated Regional Water Management Plan of the Upper Santa Ana River Watershed was adopted in 2008. An Integrated Regional Water

Management Plan of the entire Santa Ana River Watershed, the “One Water One Watershed” (OWOW) Plan, was adopted in December 2010.

Under the Western Judgment, the District has the responsibility to ensure that adequate quantities of water are available for extractions in the SBBA above the basin safe yield of 232,100 ac-ft/yr. As defined, this includes both the BHG Basin and the Lytle Creek Sub-Basin. Within Valley District’s boundaries, the adjusted right is 167,238 ac-ft/yr, with the remainder of the water rights assigned to plaintiff agencies outside of its service area. If water agencies within Valley District’s service area exceed the allotted groundwater production, the District is required to augment the supply sources by spreading imported water from the SWP and/or obtaining water from other sources. Under the Western Judgment, the production rights of individual agencies within the District’s service area are not allocated. The Western Judgment also sets the maximum amount of water that can be exported from the Basin. A copy of the Western Judgment can be found in 2010 RUWMP.

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

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

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

In 2008, the Upper Santa Ana Water Resources Association adopted an Integrated Regional Water Management Plan (IRWMP) to address major water management issues for the communities of the Upper Santa Ana River Watershed. Valley District, as the regional water agency, led the planning effort and received a grant from DWR to prepare the plan. The main benefit of the plan was the development of a process for managing the local and imported water sources in the San Bernardino Basin Area. A secondary benefit is to identify regional projects and to receive grant funding for these projects. The plan was carefully developed through the participation of water managers and stakeholders and has two main management objectives: the first is to improve water reliability during drought periods and reduce liquefaction and the second is to protect water quality and maximize conjunctive use opportunities. The IRWMP serves as the guide for long-term water resources planning in the Upper Santa Ana River Watershed.

The Integrated Regional Water Management Plan for the entire Santa Ana Watershed is known as the OWOW Plan. The plan attempts to encompass all sub-regions, political jurisdictions, water agencies, and non-governmental stakeholders (including private sector, environmental groups, and the public at large) in the watershed. The OWOW Plan also views all types of water (imported, local surface and groundwater, stormwater, and wastewater effluent) as components of a single water resource which is linked to the land use and habitat, and tries to limit impacts to natural hydrology.

The OWOW Plan, adopted in December 2010, was developed by a diverse group of stakeholders led by a Steering Committee composed of public officials from counties and cities in the watershed, representatives from the environmental, regulatory and business communities, and representatives from the Santa Ana Watershed Authority (SAWPA). The Steering Committee was supported by technical experts grouped into ten disciplines (known as Pillars), ranging from water supply and quality, to climate change, to environmental justice.

Recycled Water

Wastewater in the region is coordinated with several neighboring communities, with SBMWD treating wastewater for City of San Bernardino, City of Loma Linda, East Valley Water District, and portions of unincorporated San Bernardino County. Wastewater is collected and treated at the San Bernardino Water Reclamation Plant using secondary treatment. After secondary treatment, non-disinfected effluent from the plant is sent to the Rapid Infiltration Extraction Tertiary Treatment Facility (RIX) for further treatment. RIX is jointly owned by SBMWD and the City of Colton. Currently, all RIX effluent, which meets California Title 22 standards, is discharged into the Santa Ana River. SBMWD is not using any of the RIX effluent for landscape irrigation in its service area because of the location of the RIX facility and cost of distribution. However, it should be noted that the use of recycled water is an integral component in the overall management of the BHG Basin through the implementation of the IRWMP.

SBMWD currently does not use recycled water to offset potable demand. The 2010 UWMP anticipated up to 800 AFY of recycled water use by year 2015. However, a

recycled water program has not yet been implemented and SBMWD is actively undertaking design and feasibility studies for the use of recycled water.

Planned Water Supply

Both the SBMWD and Valley District are planning to develop a number of water supply projects in order to meet the region's growing water demands. These include new wells, recycled water, and groundwater recharge.

SBMWD's Planned Supplies

The 2007 Water Master Plan documents projected water demands within the existing service area and identifies supply sources to meet them. The Water Master Plan develops a long-range water supply plan and capital improvement plan to reliably meet the needs of SBMWD's service area to build out conditions.

Based on SBMWD's current Capital Improvement Plan, SBMWD will be constructing three (3) additional groundwater wells within the next five (5) years; the location of these planned supplies is depicted in Figure 4. These wells will have adequate capacity to handle projected near-term demands within SBMWD's service area.

In addition to groundwater wells, the SBMWD has plans to use approximately 800 ac-ft from the RIX water reclamation facility for landscape irrigation.

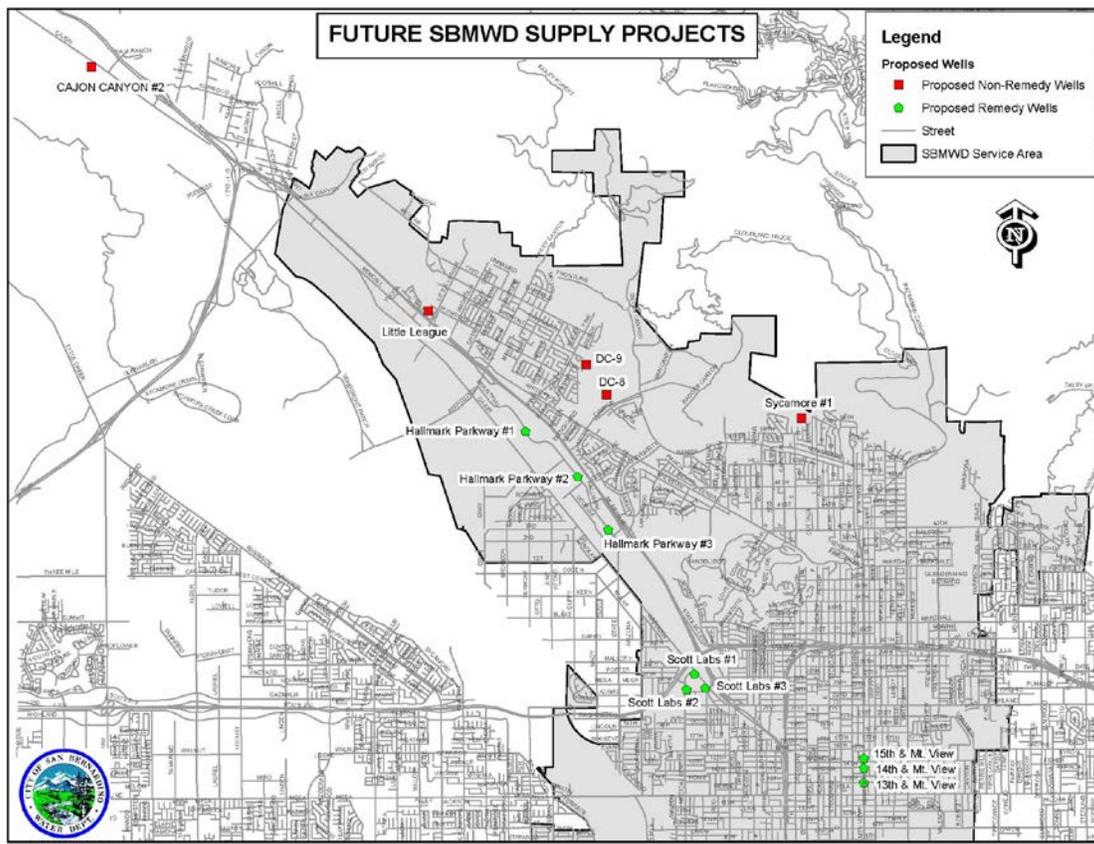


Figure 4
Location of SBMWD's Proposed New Wells

Table 6 summarizes the planned water supplies for SBMWD through 2030. SBMWD will continue to rely on the BHG Basin to fulfill the majority of its future supply needs. The SBMWD will continue to evaluate recycled water opportunities, based on potential demands and cost.

Table 6
Planned Water Supply (Acre-Feet)

Water Supply Sources	2012	2015*	2020*	2025*	2030*
Groundwater	48,758	61,100	66,900	72,700	72,700
Recycled Water	0	800	800	800	800
Total	48,758	61,900	67,700	73,500	73,500

*Source: SBMWD Urban Water Management Plan, 2010 and IRWMP, 2007

SBVMWD Water Supplies

In the Mid 1990s, Valley District completed a Regional Water Facilities Master Plan (Master Plan) for the BHG Basin that identified a number of transmission facilities to move groundwater from the pressure zone to various locations in the valley. The recently completed IRWMP builds on the previous study and includes an analysis of local water retailers' current and projected build-out water demands. The study identified over 100 local and regional capital projects to conjunctively manage water resources in the San Bernardino Basin. Projects identified include new surface water treatment facilities, groundwater storage and extraction facilities, water conservation, flood control utilization, and water conveyance facilities, including regional and local transmission facilities, pump station, and reservoir facilities. Some of the main projects that will increase the long-term reliability of water resources in the area include:

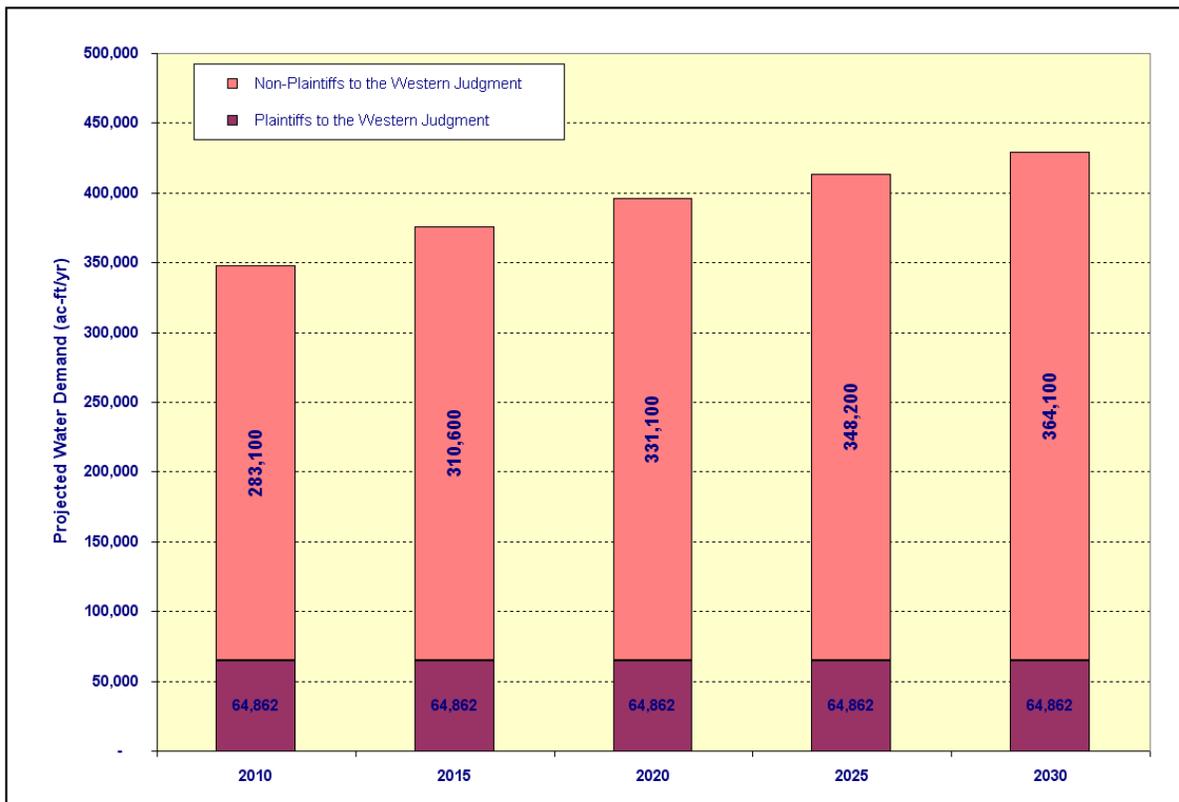
- Enhanced Groundwater Recharge Project. The objective of this project is to construct more basins along the Santa Ana River to maximize capture of this water before it is naturally conveyed downstream. Project is currently being designed.
- Central Feeder Pipeline. This project consists of the construction of approximately 56,000 ft of pipeline ranging in size from 54 to 78 inches. The project will tie the existing Baseline Feeder south extension to the proposed Citrus reservoir in the Mentone area. This pipeline will be used to convey water from the pressure zone to the east end of the valley. Phase 1 is complete and Phase II has not yet begun.
- Recycled Water Use. The construction of a number of satellite wastewater treatment plants are being considered to have the recycled water source closer to its end use.

Reliability of Water Supply

The reliability of the SBMWD water supply is dependent on two factors: the adequacy of system capacity (wells, pipelines, pump stations, etc.) and the availability of water supply from the BHG Basin, where groundwater is produced. Water supply assessments must demonstrate supply reliability under normal, single-dry year, and multiple-dry year weather scenarios. The availability of water supply from the BHG Basin is highly dependent of the regional management of water sources in the area by Valley District.

Under the Western Judgment, the SBMWD can extract as much water as needed from the BHG Basin to meet its current and projected demands as Valley District has the responsibility to ensure that adequate quantities of water are available for extractions above the SBBA basin safe yield of 232,100 ac-ft/yr. Therefore, the reliability of supply sources to the SBMWD is highly dependent on the reliability of imported water sources and Valley District's ability to meet its obligation under the Western Judgment.

The Western Judgment fixes the maximum amount of groundwater that can be exported from the SBBA by the plaintiffs at 64,862 ac-ft/yr. Within Valley District's boundaries, the adjusted right is 167,238 ac-ft/yr; this is the amount that the non-plaintiff agencies can extract from the SBBA (BHG Basin and the Lytle Creek Sub-Basin) before Valley District has to obtain additional water sources to maintain the long-term safe yield of the basin. Figure 5 from the IRWMP illustrates projected water demands from the San Bernardino Valley area by both plaintiffs and non-plaintiffs. This figure illustrates water demands by non-plaintiffs increasing from 283,100 ac-ft/yr in 2010 to an estimated 364,100 ac-ft/yr by the year 2030.



Valley District's Local Water Supply Sources

The IRWMP identifies three (3) main sources of local water available to Valley District: groundwater, surface supply, and new/reclaimed supply. Table 7 presents a summary of local water supply sources available to meet projected water demands through 2030. A brief description of each source follows

- San Bernardino Basin Area Surface Water refers to surface water from local mountain streams available for potable use. Surface water is currently used by the East Valley Water District, West Valley Water District, and the City of Redlands.
- Seven Oaks Supply refers to additional surface water that could be available from the Seven Oaks Dam to spread in the basin for groundwater recharge. Supplies from this project depend on conditions placed on the applications by the State Water Resources Control Board.
- San Bernardino Basin Area Groundwater refers to groundwater pumped from the BHG Basin and Lytle Creek Sub-Basin.
- San Bernardino Basin Area Return Flows refers to return flows from extractions above the safe yield of the SBBA and from direct deliveries of imported water. The Annual Report of the Western San Bernardino Watermaster for calendar year 2011 estimates a 36 percent return flow from these sources to recharge the groundwater basin.
- Rialto-Colton, Riverside North, and Yucaipa basins include extractions from these basins to be used within Valley District's service area.
- Other Groundwater refers to groundwater extractions from an area between the Chino Basin and Lytle Creek Sub-Basin commonly referred to as "No Man's Land".
- Recycled Water includes direct delivery of recycled water for irrigation and/or industrial use and for groundwater recharge.

The reliability of local supply sources on a long-term basis is considered very high in the SBBA because of the relatively large amount of storage in this basin that allows local water purveyors to meet their demand obligations during extended droughts. Therefore, it is assumed that the total local supplies shown in Table 7 will be available during average, single dry-year, and multiple dry-year scenarios.

Valley District's Imported Water Supply

The amount of SWP water delivered to State Water Contractors in a given year depends on a number of factors, including the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and

legal/regulatory constraints on SWP operation. Water delivery reliability depends on three general factors: the availability of water, the ability to convey water to the desired point of delivery, and the magnitude of demand for the water. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time. Regulatory constraints have changed over time, becoming more restrictive.

Since the 2010 RUWMP was prepared in 2011, the California Department of Water Resources has updated its State Water Project Delivery Reliability Report. The biennial Report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. The 2011 SWP Reliability Report updates DWR's estimate of the current (2011) and future (2031) water delivery reliability of the SWP. The updated analysis shows that the primary component of the annual SWP deliveries (referred to as Table A deliveries) will be essentially the same under current and future conditions, when compared to the preceding report (State Water Project Delivery Reliability Report 2009). The report discusses factors having the potential to affect SWP delivery reliability:

- Restrictions on SWP and Central Valley Project (CVP) operations due to State regulation and federal biological opinions to protect endangered fish such as Delta smelt and spring-run salmon;
- Climate change and sea level rise, which is altering the hydrologic conditions in the State;
- The vulnerability of Delta levees to failure due to floods and earthquakes.

"Water delivery reliability" is defined as the annual amount of water that can be expected to be delivered with a certain frequency. SWP delivery reliability is calculated using computer simulations based on 82 years of historical data.

The 2011 SWP Reliability Report recognizes continuing challenges to the ability of the SWP to deliver full contractual allotments of SWP water. For current conditions, the dominant factor for these reductions is the restrictive operational requirements contained in the federal biological opinions. Deliveries estimated for the 2011 Report expressly account for the operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service in December 2008 and the National Marine Fisheries Service in June 2009 governing the SWP and Central Valley Project operations.

For future conditions, the 2011 SWP Reliability Report conservatively assumes that the restrictions imposed by the biological opinions will still be in place, and includes the potential effects of climate change to estimate future deliveries. The changes in run-off patterns and amounts are included along 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. The 2009 SWP Reliability Report did include these potential effects.

These updated analyses in the 2011 SWP Reliability Report indicate that the SWP, using existing facilities operated under current regulatory and operational constraints and future anticipated conditions, and with all contractors requesting delivery of their full Table A amounts in most years, could deliver 61 percent of Table A amounts on a long-term average basis.

An ongoing planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the Bay Delta Conservation Plan (BDCP). The co-equal goals of the BDCP are to improve water supply and restore habitat in the Delta. The BDCP is being prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, environmental organizations, and other interested parties. Several “isolated conveyance system” alternatives are being considered in the BDCP which would divert water from North of the Delta and convey it “around” the Delta to a point where water is pumped for the SWP and CVP. The new conveyance facilities would allow for greater flexibility in balancing the needs of the estuary with reliable water supplies. In December 2010, DWR released a “Highlights of the BDCP” document which summarizes the activities and expected outcomes of the BDCP. The results of preliminary analysis included in the document indicate the proposed conveyance facilities may increase the combined average long-term water supply to the SWP and CVP from 4.7 million ac-ft/yr to 5.9 million ac-ft/yr. This would represent an increase in reliability for State Water Project contractors from 61 percent to 75 percent. Planned completion of the BDCP and corresponding environmental analysis is 2013; however, for planning purposes, the RUWMP has assumed the more conservative supply reliability as described in the 2011 SWP Reliability Report.

In addition to the overall long-term average presented in the 2011 SWP Reliability Report, it also includes Delivery Reliability Reports (DRRs) for each of the individual SWP contractors based upon the unique conditions that impact each contractor. The DRR for Valley District indicated average reliability would be 60 percent in 2011 and will continue through 2031. Table 8 provides the projected SWP water available to Valley District over the next 25 years, based on the Valley District’s maximum Table A amounts from 2010 to 2035 and the supply reliability analyses provided in the 2011 SWP Report and associated DRR.

Table 8
Current and Planned Wholesale Water Supplies Available (Long-Term Average)

Wholesaler (Supply Source)	2010	2015	2020	2025	2030	2035^(a)
California State Water Project						
% of Table A Amount Available	60%	60%	60%	60%	60%	60%
Anticipated Deliveries (Acre-Feet)	61,560	61,560	61,560	61,560	61,560	61,560

Note:

(a) The 2011 Reliability Report projects SWP supplies to 2031. The 2010 UWMP covers the period from 2010 to 2035. Therefore, the available supplies from 2030 to 2035 are projected to be the same as in 2031 particularly as DWR has not published any information of analyses to show that SWP deliveries will be lower at that time.

Table 9 summarizes estimated SWP supply availability to Valley District in a single-dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple-dry year period (based on a repeat of the worst-case historic four-year drought of 1931 to 1934). During a dry or critical year as defined by the Sacramento River Index, the SWP will be able to supply an average of 13,338 ac-ft (year 2011) to 12,312 ac-ft (year 2031) to Valley District. During a multiple dry year period (1931 to 1934), Valley District’s SWP supply is estimated to be about 33,858 ac-ft/yr (current year) to 35,910 ac-ft/yr (year 2031).

The values shown in Tables 8 and 9 cover the period 2011 – 2031 based on the DWR estimates at the 2011 level for the current conditions and at the 2031 level for future conditions. They are the best information and best estimates available for use in developing water management plans for the period 2010 to 2035 for this Plan.

Table 9
Wholesale Supply Reliability:
Single-Dry Year and Multiple-Dry Year Conditions^(a)

<u>Wholesaler</u>	<u>Single-Dry Year^(b)</u>	<u>Multiple-Dry Year^(c)</u>
<u>California State Water Project (SWP)</u>		
2011		
% of Table A Amount Available	13%	33%
Anticipated Deliveries (Acre-Feet)	13,338	33,858
2031		
% of Table A Amount Available	12%	35%
Anticipated Deliveries (Acre-Feet)	12,312	35,910

Notes:

- (a) The percentages of Table A amount projected to be available are taken from Delivery Reliability Reports prepared for Valley District by DWR as part of the "The State Water Project Delivery Reliability Report 2011" (June 2012). Supplies are calculated by multiplying Valley District’s Table A amount by these percentages.
- (b) Based on the worst case historic single dry year of 1977.
- (c) Supplies shown are annual averages over four consecutive dry years, based on the worst case historic four-year dry period of 1931-1924.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water are periodically available, including “Article 56C” carryover water, “Article 21” water, “Turnback Pool” water, and DWR “Dry Year Purchase Programs”. Pursuant to the long-term water supply contracts, SWP contractors have the opportunity to carry over a portion of their allocated water approved for delivery in the current year for delivery during the next year. Valley District has exercised this option in the past. Contractors can also “carryover” water under Article 56C of the SWP long-term water supply contract with advance notice when they submit their initial request for Table A water, or within the last three (3) months of the delivery year. The carryover program was designed to encourage the most efficient and beneficial use of water and to avoid obligating the contractors to “use or lose” the water by December 31 of each year. The water supply contracts state the criteria of carrying over Table A water from one year to the next. Normally carryover water, which is water that has been exported during the year, has not been delivered to the contractor during

that year, and has remained stored in the SWP share of San Luis Reservoir to be delivered during the following year. Storage for carryover water no longer becomes available to the contractors if it interferes with storage of SWP water for project needs (DWR 2010). In 2009, Valley District received 9,348 ac-ft of “carryover” water.

Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e. when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. Since 1999, Valley District has taken 256 ac-ft of Article 21 water.

The Turnback Pool is a program available to State Water Contractors who signed the “Monterey Amendment”. The program helps facilitate the sale of excess Table A supplies and establishes a sale price for the water. Valley District did not sign the Monterey Amendment; however, Valley District is able to sell any excess water to other SWP contractors. Currently, Valley District has an agreement with the Metropolitan Water District of Southern California (MWDSC) which gives MWDSC “first right of refusal” to purchase Table A supplies deemed “excess” to Valley District’s needs.

As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies.

Because the availability of these supplies is somewhat uncertain, they are not included as supplies to Valley District in this Plan. However, Valley District’s access to these supplies when they are available may enable it to improve the reliability of its SWP supplies beyond the values used throughout this report.

Impacts of North San Bernardino Business Park Phase 2 Demands

As discussed, incremental water demands from the Alliance California Gateway South Building 3 are estimated at 259 ac-ft/yr.; this amount represents an estimated 0.1 percent increase in the total water demand in Valley District’s service area. The additional demand is minor and would result in an average deficit that can be easily addressed through water conservation, groundwater recharge, and/or future recycled water direct use.

Conclusion

Based on the supply reliability of Valley District and SBMWD supply sources, as presented in this water supply assessment, it is concluded that SBMWD has sufficient

water supplies to meet the water demands of the Alliance California Gateway South Building 3, along with the other projected municipal water demands.

However, it should be noted the SBMWD reserves the right to revisit and review the Water Supply Assessment if any changes occur to the project. The purpose of the review would be to determine if SBMWD has a sufficient water supply to accommodate the project changes and revise the Water Supply Assessment accordingly in accordance with the provisions of the Water Code §10910 et seq.

This review is only an assessment of the water supply availability and does not address the water infrastructure needs.

Primary Source Documents

SBMWD Urban Water Management Plan, 2010

SBMWD Water Master Plan, 2007 Final Report

California Department of Water Resources, Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, 2003

City of San Bernardino General Plan (November 2005)

Upper Santa Ana River Watershed Integrated Regional Water Management Plan, November 2007, San Bernardino Valley Municipal Water District

The State Water Project Delivery Reliability Report – 2011 Final Report, June 2012

Santa Ana Watershed Integrated Regional Water Management Plan (IRWMP), also known as “One Water One Watershed” (OWOW) Plan, November 2010

Appendix A

Letter Requesting Water Supply Assessment

CITY OF SAN BERNARDINO
Community Development Department
Inter-Office Memorandum

TO: Stacey Aldstadt, General Manager, Water Department

FROM: Tony Stewart, Acting Community Development Director

DATE: September 25, 2013, 2013

SUBJECT: WATER SUPPLY ASSESSMENT FOR 1.2 MILLION SQUARE FOOT INDUSTRIAL BUILDING PROPOSED ON ASSESSOR'S PARCELS 0281-021-46 – 49, 0281-031-50, -81, -90, -91

COPIES: Matt Litchfield, P.E., Water Utility Director, Ted Brunson, Water Utility Engineering Technician

The Hillwood Alliance California Gateway South Building 3 Project is a light industrial warehouse project proposed to be developed on approximately 49.58 acres of land. The Hillwood project will consist of one warehouse with a total of 1,199,360 square feet of space and 773 parking stalls. The project is proposed to be located on Assessor's parcels 0281-021-46 – 49, 0281-031-50, -81, -90, -91, bounded by Orange Show Road to the north, the Santa Ana River to the southeast, the BNSF railroad to the southwest and Waterman Avenue to the west.

The project development is consistent with the City's General Plan land uses. The indoor water demand for the project was estimated using a water coefficient for light industrial land use multiplied by the site acreage, which resulted in a demand of 70 gallons per minute (or 113 acre-feet per year). Outdoor demand was estimated using the anticipated square feet of irrigated area multiplied by a landscape water use coefficient, which resulted in a demand of 90 gallons per minute (or 145 acre-feet per year). Total estimated water demand is therefore 160 gallons per minute (or 258 acre-feet per year).

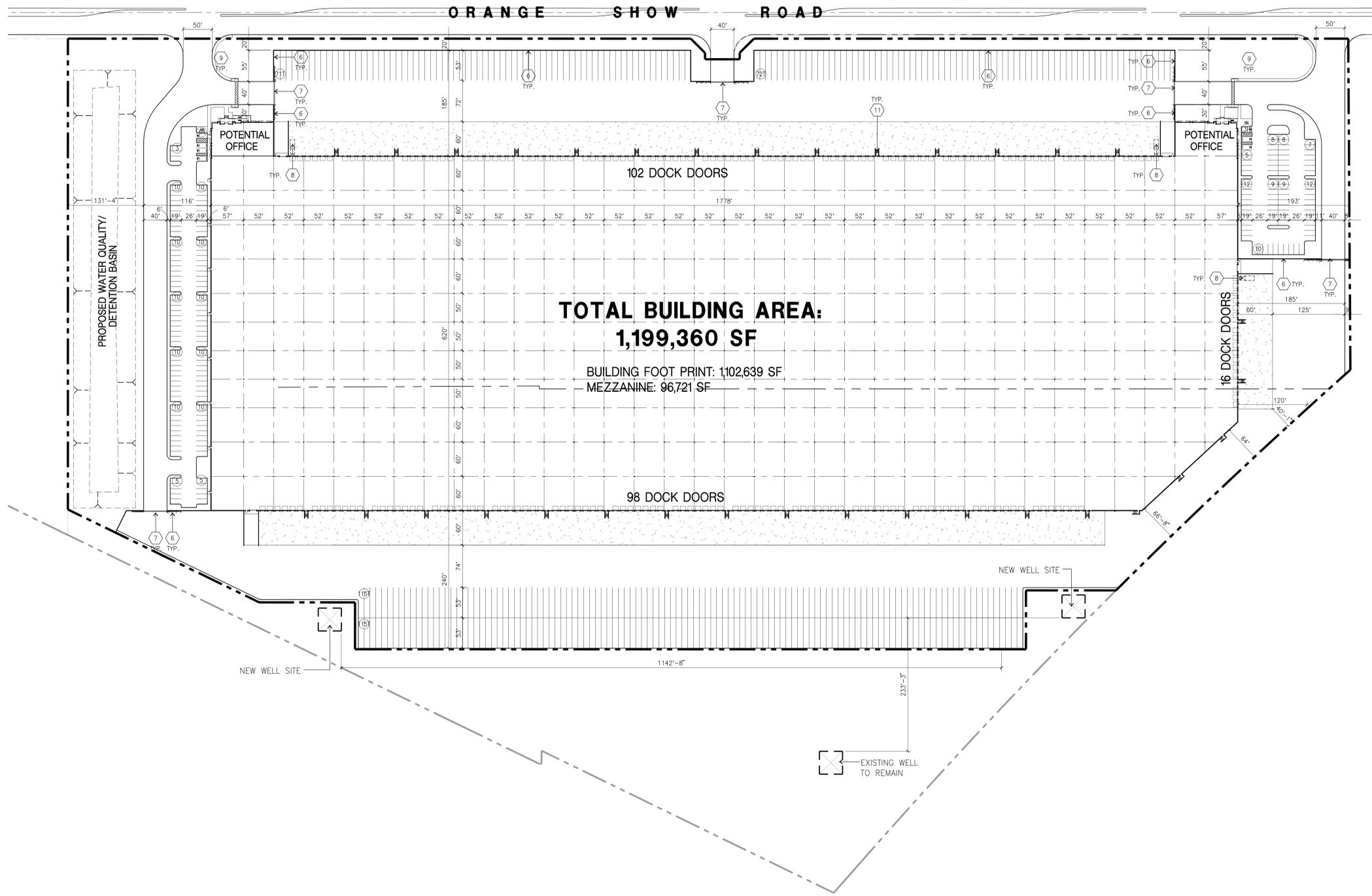
This project exceeds the threshold of 650,000 square feet to be defined as a "project" pursuant to Section 10912(5) of the Water Code. Therefore, a Water Supply Assessment (WSA) is required pursuant to Public Resources Code Section 21151.9 and Water Code Section 10910, et. seq. The applicant has submitted project information and water demand estimates for the project.

The applicant will be responsible for costs associated with the WSA. Please contact me with cost information and I will either process a transfer of funds on deposit for this project, or will arrange for direct payment by the applicant.

Attachments: Water demand estimates and site plan

Appendix B

Conceptual Site Plan Layout

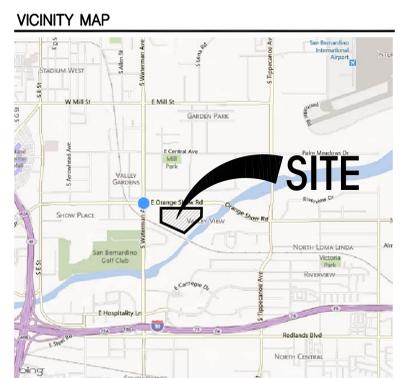


- ### SITE PLAN KEYNOTES
- 1 HEAVY BROOM FINISH CONC. PAVEMENT. SEE "C" & "S" DWGS.
 - 2 NOT USED
 - 3 CONCRETE WALKWAY, SEE "L" DRAWINGS.
 - 4 DRIVEWAY APRONS TO BE CONSTRUCTED PER "L" DRAWINGS.
 - 5 5'-6" X 5'-6" X 4" MIN. THICK CONCRETE EXTERIOR LANDING PAD TYP. AT ALL EXTERIOR MAN DOORS TO LANDSCAPED AREAS. FINISH TO BE MEDIUM BROOM FINISH. SLOPE TO BE 1/4" : 12" MAX. PROVIDE WALK TO PUBLIC WAY OR DRIVE WAY W/ 120 MAX. AS REQ. BY CITY INSPECTOR.
 - 6 CONCRETE TILT-UP SCREEN WALL - TO BE TREATED TO MATCH THE ADJACENT BUILDING WALL.
 - 7 PROVIDE METAL MANUAL OPERATED GATES W/ KNOX-PAD LOCK PER FIRE DEPARTMENT STANDARDS PER DRIVEWAY. GATE TO BE DESIGNED FOR 85 MPH WIND LOAD, EXP. "C". CONTRACTOR TO DESIGN & DETAIL GATES, PROVIDE SHOP DRAWINGS & CALCS. PRIOR TO FABRICATION.
 - 8 7' SIDE X 15' LONG TRASH COMPACTOR W/ 8" WIDE X 22" LONG REFUSE CONTAINER. PER THE CITY OF SAN BERNARDINO STANDARDS.
 - 9 LANDSCAPE. SEE "L" DWGS. LANDSCAPE AREAS INDICATED BY SHADED PATTERN.
 - 10 8'H BLACK VINYL COATED CHAIN-LINK FENCE
 - 11 EXTERIOR CONC. STAIR.
 - 12 8"H TUBULAR STEEL FENCE
 - 13 BIKE RACK
 - 14 PUMP HOUSE

- ### SITE PLAN GENERAL NOTES
1. NOT USED
 2. IF SOILS ARE EXPANSIVE IN NATURE, USE STEEL REINFORCING FOR ALL SITE CONCRETE.
 3. ALL DIMENSIONS ARE TO THE FACE OF CONCRETE WALL, FACE OF CONCRETE CURB OR GRID LINE UNL.C.
 4. SEE "C" PLANS FOR ALL CONCRETE CURBS, GUTTERS AND SWALES. DETAILS ON SHEET AD.1 ARE MINIMUM STANDARDS.
 5. THE ENTIRE PROJECT SHALL BE PERMANENTLY MAINTAINED WITH AN AUTOMATIC IRRIGATION SYSTEM, PRIOR TO INSTALLATION & AT LEAST 60 DAYS BEFORE BLDG. COMPLETION.
 6. SEE "C" DRAWINGS FOR POINT OF CONNECTIONS TO OFF-SITE UTILITIES. CONTRACTOR SHALL VERIFY ACTUAL UTILITY CONTRACTOR SHALL VERIFY ACTUAL UTILITY LOCATIONS.
 7. PROVIDE POSITIVE DRAINAGE AWAY FROM BLDG. SEE "C" DRAWINGS.
 8. CONTRACTOR TO REFER TO "C" DRAWINGS FOR ALL HORIZONTAL CONTROL DIMENSIONS. SITE PLANS ARE FOR GUIDANCE AND STARTING LAYOUT POINTS.
 9. SEE "C" DRAWINGS FOR FINISH GRADE ELEVATIONS.
 10. CONCRETE SIDEWALKS TO BE A MINIMUM OF 4" THICK W/ TOOLED JOINTS AT 6' O.C. EXPANSION/CONSTRUCTION JOINTS SHALL BE A MAXIMUM 12' EA. WAY W/ 1:20 MAX. SLOPE. EXPANSION JOINTS TO HAVE COMPRESSIVE EXPANSION FILLER MATERIAL OF 1/4". SEE "L" DRAWINGS FOR FINISH.
 11. NOT USED
 12. PAINT CURBS AND PROVIDE SIGNS TO INFORM OF FIRE LANES AS REQUIRED BY FIRE DEPARTMENT.
 13. CONSTRUCTION DOCUMENTS PERTAINING TO THE LANDSCAPE AND IRRIGATION OF THE ENTIRE PROJECT SITE SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT AND APPROVED BY PUBLIC FACILITIES DEVELOPMENT PRIOR TO ISSUANCE OF BUILDING PERMITS.
 14. PRIOR TO FINAL CITY INSPECTION, THE LANDSCAPE ARCHITECT SHALL SUBMIT A CERTIFICATE OF COMPLETION TO PUBLIC FACILITIES DEVELOPMENT.
 15. NOT USED
 16. ALL LANDSCAPE AND IRRIGATION DESIGNS SHALL MEET CURRENT CITY STANDARDS AS LISTED IN GUIDELINES OR AS OBTAINED FROM PUBLIC FACILITIES DEVELOPMENT.
 17. NOT USED.
 18. LANDSCAPED AREAS SHALL BE DELINEATED WITH A MINIMUM SIX INCHES (6") HIGH CURB
 19. APPROVED CONCEPTUAL LANDSCAPE PLAN PRIOR TO GRADING PERMIT

- ### SITE LEGEND
- LANDSCAPED AREA
 - CONCRETE PAVING SEE "C" DWGS. FOR THICKNESS
 - STANDARD PARKING STALL (9' X 19')
 - HANDICAP PARKING STALL (9' X 19')
 - PATH OF TRAVEL
 - LIGHT STANDARD
 - EXISTING PUBLIC FIRE HYDRANT
 - PRIVATE FIRE HYDRANT - APPROXIMATE LOCATION

OVERALL SITE PLAN
scale: 1" = 80'-0"



PROJECT INFORMATION

Owner / Applicant
HILLWOOD INVESTMENTS
268 W. HOSPITALITY LANE #105
SAN BERNARDINO, CA 92408
TEL: (909) 382-0033
CONTACT: NED SCIORTINO

Civil Engineer
THIENES ENGINEERING, INC.
14349 FIRESTONE BLVD.
LA MIRADA, CA 90638
TEL: (714) 521-4811
CONTACT: REINHARD STENZEL

Architect
HPA, INC.
18831 BARDEEN AVE. SUITE #100
IRVINE, CA 92612
TEL: (949) 863-1770
CONTACT: INKON KIM

Landscape Architect
HUNTER LANDSCAPE
711 S. FEE ANA ST.
PLACENTIA, CA 92870
TEL: (714) 986-2400
CONTACT: TOM HAYES

Assessors Parcel Number
0281-021-46-0-0000
0281-021-47-0-0000
0281-021-48-0-0000
0281-021-49-0-0000
0281-031-81-0-0000
0281-031-50-0-0000
0281-031-50-0-0000
0281-031-91-0-0000

Construction Type:
BUILDING III-B

PROJECT DATA

Site Area	Total
2,159,505 sf	
49.58 acres	
Building Area	
office area	10,000 sf
warehouse area	1,092,639 sf
mezz.	96,721 sf
Total Building Area	1,199,360 sf
Coverage	
	55.5%
Parking Required	
11,250 sf	959 stalls
Parking Provided	
standard	193 stalls
handicap	7 stalls
Total auto parking provided	200 stalls
trailers	373 stalls
trailers st dock doors	200 stalls
Total parking provided (trailer and auto)	773 stalls

hpa, inc.
18831 bardeen avenue - ste. #100
irvine, ca
92612
tel: 949-863-1770
fax: 949-863-0851
email: hpa@hparcns.com

Owner

268 W. HOSPITALITY LANE - STE # 105
San Bernardino, CA 92408
tel: 909-382-0033
fax: 909-382-0073

Project:

Alliance California Gateway South Building 3

Consultants:

CIVIL	THIENES
STRUCTURAL	-
MECHANICAL	-
PLUMBING	-
ELECTRICAL	-
LANDSCAPE	HUNTER LANDSCAPE
FIRE PROTECTION	-
SOILS ENGINEER	-

Title: **SITE PLAN**

Project Number: 11253
Drawn by: G.V.
Date: 07/10/12

Revision:
SEPT. 06, 2013
SEPT. 12, 2013

Sheet: **A1.1**

Appendix C

Water Demands for Alliance California Gateway South Building 3

09-23-13 JN 3158

Lot

Site Area AC 49.58

City Exhibit III Calculations

Industrial Light GPM / Acre 1.42

Site Average Demand GPM **70.40**

Maximum Day Demand GPM x 1.73 121.79

Peak Hour Demand GPM x 1.73 x 2.0 243.58

Average Gallons Per Day 101,376

Landscape GPM Demand **90**

