Section 15.5
Water Supply Assessment

Section 15.5a
Water Supply Assessment
RBF Consulting – December 2006

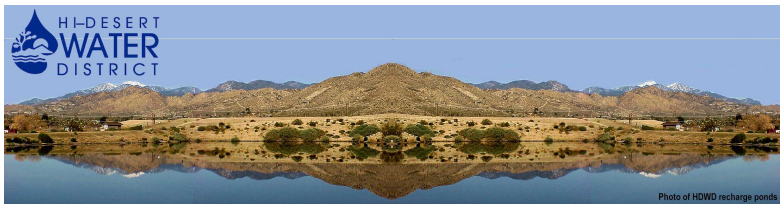
DRAFT

WATER SUPPLY ASSESSMENT

OLD TOWN YUCCA VALLEY

SPECIFIC PLAN

Town of Yucca Valley



December 2006

RBF CONSULTING

TABLE OF CONTENTS

Page

FIGURES

TABLES

Page

Page

APPENDIX

I. Introduction

The intent of Senate Bill (SB) 610 (Chapter 643, Statutes of 2001) and SB 221 (Chapter 642, Statutes of 2001), both effective January 1, 2002, is to improve the link between information on water supply availability and certain land use decisions made by public agencies. Both bills are companion measures that seek to promote a more collaborative effort between local water suppliers and public agencies such as Cities and Counties. SB 610 and SB 221 require detailed information regarding water availability to be provided to public agencies' decisions-makers prior to approval of projects. Both measures also require that this detailed information be included in the administrative record that serves as evidence for the approval of the development project by local governments.

SB 221 applies only to larger scale residential projects that require subdivision maps. SB 610, on the other hand, applies to a variety of housing types, including large apartment complexes and hotels, which may not require subdivision maps. SB 610 also applies to non-residential developments that create a water demand comparable to or greater than a 500 dwelling unit residential subdivision. Therefore, since the proposed project is a re-development of a mixed-use downtown area and does not require a subdivision map, SB 610 is the only applicable measure.

Under SB 610, water supply assessments (WSA) must be provided to local agencies for inclusion in environmental documentation for certain projects as defined in Water Code 10912 (a), subject to the California Environmental Quality Act (CEQA). The WSA for the Old Town Yucca Valley Specific Plan (Project) is being prepared to describe the relationship between projected water demands on Hi-Desert Water District's water supply and the availability of that supply under normal, single dry, and multiple dry years. The WSA is a comprehensive document which is prepared to assist the Hi-Desert Water District's Board of Directors in making decisions related to water supply from the present until 2030 and clearly communicate the water supply availability to the land use officials of the Town of Yucca Valley and San Bernardino County.

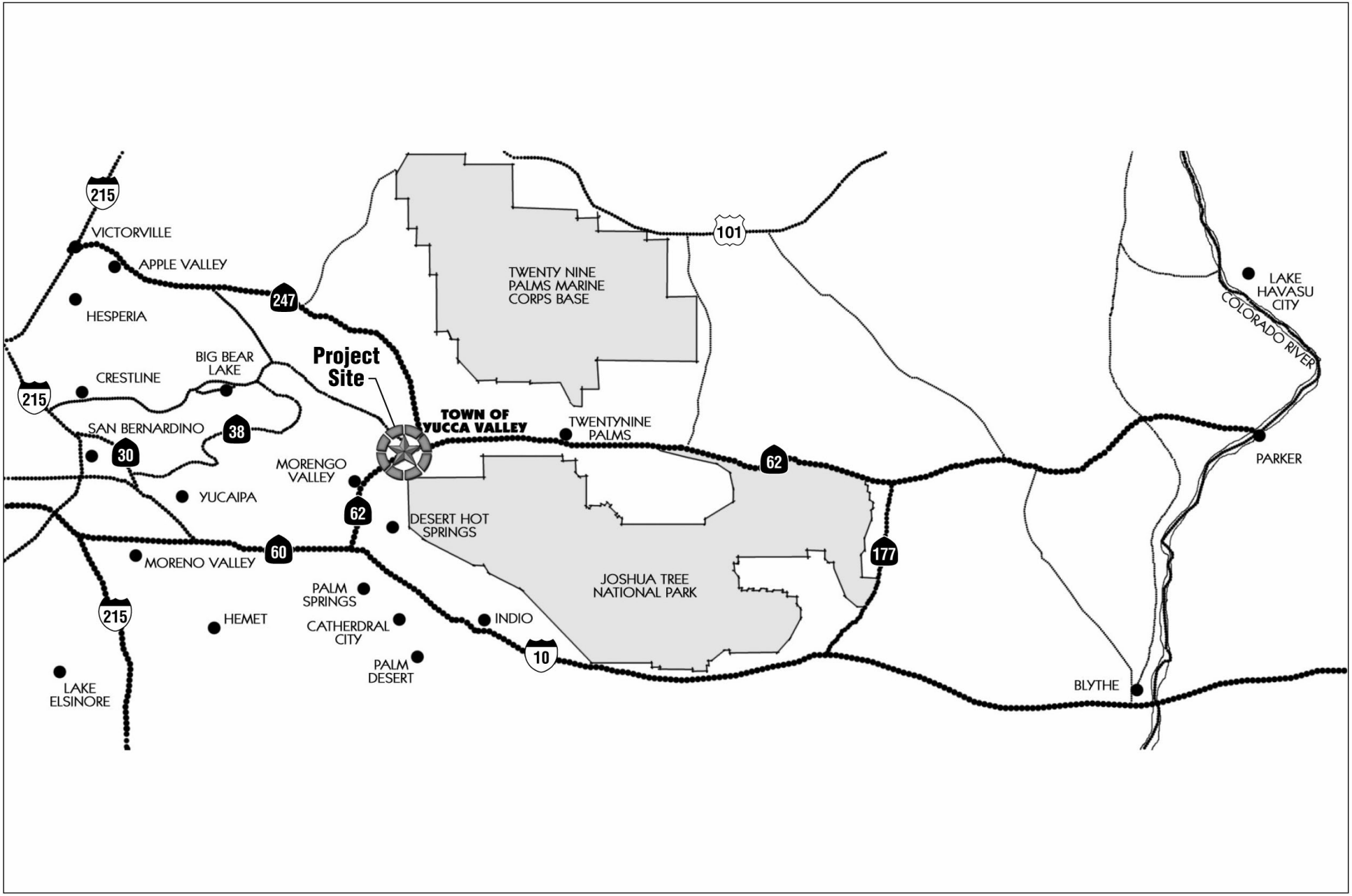
II. Background

The Hi-Desert Water District (HDWD, District) was formed in 1962 through the combination of multiple water agencies that were formed during the development of Yucca Valley area. With a service area of 50 square miles, the District provides water services to areas within the Town of Yucca Valley and portions of the unincorporated area within the County of San Bernardino. The District serves approximately 25,000 people with just fewer than 10,000 service connections.

The Town of Yucca Valley has identified the need to improve the economic vitality and livability of the Old Town area. Therefore, the Old Town Yucca Valley Specific Plan (Project) was developed with a goal of re-developing and enhancing the Town's overall economic base and the historic Old Town area. The Project includes re-development of approximately 184 acres. Existing land uses within the study area consist of residential, commercial, industrial, and civic. HDWD currently provides water service to the existing land uses within the study area. The proposed Project would allow a maximum of 1,115 residential units and up to 2,900,604 SF of buildings for a variety of uses, including residential, commercial/retail, industrial/commercial, office, and civic.

Project Location

Regionally, the Old Town area is located near the western end of Yucca Valley along State Route 62 (SR-62), within San Bernardino County, California (Refer to Figure 1, Regional Vicinity). The Specific Plan project area encompasses approximately 265 gross acres along SR-62 between Church Street on the east and Kickapoo Trail on the west, and between Yucca Trail on the north and just south of Santa Fe Trail on the south (Refer to Figure 2, Site Vicinity).



RBF CONSULTING

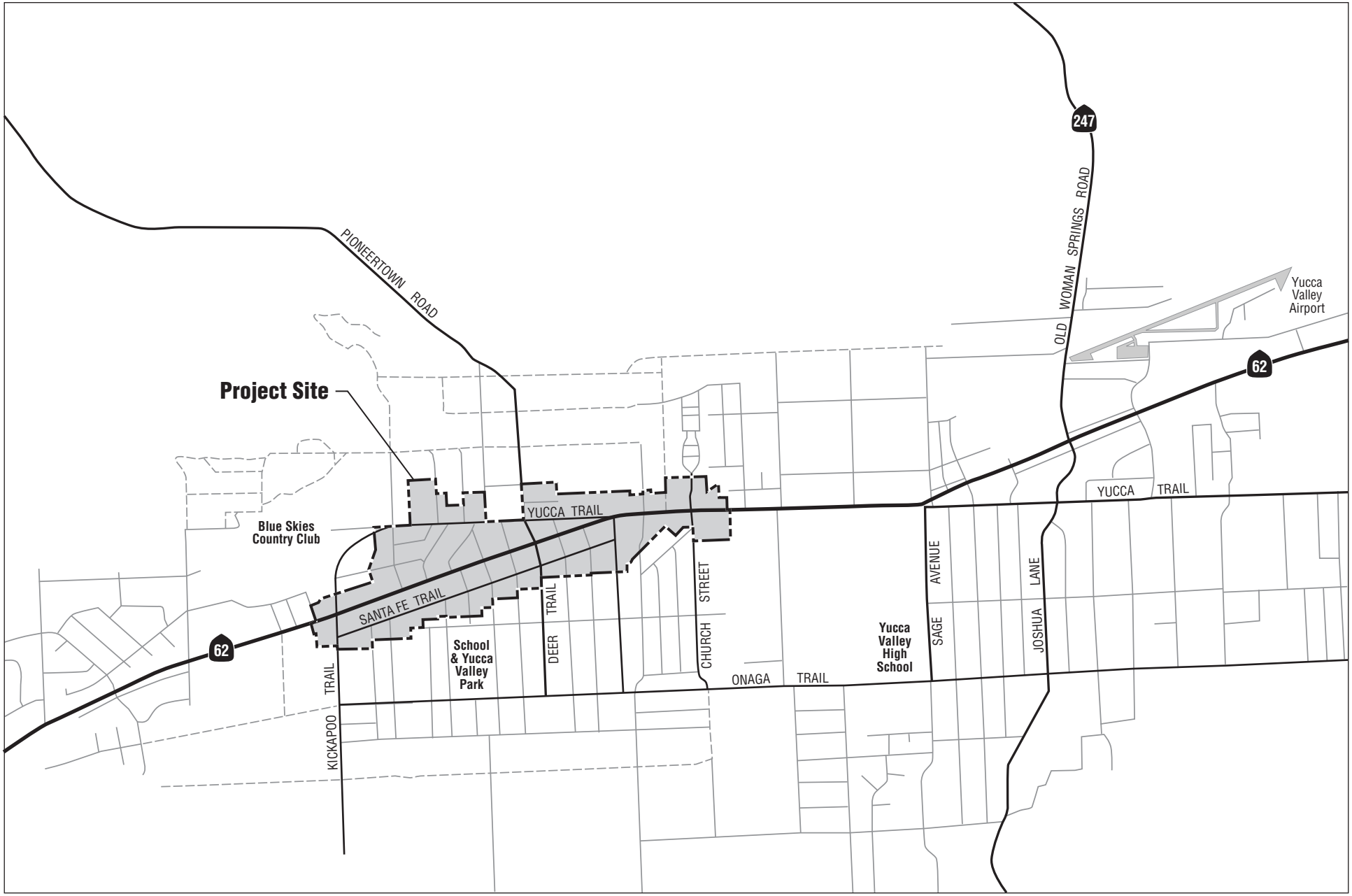
not to scale

7/27/06 JN 10-104893-13142

OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Regional Vicinity

Figure 1



RBF CONSULTING

0 2400'
APPROXIMATE

7/27/06 JN 10-104893-13142

OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Site Vicinity

Figure 2

III. Purpose of Report

The Town of Yucca Valley is currently preparing an environmental impact report (EIR) in accordance with the requirements of the California Environmental Quality Act (CEQA). As the proposed water purveyor, and in accordance with Water Code Section 10910 and Senate Bill (SB) 610, the Hi-Desert Water District must prepare a Water Supply Assessment to ensure sufficient water supply is available to serve the Project upon development.

Law

> Water Code section 10910 requires a city or county that determines a project is subject to the California Environmental Quality Act to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment, except as otherwise specified. The bill requires the assessment to include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
>
> The bill prescribes a timeframe within which a public water system is required to submit the assessment to the city or county and authorizes the city or county to seek a writ of mandamus to compel the public water system to comply with requirements relating to the submission of the assessment.
>
> The bill requires the public water system, or the city or county, as applicable, if that entity concludes that water supplies are, or will be, insufficient, to submit the plans for acquiring additional water supplies.
>
> The bill requires the city or county to include the water supply assessment and certain other information in any environmental document prepared for the project pursuant to the act.

This "Water Supply Assessment" (WSA) Report is produced by the Hi-Desert Water District to meet the requirements of Senate Bill (SB) 610 in support of the Old Town Yucca Valley Specific Plan (Project) and the California Environmental Quality Act (CEQA) review process. The Hi-Desert Water District has prepared an Urban Water Management Plan (UWMP) for the year 2005 and it is used in this assessment. The District's Board of Directors adopted the UWMP on April 5, 2006.

IV. Project Description

The Old Town Yucca Valley Specific Plan is a re-development of the existing Old Town area. The Project provides for the development of four planning districts: the Old Town Mixed-use District, Old Town Commercial/Residential District, Old Town Industrial/Commercial District, and the Old Town Highway Commercial District. An additional overlay district, the Highway Environs Overlay, provides additional development requirements for those areas that may be affected by the potential realignment of SR-62 and require additional discretionary review. The Project would allow a maximum of 1,115 residential units and up to 2,900,604 SF of buildings for a variety of uses, including commercial/retail, industrial/commercial, office, and civic. Table 1 (Land Use Plan Buildout Summary) provides details for each planning district.

Table 1
Land Use Plan Buildout Summary

District and Land Use Type(s)	Old Town Yucca Valley Specific Plan Buildout		
	Dwelling Units	**Building Square Feet**	**Parcel Acreage**
Old Town Mixed-Use			
Commercial/Retail - up to 1.00 FAR; Residential – up to 40 du/ac	465	759,317	29
Old Town Highway Commercial			
Commercial/Retail – up to 0.35 FAR; Residential – none	0	889,684	58
Old Town Commercial/Residential			
Commercial/Retail – up to 0.40 FAR; Residential – up to 24 du/ac	413	699,769	57
Old Town Industrial/Commercial			
Industrial/Commercial – up to 0.40 FAR; Res. – up to 30 du/ac	238	551,834	40
Totals	**1,115**	**2,900,604**	**184**

Source: *Old Town Yucca Valley Specific Plan*, RBF Consulting's Urban Design Studio, May 5, 2006.

Note: FAR = Floor Area Ratio; du/acre = Dwelling Units per Acre.

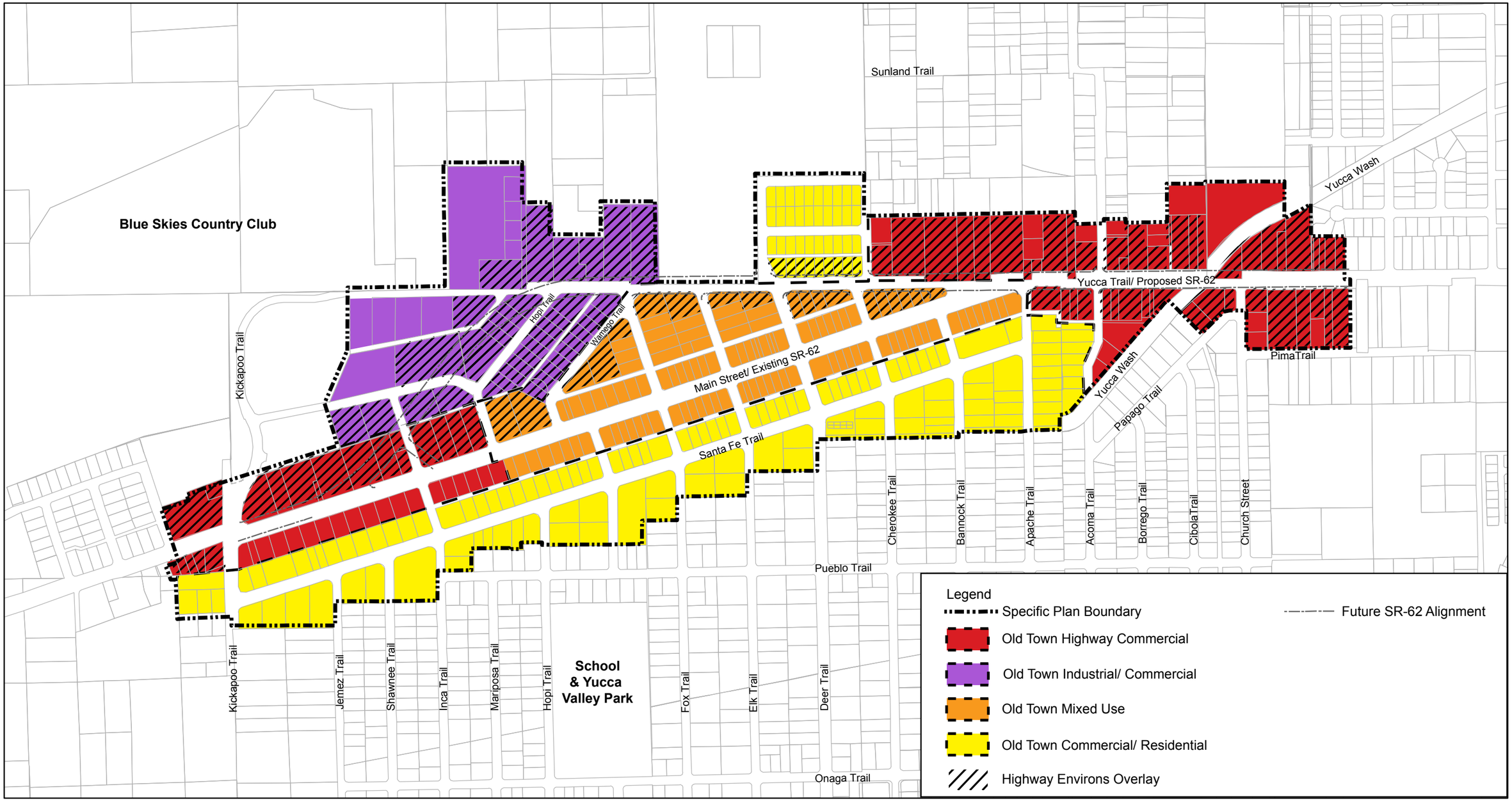
A detailed table of the existing land uses was created for the Project area in a previous study titled, *Yucca Valley Revitalization Project – Old Town Specific Plan Draft Utility Plan* (RBF Consulting, 2005). The table from the Utility Plan is included as Table 2, for reference between existing and buildout land uses. Existing land uses are categorized based upon the Project's proposed planning districts. Table 2 also details the net change, from existing to future, of dwelling units and building square footage for each proposed planning district.

The four proposed planning districts are made up of both residential and non-residential land uses. Refer to Figure 3 for the proposed land use map, and planning district locations.

TABLE 2
YUCCA VALLEY OLD TOWN SPECIFIC PLAN
LAND USE COMPARISON - EXISTING TO BUILDOUT

	EXISTING DEVELOPMENT				PROPOSED LAND USES				PROPOSED BUILDOUT		NET CHANGE (FUTURE - EXISTING)	
	Land Use Type	Existing Acreage	Existing Units	Existing SF	Land Use Type	Density du/ac	Intensity FAR	Distribution (%)	Buildout Units	Buildout SF	Total Units	Total SF
OLD TOWN MIXED USE	auto repair	1.006	0	5,476	Commercial/ Retail		1.00	0.60	0	759,317		
	auto sales	0.398	0	1,041								
	car wash	0.148	0	1,182								
	commercial	5.601	0	63,474								
	dental office	0.215	0	10,640								
	gas station	0.610	0	3,858								
	hotel/motel	0.309	1	6,072								
	industrial	5.256	0	46,607	Residential	40		0.40	465	0		
	low density	0.461	1	0								
	medical office	0.962	0	13,130								
	mini-storage	2.411	0	4,265								
	office	1.146	0	7,000								
	restaurant	1.407	0	17,368								
	vacant	9.121	0	2,057								
	TOTAL	**29.053**	**2**	**182,170**					**465**	**759,317**	**463**	**577,147**
OLD TOWN HIGHWAYCOMMERCIAL	auto repair	3.081	0	19,249	Commercial/Retail	0	0.35	1.00	0	889,684		
	auto sales	2.636	0	11,222								
	commercial	17.394	0	97,652								
	high density	0.523	0	0								
	hotel/motel	2.371	12	55,907								
	low density	0.994	1	0								
	medical office	0.687	0	4,800								
	meeting hall	1.800	0	9,938								
	mini-storage	6.464	0	40,952								
	office	2.574	0	22,954								
	park-n-ride	1.055	0	0								
	restaurant	3.083	0	13,430								
	rv park	1.305	0	1,740								
	unknown	0.012	0	0								
	vacant	14.379	0	0								
	TOTAL	**58.355**	**13**	**277,844**					**0**	**889,684**	**-13**	**611,840**
OLD TOWN COMMERCIAL/ RESIDENTIAL	church	2.577	0	16,887	Commercial/ Retail		0.40	0.70	0	699,769		
	civic	0.634	0	944								
	commercial	3.307	0	33,408								
	high density	3.360	22	0								
	hotel/motel	0.247	9	2,864								
	industrial	1.921	0	18,288								
	low density	18.747	83	0	Residential	24		0.30	413	0		
	medical office	3.435	0	56,902								
	office	1.785	0	19,596								
	pet hospital	0.451	0	6,334								
	vacant	20.910	0	0								
	TOTAL	**57.373**	**114**	**155,223**					**413**	**699,769**	**299**	**544,546**
OLD TOWN INDUSTRIAL	civic	2.065	0	993	Industrial		0.40	0.80	0	551,834		
	industrial	32.530	0	96,603								
	mini-storage	0.595	0	0	Residential	30		0.20	238	0		
	vacant	4.399	0	0								
	TOTAL	**39.589**	**0**	**97,596**					**238**	**551,834**	**238**	**454,238**
	EXISTING TOTAL	**184.370 acres**	**129 units**	**712,833 SF**				**PROPOSED BUILDOUT TOTAL**	**1,115 units**	**2,900,604 SF**	**986 units**	**2,187,771 SF**

Abbreviations: SF = square feet, du = dwelling unit, ac = acre, FAR = floor to area ratio



RBF CONSULTING

NOT TO SCALE

10103453

Old Town Yucca Valley Specific Plan

Proposed Land Use Map

Figure 3

V. Project Applicability

Law

> 10910. (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.
>
> 10912. For the purposes of this part, the following terms have the following meanings:
> (a) "Project" means any of the following:
> (1) A proposed residential development of more than 500 dwelling units.
> (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
> (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
> (4) A proposed hotel or motel, or both, having more than 500 rooms.
> (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
> (6) A mixed-use project that includes one or more of the projects specified in this subdivision.
> (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The Old Town Yucca Valley Specific Plan requires a water supply assessment pursuant to SB 610 under §10912(a)(1). The re-development is a 'Project' as defined by Water Code Section 10910 as the proposed zoning will yield a development of greater than 500 dwelling units.

VI. Identification of Public Water System

Law

> 10910. (b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

The Project is proposed for water service from the Hi-Desert Water District (HDWD, District). The District currently serves the Town of Yucca Valley and has provided service to the Town since 1962.

VII. Schedule

Law

> 10910. (g) (1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.
>
> (2) Prior to the expiration of the 90-day period, if the public water system intends to request an extension of time to prepare and adopt the assessment, the public water system shall meet with the city or county to request an extension of time, which shall not exceed 30 days, to prepare and adopt the assessment.
>
> (3) If the public water system fails to request an extension of time, or fails to submit the assessment notwithstanding the extension of time granted pursuant to paragraph (2), the city or county may seek a writ of mandamus to compel the governing body of the public water system to comply with the requirements of this part relating to the submission of the water supply assessment.

The Town of Yucca Valley has made no formal request for this water supply assessment (WSA). The WSA is written in order to expedite and facilitate CEQA review and approvals.

VIII. Project Water Demand

The proposed Old Town Yucca Valley Specific Plan (Project) is a re-development of existing land uses. Therefore, this assessment will utilize both existing and ultimate water demands in the analysis of the study area. The impact of the Project on HDWD will be based on the net difference of existing water demands and ultimate water demands.

The existing and ultimate water demands for the study area were estimated in a previous study titled *Yucca Valley Revitalization Project – Old Town Specific Plan Draft Utility Plan* (RBF Consulting, September 2005). In this study, water demands were estimated using factors from the District's 2001 Water Master Plan. The study concluded that the District's factors were quite low by current-day standards, which is acknowledged in the 2001 water master plan. The Utility Study also calculated the water demands using factors from Eastern Municipal Water District, which represent current-day standards more accurately. Since this study, the District has produced new factors for it's 2006 Water Master Plan. As a result, this assessment has re-estimated the existing and ultimate water demands based on the new factors. Refer to Appendix A for the water demand estimate tables of the Utility Study.
According to SB 610, the projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection must meet the projected water demand associated with the Project, in addition to the District's existing and planned future uses. Therefore, the supply and demand analysis is carried through to the year 2030.

Water Demand Factors

In order to estimate existing and ultimate water demands, water demand factors are necessary. According to the UWMP (2005), the District assumes a typical household uses 0.28 acre-ft/year (250 gallons/day). The UWMP does not specifically state water demand factors for land uses other than residential. The District's Draft Water Master Plan (DWMP) has estimated that a typical household uses 0.39 acre-ft/year (350 gallons/day). The DWMP also provides water demand factors for selected land use types. Table 3 is derived from Table 5 of the DWMP and summarizes the water demand factors pertinent to this

assessment.

Table 3
Water Demand Factors

Land Use Type	Abbreviation	WDF (calculated) (gpd/acre) [1]	WDF (planning) (gpd/acre) [2]
Commercial	COM	470	1,000
Industrial	IND	310	850
Low Density Residential	LDR	350	540
Medium Density Residential	MDR	750	1,250
High Density Residential	HDR	1,280	4,300
Public Facilities	PUBLIC	800	800

Source: Hi-Desert Water District Draft Water Master Plan
Abbreviations: WDF = Water Demand Factor, gpd = gallon per day
[1] WDF's computed by the District based on global demand sampling
[2] WDF's used by the District for projecting future demands

To remain conservative and be prudent in the estimation of existing and ultimate water demands, the "Planning" water demand factors are utilized for this assessment. Review of the Project's proposed residential land use densities showed that the "High Density" WDF was not adequate for estimating water demand. At a density of 40 dwelling units per acre (as proposed for the re-development plan), the DWMP WDF's estimate an average household demand of 108 gallons/day. This estimate is much lower than the 250-350 gallon/day per household range given by the UWMP and DWMP. Therefore, an in-depth analysis of the residential WDF's was performed in order to produce demand factors, based on density (du/acre), that would equate household water demands into the average range of 250-350 gallon/day. Table 4 presents the expanded residential water demand factors used for this assessment.

Table 4
Expanded Water Demand Factors

Land Use Type [1]	Density Range (du/acre)	WDF (expanded) (gpd/acre) [2]
Low Density Residential	0 – 2	540
Medium Density Residential	3 – 5	1,250
Medium Density Residential	6 – 8	2,100
Medium Density Residential	9 – 13	3,150
High Density Residential	14 – 17	4,300
High Density Residential	18 – 25	6,300
High Density Residential	26 – 36	9,100
High Density Residential	37 – 52	12,950

Abbreviations: du = dwelling unit, WDF = Water Demand Factor, gpd = gallon per day
[1] Italicized Land Use Types represent expanded water demand factors
[2] Based on Table 3 above, original WDF's from DWMP Table 5 were incorporated into the expanded WDF table

Existing Water Demand

Existing land uses located in the Project study area include residential, commercial, industrial, and civic. An existing water demand must be calculated to quantify the Project's net change to HDWD's annual water demand. The existing water demand was calculated using water demand factors from Table 4. The existing land uses detailed in Table 2 are used herein to calculate existing water demand. Existing water demand was estimated to be 144,551 gallons per day (161.9 acre-feet/year). Refer to Table 5 for the detailed water demand calculations. Table 5 categorizes the existing water demands based on the proposed planning districts.

Ultimate Water Demand

At buildout, the Project site will consist of residential, commercial/retail, industrial, office, and civic land uses. The ultimate water demand for the Project was calculated using water demand factors from Table 4. Ultimate water demand was estimated to be 474,005 gallons per day (531.0 acre-feet/year). Refer to Table 6 for the detailed water demand calculations. Table 6 categorizes the ultimate water demands based on the proposed planning districts.

TABLE 5
YUCCA VALLEY OLD TOWN SPECIFIC PLAN
EXISTING WATER DEMAND ESTIMATE

DISTRICT / LAND USE TYPE	GROSS AREA (ac)	UNITS (du)	BUILDING AREA (sf)	WATER DEMAND FACTOR [1]	AVERAGE DAY DEMAND (gpd)	AVERAGE DAY DEMAND (AFY)
OLD TOWN MIXED USE						
auto repair	1.006	0	5,476	1,000 gpd/ac	1,006	1.1
auto sales	0.398	0	1,041	1,000 gpd/ac	398	0.4
car wash	0.148	0	1,182	1,000 gpd/ac	148	0.2
commercial	5.601	0	63,474	1,000 gpd/ac	5,601	6.3
dental office	0.215	0	10,640	1,000 gpd/ac	215	0.2
gas station	0.610	0	3,858	1,000 gpd/ac	610	0.7
hotel/motel [2]	0.309	1	6,072	4,300 gpd/ac	1,330	1.5
industrial	5.256	0	46,607	850 gpd/ac	4,468	5.0
low density residential	0.461	1	0	540 gpd/ac	249	0.3
medical office	0.962	0	13,130	1,000 gpd/ac	962	1.1
mini-storage	2.411	0	4,265	850 gpd/ac	2,050	2.3
office	1.146	0	7,000	1,000 gpd/ac	1,146	1.3
restaurant	1.407	0	17,368	1,000 gpd/ac	1,407	1.6
vacant	9.121	0	2,057	0 gpd/ac	0	0.0
TOTAL	**29.053**	**2**	**182,170**	**-**	**19,590**	**21.9**
OLD TOWN HIGHWAY COMMERCIAL						
auto repair	3.081	0	19,249	1,000 gpd/ac	3,081	3.5
auto sales	2.636	0	11,222	1,000 gpd/ac	2,636	3.0
commercial	17.394	0	97,652	1,000 gpd/ac	17,394	19.5
high density residential	0.523	0	0	4,300 gpd/ac	2,248	2.5
hotel/motel [2]	2.371	12	55,907	4,300 gpd/ac	10,194	11.4
low density residential	0.994	1	0	540 gpd/ac	537	0.6
medical office	0.687	0	4,800	1,000 gpd/ac	687	0.8
meeting hall	1.800	0	9,938	800 gpd/ac	1,440	1.6
mini-storage	6.464	0	40,952	850 gpd/ac	5,494	6.2
office	2.574	0	22,954	1,000 gpd/ac	2,574	2.9
park-n-ride	1.055	0	0	0 gpd/ac	0	0.0
restaurant	3.083	0	13,430	1,000 gpd/ac	3,083	3.5
rv park	1.305	0	1,740	800 gpd/ac	1,044	1.2
unknown [3]	0.012	0	0	1,000 gpd/ac	12	0.0
vacant	14.379	0	0	0	0	0.0
TOTAL	**58.355**	**13**	**277,844**	-	**50,423**	**56.5**
OLD TOWN COMMERCIAL/ RESIDENTIAL						
church	2.577	0	16,887	800 gpd/ac	2,061	2.3
civic	0.634	0	944	800 gpd/ac	507	0.6
commercial	3.307	0	33,408	1,000 gpd/ac	3,307	3.7
high density residential	3.360	22	0	2,100 gpd/ac	7,057	7.9
hotel/motel [2]	0.247	9	2,864	4,300 gpd/ac	1,061	1.2
industrial	1.921	0	18,288	850 gpd/ac	1,633	1.8
medium density residential	18.747	83	0	1,250 gpd/ac	23,433	26.3
medical office	3.435	0	56,902	1,000 gpd/ac	3,435	3.8
office	1.785	0	19,596	1,000 gpd/ac	1,785	2.0
pet hospital	0.451	0	6,334	1,000 gpd/ac	451	0.5
vacant	20.910	0	0	0	0	0.0
TOTAL	**57.373**	**114**	**155,223**	-	**44,730**	**50.1**
OLD TOWN INDUSTRIAL						
civic	2.065	0	993	800 gpd/ac	1,652	1.9
industrial	32.530	0	96,603	850 gpd/ac	27,650	31.0
mini-storage	0.595	0	0	850 gpd/ac	506	0.6
vacant	4.399	0	0	0	0	0.0
TOTAL	**39.589**	**0**	**97,596**	-	**29,808**	**33.4**
TOTAL EXISTING WATER DEMAND	**184.370 (ac)**	**129 (du)**	**712,833 (sf)**	-	**144,551 (gpd)**	**161.9 (AFY)**

Abbreviations: ac = acre, du = dwelling unit, sf = square feet, gpd = gallons per day, AFY = acre-feet per year

[1] Water demand factors based on District's Draft Water Master Plan.

[2] Hotel / Motel assumed as high density residential.

[3] Unknown land uses were assumed at 1,000 gpd/ac.

TABLE 6
YUCCA VALLEY OLD TOWN SPECIFIC PLAN
PROPOSED WATER DEMAND ESTIMATE

DISTRICT / LAN USE TYPE	DENSITY (du/ac)	GROSS AREA (ac)	UNITS (du)	BUILDING AREA (sf)	WATER DEMAND FACTOR [1]	AVERAGE DAY DEMAND (gpd)	(AFY)
OLD TOWN MIXED USE							
Commercial / Retail		17.428		759,317	1,000 gpd/ac	17,428	19.5
Residential	40	11.625	465		12,950 gpd/ac	150,544	168.6
TOTAL		**29.053**	**465**	**759,317**	**-**	**167,972**	**188.2**
OLD TOWN HIGHWAY COMMERCIAL							
Commercial / Retail		58.355		889,684	1,000 gpd/ac	58,355	65.4
TOTAL		**58.355**	**0**	**889,684**	**-**	58,355	**65.4**
OLD TOWN COMMERCIAL/ RESIDENTIAL							
Commercial / Retail		40.165		699,769	1,000 gpd/ac	40,165	45.0
Residential	24	17.208	413		6,300 gpd/ac	108,413	121.4
TOTAL		**57.373**	**413**	**699,769**	-	**148,577**	**166.4**
OLD TOWN INDUSTRIAL							
Industrial		31.66		551,834	850 gpd/ac	26,907	30.1
Residential	30	7.933	238		9,100 gpd/ac	72,193	80.9
TOTAL		**39.589**	**238**	**551,834**	-	99,101	**111.0**
TOTAL PROPOSED WATER DEMAND		**184.370 (ac)**	**1,115 (du)**	**2,900,604 (sf)**	**-**	**474,005 (gpd)**	**531.0 (AFY)**

Abbreviations: ac = acre, du = dwelling unit, sf = square feet, gpd = gallons per day, AFY = acre-feet per year

[1] Water demand factors based on District's Draft Water Master Plan.

Net Water Demand

The net change in water demand from existing to ultimate represents the impact the Project will have on HDWD's supply system. Table 7 presents the change in water demand to the study area upon buildout of the Project. As shown in Table 7, the Project will result in an increase in water demand of 329,454 gallons per day for an average day, when comparing current to projected conditions.

Table 7
Net Water Demand

	Average Day	
	(gpd)	**(AFY)**
Ultimate Demand	474,005	531.0
Existing Demand	144,551	161.9
Net Difference	**329,454**	**369.1**

Abbreviations: gpd = gallons per day, AFY = acre-feet per year

IX. Urban Water Management Plan (UWMP) Review

Law

> 10910. (c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).
>
> (2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).
>
> (3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall 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.
>
> (4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project 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 existing and planned future uses, including agricultural and manufacturing uses.

The Hi-Desert Water District (HDWD, District) serves the Town of Yucca Valley with groundwater from the Warren Valley Basin and Ames/Means Valley Basin. HDWD is the proposed water purveyor for the Old Town Yucca Valley Specific Plan (Project). HDWD's 2005 Urban Water Management Plan (UWMP) does not specifically discuss the Project. Therefore, further analysis into the water supply and demand under normal, single dry, and multiple dry year conditions of HDWD's water system are discussed in this section.

The primary reference for the Water Supply Assessment (SB 610) is the District's Urban Water Management Plan. In 2000, the District submitted the Warren Valley Basin Management Plan along with an addendum to comply with the Urban Water Management Plan provisions at that time. With the implementation of SB 610, and its impact to subsequent UWMP preparation, the District provided supplements to the 2000 Plan. The District then produced its stand-alone Urban Water Management Plan in 2005.

Water Source

The primary source of water supply for the District's service area is groundwater. The majority of the District's groundwater water supply is pumped from the Warren Valley Groundwater Basin. This Basin provides 80 percent of the District's water source while a secondary groundwater Basin known as the Ames/Means Valley Basin, provides the remaining 20 percent of the water source. Refer to the "Groundwater – Basin Description, PWS Pumping, and Sufficiency Analysis" section of this assessment for a description of the Basin.

The Warren Valley Basin was adjudicated in 1977 due to the continuous overdraft of this groundwater Basin. Adjudication resulted in the following:

- Laid the foundation for the construction of the 71-mile Morongo Basin Pipeline from the State Water Project (SWP) aqueduct in Hesperia, California to Yucca Valley. Purpose of the pipeline is to import SWP water.
- Development of the Warren Valley Basin Management Plan in 1991. This document has served as a planning foundation for the District for many years.
- Allocated pumping restrictions for all wells located in the Warren Valley Basin.

The District also purchases SWP water from Mojave Water Agency (MWA), which is a SWP contractor. Beginning in 1995, the SWP water purchased from MWA has been used to recharge the Warren Valley Basin after many years of overdraft.

State Water Project

State Water Project (SWP) water is the largest water source for the Yucca Valley area. SWP water is brought to the area via the Morongo Basin Pipeline (MBP), a $54 million project consisting of a 71-mile pipeline beginning at the California Aqueduct in Hesperia. The capacity of the pipeline provides for the delivery of excess water when available. In June 1990, the voters approved the financing plan for the Morongo Basin Pipeline by more than a two-thirds vote. In January 1995, the District started importing SWP water through the MBP.

Mojave Water Agency is one of the 29 SWP contractors. It provides wholesale water to the Hi-Desert Water District, Bighorn-Desert View Water Agency, Joshua Basin Water District, and County Service Area No. 70 Improvement Zones W-1 and W-4. MWA Ordinance No. 9, included as Appendix B, establishes the rules and regulations for the sale and delivery of SWP water.

In 1991 when the MWA and HDWD signed the Morongo Basin Pipeline Agreement to allocate the water, MWA had a SWP Table A amount of 50,800 acre-ft/yr. Of this amount, Improvement District M (the designated service area for the MBP) was entitled to one-seventh or a 7,257 acre-ft/yr. Of this amount, the District has a contractual allocation of 59 percent or 4,282 acre-ft/yr. The agreement provides that MWA may deliver additional SWP water to MBP project participants subject to project capacity. The agreement

defines the project peak delivery capacity as 10,900 acre-ft/yr or 15 cubic feet per second (cfs) or 10,860 acre-ft/yr if operated continuously. According to MWA, the addition of a second pumping station along the pipeline has increased this capacity to 22 cfs, which is equivalent to15,930 acre-ft/yr if operated continuously (MWA, 2006). Based on this capacity, it is possible for MWA to deliver additional SWP water to MBP project participants. Environmental documentation for the MBP project was initially completed in 1991, with documentation for the MBP extension to the Yucca Valley completed in 1993. All necessary permits were obtained by MWA.

In 1998, MWA acquired an additional Table A amount of 25,000 acre-ft/yr from the Berrenda Mesa Water District (a member agency of Kern County Water Agency), increasing its total Table A amount to 75,800 acre-ft/yr. Environmental documentation for this acquisition was completed in 1997. According to the terms of the MBP agreement, this increased Table A amount would not increase the amount of water available for the MBP contracting agencies. Instead, the SWP allotment for the MBP would be based on the original 50,800 acre-ft/yr Table A amount but project participants may request additional water deliveries up to the pipeline's capacity if MWA has not contracted with other water purveyors within the MWA for this additional water. Ongoing discussions continue as to whether the District and others within Improvement District M are entitled to a proportionate share of the additional 25,000 acre-ft/yr. If this is resolved in the District's favor, the District's annual allotment could potentially be increased to 6,390 acre-ft/yr. If not, the District would be able to purchase additional SWP supplies from MWA on an as-available basis in accordance with MWA Ordinance No. 9 (Appendix B).

The term of the Morongo Basin Pipeline Agreement (1991) continues "until the earlier of (i) the date on which all Bonds issued have been retired, or full provision made for their retirement, including interest until their retirement date, or (ii) fifty (50) years". The District estimates that the bonds will be paid off in 2023, but it could be earlier based on the current rate of population growth. Whether the District will be able to secure firm SWP allocation beyond 2023 is unknown at this time. The MBP Agreement states that water service would be subject to MWA's agency-wide policy for the sale of water in effect at that time. It is MWA's opinion that the District will have to compete for SWP water with all the other agencies within their boundaries. The District has requested confirmation from MWA of its ability to supply SWP water to the District beyond 2023. The letter to MWA and the response from MWA are attached as Appendix C.

Water received from the MBP is recharged into the Warren Valley Basin through two percolation ponds owned and operated by HDWD and located north of the Yucca Valley Airport (HDWD 2005d, DWR 2004). Historically, these basins have had a combined recharge capacity of 5,000 acre-ft/yr. Three additional basins were recently constructed east of Pioneertown Road. These basins will increase the total recharge capacity to 11,000 acre-ft/yr. Environmental documents for these new basins were completed in 2004. Copies of capital outlay programs, permits and regulatory approvals for these recharge projects are on file at HDWD offices.

Historical Groundwater Production

Historical groundwater production represents the amount of water pumped from the ground regardless of the source of recharge. Table 8 summarizes the historical groundwater production by HDWD since 1995. The Table also shows water imported from BDVWA in the mid-1990s prior to commencement of SWP importation. This intertie is no longer in operation. Production by private pumpers in the Warren Valley Basin is also shown in this table.

Table 8
Historical Groundwater Production (acre-ft/year)

Year	Warren Valley Basin		BDVWA Intertie	Ames/Means Valley Basin	Total Production
	HDWD	Private Pumpers [1]			
1995	1,613	350	495	616	3,074
1996	1,366	330	659	881	3,236
1997	2,142	424	0	599	3,165
1998	1,677	353	0	851	2,881
1999	1,883	342	0	774	2,999
2000	2,213	258	0	601	3,072
2001	2,167	330	0	656	3,153
2002	2,305	503	0	796	3,604
2003	2,553	256	0	573	3,382
2004	2,378	207	0	810	3,395
2005	2,388	230	0	587	3,205

[1] Includes Blue Skies Country Club, Institute of Mental Physics and individual private pumpers.

Historical Water Supply

Historical water supply represents the measured and estimated inflows to the Warren Valley Basin (WVB) and imported water from the Ames/Means Valley Basin. The sources of the WVB recharge are precipitation on the Basin, runoff from its limited watershed (80 acre-ft/yr), return flows from irrigation, septic, and wastewater systems, and conjunctive use water from MWA. Table 9 summarizes the total historical water supplies the District received from 1995 through 2005. SWP water is imported from MWA through the Morongo Basin Pipeline.

Table 9
Historical Water Supply (acre-ft/year)

Year	Natural Recharge	SWP	BDVWA Intertie	Ames/Means Valley Basin	Return Flows	Conjunctive Use	Total Supply
1995	80	1,608	495	616	461	340	3,600
1996	80	3,919	659	881	447	0	5,986
1997	80	4,848	0	599	423	328	6,278
1998	80	2,895	0	851	317	322	4,465
1999	80	1,918	0	774	392	216	3,380
2000	80	3,631	0	601	557	267	5,136
2001	80	3,831	0	656	494	0	5,061
2002	80	2,566	0	796	424	0	3,866
2003	80	2,681	0	573	671	0	4,005
2004	80	3,700	0	810	646	0	5,236
2005	80	3,460	0	587	634	0	4,761

Data referenced from HDWD 2005 Urban Water Management Plan

Reliability of Supply

Groundwater

Water provided to customers within the District's service area is groundwater that is replenished with State Water Project (SWP) water from the Morongo Basin Pipeline (MBP). During dry years when SWP deliveries are reduced, SWP water previously stored in the Basin is extracted. As of June 2006, the Warren Valley Basin Watermaster has estimated that recharge in excess of extraction totaled 21,910 acre-ft, a 7.1

year reserve based on current production levels (WVBWM, 2006). Consequently, the groundwater supply is reliable to the extent that adequate SWP water is available for recharge and to maintain an adequate Basin reserve.

In December 2003, the court overseeing the Warren Valley Basin (WVB) judgment approved a proposal for allocating water meters. The court-approved method establishes a direct relationship between groundwater reserves and actual growth. Groundwater reserves are based on the amount of water recharged into the WVB. This method removes all restrictions on growth unless water reserves in the groundwater Basin reach a pre-determined level. In response to this court-approved proposal, HDWD adopted Policy No. 26-04 titled "Issuing Will Serve Commitment Letters and the Installation of New Water Services and Rescinding Policy 23 03." A copy of this policy is included in Appendix D. This policy provides for a staged method for approving growth; as follows:

- Stage 1 Condition – A 2 percent growth limitation would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 5 years (500 percent of water demand for that particular year).
- Stage 2 Condition – A 1 percent growth limitation would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 4 years (400 percent of water demand for that particular year).
- Stage 3 Condition – A 0 percent growth rate would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 3 years (300 percent of water demand for that particular year).

The effect of this policy is to maintain minimum groundwater reserves that are adequate to meet current and approved demands during dry years without causing overdraft. Should an extended dry period occur that draws down the reserves below the established levels, limitations on approval of additional growth would be implemented. No changes to this policy are anticipated.

In addition to dependence on SWP water, groundwater reliability can be affected by water quality issues that may prohibit the pumping of that particular well. Currently, the District operates a nitrate removal facility to treat two wells that have high nitrate levels. Treatment reduces the nitrate concentration to below state drinking water standards.

Imported Water

Current imported supplies are available to the District from MWA through the Morongo Basin Pipeline. While the District's current entitlement to SWP is 4,282 acre-ft/year, actual deliveries vary depending on seasonal climate changes. SWP Table A deliveries are susceptible to reductions during drought years and, thus, are not completely reliable sources. During drought years when reductions are necessary, all SWP contractors are affected in the same manner since the reductions are spread evenly among them. According to the Final SWP Delivery Reliability Report published by the California Department of Water Resources (DWR, 2006), future Table A deliveries are expected to range from 5 percent (single dry year) to 100 percent of the Table A contract amount. For the District, this range would be 214 to 4,282 acre-ft/yr. The long-term average (normal water year) delivery is expected to range from 68 percent of Table A amounts under 2005 demand conditions to 77 percent of Table A amounts under 2025 demand conditions. For planning purposes, the District has utilized a long-term average delivery of 77 percent or 3,297 acre-ft/yr. This average is used since HDWD has the ability to recharge water at rates exceeding the contracted supply, including surplus supplies, and store that water in the Warren Valley Basin. Since the execution of the Morongo Basin Pipeline agreement in 1995, reductions to the District have not been necessary due to low overall demand for SWP supplies within the MWA service area. However, as demand for SWP water within the MWA service area increases, reductions in SWP deliveries may become more frequent in dry years. Consequently, the value of 3,297 acre-ft/yr is considered to be a conservative estimate of the amount of SWP water available to HDWD.

In addition to normal SWP deliveries, MWA has the ability to take delivery of additional SWP supplies

typically during wetter years. Article 21 of the SWP contract allows contractors to purchase "interruptible water." The amount of interruptible water available in any given year is a function of hydrology. Water is allocated among contractors who wish to purchase the water in accordance with their respective Table A amounts. According to DWR modeling results, an average of about 124,000 acre-ft of interruptible water is available in about 60 percent of years. In addition, contractors wishing to sell unused Table A water may make that water available for sale to interested contractors. This unused water is allocated among interested buyers based on their Table A amounts.

Because imported supplies are subject to variation, the District attempts to store as much water as possible in the Warren Valley Groundwater Basin. To prepare for extended drought cycles the District has begun recharging additional water into the Basin above and beyond the yearly allocation through a conjunctive use program described in the next section. In times when MWA is not able to provide SWP water in any given year, supplies will be derived from the conjunctive use water previously stored. As stated previously, HDWD has recharged the Warren Valley Basin with SWP water in excess of annual production and has developed a 7-year supply reserve.

Mojave Water Agency's 2004 Regional Water Management Plan and 2005 Urban Water Management Plan Update show that regional water supplies are adequate to meet projected demands within the MWA service area through the year 2028 with an average year deficit of 2,800 acre-ft/yr by 2030. Analysis of the differences between MWA supplies and demands indicates that a cumulative surplus supply of 158,000 acre-ft or an average of 6,320 acre-ft/yr exists between 2005 and 2030. In a letter to HDWD dated November 15, 2006, MWA stated that the water supply and demand analysis for the 2005 MWA UWMP concluded that the average natural and imported water supply available to the MWA region should meet demands past 2025. MWA also indicated that it has provided water supplies in excess of the MBP Agreement quantities when requested to do so and anticipates continuing this program for the foreseeable future to the extent that supplies are available (MWA, 2006). To the extent that HDWD can recharge additional water, it may be able to further increase the reserves of the Warren Valley Basin.

MWA evaluated post-2020 water supply options in a December 2004 report. These options are: new appropriations or increased project supplies, water banking and exchanges, water transfers, conservation and desalination credits, and aggressive management. All these water supply options have significant physical, institutional, or regulatory issues that could limit or prevent successful implementation. There are several constraints on MWA's water system that currently limit the Agency's ability to maximize SWP water deliveries to its customers: Delta pumping limits at Harvey O. Banks Pumping Plant, California Aqueduct main canal and East Branch conveyance capacity, obstacles in conveying non-SWP water through SWP facilities, and unclear environmental regulations. This report recommended that MWA implement near term actions that include banking unused SWP water to develop a reserve supply for future use, pursuing an aggressive water demand management program and working cooperatively with other SWP contractors to relieve constraints affecting SWP operations. The report also recommended that MWA seek opportunities for water transfers and augmented water exchanges, examine the feasibility of conservation and desalination credits, and construction of cooperative surface storage projects.

Other Potential Water Supplies

Conjunctive Use Water

The District signed a Conjunctive Use Agreement with MWA in 1994 that provides the opportunity to import additional SWP water for recharge into the Warren Valley Basin. The District is able to directly purchase the water stored in the Basin by MWA. In 2001, the District paid for almost 1,500 acre-ft of conjunctive use water. In 2004, the District and MWA renegotiated the Conjunctive Use Agreement to provide greater flexibility to both agencies. Terms of the agreement include: no agreement expiration, no limit to the amount of water stored in the Basin; MWA is responsible for the cost of transporting the water to the recharge basins and the cost of water itself; withdrawal from the banked water can begin only after the initial storage threshold of 2,500 acre-ft is reached; and the District will provide water from its SWP allocation if MWA requests a withdrawal. As of June 2006, the Warren Basin Watermaster has estimated

that 21,910 acre-ft of SWP water has been stored over and above current water usage since 1994. This amounts to a seven year supply reserve based on current water demands. Both agencies expect to store a total of 12,900 acre-ft of conjunctive use water in the Basin between 2006-2012. Such a conjunctive use project could be expanded to increase the amount of storage. The primary benefit of this program would be pre-delivery of MWA water when it is available for later use during droughts or periods of reduced MWA SWP deliveries. The District could also pre-purchase SWP water when it is available and store the water for its own future use.

Recycled Water

Currently, the District does not generate recycled water. However, plans are in progress to construct a wastewater treatment facility. Upon completion, recycled water will be available for uses such as groundwater percolation and landscape irrigation. At build-out conditions, the wastewater plant may have an ultimate capacity of 8 million gallons per day (mgd). Currently, the District's wastewater master plan is to build the first phase of the wastewater plant with a capacity of 1 mgd, but they may only have funding to build 0.5 mgd. For this report, it is assumed that 90 percent of the treated wastewater would be recycled for groundwater recharge with the remainder lost to evaporation and sludge production. The District completed a preliminary design report for the plant in 1999. Since that time, the proposed treatment plant site has been changed. The District anticipates preparation of a revised pre-design report and environmental documents in 2007. The project is expected to include a waste discharge permit from the Regional Water Quality Control Board based on input from the California Department of Health Services.

Historical Water Demand

The Historical water demand summarizes the total water demand on the Warren Valley Basin from 1995 to 2005. Table 10 presents the demands for the District, Blue Skies Country Club, the Institute of Mental Physics, and 16 minimal water producers that pump groundwater privately.

Table 10
Warren Valley Basin
Historical Water Demand (acre-ft/year)

Year	Blue Skies Country Club	Institute of Mental Physics	Minimal Producers	HDWD	Total Demand
1995	320	14	16	2,724	3,074
1996	300	14	16	2,906	3,236
1997	394	14	16	2,741	3,165
1998	323	14	16	2,528	2,881
1999	312	14	16	2,657	2,999
2000	228	14	16	2,814	3,072
2001	300	14	16	2,823	3,153
2002	473	14	16	3,101	3,604
2003	226	14	16	3,126	3,382
2004	177	14	16	3,188	3,395
2005	200	14	16	2,975	3,205

To reduce the demand, the District has implemented various water conservation measures by the adoption of various resolutions and ordinances. The following list provides an overview of the various programs currently in effect and those that were in effect at some time since 1990 and discontinued.

1. Water Survey program for Single Family residential and Multi-Family residential customers.
2. Residential plumbing retrofit including ultra-low-flush toilet replacement program.
3. System Water audits, leak detection and repair.
4. Metering with commodity rates for all new connections and retrofit of existing connections.

5. Large landscape conservation programs and incentives.
6. High-efficiency washing machine rebate program (currently not in place).
7. Public information programs.
8. School education programs.
9. Conservation programs for commercial, industrial and institutional accounts.
10. Conservation pricing.
11. Water waste prohibitions.

These demand management measures and customer awareness have resulted in very low per capita water consumption for a desert community.

Projected Water Demand

In the 2005 Urban Water Management Plan the District used a linear growth rate of 2.3 percent to estimate future population. This was derived from the MWA 2004 Regional Water Management Plan, which estimates an average population growth rate of 2.4 percent for the Warren Valley and 2.2 percent for the Ames/Means Valley between 2005-2020. As projected by the California Department of Finance, the growth rate for San Bernardino County is 1.8 percent per year from 2020 to 2030. On the other hand, the Southern California Association of Governments (SCAG) projected a population growth rate of 0.7 percent in 2004. However, actual data shows a higher growth rate than this. Therefore, an alternative projection with a growth rate of 1 percent was also developed. Table 11 and 12 present the projected water demands in the HDWD service area for 2.3 percent and 1.0 percent growth rates, respectively. Data for the HDWD demands were referenced from the Draft Water Supply Assessment for the Century Homes Project – Mountain Vista Development (November 16, 2006).

Table 11
Projected Water Demand – Excluding Project Demands
2.3% Growth Rate (acre-ft/year)

User	2010	2015	2020	2025	2030
Blue Skies Country Club	585	585	585	585	585
Institute of Mental Physics	14	14	14	14	14
Minimal Producers	16	16	16	16	16
HDWD	3,320	3,665	4,010	4,286	4,700
Total Demand	**3,935**	**4,280**	**4,625**	**4,901**	**5,315**

Table 12
Projected Water Demand – Excluding Project Demands
1.0% Growth Rate (acre-ft/year)

User	2010	2015	2020	2025	2030
Blue Skies Country Club	585	585	585	585	585
Institute of Mental Physics	14	14	14	14	14
Minimal Producers	16	16	16	16	16
HDWD	3,125	3,275	3,425	3,545	3,725
Total Demand	**3,740**	**3,890**	**4,040**	**4,160**	**4,340**

Demand From Other Development Projects in Yucca Valley

As of August 2006, there are 54 active development projects in the Town of Yucca Valley. Appendix E includes a table detailing the developments, and a map with the location of each development. The District needs to take into account these additional water demands in deciding whether there is sufficient water supply for the Old Town Re-development. These projects are incorporated in the base demand forecasts.

Combined Project and District Water Demand

Table 13 and 14 summarize the projected water demand for HDWD including the additional water demand generated by the Old Town Yucca Valley Specific Plan (Project). The Tables present the projected water demand for both a 2.3 and 1.0 growth rate. The Project is assumed completion by the year 2025. Therefore, for this assessment it is assumed that every five years 25% of the Project will be completed.

Table 13
Projected Water Demand – Including Project Demands
2.3% Growth Rate (acre-ft/year)

User	2010	2015	2020	2025	2030
Blue Skies Country Club	585	585	585	585	585
Institute of Mental Physics	14	14	14	14	14
Minimal Producers	16	16	16	16	16
HDWD	3,320	3,665	4,010	4,286	4,700
Old Town (Project)	92	185	277	369	369
Total Demand	**4,027**	**4,465**	**4,902**	**5,270**	**5,684**

Table 14
Projected Water Demand – Including Project Demands
1.0% Growth Rate (acre-ft/year)

User	2010	2015	2020	2025	2030
Blue Skies Country Club	585	585	585	585	585
Institute of Mental Physics	14	14	14	14	14
Minimal Producers	16	16	16	16	16
HDWD	3,125	3,275	3,425	3,545	3,725
Old Town (Project)	92	185	277	369	369
Total Demand	**3,832**	**4,075**	**4,317**	**4,529**	**4,709**

Demand Management Measures

Since 1990, the District began implementing various water conservation measures by the adoption of various resolutions and ordinances. The purpose of the programs is to lower the District's water demand. These demand management measures are discussed in detail in Section 2 – Step 7 of the 2005 Urban Water Management Plan. The following is a list of the various programs according to the UWMP:

- Water survey programs for single-family residential and multifamily residential customers;
- Residential plumbing retrofit;
- System water audits, leak detection and repair;
- Metering with commodity rates for all new connections and retrofit of existing connections;
- Large landscape conservation programs and incentives;
- High-efficiency washing machine rebate program;
- Public information programs;
- School education programs;
- Conservation programs for commercial, industrial, and institutional accounts;
- Wholesale agency programs;
- Conservation pricing;
- Water conservation coordinator;
- Water waste prohibitions; and
- Residential ultra-low-flush toilet replacement programs.

Water Supply and Demand Analysis

This section provides an analysis of water supply and demand under normal, single dry, and multiple dry year conditions. The analyses for each scenario was performed with and without the Project demands in order to demonstrate the impact the Project will have on the District water system. To remain conservative with this assessment, the projected water demands for a 2.3% growth rate were used for the analysis. A historical supply and demand analysis summarizes the surplus water previously banked in Warren Valley Basin (WVB).

Historical Water Supply and Demand

Table 15 compares the actual supply and demand for the District's water system from 1995 to 2005. Prior to 1995 the District had a water demand greater than the supply. In 1995, with the addition of imported water from SWP, the District began banking water into the WVB. Data for the Table was obtained from Table 1-2 of the District's 2005 UWMP.

Table 15
Historical Water Supply and Demand Comparison (acre-ft/year)

Year	Total Supply	Total Demand	Supply less Demand	Basin Reserve
1995	3,600	3,074	526	526
1996	5,986	3,236	2,750	3,276
1997	6,278	3,165	3,113	6,389
1998	4,465	2,881	1,584	7,973
1999	3,380	2,999	381	8,354
2000	5,136	3,072	2,064	10,418
2001	5,061	3,153	1,908	12,326
2002	3,866	3,604	262	12,588
2003	4,005	3,382	623	13,211
2004	5,236	3,395	1,841	15,052
2005	4,761	3,205	1,556	16,608

Projected Normal Year Supply and Demand

A normal water year assumes 77 percent of SWP Table A water will be delivered, as previously discussed in Reliability of Supply – Imported Water section. Table 16 and Table 17 compare the supply and demand during a normal water year without and with the Project demands, respectively. Also, the District demands for a 2.3 percent annual growth rate are used in both scenarios.

Table 16
Normal Year Water Supply and Demand – Excluding Project Demands
2.3% Growth Rate (acre-ft/year)

	2010	2015	2020	2025	2030
Projected Demand (excluding Project demands)	**3,935**	**4,280**	**4,625**	**4,901**	**5,315**
Projected Supply [1]					
Natural Recharge	80	80	80	80	80
State Water Project (imported water)	3,297	3,297	3,297	3,297	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows	530	701	815	929	1,043
Conjunctive Use [2]	2,150	0	0	0	0
Groundwater Storage [3]	- 2,772	- 448	- 217	- 55	245
Total Projected Supply	**3,935**	**4,280**	**4,625**	**4,901**	**5,315**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Projected Supply data referenced from Table 1-2 of the HDWD 2005 UWMP.
[2] HDWD is anticipated to receive a total of 12,900 acre-ft of conjunctive use water from 2006-212.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

According to Table 16, the projected water demand exceeds the projected water supply after the year 2025. This is without the additional demand from the Project. According to the District's 2005 UWMP, a groundwater reserve of nearly 62,000 acre-ft is anticipated in the Basin by the year 2025. Therefore, additional water supply entitlements could be secured in time to equal the projected demand. If no additional water entitlements are obtained, then HDWD will need to extract groundwater from the Basin reserve to meet projected water demands.

Table 17
Normal Year Water Supply and Demand – Including Project Demands
2.3% Growth Rate (acre-ft/year)

	2010	2015	2020	2025	2030
Projected Demand (including Project demands)	**4,027**	**4,465**	**4,902**	**5,270**	**5,684**
Projected Supply [1]					
Natural Recharge	80	80	80	80	80
State Water Project (imported water)	3,297	3,297	3,297	3,297	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows	530	701	815	929	1,043
Conjunctive Use [2]	2,150	0	0	0	0
Groundwater Storage [3]	- 2,680	- 263	60	314	614
Total Projected Supply	**4,027**	**4,465**	**4,902**	**5,270**	**5,684**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Projected Supply data referenced from Table 1-2 of the HDWD 2005 UWMP.
[2] HDWD is anticipated to receive a total of 12,900 acre-ft of conjunctive use water from 2006-212.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

According to Table 17, the projected water demand exceeds the projected water supply after the year 2015. This is with the additional demand from the Project. According to the District's 2005 UWMP, a groundwater reserve of nearly 50,000 acre-ft is anticipated in the Basin by the year 2015. Therefore, additional water supply entitlements could be secured in time to equal the projected demand. If no additional water entitlements are obtained, then HDWD will need to extract groundwater from the Basin reserve to meet projected water demands.

Projected Single Dry Year Supply and Demand

The projected water supply and demands through 2030 were analyzed in the event that a single dry year occurs, similar to the drought that occurred in 1977. During this year, only 5 percent of the SWP Table A amounts were delivered, as given in the 2005 SWP Delivery Reliability Report. In this water supply assessment, every fifth year of each 5-year period is considered as a single dry year, because each year is evaluated separately. In the dry years, the amount of natural recharge is assumed to be zero. Water conservation measures and conjunctive water use were not applied in this analysis. Return flows are assumed to remain the same, as the demands have not changed.

Table 18 and Table 19 compare the supply and demand during a single dry year without and with the Project demands, respectively. Also, the District demands for a 2.3 percent annual growth rate are used in both scenarios.

Table 18
Single Dry Year Water Supply and Demand – Excluding Project Demands
2.3% Growth Rate (acre-ft/year)

	2010	2015	2020	2025	2030
Projected Demand (excluding Project demands)	**3,935**	**4,280**	**4,625**	**4,901**	**5,315**
Projected Supply					
Natural Recharge	0	0	0	0	0
State Water Project (imported water)	214	214	214	214	214
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [1]	530	701	815	929	1,043
Conjunctive Use	0	0	0	0	0
Groundwater Storage [2]	2,541	2,715	2,946	3,108	3,408
Total Projected Supply	**3,935**	**4,280**	**4,625**	**4,901**	**5,315**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[2] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

According to Table 18, the projected water demand exceeds the projected water supply for each single dry year scenario. This is without the additional demand from the Project. According to the District's 2005 UWMP, a groundwater reserve of nearly 16,600 acre-ft has been banked in the Basin as of 2005. Therefore, HDWD could extract groundwater immediately from the Basin reserve to meet projected water demands, if a single dry year were to occur.

Table 19
Single Dry Year Water Supply and Demand – Including Project Demands
2.3% Growth Rate (acre-ft/year)

	2010	2015	2020	2025	2030
Projected Demand (including Project demands)	**4,027**	**4,465**	**4,902**	**5,270**	**5,684**
Projected Supply					
Natural Recharge	0	0	0	0	0
State Water Project (imported water)	214	214	214	214	214
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [1]	530	701	815	929	1,043
Conjunctive Use	0	0	0	0	0
Groundwater Storage [2]	2,633	2,900	3,223	3,477	3,777
Total Projected Supply	**4,027**	**4,465**	**4,902**	**5,270**	**5,684**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[2] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

According to Table 19, the projected water demand exceeds the projected water supply for each single dry year scenario. This is with the additional demand from the Project. According to the District's 2005 UWMP, a groundwater reserve of nearly 16,600 acre-ft has been banked in the Basin as of 2005. Therefore, HDWD could extract groundwater immediately from the Basin reserve to meet projected water demands, if a single dry year were to occur.

Projected Multiple Dry Year Supply and Demand

The water demands and supplies through 2030 were analyzed in the event that a multiple dry year event occurs. In this assessment, multiple dry year periods are considered to consist of three consecutive years. For each 5-year period (from 2005-2030), the first and last years are considered normal water years, while the second through fourth years are selected as the dry years. Based on the percentage of Table A amounts delivered during 2-, 4-, and 6- year droughts, 3-year drought percentages were derived as follows:

- 21 percent for the first dry year;
- 21 percent for the second dry year; and
- 35 percent for the third dry year.

During the dry years, the amount of natural recharge is assumed to be zero. Water conservation measures and conjunctive water use were not applied for the dry years either. Table 20 through Table 29 compare the supply and demand during a multiple dry year period without and with the Project demands, respectively.

Table 20
Multiple Dry Year Water Supply and Demand – Excluding Project Demands (2006-2010)
2.3% Growth Rate (acre-ft/year)

	2006	2007	2008	2009	2010
Projected Demand (excluding Project demands) [1]	**3,659**	**3,728**	**3,797**	**3,866**	**3,935**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	569	625	651	497	530
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 937	1,554	1,597	1,220	- 622
Total Projected Supply	**3,659**	**3,728**	**3,797**	**3,866**	**3,935**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Project Demands referenced from the District's Draft Water Supply Assessment for the Century Homes Project (November 16, 2006).
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 21
Multiple Dry Year Water Supply and Demand – Including Project Demands (2006-2010)
2.3% Growth Rate (acre-ft/year)

	2006	2007	2008	2009	2010
Projected Demand (including Project demands) [1]	**3,751**	**3,820**	**3,889**	**3,958**	**4,027**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	569	625	651	497	530
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 845	1,646	1,689	1,312	- 530
Total Projected Supply	**3,751**	**3,820**	**3,889**	**3,958**	**4,027**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Assumed 25% of Project completion during multiple dry period, which equates to 92 acre-feet.
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 22
Multiple Dry Year Water Supply and Demand – Excluding Project Demands (2011-2015)
2.3% Growth Rate (acre-ft/year)

	2011	2012	2013	2014	2015
Projected Demand (excluding Project demands) [1]	**4,004**	**4,073**	**4,142**	**4,211**	**4,280**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	567	604	641	678	701
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 590	1,920	1,952	1,384	- 448
Total Projected Supply	**4,004**	**4,073**	**4,142**	**4,211**	**4,280**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Project Demands referenced from the District's Draft Water Supply Assessment for the Century Homes Project (November 16, 2006).
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 23
Multiple Dry Year Water Supply and Demand – Including Project Demands (2011-2015)
2.3% Growth Rate (acre-ft/year)

	2011	2012	2013	2014	2015
Projected Demand (including Project demands) [1]	**4,189**	**4,258**	**4,327**	**4,396**	**4,465**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	567	604	641	678	701
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 405	2,105	2,137	1,569	- 263
Total Projected Supply	**4,189**	**4,258**	**4,327**	**4,396**	**4,465**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Assumed 50% of Project completion during multiple dry period, which equates to 185 acre-feet.
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 24
Multiple Dry Year Water Supply and Demand – Excluding Project Demands (2016-2020)
2.3% Growth Rate (acre-ft/year)

	2016	2017	2018	2019	2020
Projected Demand (excluding Project demands) [1]	**4,349**	**4,418**	**4,487**	**4,556**	**4,625**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	724	747	769	792	815
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 402	2,122	2,169	1,615	- 217
Total Projected Supply	**4,349**	**4,418**	**4,487**	**4,556**	**4,625**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Project Demands referenced from the District's Draft Water Supply Assessment for the Century Homes Project (November 16, 2006).
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 25
Multiple Dry Year Water Supply and Demand – Including Project Demands (2016-2020)
2.3% Growth Rate (acre-ft/year)

	2016	2017	2018	2019	2020
Projected Demand (including Project demands) [1]	**4,626**	**4,695**	**4,764**	**4,833**	**4,902**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	724	747	769	792	815
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 125	2,399	2,446	1,892	60
Total Projected Supply	**4,626**	**4,695**	**4,764**	**4,833**	**4,902**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Assumed 75% of Project completion during multiple dry period, which equates to 277 acre-feet.
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 26
Multiple Dry Year Water Supply and Demand – Excluding Project Demands (2021-2025)
2.3% Growth Rate (acre-ft/year)

	2021	2022	2023	2024	2025
Projected Demand (excluding Project demands) [1]	**4,694**	**4,763**	**4,832**	**4,901**	**4,970**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	838	860	883	906	929
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	- 171	2,354	2,400	1,846	14
Total Projected Supply	**4,694**	**4,763**	**4,832**	**4,901**	**4,970**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Project Demands referenced from the District's Draft Water Supply Assessment for the Century Homes Project (November 16, 2006).
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 27
Multiple Dry Year Water Supply and Demand – Including Project Demands (2021-2025)
2.3% Growth Rate (acre-ft/year)

	2021	2022	2023	2024	2025
Projected Demand (including Project demands) [1]	**5,063**	**5,132**	**5,201**	**5,270**	**5,339**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	838	860	883	906	929
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	198	2,723	2,769	2,215	383
Total Projected Supply	**5,063**	**5,132**	**5,201**	**5,270**	**5,339**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Assumed 100% of Project completion during multiple dry period, which equates to 369 acre-feet.
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 28
Multiple Dry Year Water Supply and Demand – Excluding Project Demands (2026-2030)
2.3% Growth Rate (acre-ft/year)

	2026	2027	2028	2029	2030
Projected Demand (excluding Project demands) [1]	**5,039**	**5,108**	**5,177**	**5,246**	**5,315**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	952	974	997	1,020	1,043
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	60	2,585	2,631	2,077	245
Total Projected Supply	**5,039**	**5,108**	**5,177**	**5,246**	**5,315**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Project Demands referenced from the District's Draft Water Supply Assessment for the Century Homes Project (November 16, 2006).
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

Table 29
Multiple Dry Year Water Supply and Demand – Including Project Demands (2026-2030)
2.3% Growth Rate (acre-ft/year)

	2026	2027	2028	2029	2030
Projected Demand (including Project demands) [1]	**5,408**	**5,477**	**5,546**	**5,615**	**5,684**
Projected Supply					
Natural Recharge	80	0	0	0	80
State Water Project (imported water)	3,297	899	899	1,499	3,297
Ames/Means Valley Basin	650	650	650	650	650
Return Flows [2]	952	974	997	1,020	1,043
Conjunctive Use	0	0	0	0	0
Groundwater Storage [3]	429	2,954	3,000	2,446	614
Total Projected Supply	**5,408**	**5,477**	**5,546**	**5,615**	**5,684**
Supply less Demand	**0**	**0**	**0**	**0**	**0**

[1] Assumed 100% of Project completion during multiple dry period, which equates to 369 acre-feet.
[2] Return flow data referenced from Table 1-2 of the HDWD 2005 UWMP.
[3] Groundwater storage is amount of water taken from (positive) or put into (negative) storage and equals demand minus supply.

According to Tables 20-29, the projected water demands exceed the projected water supply for each multiple dry year scenario. The overdraft occurs with and without the additional demand from the Project. According to the District's 2005 UWMP, a groundwater reserve of approximately 16,600 to 65,000 acre-ft is anticipated to be banked in the WVB from 2005 to 2030. Therefore, HDWD could extract groundwater from the Basin reserve to meet projected water demands, if a multiple dry year period were to occur.

UWMP Findings - Summary

Projected District demands for a normal year are estimated at 5,315 acre-ft by the year 2030. The Old Town Yucca Valley Specific Plan is anticipated to create an additional water demand of 369 acre-ft at buildout, which represents approximately 7% of the District's water demands. The combination of the Project and District water demands for a normal year total 5,684 acre-ft by the year 2030. The water demand totals are based on the following conservative assumptions:

- Linear growth rate of 2.3 percent of current demands plus Project demand.
- Growth is not limited per HDWD Policy No. 26-04 when groundwater reserves drop below the pre-defined stages.
- SWP supply is limited to the long-term average of 3,297 acre-ft/yr as defined in the Morongo Basin Pipeline Agreement and DWR analysis of SWP reliability.
- Use of a portion of the Berrenda Mesa Water District SWP water transfer to MWA (25,000 acre-ft/yr) is not included.
- Additional conjunctive use water deliveries over and above HDWD's SWP allocation is included per the schedule of deliveries detailed in Table 1-2 of the District's 20005 UWMP.

To meet the future demands of 2030 and beyond, the District should plan on obtaining additional sources of water such as increased imported water from MWA, recycled water or desalinated water. HDWD could purchase additional SWP water in early years to buildup a larger groundwater reserve. However, it should ensure that it does not violate its water reserve policies.

X. Water Supply Entitlements, Water Rights or Service Contracts

Law

> 10910. (d) (1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.
>
> (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:
> (A) Written contracts or other proof of entitlement to an identified water supply.
> (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
> (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.
> (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

SB 610 requires documentation of supplies from all sources, including wholesaler supplies. This documentation includes identifying and quantifying water rights, contracts, and/or entitlements to the supply; associated capital outlay programs; federal, state and local permits for constructing infrastructure for conveying the supply; and any necessary regulatory approvals required for conveyance. The first page of the following documents demonstrating the basis for Hi-Desert Water District's supplies are attached in Appendix F. The documents are available for review at the District office.

- *Agreement for Construction, Operation and Financing of the Morongo Basin Pipeline Project*, prepared by Mojave Water Agency and Hi-Desert Water District. March 15, 1991.
- *Ames Valley Water Basin Agreement*, prepared by Hi-Desert Water District and Bighorn-Desert View Water Agency. January 10, 1991.
- *Judgment — Hi Desert Water District vs. Yucca Water Company, Ltd. Case No. 172103*, prepared by the Superior Court of the State of California for the County of San Bernardino. September 16, 1977.

- *Warren Valley Basin Conjunctive Use Agreement* between Mojave Water Agency, Hi-Desert Water District, and Warren Valley Basin Watermaster. October 28, 2004.
- *Warren Valley Basin Management Plan*, prepared by Kennedy/Jenks/Chilton. January 31, 1991.
- *Water Supply Contract*, between the State of California Department of Water Resources and Mojave Water Agency. June 22, 1963.

Table 30 summarizes the Hi-Desert Water District's existing water supply rights and contracts as discussed previously.

Table 30
Existing Water Supply Entitlements, Rights, and Contracts

Supply	acre-feet / year	Entitlement	Right	Contract	Ever Used?
Mojave Water Agency, State Water Project Water	4,282 [1]			X	YES
Warren Valley Basin	1,622 [2]		X		YES
Ames/Means Valley Basin	800 + 0.5 for each new residential meter			X	YES
TOTAL WATER SUPPLY	**6,704**				

[1] Currently being recharged and extracted from Warren Valley Basin.
[2] HDWD acquired Yucca Water Company and it's right to 726 acre-ft/year, for a total of 1,622 acre-ft/year.

XI. Groundwater – Basin Description, PWS Pumping, and Sufficiency Analysis

Law

> 10910. (f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:
>
> (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 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. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Groundwater Basin Description – Warren Valley Basin

The Warren Valley Basin covers an area of approximately 26.9 square miles (17,200 acres). The Basin includes the water-bearing sediments beneath the Town of Yucca Valley and the surrounding area. The Basin is bounded on the north by the Pinto Mountain fault, on the south by the bedrock outcrop of the Little San Bernardino Mountains, on the east by a bedrock constriction called the "Yucca barrier", and on the west by a bedrock constriction and a topographic divide between Warren Valley and Morongo Valley. The productive water-bearing materials in this Basin consist of unconsolidated to partly consolidated Miocene to Quaternary continental deposits. The main productive water-bearing deposits are unconfined inter-bedded gravels, conglomerates, and silts deposited in alluvial fan systems. A description of the Warren Valley Basin from California Department of Water Resources (DWR) Bulletin 118 (2004) is presented in Appendix G.

In 1950, the Warren Valley Basin began to overdraft. As significant growth occurred in the Yucca Valley area, this overdraft condition worsened and groundwater levels declined at an accelerated rate. Prior to the importation of SWP water, the groundwater levels declined as much as 20 to 40 feet per year. This overdraft problem has been known for many years. In its 1972 open-file report on the groundwater resources in the Yucca Valley area, the United States Geological Survey (USGS) estimated that the groundwater would be depleted by the year 2000. Therefore, the groundwater Basin was adjudicated in 1977 and the District was appointed as the Watermaster for the Basin. Over the following 28 years, several studies related to Basin hydrology and the importation of supplemental water from the SWP were prepared.

In 1983, a geophysical study was performed to determine the configuration and prospective capacity of the Warren Valley Basin. Interpretations by the consulting groundwater geologist for the Watermaster resulted in estimates that the Basin contained 45,000 to 59,000 acre-ft of remaining extractable water. Excluding the top 200 feet of the aquifer, the total usable storage capacity of the Basin was estimated to be 160,000 acre-ft. A depth of 200 feet was used since that was the depth to the groundwater table when data collection began, and a 200-foot depth avoids potential contamination from septic return flows and other contaminants. Total annual groundwater production from the Basin was approximately 2,341 acre-ft during FY 2004-05.

A Warren Valley Basin Management Plan was adopted in 1991 that called for importing SWP water from MWA through the then-proposed Morongo Basin Pipeline (MBP) to balance demand and replenish past overdraft. The 71-mile MBP has since been constructed and the District has been purchasing SWP water from MWA and replenishing the Basin since 1995. Refer to the "Water Supply Entitlements, Water Rights or Service Contracts" section of this assessment for details of the Basins water supply.

The Warren Valley Groundwater Basin has an estimated average safe yield of approximately 900 acre-ft/yr. The apparent sources of the Basin recharge are precipitation, runoff from its limited watershed (80 acre-ft/yr), and return flows from irrigation, septic, and wastewater systems (approximately 820 acre-ft/yr). As water use in the Warren Valley increases, the amount of return flows are expected to increase proportionately.

Groundwater Basin Description – Ames/Means Valley and Copper Mountain Basins

HDWD also pumps groundwater from the Ames/Means Valley Basin. As used in this WSA, the Ames Valley Basin includes portions of the Ames and Copper Mountain Valley Basins as designated by DWR. The following basin descriptions are based on information from Bulletin 118 (DWR, 2004). Refer to Appendix G for copies of the Ames, Means and Copper Mountain Valley Basins Bulletin 118.

The Ames Valley Basin covers an area of approximately 169.7 square miles (110,000 acres). The Basin underlies Ames Valley, Homestead Valley, and Pipes Wash in the south-central San Bernardino County. The Basin is bounded by non-waterbearing rocks of the San Bernardino Mountains on the west, Iron Ridge on the north, and Hidalgo Mountain on the northeast. The Emerson, Copper Mountain, and West Calico fault also form parts of the eastern and northern boundaries. A surface water drainage divide with the Copper Mountain Valley Basin forms the southern boundary. The water-bearing materials in Ames Valley Basin consist of unconsolidated to partly consolidated Miocene to Quaternary age continental deposits. The main water-bearing deposits are inter-bedded gravels, conglomerates, and silts deposited in alluvial fans. Other less productive deposits include alluvial channel sands and gravels; silt, clay, and sandy-clay deposits in Emerson Lake playa; and dune sands. The total storage capacity is estimated to be 1,200,000 acre-ft (DWR, 2004).

The Copper Mountain Valley Basin covers an area of approximately 47.4 square miles (30,300 acres). The basin is bounded on the north by a drainage divide with the Ames Valley Basin, and on the south by the Pinto Mountain fault. The non-waterbearing rocks of the Copper Mountain and the San Bernardino Mountains form the eastern and western basin boundaries, respectively. The total storage capacity is estimated in excess of 1,000,000 acre-ft (DWR 2004).

In 1987, the District contracted with the Mainstream Water Development Company to locate and develop a well outside the Warren Valley Basin that would be capable of producing 1,500 acre-ft/yr. Subsequently, the proposed well site was placed within the sphere of influence of the Desert View Water Agency, one of the predecessor agencies to the Bighorn-Desert View Water Agency (BDVWA). This well was successfully drilled on the Bureau of Land Management property. The well can produce up to 2,100 acre-ft/yr from the Ames/Means Valley Groundwater Basin, which much of HDWD's Mesa area overlies. Prior to this water source, the Mesa area utilized approximately 800 acre-ft/yr from the Warren Valley Basin. In 1989, the environmental issues related to this well resulted in complex litigation with the BDVWA. This litigation prevented the production of groundwater from the well. However, after prolonged negotiations with BDVWA, a settlement agreement, allowing the extraction of 800 acre-ft/yr as well as 0.5 acre-ft/yr for each new residential meter, was executed by both parties in January 1991. The settlement agreement prevents the export of groundwater from the Basin. Well 24E was put into operation in 1993. Through informal agreement with BDVWA, the District limits its pumping from the Ames/Means Valley to about 650 acre-ft/yr until a recharge program is implemented.

XII. Primary Issue for Assessment – Conclusion

(1) The Hi-Desert Water District has been identified as the public water purveyor for the Old Town Yucca Valley Specific Plan;

(2) Water demand for the Project is not specifically identified as a future demand in the District's 2005 UWMP, however growth in the area was anticipated and is planned to be met through groundwater extraction supplemented by recharge at the District's percolation ponds;

(3) Reliability to the groundwater system is provided by natural recharge and recharge in the percolation ponds, which is supplied by MWA and the SWP.

(4) The calculated water demand for the Project is 531 AFY, and it has been estimated that 162 AFY of water is currently used on the Project site.

(5) The net change in water demand to the Project site is 369 AFY. The net change represents approximately 5.5% of the District's estimated long-term average of 6,704 acre-feet/year from the SWP, Warren Valley Basin, and Ames/Means Valley Basin.

(6) The Hi-Desert Water District proposes to deliver water to the Old Town Yucca Valley Specific Plan project from groundwater extracted from Warren Valley Basin, and Ames/Means Valley Basin.

The HDWD plans to meet the proposed water demands of the Old Town Yucca Valley Specific Plan with groundwater from the Warren Valley and Means Valley Basins. The District plans to recharge water yearly into the WVB from the SWP, natural recharge, return flows, and conjunctive use water. The reserve groundwater will be available during dry periods when the District will not be able to recharge the Basin due to a reduction in supply from the SWP. The ongoing groundwater storage in the Warren Valley Basin provides the District with reliable source of domestic water.

XIII. References

1. California's Groundwater Bulletin 118 – Warren Valley Groundwater Basin – San Bernardino County, Department of Water Resources, February 27, 2004.
2. California's Groundwater Bulletin 118 – Means Valley Groundwater Basin – San Bernardino County, Department of Water Resources, February 27, 2004.
3. California's Groundwater Bulletin 118 – Ames Valley Groundwater Basin – San Bernardino County, Department of Water Resources, February 27, 2004.
4. California's Groundwater Bulletin 118 – Copper Mountain Valley Groundwater Basin – San Bernardino County, Department of Water Resources, February 27, 2004.
5. Hi-Desert Water District 2005 Urban Water Management Plan.
6. *Active Projects in the Town of Yucca Valley (map)*, prepared by Warner Engineering. July 2006.
7. *Agreement for Construction, Operation and Financing of the Morongo Basin Pipeline Project*, prepared by Mojave Water Agency and Hi-Desert Water District. March 15, 1991.
8. *Ames Valley Water Basin Agreement*, prepared by Hi-Desert Water District and Bighorn-Desert View Water Agency. January 10, 1991.
9. *Annual Report of the Warren Valley Basin Watermaster for the period of 10/1/04-9/30/05*, prepared by James C. Hanson. December 31, 2005.
10. *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001*, prepared by the California Department of Water Resources. October 8, 2003.
11. *High-Desert Water District Policy 26-04*. March 24, 2004.
12. *Hi-Desert Water District Water Master Plan Update December 2001*, prepared by John Egan and Associates. December 2001.
13. *Judgment — Hi Desert Water District vs. Yucca Water Company, Ltd. Case No. 172103*, prepared by the Superior Court of the State of California for the County of San Bernardino. September 16, 1977.
14. *Letter from HDWD to MWA*, by Lee Pearl (HDWD General Manager). September 28, 2006.
15. *Letter from MWA to HDWD*, by Kirby Brill (MWA General Manager). November 15, 2006.
16. *Mojave Water Agency Ordinance No. 9*, prepared by Mojave Water Agency.

17. *Mojave Water Agency Post-2020 Water Supply Options*, prepared by Schlumberger Water Services. April 28, 2005.
18. *Mojave Water Agency Regional Water Management Plan*, prepared by Schlumberger Water Services. February 24, 2005.
19. *Mojave Water Agency Urban Water Management Plan*, prepared by Bookman-Edmonston and Schlumberger Water Services. December 8, 2005.
20. *Old Town Yucca Valley, Draft Specific Plan*, prepared by RBF Consulting.
21. *Private Land Development Project Listing*, prepared by Yucca Valley Community Development Department. August 25, 2006.
22. *The State Water Project Delivery Reliability Report 2005*, prepared by the California Department of Water Resources, Bay-Delta Office. April 2006.
23. *Warren Valley Basin Conjunctive Use Agreement* between Mojave Water Agency, Hi-Desert Water District, and Warren Valley Basin Watermaster. October 28, 2004.
24. *Warren Valley Basin Management Plan*, prepared by Kennedy/Jenks/Chilton. January 31, 1991.
25. Warren Valley Basin Watermaster, 2006. Regular (Adjourned) Meeting Agenda, June 21, 2006.
26. *Water Supply Contract* between the State of California Department of Water Resources and Mojave Water Agency. June 22, 1963. Last amended May 28, 2003.

APPENDIX A

Yucca Valley Revitalization Project – Old Town Specific Plan Draft Utility Plan – Water Demand Estimates

TABLE 2A

Yucca Valley Old Town Specific Plan

EXISTING WATER DEMAND ESTIMATE

DISTRICT / LAND USE TYPE	GROSS AREA (AC)	UNITS (DU)	BUILDING AREA (SF)	FACTOR [1]	AVG DAY (GPD)	MAX DAY [2] (GPD)	PEAK HOUR [3] (GPM)
OLD TOWN MIXED USE							
auto repair	1.006	0	5476	2,000 gpd/ac	2,013	4,026	6
auto sales	0.398	0	1041	2,000 gpd/ac	796	1,593	2
car wash	0.148	0	1182	2,000 gpd/ac	296	593	1
commercial	5.601	0	63474	2,000 gpd/ac	11,201	22,403	31
dental office	0.215	0	10640	2,000 gpd/ac	430	859	1
gas station	0.610	0	3858	2,000 gpd/ac	1,220	2,440	3
hotel/motel [6]	0.309	1	6072	3,600 gpd/ac	1,113	2,227	3
industrial	5.256	0	46607	2,000 gpd/ac	10,512	21,024	29
low density [7]	0.461	1	0	2,100 gpd/ac	969	1,938	3
medical office	0.962	0	13130	2,000 gpd/ac	1,925	3,850	5
mini-storage	2.411	0	4265	2,000 gpd/ksf	4,822	9,645	13
office	1.146	0	7000	3,000 gpd/ac	3,439	6,877	10
restaurant[5]	1.407	0	17368	3,000 gpd/ac	4,220	8,440	12
vacant	9.121	0	2057	0 gpd/ac	0	0	0
TOTAL	**29.053**	**2**	**182,170**	**-**	**42,957**	**85,914**	**119**
OLD TOWN HIGHWAY COMMERCIAL							
auto repair	3.081	0	19249	2,000 gpd/ac	6,161	12,322	17
auto sales	2.636	0	11222	2,000 gpd/ac	5,271	10,542	15
commercial	17.394	0	97652	2,000 gpd/ac	34,788	69,575	97
high density [8]	0.523	0	0	3,600 gpd/ac	1,882	3,765	5
hotel/motel [6]	2.371	12	55907	3,600 gpd/ac	8,535	17,069	24
low density [7]	0.994	1	0	2,100 gpd/ac	2,088	4,175	6
medical office	0.687	0	4800	4,000 gpd/ac	2,748	5,496	8
meeting hall	1.800	0	9938	3,000 gpd/ac	5,399	10,798	15
mini-storage	6.464	0	40952	2,000 gpd/ac	12,927	25,854	36
office	2.574	0	22954	4,000 gpd/ac	10,296	20,592	29
park-n-ride	1.055	0	0	0 gpd/ac	0	0	0
restaurant	3.083	0	13430	3,000 gpd/ac	9,249	18,497	26
rv park [9]	1.305	0	1740	1,200 gpd/ac	1,566	3,133	4
unknown[4]	0.012	0	0	2,000 gpd/ac	24	49	0
vacant	14.379	0	0	0	0	0	0
TOTAL	**58.355**	**13**	**277,844**	-	**100,934**	**201,867**	**280**
OLD TOWN COMMERCIAL/ RESIDENTIAL							
church	2.577	0	16887	3,000 gpd/ac	7,730	15,461	21
civic	0.634	0	944	3,000 gpd/ac	1,902	3,805	5
commercial	3.307	0	33408	2,000 gpd/ac	6,613	13,227	18
high density [8]	3.360	22	0	3,600 gpd/ac	12,097	24,195	34
hotel/motel[6]	0.247	9	2864	300 gpd/du	2,700	5,400	8
industrial	1.921	0	18288	2,000 gpd/ac	3,842	7,683	11
low density[7]	18.747	83	0	700 gpd/du	58,100	116,200	161
medical office	3.435	0	56902	2,000 gpd/ac	6,869	13,738	19
office	1.785	0	19596	3,000 gpd/ac	5,356	10,712	15
pet hospital	0.451	0	6334	2,000 gpd/ac	903	1,805	3
vacant	20.910	0	0	0	0	0	0
TOTAL	**57.373**	**114**	**155,223**	-	**106,113**	**212,225**	**295**
OLD TOWN INDUSTRIAL							
civic	2.065	0	993	3,000 gpd/ac	6,195	12,390	17
industrial	32.530	0	96603	2,000 gpd/ac	65,059	130,118	181
mini-storage	0.595	0	0	2,000 gpd/ac	1,190	2,380	3
vacant	4.399	0	0	0	0	0	0
TOTAL	**39.589**	**0**	**97,596**	-	**72,444**	**144,888**	**201**
TOTAL EXISTING	**184.370**	**129**	**712,833**	-	**322,447**	**644,894**	**896**

[1] Factors are based on Eastern Municipal Water District.
[2] Maximum Day Demand = 2.0 x Average Day Demand, per EMWD Peaking Criteria
[3] Peak Hour Demand = 2.0 x Maximum Day Demand, per 'common used' industry values.
[4] Unknown land uses were assumed at 2,000 gpd/ac.
[5] Restaurant, civic, church, office, and meeting hall taken as institutional land use and applied a 3,000 gpd/ac demand factor.
[6] Hotel / Motel based on high density residential. Assumed factor is 3,600 GPD/Ac or 300 GPD/DU, whichever is greater.
[7] Low density residential assumed at 2,100 GPD/Ac or 700 GPD/DU, whichever is greater.
[8] High density residential assumed at 3,600 GPD/Ac or 300 GPD/DU, whichever is greater.
[9] RV park assumed as Mobile Home Park with a factor of 1,200 gpd/ac per EMWD standards

TABLE 2B

Yucca Valley Old Town Specific Plan

EXISTING WATER DEMAND ESTIMATE

DISTRICT / LAND USE TYPE	GROSS AREA (AC)	UNITS (DU)	BUILDING AREA (SF)	FACTOR [1]	AVG DAY (GPD)	MAX DAY [2] (GPD)	PEAK HOUR [3] (GPM)
OLD TOWN MIXED USE							
auto repair	1.006	0	5476	0.26 Ac Ft/Ac/Yr	234	409	1
auto sales	0.398	0	1041	0.26 Ac Ft/Ac/Yr	92	162	0
car wash	0.148	0	1182	0.26 Ac Ft/Ac/Yr	34	60	0
commercial	5.601	0	63474	0.26 Ac Ft/Ac/Yr	1,300	2,275	3
dental office	0.215	0	10640	0.26 Ac Ft/Ac/Yr	50	87	0
gas station	0.610	0	3858	0.26 Ac Ft/Ac/Yr	142	248	0
hotel/motel [5]	0.309	1	6072	4.85 Ac Ft/Ac/Yr	1,339	2,343	3
industrial	5.256	0	46607	0.26 Ac Ft/Ac/Yr	1,220	2,135	3
low density [7]	0.461	1	0	0.69 Ac Ft/Ac/Yr	284	497	1
medical office	0.962	0	13130	0.26 Ac Ft/Ac/Yr	223	391	1
mini-storage	2.411	0	4265	0.26 Ac Ft/Ac/Yr	560	979	1
office	1.146	0	7000	0.26 Ac Ft/Ac/Yr	266	466	1
restaurant[4]	1.407	0	17368	0.26 Ac Ft/Ac/Yr	326	571	1
vacant	9.121	0	2057	0	0	0	0
TOTAL	**29.053**	**2**	**182,170**	**-**	**6,070**	**10,623**	**15**
OLD TOWN HIGHWAY COMMERCIAL							
auto repair	3.081	0	19249	0.26 Ac Ft/Ac/Yr	715	1,251	2
auto sales	2.636	0	11222	0.26 Ac Ft/Ac/Yr	612	1,070	1
commercial	17.394	0	97652	0.26 Ac Ft/Ac/Yr	4,037	7,065	10
high density[9]	0.523	0	0	4.85 Ac Ft/Ac/Yr	2,264	3,962	6
hotel/motel	2.371	12	55907	4.85 Ac Ft/Ac/Yr	10,264	17,962	25
low density[6]	0.994	1	0	0.3 Ac Ft/Ac/Yr	266	466	1
medical office	0.687	0	4800	0.26 Ac Ft/Ac/Yr	159	279	0
meeting hall	1.800	0	9938	0.26 Ac Ft/Ac/Yr	418	731	1
mini-storage	6.464	0	40952	0.26 Ac Ft/Ac/Yr	1,500	2,625	4
office	2.574	0	22954	0.26 Ac Ft/Ac/Yr	597	1,045	1
park-n-ride	1.055	0	0	0.26 Ac Ft/Ac/Yr	245	428	1
restaurant	3.083	0	13430	0.26 Ac Ft/Ac/Yr	716	1,252	2
rv park	1.305	0	1740	0.26 Ac Ft/Ac/Yr	303	530	1
unknown [10]	0.012	0	0	0.26 Ac Ft/Ac/Yr	3	5	0
vacant	14.379	0	0	0	0	0	0
TOTAL	**58.355**	**13**	**277,844**	-	**22,099**	**38,673**	**54**
OLD TOWN COMMERCIAL/ RESIDENTIAL							
church	2.577	0	16887	0.26 Ac Ft/Ac/Yr	598	1,047	1
civic	0.634	0	944	0.26 Ac Ft/Ac/Yr	147	258	0
commercial	3.307	0	33408	0.26 Ac Ft/Ac/Yr	767	1,343	2
high density [9]	3.360	22	0	4.85 Ac Ft/Ac/Yr	14,549	25,460	35
hotel/motel	0.247	9	2864	4.85 Ac Ft/Ac/Yr	1,068	1,869	3
industrial	1.921	0	18288	0.26 Ac Ft/Ac/Yr	446	780	1
low density[8]	18.747	83	0	1.1 Ac Ft/Ac/Yr	18,408	32,214	45
medical office	3.435	0	56902	0.26 Ac Ft/Ac/Yr	797	1,395	2
office	1.785	0	19596	1.26 Ac Ft/Ac/Yr	2,008	3,514	5
pet hospital	0.451	0	6334	2.26 Ac Ft/Ac/Yr	911	1,593	2
vacant	20.910	0	0	0	0	0	0
TOTAL	**57.373**	**114**	**155,223**	-	**39,699**	**69,474**	**96**
OLD TOWN INDUSTRIAL							
civic	2.065	0	993	0.26 Ac Ft/Ac/Yr	479	839	1
industrial	32.530	0	96603	0.26 Ac Ft/Ac/Yr	7,550	13,213	18
mini-storage	0.595	0	0	0.26 Ac Ft/Ac/Yr	138	242	0
vacant	4.399	0	0	0	0	0	0
TOTAL	**39.589**	**0**	**97,596**	-	**8,167**	**14,293**	**20**
TOTAL EXISTING	**184.370**	**129**	**712,833**	-	**76,036**	**133,062**	**185**

[1] Factors are based on Hi-Desert Water District's 2001 Water Master Plan
[2] Maximum Day Demand = 1.75 x Average Day Demand, per Hi-Desert Water District's 1995 Water Master Plan
[3] Peak Hour Demand = 2.0 x Maximum Day Demand, per 'common used' industry values.
[4] Restaurant, civic, church, meeting hall and unknowns taken as commercial land use and applied a 0.26 Ac ft/Ac/Yr demand factor.
[5] Hotel / Motel based on multi-family residential.
[6] Low density Residential 1DU/Ac was assumed, 1DU/Ac = 0.3 Ac ft/Ac/Yr, per Hi-Desert Water District's 2001 Water Master Plan
[7] (1 DU / 0.461Ac = 2.2), Residential 2DU/Ac was assumed, 2DU/Ac = 0.69 Ac ft/Ac/Yr, per Hi-Desert Water District's 2001 Water Master Plan
[8] (83 DU/ 18.7 Ac = 4.6), Residential 5DU/Ac was assumed, 5DU/Ac = 1.1 Ac ft/Ac/Yr, per Hi-Desert Water District's 2001 Water Master Plan
[9] Multi-Family Use = 4.85 Ac ft/Ac/Yr, per Hi-Desert Water District's 2001 Water Master Plan
[10] Unknown land uses were assumed at 0.26 Ac Ft/Ac/Yr

APPENDIX B

Mojave Water Agency Ordinance No. 9

4/27/95
dc

MOJAVE WATER AGENCY
ORDINANCE NO. 9

AN ORDINANCE OF THE MOJAVE WATER AGENCY ESTABLISHING RULES AND REGULATIONS FOR THE SALE AND DELIVERY OF STATE PROJECT WATER

WHEREAS, the Board of Directors of the Mojave Water Agency (MWA) hereby finds:

1. The Mojave Water Agency is organized and operated pursuant to the Mojave Water Agency Law, California Water Code Appendix 9;

2. Section 15(a) of the Mojave Water Agency Law authorizes the MWA to "do any and every act necessary to be done so that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants of the Agency, including without limiting the generality of the foregoing, irrigation, domestic, fire protection, municipal, commercial, industrial and recreational uses and without limiting the generality of the authority given under subdivision (a) or under any other section of this Act, the Agency has the following additional powers: To enter into any contract with any person, corporation, utility, district, public corporation, the United States or the State of California, as the Board deems proper or advisable or in the interest of the lands and inhabitants of the Agency, to carry out or to execute any of the purposes of this Act."

3. In order to carry out the purposes of the Mojave Water Agency Law, the Mojave Water Agency does hereby adopt Rules and Regulations for the Sale and delivery of State of California Project Water by the MWA.

NOW, THEREFORE, be it ordained by the Board of Directors of the MWA as follows:

RULES AND REGULATIONS FOR SALE AND DELIVERY OF STATE OF CALIFORNIA PROJECT WATER BY THE MWA AS SET FORTH BE ADOPTED

ARTICLE I

TABLE OF CONTENTS

ARTICLE II

DEFINITIONS

Section 2.01 Definitions. As used herein the terms set forth below shall be defined as follows and shall have such meaning unless the context indicates otherwise.

(a) APPLICANT: Any person or entity applying to the Agency for water service.

(b) BOARD: The Board of Directors of the Agency.

(c) CUSTOMER: An applicant for service, an approved applicant, or any person or entity receiving water service from the Agency.

(d) AGENCY: The Mojave Water Agency.

(e) GENERAL MANAGER: The General Manager of the Agency.

(f) PROJECT WATER: Water obtained from the State Water Project. Any customer requesting the sale and delivery of State Project Water shall be subject to the Agency's State Water Contract. The water available to the Agency is subject to the limitation that the supply of water is interruptible. The

Agency makes no representation to the customer as to the quantity or quality of water delivered to the customer. No vested rights are obtained or inferred to the Customer upon the sale and delivery of any water.

ARTICLE III

QUALIFICATION FOR SERVICE

Section 3.01. Application for Service. Any applicant seeking to purchase water from the Agency shall make application therefor in such form as may be prescribed by the General Manager. The General Manager shall investigate each such application and may require the submission of additional information. The application and additional information as may be required, together with the General Manager's recommendations thereon, shall be submitted to the Board for action thereon.

Section 3.02 Term of Service. Service granted pursuant to an Application for Service shall be for a period of one year and shall be subject to annual renewal. For the purpose of annual renewals, existing customers shall be required to submit a renewal application to the Agency. Renewal of the sale of any water is for the period of one year and is temporary and interruptible in nature. No vested rights may be obtained or are inferred by the yearly renewal of water sales.

Section 3.03 Identification of Applicant and Intended Use. Each application shall state the legal capacity of the Applicant, e.g., public agency (indicating the type of agency and the law under which it was formed), corporation (indicating the state of incorporation and other pertinent information), partnership, or individual, and whether the Applicant is a public utility or mutual water company. The application shall state the nature of the ultimate intended use or uses to which the water will be put; e.g., municipal, industrial, agricultural, recreational, groundwater recharge, etc. The application shall contain such information as may be required by the General Manager to insure that the Applicants' ultimate intended use is consistent with Agency Policies and Constitutionally permitted uses. All applications shall be evaluated and deliveries authorized based upon the following priority uses: 1) municipal, 2) industrial, 3) agricultural, 4) recreational, 5) other. Service may be refused if the Board determines that the applicants ultimate intended use is not in accordance with Agency policies or permitted under the Constitution of the State of California.

Section 3.04. Services to be Wholesale in Nature. Each application shall contain such information as is necessary to assure the Board that the application is for service of a wholesale nature and that the Agency will not thereby become subject to the obligations of a water purveyor providing direct

retail service to consumers. In the event the Applicant seeks a waiver of such requirement, the application shall so state and there shall be attached thereto a statement of the reasons for seeking a waiver any documentary evidence in support thereof.

Section 3.05. Back-up Capacity of Applicant. Each application shall contain information indicating that the Applicant is capable of sustaining its service requirements from independent sources during the period of any interruption or curtailment of service from Agency facilities. In no instance shall the Agency be the sole source of water supply to any water purveyor for any development within the purveyor's service area.

Section 3.06 Treatment Facilities. Each application shall contain information indicating the Applicant has or will install such treatment facilities as may be required for the use or uses to which the Applicant intends to put the water.

Section 3.07. Power Generation Rights. Said rights shall extend to the generation of power as the water flows through Agency facilities only. It shall be the responsibility of the Agency to pay its expenses for any exercise of its right to generation of power pursuant hereto, and no Applicant shall be subjected to extra expense in connection therewith. In appropriate cases, the Agency and the Applicant may install joint facilities for power recovery purposes. In the event the Agency determines not to exercise its rights, the Applicant may undertake to install power recovery facilities for its own account.

Section 3.08. Indemnity for Groundwater Recharge. Each application shall contain the agreement of the Applicant to provide the Agency with indemnity for damages to lessees of the Applicant arising out of groundwater spreading operations of the Agency, or performed by others for it, in all circumstances in which the lease between the Applicant and the Applicant's lessee protects the Applicant against such damages.

Section 3.09. Application for Groundwater Replenishment. Except in cases in which the Agency undertakes to conduct groundwater replenishment operations on its own motion, an application shall be required whenever request is made that the Agency engage in groundwater replenishment operations, whether delivery is to be made to a customer, or such groundwater replenishment is to be conducted by or at the direction of the Agency without delivery to a customer.

Section 3.10 Metering by End User. All customers of the Agency shall be required to meter the use of water by all accounts (end users) served.

ARTICLE IV

INSTALLATION AND CONNECTION OF FACILITIES

Section 4.01 General Authorization. All service connections, including valves, pipe, meters and other equipment required, shall be installed at the expense of the Customer after authorization by the Board.

Section 4.02 Procedure. The Agency shall cause a service connection to be constructed pursuant to a written request by a customer in accordance with plans and specifications approved by the General Manager and by an authorized representative of the Customer. Except as otherwise specifically authorized by the Agency, all equipment and materials required for constructing the service connection shall be acquired by the Agency in its customary manner, or the Agency may utilize therefor suitable equipment and materials on hand.

Section 4.03 Facilities Included; Ownership by the Agency. The service connection shall include the facilities for diversion of water from the Agency's system and for delivery of such water into the pipeline distribution system of the Customer or the Customer's distributor. The service connection up to and including the fitting connecting with the pipeline through which the Customer will receive water delivered through the service connection, including any metering instruments and cabinets therefor, shall be and remain the property of the Agency and shall be operated, maintained and controlled by the Agency.

Section 4.04. Back-Flow. The Customer may be required to install adequate back-flow or back-siphonage equipment approved by the Agency or demonstrate adequate facilities exist to prevent back-flow into Agency facilities. The Agency solely shall determine when back-flow facilities are required and the type of device required. The device(s), when required, shall be installed at the service connection point and shall be maintained by means satisfactory to the Agency.

Section 4.05. Pressure Surges (Water Hammer). All service connection applications shall include data showing that any operation (gravity or pumping from pipeline, if required) will not damage any Agency facility. Such data shall include, but is not limited to surge analysis, structural calculation and hydraulic analysis for any pumping or delivery condition requested.

Section 4.06. Deposit of Estimated Costs. The costs of constructing the service connection shall be estimated by the General Manager, who shall cause a written estimate to be prepared and who shall inform the Customer's representative regarding the amount of such estimate. The total amount of such estimate shall be deposited by the Customer in advance of any action toward

construction of the service connection, including all items peculiar only to a given service connection, or it may be deposited in stages, upon approval of the Board. Costs shall include reasonable allowance for costs of design, supervision and overhead, in addition to direct costs of labor, equipment and materials.

Section 4.07. Use of Deposit. Such deposit or deposits shall be held and used to defray the costs of constructing the service connection, and the Agency shall not be required to proceed with the construction of the service connection in the absence of sufficient funds deposited therefor.

Section 4.08. Settlement Upon Completion. Upon completion of construction of the service connection, the Agency shall render to the Customer a statement of all costs, in accordance with the customary practice of the Agency, incurred by the Agency in constructing the service connection; if such costs shall exceed the sum of money deposited by the Customer with the Agency, the Customer promptly shall pay to the Agency the amount by which such costs shall exceed such deposit; and if such costs be less than the said sum of money so deposited, any unexpended balance of such deposit shall be returned by the Agency to the Customer.

Section 4.09. Easement for Service Connection. The Customer shall cause to be granted to the Agency or the Agency shall acquire at the Customer's expense, directly from the fee owner of the affected land, such easement as may be necessary in the opinion of the General Manager for the construction, operation, maintenance and repair of the service connection. Said easement and the grant thereof shall be approved by the Agency; provided, however, that fee title to the property required for such service connection may be acquired in the same manner as an easement and in lieu of an easement if the General Manager and Customer agree that it would be advantageous to do so. Customer shall provide, or the Agency may obtain at Customer's sole cost and expense, a policy of title insurance insuring that clear title to the easement, or fee, is vested in the Agency, subject to any encumbrances that have been approved in writing by the General Manager. The amount of title insurance shall be determined by the acquisition costs, unless the acquisition is made without costs or for less than the amount of the coverage which will be provided for the price paid for the title report, in which case the title policy shall be in the amount of such coverage or such amount as may be reasonably determined by the General Manager.

Section 4.10. Maintenance of Service Connection. Upon completion of the service connection, the Agency shall be responsible for any subsequent maintenance, alteration, reconstruction or relocation of such service connection except changes which are requested by the Customer, which changes shall be handled as a new service connection. However, prior to the release of water by the Agency into the pipeline distribution system of the Customer or of the Customer's affected distributor, the Agency and the Customer or Customer's

Distributor shall each install its own flow control device or devices as a means of maintaining uniform flow.

Section 4.11. Environmental Requirements. Public agency customers are responsible for ensuring that the obligations of lead agencies as described in the California Environmental Quality Act (CEQA) and its implementing guidelines are fulfilled. The Agency shall fulfill all other obligations that may arise from its involvement in construction of the service connection and shall provide such information as it has available which is necessary to ensure compliance with the Act and its implementing guidelines.

Section 4.12. Fair Value of Outlet. The fair value of an outlet installed during pipeline construction will be established by the General Manager at the time the service connection is constructed at the outlet, and the charge to a Customer for such an outlet will be based on this fair value; provided that any outlet larger than 24 inches or any outlet installed after a pipeline is placed in operation shall be charged for its actual cost.

ARTICLE V

WATER SERVICE AND OPERATIONS

Section 5.01. Limitations of State Contract Service. All water service made pursuant to the Agency's State Contract shall be subject to all of the terms and conditions of the said State Contract and to any conditions affecting the State's source of supply or the availability of supply.

Section 5.02. Interruptible Service. All water supplied by the Agency shall be served upon an interruptible basis. Interruption may be occasioned due to the terms of the Agency's State Contract by reason of the Agency's requirements for maintenance and operation of its facilities, including the design and operating criteria established pursuant to Section 5.05 or a demand by Agency's Customers in excess of State Water Project Water Entitlement pursuant to Section 6. The Agency shall notify its customers in advance of any nonstandard interruption to the extent reasonably feasible. Due to the nature of the Agency's facilities and the potential modes of service required, the Agency cannot guarantee any specific level of pressure. **CUSTOMERS SHOULD USE CAUTION IN THE ISSUANCE OF CAN OR WILL SERVE LETTERS FOR OTHER LAND USE ENTITLEMENT BASED UPON STATE PROJECT WATER.**

Section 5.03. Quality. Except as otherwise specifically agreed, all water served by the Agency is raw untreated water and shall not be supplied for domestic purposes by any customer without such treatment as may be required to comply with all applicable laws and regulations. The Agency makes no

representation as to the quality of the water it supplies as to its suitability for any particular purpose. Reference is hereby made to Article 19 of the Agency's State Contract, but the Agency does not undertake to monitor the extent of the State's compliance or noncompliance with such standards, but only to transport said supply to its customers. With respect to any exchange water or other supply available to the Agency, the Agency shall be responsible only to exercise ordinary care in transporting and safeguarding said supply and shall not be responsible for the quality of such water as it is received by the Agency. The Agency may, however, reject any supply which is unsuitable by reason of contamination or pollution which render it impractical for the Agency Customers to treat and use the same.

Section 5.04. Special Classes of Services. The Agency may from time to time establish special classes of service reflecting the special conditions applicable to such service. Such classes may include, but shall not be limited to the following:

(a) Service outside the Agency.

(b) Service to property not subject to Agency taxes.

(c) Service with a special rate in accordance with the terms of annexation to the Agency.

(d) Service pursuant to special contractual arrangement with the Agency.

Water supplied for delivery to property not subject to Agency taxes may be subject to a special outside rate as authorized by Water Code Section 71613. The outside rate may be applicable to any Agency delivery, wherever made, which makes water available for use on property not subject to Agency taxes, including (1) direct delivery to such property, (2) delivery to such property by exchange (e.g., delivery of Agency water within the Agency to make other water supplies otherwise used within the Agency available for use on property outside the Agency), and (3) any delivery ordered to make water available for use outside the Agency.

Section 5.05. Water Rates. All water rates for water service made by the Agency shall be established from time to time by resolution of the Board of Directors of the Agency.

Section 5.06. Pressure and Flow Conditions. All Applicants and Customers are required to accept such conditions of pressure and service as are provided by the distributing system at the location of the proposed connection, and shall agree to hold the Agency harmless from any damages arising out of low

pressure or high pressure conditions or interruptions of service. The Agency will not make deliveries at flows less than one cubic foot per second or for a period less than 24 hours. Orders for water must be placed one week in advance of actual delivery.

Section 5.07. Payment of Water Charges. Water charges are due and payable at the office of the Agency on date of mailing bill to the Customer or his agent as designated in the application and shall be delinquent 30 days thereafter. Service may be discontinued without further notice if payment of the water charge is not made prior to the date such charge becomes delinquent.

Section 5.08. Meter Testing. When the Accuracy of a water meter is questioned, the Agency upon request will cause an official test to be made at its own expense. The Customer shall be duly notified of the time and place of such test and may be present when any such test is made by the Agency. The meter will be tested on variable rates of delivery and if the average registration is more than two percent in excess of the actual quantity of water passing through the meter, the Agency shall refund to the Customer the overcharge based upon the test, for the prior twelve months, unless it can be shown that the error was due to some cause for which the date can be fixed. In the latter case, the overcharge shall be computed back to and not beyond such time. Any undercharge determined upon the basis of the test may be billed to the Customer on a similar basis. Requests for a test within 12 months of a prior test will be at the Customer's expense unless the meter is determined to be over registering deliveries as determined in this section.

Section 5.09. Estimates of Water Requirements and Schedules of Deliveries. Before August 1 of each year, each customer shall furnish the Agency in form provided by the Agency, with an estimate of the amounts of water to be furnished to such customer by the Agency. These estimates will be used by the Agency in planning the construction needed to complete the Agency's ultimate distribution system; in planning the future operation of such system; and in preparing notices for submission to the State Department of Water Resources which will be used by the State to order power for pumping on the State Water Project.

Section 5.10. Contents of Estimates. Each estimate furnished by a Customer pursuant to Section 4.09 shall contain, as a minimum, for each service connection for each month of the year beginning with succeeding July 1, and for the entire Customer for each month of the succeeding four year, the following information:

1. The quantity of water to be delivered by the Agency to the Customer.

2. The quantity of water to be used for:

(a) Domestic, industrial, and municipal purposes, exclusive of groundwater replenishment by spreading or injecting.
(b) Groundwater replenishment by spreading or injecting;
(c) Agricultural purposes.
(d) Recreational.
(e) Other uses.

The estimate shall constitute the member public agency's request for deliveries for the first of the five years covered therein.

Section 5.11. Revision of Estimates. The Customer may make revisions to any of its estimates upon reasonable notice to the Agency.

Section 5.12. Order for Water. Any Customer requesting delivery of water from the Agency shall place such order in writing. The General Manager may prescribe a suitable form for use in placement of water orders and may revise the same from time to time. Any customer water order shall be accompanied by a copy of the ordinance, resolution, minute order, or other action of the Board or other governing body of the Customer which authorizes the placement of the order.

Section 5.13. Shortage in Water Supply. In any year in which there may occur a shortage in available supply of Project Water, the Agency shall reduce the delivery of Project Water proportionately to all parties to which the Agency supplies water, including Improvement District M of Division 2. It is provided that the Agency may apportion available Project Water on some other basis if such is required to meet minimum demands for domestic supply, fire protection, fire suppression or sanitation to a specific area of the Agency during the year. No vested rights are obtained by the Customer upon the sale and delivery of water apportioned by this Section nor are any such rights inferred by virtue of an Agency decision to provide water to a Customer in a specific year.

Section 5.14. Outside Sales. Water may be sold for use outside the Agency only when the Board finds there is a surplus above that required by consumers within the Agency, as authorized by Water Code Section 71612. All such sales shall be limited to the period of surplus and shall terminate when the water available is required for use within the Agency. Any sales for delivery within or without the Agency which makes water available for use on property outside the Agency shall be treated as an outside sale for such purposes, including (1) direct delivery to property outside the Agency, (2) delivery to property outside the Agency by exchange (e.g., delivery of Agency water within the Agency available to use on property outside the Agency), and (3) any delivery ordered to make water available for use outside the Agency.

ARTICLE VI

GENERAL

Section 6.01. Liability and Indemnification. Neither the Agency nor any of its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution water supplied by the Agency to a customer after such water has been delivered to such Customer; nor for claim of damage of any nature whatsoever, including but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water beyond the point of such delivery; and the Customer shall indemnify and hold harmless the Agency and its officers, agents, and employees from any such damages or claims of damages. Neither the Customer nor any of its officers, agents, or employees shall be liable for the control, carriage, handling, use, disposal, or distribution of water prior to such water being delivered to the Customer; nor for claim of damage of any nature whatsoever, including but not limited to property damage, personal injury or death, arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such water prior to its delivery to such Customer and the Agency shall indemnify and hold harmless the Customer and its officers, agents, and employees from any such damages or claims of damages.

Section 6.02. Water Resources Management Requirements. In order to promote good water resources management and prevent waste of water resources, undesirable groundwater conditions, and unnecessary expense to the inhabitants and taxpayers of the Agency, the Agency may encourage or require the use of alternate supplies where such is required to prevent waste or undesirable groundwater conditions and/or to prevent unnecessary expense to the Agency's inhabitants and taxpayers. The Agency may also encourage the use of special conservation facilities or devices where appropriate.

Section 6.03. Design and Operating Criteria. The Agency's facilities have been designed and planned within the limits of available funding to meet water service and other needs within the Agency to the maximum extent feasible and to allow for maximum flexibility for use of facilities for different purposes and in different modes of operation. Such a system necessarily makes it impossible to always respond automatically to service demands when facilities are needed for conflicting demands or modes of service. It is the applicant's responsibility to consult with Agency staff to obtain information as to the Agency's requirements for connection and the capabilities of the Agency system before designing facilities for connection to the Agency system.

Section 6.04. Indemnification for Water Spreading. The Agency shall require execution of an agreement indemnifying the Agency and its officers, agents, and employees against liability for damages of any nature whatsoever, including but not limited to property damage, personal injury, or death, arising out of or resulting from, or connected with, groundwater replenishment by spreading or injecting which is conducted by or at the direction of the Agency pursuant to the application or request of a customer or water purveyor or in which water is to be delivered by the Agency to a Customer or water purveyor for such use.

Section 6.05. Appeal. A decision denying an Application for Service may be appealed to the Board by Applicant by notifying the General Manager in writing of Applicant's decision to appeal no later than fourteen (14) days from the date of denial of the Application for Service by the Board.

The decision of the Board on any appeal shall be final.

This Ordinance shall be in full force and effect upon the date of adoption, and shall be published in full in a newspaper of general circulation within ten (10) days from the date of adoption.

Passed and adopted this 25th day of April, 1995, by the following vote:

AYES: 7
NOES:
ABSTAIN:
ABSENT:

John H. Russell, President
Board of Directors
Mojave Water Agency

ATTEST:

Peggy Sartor, Secretary
Board of Directors
Mojave Water Agency

APPENDIX C

Correspondence between Hi-Desert Water District and Mojave Water Agency

HI-DESERT WATER DISTRICT

September 28, 2006

Kirby Brill, General Manager
Mojave Water Agency
22450 Headquarters Road
Apple Valley, CA 92307

Re: Senate Bill 610 & 221 – Water Study Assessment for Mountain Vista Development

Dear Mr. Brill:

Century Vintage Homes is in the process of obtaining its permits and entitlements to develop 1,407 single-family residential units in Yucca Valley as the development company for the Mountain Vista Development.

Pursuant to Senate Bills 610 and 221, a water supply assessment study is in the draft stages and being finalized by the District. A primary component of the study relates to water reliability and the ability to serve the project for the next 20 years. This becomes especially critical in cases where a retailer is dependent on a water wholesaler for supply.

Based on the District's contractual allotment of 4,282 acre-feet per year, the Water Supply and Demand Projections chart (enclosed), forecasts an overdraft condition in 2016. This is predicated on a 2.3 % growth factor and takes into account the Mountain Vista Development. Based on a 4% growth scenario, overdraft could potentially occur in 2013. The enclosed chart also includes the additional 25,000 acre-foot per year Berrenda Mesa allocation, as this issue remains outstanding and being addressed in the MOU between the District and MWA.

The existing Morongo Basin Pipeline agreement will expire in 2023. At that point, from MWA's perspective, the District's annual entitlement will be nullified and subsequent water orders will be subject to MWA's Ordinance No. 9.

55439 29 Palms Hwy.
Yucca Valley, CA 92284-2503
760.365.8333 / fax: 760.365.0599
www.hdwd.com
email: info@hdwd.com

While a Regional Water Management Plan is in effect for MWA through 2020, the District seeks assurances from MWA concerning its ability to meet local growth demands through 2026 for various growth scenarios, including the Mountain Vista Development. Water Code Section 10631(k) reads as follows:

"*Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c)....*"

While this portion of the Water Code directly relates to the development of an Urban Water Management Plan, the feedback received from MWA is critical and necessary in assisting the District with its water study assessment, as portions of the District's existing UWMP will be utilized. Therefore, MWA's response in providing the District with this information is required pursuant to Water Code Sections 10631(b), 10631(c) and 10631(k), and is respectfully requested. Furthermore, the District seeks assurances as to MWA's commitment to meeting anticipated and potential growth demands outlined in the enclosed Water Supply and Demand Projections chart through 2026.

Your Agency's cooperation and assistance during this process would greatly be appreciated. Should you have any questions or need additional information, please contact Pat Grady or me.

Sincerely,

Lee Pearl
General Manager

Cc: Board of Directors

Enc.

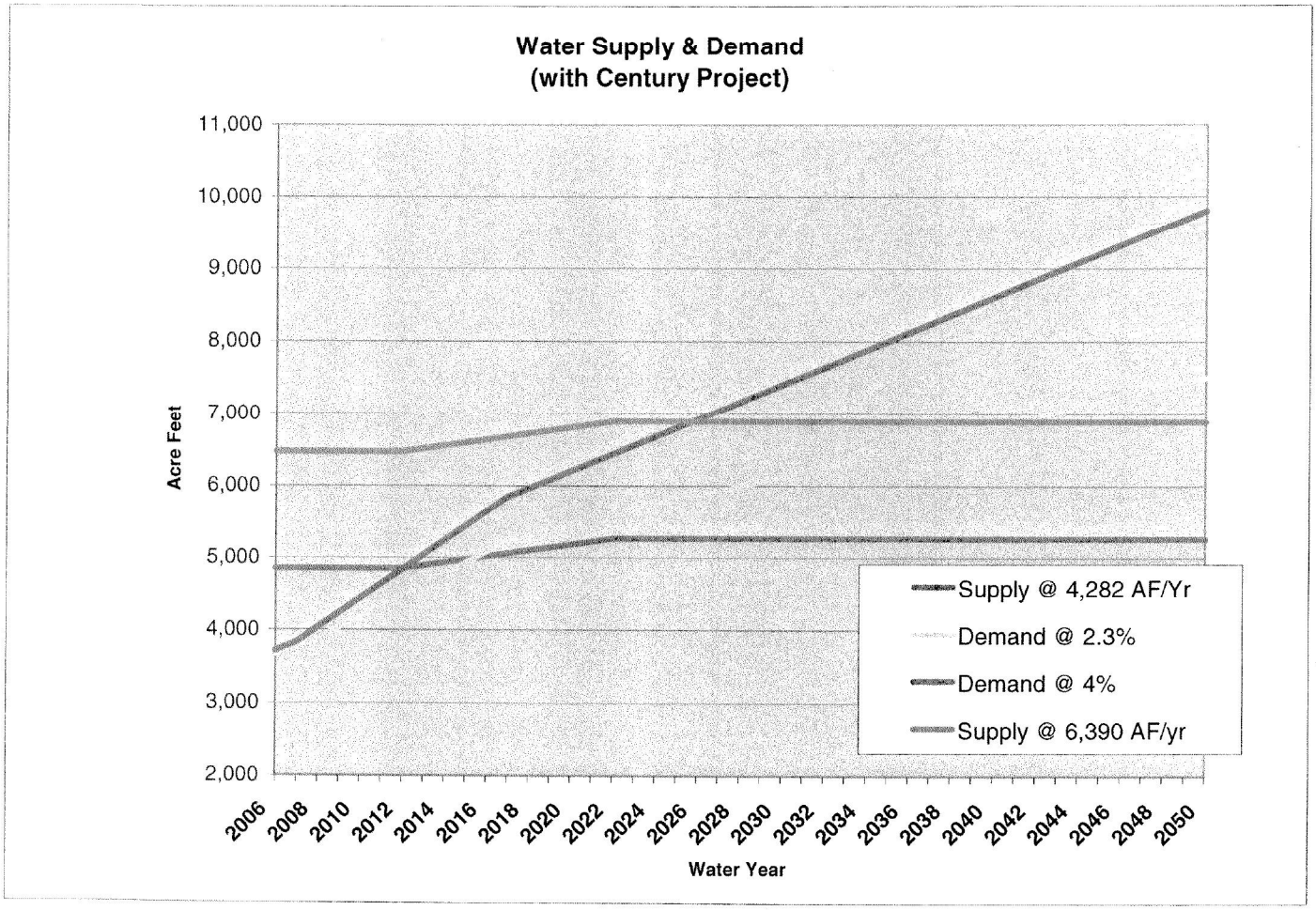
Water Supply and Demand Projections
@ 4,282 AF SWP

		Supplies							Demands									@ 2.3%		@ 4%	
	WATER YEAR	NATURAL RECHARGE	SWP(1)	MVB	INTERTIE	S.R./I.R.(2)	W.W.(3)	TOTAL SUPPLY	BSCC	IMP	MIN. PROD.	Century	HDWD 2.3%	SERV CONN	HDWD 4%	SERV CONN	TOTAL DEMAND 2.3%	TOTAL DEMAND 4%	SUPPLY LESS DEMAND	BASIN RESERVE	SUPPLY LESS DEMAND	BASIN RESERVE
	1988	80	0	0	0	820	0	900	250	14	16	0	3,071		3,071		3,351	3,351	-2,451	0	-2,451	0
	1989	80	0	0	0	820	0	900	250	14	16	0	3,039		3,039		3,319	3,319	-2,419	0	-2,419	0
	1990	80	0	0	0	820	0	900	250	14	16	0	2,908		2,908		3,188	3,188	-2,288	0	-2,288	0
	1991	80	0	0	0	820	0	900	250	14	16	0	3,279		3,279		3,559	3,559	-2,659	0	-2,659	0
	1992	80	0	0	77	820	0	977	250	14	16	0	2,993		2,993		3,273	3,273	-2,296	0	-2,296	0
	1993	80	0	85	699	820	0	1,684	250	14	16	0	3,223		3,223		3,503	3,503	-1,819	0	-1,819	0
	1994	80	0	464	570	820	0	1,934	250	14	16	0	2,999		2,999		3,279	3,279	-1,345	0	-1,345	0
	1995	80	1,608	616	495	820	0	3,619	320	14	16	0	2,724		2,724		3,074	3,074	545	545	545	545
Actual	1996	80	3,919	881	659	820	0	6,359	300	14	16	0	2,906		2,906		3,236	3,236	3,123	3,668	3,123	3,668
	1997	80	4,848	599	0	820	0	6,347	394	14	16	0	2,741		2,741		3,165	3,165	3,182	6,850	3,182	6,850
	1998	80	2,895	651	0	820	0	4,646	323	14	16	0	2,528		2,528		2,881	2,881	1,765	8,615	1,765	8,615
	1999	80	1,918	774	0	820	0	3,592	312	14	16	0	2,667		2,667		2,999	2,999	593	9,208	593	9,208
	2000	80	3,631	601	0	820	0	5,132	226	14	16	0	2,814		2,814		3,072	3,072	2,060	11,268	2,060	11,268
	2001	80	3,831	656	0	820	0	5,387	300	14	16	0	2,823		2,823		3,153	3,153	2,234	13,502	2,234	13,502
	2002	80	2,566	796	0	820	0	4,262	473	14	16	0	3,101		3,101		3,604	3,604	658	14,160	658	14,160
	2003	80	2,681	573	0	820	0	4,154	226	14	16	0	3,126		3,126		3,382	3,382	772	14,932	772	14,932
	2004	80	3,700	810	0	820	0	5,410	177	14	16	0	3,188		3,188		3,395	3,395	2,015	16,947	2,015	16,947
	2005	80	3,460	587	0	820	0	4,947	200	14	16	0	2,975		2,975		3,205	3,205	1,742	18,689	1,742	18,689
	2006	80	3,297	650	0	820	0	4,847	585	14	16	0	3,044	10,147	3,095	10,317	3,659	3,710	1,188	19,877	1,137	19,826
	2007	80	3,297	650	0	820	0	4,847	585	14	16	0	3,113	10,377	3,215	10,717	3,728	3,830	1,119	20,996	1,017	20,843
	2008	80	3,297	650	0	820	0	4,847	585	14	16	81	3,182	10,747	3,335	11,257	3,878	4,031	969	21,965	816	21,659
	2009	80	3,297	650	0	820	0	4,847	585	14	16	162	3,251	11,117	3,455	11,797	4,028	4,232	819	22,784	615	22,274
	2010	80	3,297	650	0	820	0	4,847	585	14	16	243	3,320	11,487	3,575	12,337	4,178	4,433	669	23,453	414	22,688
	2011	80	3,297	650	0	820	0	4,847	585	14	16	324	3,389	11,857	3,695	12,877	4,328	4,634	519	23,972	213	22,901
	2012	80	3,297	650	0	820	0	4,847	585	14	16	405	3,458	12,227	3,815	13,417	4,478	4,635	369	24,341	12	22,913
	2013	80	3,297	650	0	806	56	4,889	585	14	16	486	3,527	12,597	3,936	13,957	4,628	5,036	261	24,602	147	22,766
	2014	80	3,297	650	0	792	112	4,931	585	14	16	567	3,596	12,967	4,055	14,497	4,778	5,237	153	24,755	-306	22,460
	2015	80	3,297	650	0	778	168	4,973	585	14	16	648	3,665	13,337	4,175	15,037	4,928	5,438	45	24,800	-465	21,995
	2016	80	3,297	650	0	764	224	5,015	585	14	16	729	3,734	13,707	4,295	15,577	5,078	5,639	-63	24,737	-624	21,371
	2017	80	3,297	650	0	750	280	5,057	585	14	16	810	3,803	14,077	4,415	16,117	5,228	5,840	-171	24,566	-783	20,588
	2018	80	3,297	650	0	736	336	5,099	585	14	16	810	3,872	14,307	4,535	16,517	5,297	5,960	-198	24,368	-861	19,727
	2019	80	3,297	650	0	722	392	5,141	585	14	16	810	3,941	14,537	4,655	16,917	5,366	6,080	-225	24,143	-939	18,788
	2020	80	3,297	650	0	708	448	5,183	585	14	16	810	4,010	14,767	4,775	17,317	5,435	6,200	-252	23,891	-1,017	17,771
	2021	80	3,297	650	0	694	504	5,225	585	14	16	810	4,079	14,997	4,895	17,717	5,504	6,320	-279	23,612	-1,095	16,676
	2022	80	3,297	650	0	680	560	5,267	585	14	16	810	4,148	15,227	5,015	18,117	5,573	6,440	-306	23,306	-1,173	15,503
	2023	80	3,297	650	0	680	560	5,267	585	14	16	810	4,217	15,457	5,135	18,517	5,642	6,560	-375	22,931	-1,293	14,210
	2024	80	3,297	650	0	680	560	5,267	585	14	16	810	4,286	15,687	5,255	18,917	5,711	6,680	-444	22,487	-1,413	12,797
	2025	80	3,297	650	0	680	560	5,267	585	14	16	810	4,355	15,917	5,375	19,317	5,780	6,800	-513	21,974	-1,533	11,264
	2026	80	3,297	650	0	680	560	5,267	585	14	16	810	4,424	16,147	5,495	19,717	5,849	6,920	-582	21,392	-1,653	9,611
	2027	80	3,297	650	0	680	560	5,267	585	14	16	810	4,493	16,377	5,615	20,117	5,918	7,040	-651	20,741	-1,773	7,838
	2028	80	3,297	650	0	680	560	5,267	585	14	16	810	4,562	16,607	5,735	20,517	5,987	7,160	-720	20,021	-1,893	5,945
	2029	80	3,297	650	0	680	560	5,267	585	14	16	810	4,631	16,837	5,855	20,917	6,056	7,280	-789	19,232	-2,013	3,932
	2030	80	3,297	650	0	680	560	5,267	585	14	16	810	4,700	17,067	5,975	21,317	6,125	7,400	-858	18,374	-2,133	1,799
	2031	80	3,297	650	0	680	560	5,267	585	14	16	810	4,769	17,297	6,095	21,717	6,194	7,520	-927	17,447	-2,253	-454
	2032	80	3,297	650	0	680	560	5,267	585	14	16	810	4,838	17,527	6,215	22,117	6,263	7,640	-996	16,451	-2,373	-2,827
	2033	80	3,297	650	0	680	560	5,267	585	14	16	810	4,907	17,757	6,335	22,517	6,332	7,760	-1,065	15,386	-2,493	-5,320
	2034	80	3,297	650	0	680	560	5,267	585	14	16	810	4,976	17,987	6,455	22,917	6,401	7,880	-1,134	14,252	-2,613	-7,933
	2035	80	3,297	650	0	680	560	5,267	585	14	16	810	5,045	18,217	6,575	23,317	6,470	8,000	-1,203	13,049	-2,733	-10,666
	2036	80	3,297	650	0	680	560	5,267	585	14	16	810	5,114	18,447	6,695	23,717	6,539	8,120	-1,272	11,777	-2,853	-13,519
	2037	80	3,297	650	0	680	560	5,267	585	14	16	810	5,183	18,677	6,815	24,117	6,608	8,240	-1,341	10,436	-2,973	-16,492
	2038	80	3,297	650	0	680	560	5,267	585	14	16	810	5,252	18,907	6,935	24,517	6,677	8,360	-1,410	9,026	-3,093	-19,585
	2039	80	3,297	650	0	680	560	5,267	585	14	16	810	5,321	19,137	7,055	24,917	6,746	8,480	-1,479	7,547	-3,213	-22,798
	2040	80	3,297	650	0	680	560	5,267	585	14	16	810	5,390	19,367	7,175	25,317	6,815	8,600	-1,548	5,999	-3,333	-26,131
	2041	80	3,297	650	0	680	560	5,267	585	14	16	810	5,459	19,597	7,295	25,717	6,884	8,720	-1,617	4,382	-3,453	-29,584
	2042	80	3,297	650	0	680	560	5,267	585	14	16	810	5,528	19,827	7,415	26,117	6,953	8,840	-1,686	2,696	-3,573	-33,157
	2043	80	3,297	650	0	680	560	5,267	585	14	16	810	5,597	20,057	7,535	26,517	7,022	8,960	-1,755	941	-3,693	-36,850
	2044	80	3,297	650	0	680	560	5,267	585	14	16	810	5,666	20,287	7,655	26,917	7,091	9,080	-1,824	-883	-3,813	-40,663
	2045	80	3,297	650	0	680	560	5,267	585	14	16	810	5,735	20,517	7,775	27,317	7,160	9,200	-1,893	-2,776	-3,933	-44,596
	2046	80	3,297	650	0	680	560	5,267	585	14	16	810	5,804	20,747	7,895	27,717	7,229	9,320	-1,962	-4,738	-4,053	-48,649
	2047	80	3,297	650	0	680	560	5,267	585	14	16	810	5,873	20,977	8,015	28,117	7,298	9,440	-2,031	-6,769	-4,173	-52,822
	2048	80	3,297	650	0	680	560	5,267	585	14	16	810	5,942	21,207	8,135	28,517	7,367	9,560	-2,100	-8,869	-4,293	-57,115
	2049	80	3,297	650	0	680	560	5,267	585	14	16	810	6,011	21,437	8,255	28,917	7,436	9,680	-2,169	-11,038	-4,413	-61,528
	2050	80	3,297	650	0	680	560	5,267	585	14	16	810	6,080	21,667	8,375	29,317	7,505	9,800	-2,238	-13,276	-4,533	-66,061
			Buildout										12,500	43,067	12,500	43,067						

(1) (a) Deliveries of SWP water have a long term average of 77%
(b) HDWD has a priority allotment of 4,282 AF
(c) The 3,297 AF amount is derived from 77% of the 4,282 AF

(2) Combination of septic return and irrigation return. Septic returns are realized starting in 2013 as a return line to the recharge basins is constructed

(3) Assumes a 50% return flow from the Phase 1 area


Water Supply & Demand
(with Century Project)
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
Acre Feet
2006
2008
2010
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
2048
2050
Water Year
Supply @ 4,282 AF/Yr
Demand @ 2.3%
Demand @ 4%
Supply @ 6,390 AF/yr

Mojave Water Agency

22450 Headquarters Drive ♦ Apple Valley, California 92307
Phone (760) 946-7000 ♦ Fax (760) 240-2642 ♦ www.mojavewater.org

November 15, 2006

Mr. Lee Pearl
General Manager
Hi-Desert Water District
55439 Twentynine Palms Highway
Yucca Valley CA 92284-2503

SUBJECT: Water Study Assessment for Mountain Vista Development

Dear Mr. Pearl:

Your letter of September 28, 2006 requests that the MWA review information your District is proposing to use as the basis for a water supply assessment for the Mountain Vista Development Project, consistent with your requirements under Senate Bills 610 and 221. Subsequent to submittal of your letter, your staff provided additional revised data for consideration by MWA.

The HDWD letter states that your data summary table assumes that the water supply available to HDWD includes a portion of the 25,000 acre-foot Table A purchase by the MWA, which HDWD maintains is in dispute and under resolution under an MOU. The table, however, actually reflects the existing IDM Participant's Agreement maximum adjusted to reflect supply reliability estimates provided by the DWR (i.e., 77% of the maximum available to HDWD). As we have stated previously, the HDWD has access to water supplies resulting from the purchase of the 25,000 acre-feet of additional Table A, consistent with availability to other water purveyors within the MWA.

The HDWD letter indicates that the MWA 2004 Regional Water Management Plan is interpreted to be in effect through 2020, while the HDWD seeks information regarding water supply projections through 2026. The HDWD letter, therefore, cites Water Code Section 10631 as a basis for information required from the MWA for the analysis. You should recall that the 2004 Regional Water Management Plan included Appendix A, which extends water supply and demand projections through the Year 2030. The 2004 Regional Water Management Plan and Appendix A were submitted to the DWR as the MWA 2005 Urban Water Management Plan (UWMP). This information was also made available to the cities, the County and water purveyors within the MWA and, therefore, MWA has met the requirements of the Water Code. The water supply and demand analysis for the 2005 MWA UWMP concluded that the average natural and imported water supply available to the MWA region should meet demands past 2025. It is the District's responsibility to make use of this information at the local level.

Note that the MWA 2005 UWMP estimated that the total consumptive use for the Warren Valley should be 2,500 acre-feet in 2030 and 1,000 acre-feet for the entire Ames/Means Valley (HDWD does not serve all of the Ames/Means Valley). The combined consumptive use of both areas is less than the supplies identified in the information provided. In other words, if return flow from septic or a wastewater treatment facility is not accounted for as a source of supply, then the assumed supply of 3,947 acre-feet (SWP + MVB) from your analysis is greater than the 3,500 acre-feet of water consumption estimated by the MWA 2005 UWMP for the entire Warren Valley and Ames/Means basin areas. These consumptive use estimates were based upon an assumed average population growth rate between 2005-2030 of 2.1%, which are derived from the MWA RWMP 2005-2020 estimates of 2.4% growth rate for the Warren Valley and 2.2% for the Ames/MeansValley, and the California State Department of Finance projection for San Bernardino County of 1.8% annual increase from 2020 through 2030.

The analysis provided essentially characterizes the estimated water supply available to the area from the State Water Project (SWP) as a fixed and limited supply. As you are aware, the Agency has in the past provided water supplies in excess of the HDWD maximum quantities under the Improvement District M (IDM) Participants Agreement when requested to do so by the HDWD. This capability is predicated upon the availability of water supplies from the SWP and available capacity within conveyance and recharge facilities. The MWA is also actively engaged in storing water from the SWP when available and in excess of local demands. The MWA and HDWD have entered into an agreement to facilitate delivery of water in excess of HDWD demands for storage for future use, and have delivered water to HDWD recharge facilities under this program. We anticipate continuing the program for the foreseeable future and encourage the HDWD to take advantage of these additional supplies when available. Please be aware that while there are no assurances of future supply availability under this program, it can effectively increase the supplies available to the HDWD over time and provide water supply reliability during periods of drought.

As you know, the IDM Participant's Agreement provides for a share of capacity available within the Morongo Basin Pipeline (MBP) to each participant. The MBP was originally conceived with a design capacity of 15 cubic feet per second (cfs), but with the addition of a second pumping station capacity was increased to 22 cfs. Accordingly, there is additional capacity within the MBP that could be used by the HDWD and other IDM participants to convey supplies for local storage and use. It does not appear that the information presented by the HDWD for your water supply assessment takes into consideration the possibility to use this additional pipeline capacity.

I hope that this information has been useful to your analysis and determination.

Sincerely,

Kirby Brill
General Manager

hdwd ltr 111506.doc/kirby/vt

APPENDIX D

Hi-Desert Water District Policy No. 26-04

HI - DESERT WATER DISTRICT

Board of Directors Policy

Subject	Policy Number	Date Adopted
Issuing "Will Serve" Commitment Letters and the Installation of New Water Services and Rescinding Policy 23-03.	26-04	03-24-04

Background:
In December, 2002, Policy 23-02 was adopted by the Board due to the District's recharge activities since 1995, the potential for new growth in the community, and the adoption of SB 221 by the California State Legislature. This policy rescinded Policy No. 3-90.

SB 221 became effective in October, 2001. This bill requires developers constructing 500 dwelling units or more to file with the Department of Real Estate evidence supporting the existence of sufficient water supplies for their subdivision over the next 20 years. Upon request from the appropriate party and within 90 days, the District will be required to provide this information, i.e. Urban Water Shortage Contingency Plan, Warren Valley Basin Management Plan, Water Supply Master Plan, etc.

In December, 2003, the Court for the Watermaster approved an alternate proposal for allocating water meters. The 2% method was replaced with a program that bases growth according to water recharged in the Warren Valley Basin. Under the 2% growth scenario, the limitation was directly placed on water demand from year to year. In essence, water demand for each consecutive year could only increase by 2%. In order to effectively administer this program, the water demand allotted for any given year would require a conversion to water meters. In the event the allotted water meters were sold, no more would be available until the following year when a new allotment was calculated. However, unsold water meters could be rolled over to the following year less the previous 5th year - that would in essence create a reserve of water meters.

The primary difference between the 2% growth scenario and the alternative approved by the Court is the direct relationship between groundwater in reserves and actual growth. The alternative removes all restrictions on growth, unless certain water reserves in the groundwater basin reach a predetermined level.

Policy:
It is the Policy of the Board of Directors of the Hi-Desert Water District that water meters issued shall be in accordance with the following staged conditions which shall be reviewed and updated every fiscal year (see Exhibit 'A'):

Stage 1 Condition – A 2% growth limitation would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 5 years (500%) of water demand for that particular year.

Stage 2 Condition – A 1% growth limitation would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 4 years (400%) of water demand for that particular year.

Stage 3 Condition – A 0% growth rate would be implemented in the event water reserves in the Warren Valley Basin are equal to or fall below 3 years (300%) of water demand for that particular year.

The procedure for issuing new water meters is the following:

Non-Subdivision Developments

1. The issuance of new meters is subject to limitation pursuant to the previously mentioned staged conditions.

2. Upon payment of the Acquisition of Service fee (pre-paid meters excluded) and a completed application, the meter will be installed within 5 calendar days for installation levels 1 and 2. For installation levels of 3 and 4, the meter will be installed within 10 calendar days. If the meter cannot be installed within the prescribed time frame, the customer will be notified of an installation date.

3. The actual installation cost (pre-paid meters excluded) will be billed to the applicant and shall be due and payable within 30 days.

4. Meters will be installed within 12 months after payment of the Acquisition of Service fee. In the event the applicant seeks an extension beyond the 12 month period, a written request may be submitted to the District requesting additional time. Each request will be considered on a case by case basis.

5. In the event the water meter (pre-paid meters excluded) is not installed within the 12 month period, the District shall refund the Acquisition of Service fee and applicable installation charges, less an administrative fee, to the applicant.

Subdivision Developments (5 units or greater)

1. The issuance of new meters is subject to limitation pursuant to the previously mentioned staged conditions.

2. The District will comply with SB 221 (if applicable) by providing the necessary documentation by the time prescribed.

3. Will Serve commitment agreements will be consistent with information provided

pursuant to SB 221 (if applicable) and additionally contain any necessary conditions for providing future water service, i.e. infrastructure improvements.

4. Upon payment of the Acquisition of Service fee, the meter will be installed within 5 calendar days for installation level 1. For installation levels of 2, 3 and 4, the meter will be installed within 10 calendar days.

5. The actual installation cost will be billed to the applicant and shall be due and payable within 30 days.

6. Meters will be installed within 12 months after payment of the Acquisition of Service fee. In the event the applicant seeks an extension beyond the 12 month period, a written request may be submitted to the District requesting additional time. Each request will be considered on a case by case basis.

7. In the event the water meter is not installed within the 12 month period, the District shall refund the Acquisition of Service fee and applicable installation charges, less an administrative fee, to the applicant.

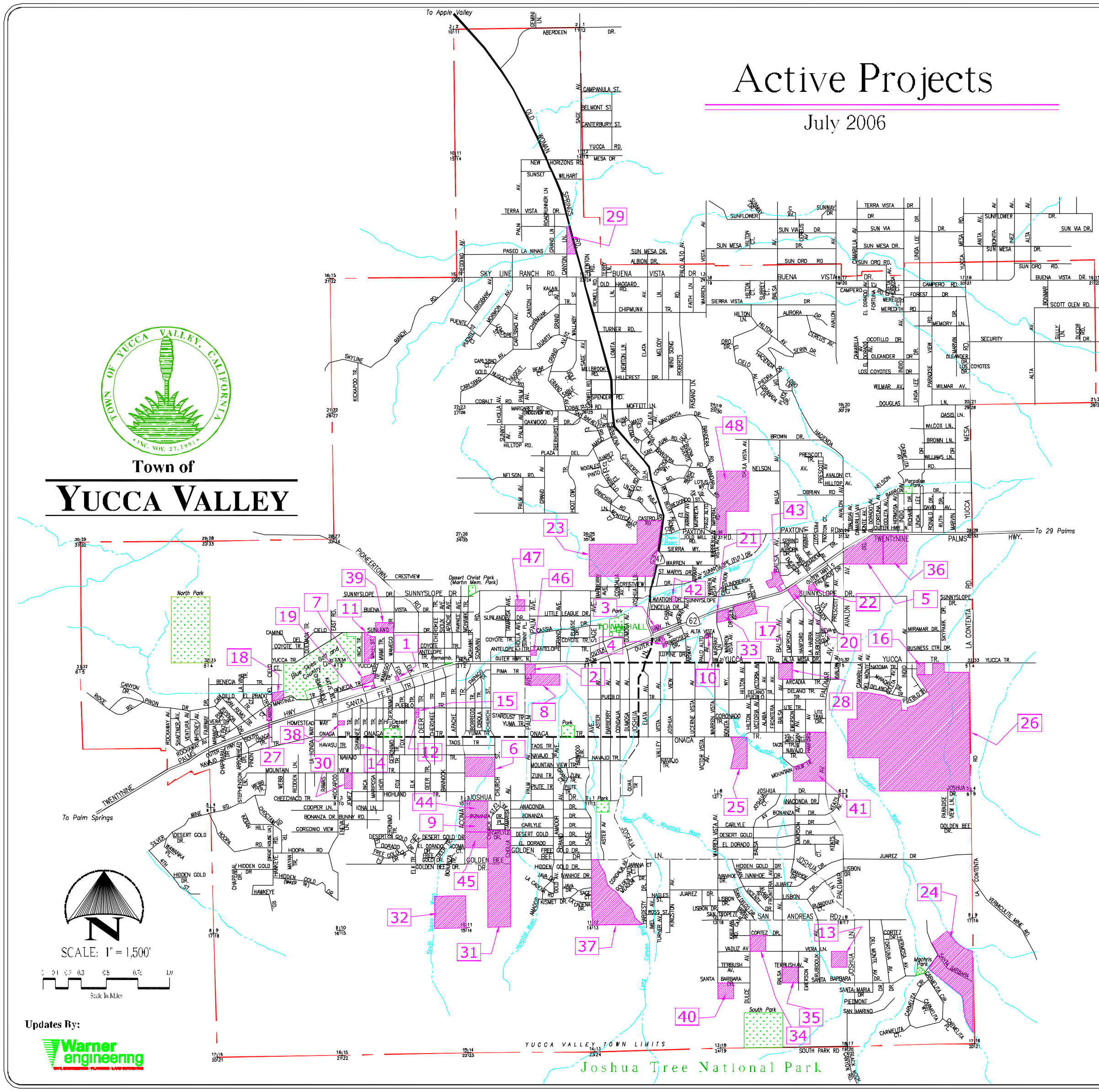
HDWD
Water Reserve Levels
(Acre Feet)

	+	+	-	-	=		
	Water	Safe	BSCC, IMP,	HDWD WVB	Net	Cumulative	Reserve
F/Y	Recharged	Yield	M.P. (1)	Demand	Recharge	Recharge	(Years)
1994/95	1,340	450	175	604	1,011	1,011	1.3
1995/96	3,586	900	330	1,440	2,716	3,727	2.1
1996/97	4,776	900	424	1,955	3,297	7,024	3.0
1997/98	3,962	900	353	1,786	2,723	9,747	4.6
1998/99	2,211	900	342	1,840	929	10,676	4.9
1999/00	3,633	900	258	2,248	2,027	12,703	5.1
2000/01	3,891	900	330	2,168	2,293	14,996	6.0
2001/02	2,361	900	503	2,034	724	15,720	6.2
2002/03	2,987	900	256	2,721	910	16,630	5.6

(1) BSCC = actual usage, IMP = 14 AF and M.P. = 16 AF

APPENDIX E

Active Projects in the Town of Yucca Valley



Project Summary Index

1. SPR-08-05 (Daniel Zwicker): Proposal to construct 2,659 SF office/retail building on NW corner of Fox Tr. and 29 Palms Hwy. APN 586 332-07

2. SPR-01-04 & PM 16204 (Veno Nathraj): Proposal to allow the construction of a 94-room, 3-story hotel, over 2 phases, and to divide a 3.73 acre parcel into 2 parcels. The proposed site is located on the southeast corner of SR 62 and Palm Avenue.

3. CUP-07-03 & Vesting PM 16506 (In-N-Out Burger): Proposal to construct a 3,220 S.F. fast food restaurant with drive-thru lane and a proposal to merge four existing parcels resulting in a single 1.5 acre site. The site is located on the northeast corner of SR 62 and SR 247.

4. SPR-01-03 (Chris Velasquez): Multi-tenant commercial complex consisting of a 4-bay self serve car wash, a 1,808 S.F. laundromat, and a 4,620 S.F. retail building and related parking to be constructed in two phases. The site is located on the outer highway.

5. CUP 02 04 / SP-01 04 / PM 16632 (Yucca Valley Retail Center DRC, Inc.): A proposed 27 acre retail center that will include a 215,000 S.F. Wal-Mart Super Center. The parcel map proposes to subdivide the site into 8 commercial parcels. Seven of the 8 parcels will be to accomodate future commercial development. A specific plan and EIR are being prepared for the site.

6. TM 16587 / GPA-01 04 (Danmark Development): Proposal to subdivide approximately 33 acres into 57 residential lots. Site is located on the northeast corner of Acoma Trail and Zuni Trail.

7. CUP 05 04 (Morrison & Heard): Proposal to construct a Mini Storage facility, located at the northwest corner of Hopi Trail and Benecia Trail, APN 586-381-08 and 586-081-03 & 12.

8. PD-01-04 / TM 16471 amended (Fast Building Systems): Proposal to develop 106 lot manufactured housing park located on Palm Avenue, APN 587-091-02, 03, 34 & 35.

9. TM 16957 (Living Space, GP): Proposal to subdivide approximately 20 acres into 34 lots ranging in size from 14,000 S.F to 20,000 S.F., located about 800 feet south of Joshua Drive on the east side of Acoma Trail

10. SPR-02-04 & V-02-04 (Larry Burge): Proposal to construct 6 multi-family units, including private and common open space, on an approximate 37,900 S.F. lot located on the southeast corner of Palo Alto and Alta Vista Drive.

11. CUP-02-06 / EA-04-06 (James Vickery): Proposal to construct a mini storage facility at Yucca Tr. / V/ALL ST., APN 594-041-22, 27, 28 & 44

12. PM 17600 (Living Space): Proposal to divide .66 acres into 2 lots on the east side of Elk Tr. one lot North of Pueblo Tr. APN 586-363-04

13. TM 16766 (Dr. Rui Da Silva): Proposal to divide 10 acres into 4 parcels, each 2.5 acres, located about 300 feet west of Joshua Lane on the south side of Vera Lane.

14. TM 17908 (Thomas Kaptis): Proposal to subdivide .37 acres into 2 residential lots on NE corner of Shawnee Tr./ Navajo Tr. APN 586-182-03

15. PM 16435 (Lightner Enterprises): Proposal to divide a 34,200 S.F. parcel into 3 residential lots ranging in size from 9,500 S.F. to 15,200 S.F. Site is located on the southeast corner of Pueblo Trail and Elk Trail.

16. CUP 09-05 (Valley Comm Chapel): Proposal to build a multi-purpose room at 59025 Yucca Tr. APN 588-041-42

17. CUP 02-03 (Phelps Chevrolet). Two auto dealerships, which include a 12,000 S.F. building and a 10,850 S.F. building and outdoor auto display.

18. SPR-02 03 & TM 16649 (40 Villas): A proposal to construct 40 condo dwelling units and related recreation amenities. The project site is located on the northeast corner of Camino del Cielo and Martinez Trail.

19. SPR-05-04 (Horak): A proposal to construct a 17,786 S.F. single-story professional office and retail building located on the corner of SR 62 and Hopi Trail.

20. CUP 04 06/ EA 09 06 (De Pierro): Proposal to build an ARCO/ AM PM with 8 pumps & a 2,880 s.f. store, drive thru mini car wash; 3,000 s.f. fast food and 9,900 s.f. retail &/ or restaurant. SE corner Balsa @ SR62. APN 601-412-12, 20 & 21

21. CUP 05 06 (Alcoa/Nextel-Sprint): Proposal to construct a 75 fo. mono palm cell phone tower and plant 3 live 35 ft. palm trees on the NW corner of Oracle Plaza. SE corner of Warren Vista @ SR62. APN 601-601-25

22. SPR 06 04 (Jerold Hane). A proposal to construct a 12 unit apartment complex at the corner of Palisade Drive and Lennox Avenue, APN 601-502-01, 02, & 03.

23. TM 16787 (Rondel Enterprises): A proposal to subdivide 96 acres into 54 residential lots. Site is located northerly of Crestview Drive and westerly of Old Woman Springs Road, APN 595-152-01 & 596-701-03.

24. TM 16733 (Arthur Schultz): A proposal to subdivide 90 acres into 17 residential parcels. Site is located between Carmilita Circle and the eastern town boundary, APN 589 051 11, 14, & 15.

25. TM 11740 (Bob Koste): Dove Run - proposal to construct a 91-unit condo project. Site is located on south side of Onaga Trail between Warren Vista Avenue and Hilton Avenue.

26. EA-01-05 / SPA 03-05 / RZ 03-05 / TM 17340 (Century Homes): A proposal to subdivide 476 acres into 1,667 residential lots. Site is located at the southwest corner of the intersection of Yucca Trail and La Contenta Road., APN 588-041-2, 3, 44, 39, 40, 22, 23, 28, 24, 25, 27, & 26.

27. SPR-01-06 / EA-07-06 (Soon Kim): Addition to existing hotel. 7500 Camino Del Cielo

28. TM 17328: Proposal to subdivide 9.35 acres into 17 residential lots, located on the southwest corner of Emerson Avenue and Yucca Trail, APN 588-311-09.

29. CUP 02 05 (Byron Gusa). Proposal to construct a mini storage and RV storage facility between Canyon Lane and State Route 247 (Old Woman Springs Road), APN 597-091-07 & 29.

30. TPM 17012 (Andora Sprecher): Proposal to subdivide 5 acres into 4 residential lots, located on the southwest corner of Jemez Trail and Mountain View Trail, APN 586-211-05.

31. TM 17354 (Yucca Valley 87, LLC): Proposal to subdivide 87 acres into 61 residential lots, located south of Carlyle Drive, between Church Street and Cholla Avenue, APN 585-131-63.

32. TM 18018 (Lawrence Choo): Proposal to subdivide 4 parcels into 12 residential lots APN 585-131-29

33. CUP-03-05 (Salsha Enterprises, LLC). Former K-Mart building at 57725 Twentynine Palms Highway - proposal to subdivide the existing building into multi-tenant commercial/office space and to add five free standing multi-use commercial/office buildings to the site.

34. PM 17093 (Paul Cook/Jean Smith): Proposal to subdivide 10 acres into 4 residential lots, located at the southeast corner of Cortez Drive and Dulce Avenue, APN 589-011-21.

35. TM 17240 (Leon Strand): Proposal to subdivide 2 5-acre parcels into a total of 4 2.5-acre parcels, located south of Terbush Avenue and west of Balsa Avenue, no APN available yet.

36. CUP-06-05/ PM 17455. A proposed retail center on a 38-acre site. A specific plan and EIR are being prepared for the site. The project will be divided into 4 parcels containing a restaurant, three retail buildings and a 138,000 S.F. Home Depot store, located easterly of Avalon Avenue and south of SR 62, APN 601-201-31 and 601-201-32.

37. TM 17862 GPA 01 06 / RZ 01-06 (Bill Shack): Proposal to subdivide 4 parcels into 108 lots rezone RL 5 to RS 3.5 APN 585-071-16, 17, 25 & 26

38. RZ-02-05 (Neighborhood Housing Group): Proposal to re-zone 1.1 acres of property from RL-1 zone to RM-8 zone, located on Kickapoo Trail, APN 586-171-18.

39. CUP 04-02 (Culver Construction): Proposal to construct a contractor's yard on the northwest corner of Wamego Tr. and Sunland Ave. APN 594-081-28 and 29

40. PM 17271 (Ted Phillips / Janet Grace): Proposal to subdivide 10 acres into 4 2.5 acre residential lots, located SE corner of Warren Vista / Santa Barbara, APN 598-011-03

41. TM 17633 (Burnt Mountain Haciendas): Proposal to subdivide 42.64 acres into 61 residential lots, located SW corner Palomar Avenue / Onaga Trail, APN 601-412-20 & 21

42. CUP 06-06 (Mendlik): Proposal to operate a wholesale plumbing supply business in existing 5,400 sq. ft. warehouse at 57420 Aviation Dr. AON 595 211 05

43. SPR 02-06 (Dollar Tree Store): Proposal to build an 11,130 s.f. store and 7 leasable spaces totaling 10,680 s.f. (next to Stater Bros.) on Balsa north of SR62. APN 601 402-19 & 601-012 30

44. TM 17378/EA-17-05 (Living Space): Proposal to subdivide 18.4 acres into 32 residential lots. APN: 585-131-80

45. TM 17379/EA-18-05 (Living Space): Proposal to subdivide 18.4 acres into 32 residential lots. APN: 585-131-82

46. SPR 03-06 (O'Connor): construct 3,477 sq. ft. office bldg w/ parking & landscape @ the NE cornerof Palm Dr & Antelope. APN 595-081-24

47. PM 18056 (Melby): Divide 2 lots totaling 2.2 acres into 4 SFR lots. NE Corner of Cholla a Buena Vista. APN 595-061-14 & 15

48. TM 17476 EA 02 06 PD 01 06 (Silvatex): Divide 58 ac into 40 SFR lots Planned Development w/ open space, debris & retention basins. APN 601-021-40 & 43

COMMUNITY DEVELOPMENT DEPARTMENT
PRIVATE LAND DEVELOPMENT PROJECT LISTING
CURRENT AS OF AUGUST 25, 2006

PROJECT	DESCRIPTION	LOCATION	STATUS	APPLICANT
CUP-08-06 EA-12-06	Proposal to construct a 45' cell tower	7248 Joshua Lane	Development Review Committee meeting 09/06/06	Omnipoint Communications, Inc 3 Imperial Promenade, Ste 1100 Santa Ana, CA 92707
CUP-07-06 EA-11-06	Proposal to construct an 80' cell tower	Paxton Hill 598-011-07	DRC meeting 08/16/06	Verizon Wireless
CUP-06-06	Proposal to convert an existing comm. building to a wholesale plumbing business	57420 Aviation Dr 595-211-05	DRC meeting 08/02/06	Winnelson 57420 Aviation Dr Yucca Valley, CA 92284
CUP-05-06 EA-10-06	Proposal to construct a 75' cell tower	57725 29 Palms Hwy 01-601-25	DRC meeting 08/02/06	Alcoa for Sprint / Nextel 29992 Hunter Rd Irvine, CA 92618 Rep: Veronica Arrizu
CUP-04-06 EA-09-06	Proposal to construct 2880 sq ft of convenience store, 3000 sq ft of fast food and 9900 sq ft of retail	SE corner of 29 Palms Hwy/ Balsa Ave 601-412-12, 20, 21	DRC meeting 08/16/06	Depierro Development 11 Orleans Rd Rancho Mirage, CA 760-861-7872 Rep: Warner Engineering
CUP-01-06	Construct a new motorsports dealership	601-412-22	Planning Commission Approved Submitted for Building & Safety and Engineering Plan Check	Chris Hutchins 55405 29 Palms Hwy Yucca Valley, CA 92284 760 219-0297
CUP-09-05 EA-19-05	Add a 2520 sq ft multi purpose room, a 3600 sq ft fellowship hall and a10,800 sq ft	59025 Yucca Tr	DRC meeting 09/05/06	Valley Community Chapel

	ft multi purpose room, a 3600 sq ft fellowship hall and a10,800 sq ft sanctuary to an existing facility, phased over 10 years			
CUP-06-05, EA-09-05, S-01-05 PM 17455	Home Improvement Center Proposal to subdivide 18.52 acres into 4 commercial lots	South side of SR 62, east of Avalon 601-201-31 & 32	Approved by Town Council Building plans in plan check In Final Map check	Home Depot 3800 W Chapman Orange, CA 92868 714-940-3604
CUP-02-05	Mini Storage Facility	SR 247 & Sun Oro	Pending Building & Safety submittal	Byron Gusa 1525 Keeler Ave Yucca Valley, CA 92284 760-574-6968
CUP-05-04	A proposal to allow the construction of a 76,140 square foot mini-storage & RV storage facility, including an office & on-site residence.	NW corner of Hopi Tr & Benecia Tr	Phase I complete Phase II under construction	Morrison & Heard 7327 Hopi Tr Yucca Valley, CA 92284 760-365-7170
CUP-02-04, PM 16632	25 acre retail center Wal Mart Superstore	Southeast corner SR 62 & Avalon	EIR being prepared	Development Resource Consultants Rep: Steve Reiner 800 S Rochester Ave #C Ontario, CA 91761 909-230-5241 909-230-5246 – Fax
CUP-07-03 Vesting PM 16506	3,220 sq ft Fast food restaurant Proposal to merge 4 parcels into 1 commercial parcel	NE corner SR 62 & SR 247	Town approved 2 year extension granted	In & Out Burger Rep: Gilbert Lee 13502 Hamburger Lane Baldwin Park, CA 91760 626-813-8278
CUP-03-03, TM 16471	106 lot manufactured home park	Southeast corner Pima Tr & Palm Ave	Grading and Street Improvements approved by Engineering Dept Plans submitted for Building & Safety plan check	Desert Vista Development 56300 29 Palms Hwy Yucca Valley, CA 92284 Rep: Warner Engineering
CUP-02-03	Construct a 9,687 square foot Nissan dealership and a 11,919 sq ft Chevrolet	South of SR 62 at Hilton	Under construction	Phelps Chevrolet Nissan 56916 29 Palms Hwy

	dealership			
CUP-04-02 amendment EA-08-06	Proposal to construct 3-2,400 sq ft buildings and 1-6,000 sq ft building at construction yard	Wamego Tr	Under construction	Culver Construction
GPA-03-05 RZ-03-05 TM 17340 PM 17379 EA-01-05	Proposal to subdivide 476 acres into 1536 residential lots	Bounded by Yucca Tr, La Contenta & Joshua Dr 588-041-03, 22, 23, 24, 25, 26, 27, 28, 39, 40 & 44	EIR being prepared Notice of preparation released	Century Homes PO Box 580348 Palm Springs, CA 92258 760-329-5260 760-251-5490 – Fax
PM 18321	Proposal to subdivide	587-063-10	Planning Commission meeting 10/03/06	Marcos Ocegueda 7630 Borrego Tr Yucca Valley, CA 92284 760-668-3085
PM 18056	Proposal to subdivide 2.2 acres into 4 residential parcels	Buena Vista Dr 595-061-14 & 15	DRC meeting 07/19/06	Mark Melby 56406 Buena Vista Dr Yucca Valley, CA 92284 909-985-1850
PM 17093	Proposal to subdivide 10 acres in to 4 2.5 acre parcels	SW corner of Cortez / Dulce	Planning Commission Approved 05/17/05 In Final Map check	Paul Cook/Jean Smith 58328 Anaconda Dr Yucca Valley, CA 92284 760-228-1462
PM17012	Proposal to subdivide 5 acres into 4 1.25 acre parcels	Southwest corner Jemez Tr & Mountain View Tr	Planning Commission Approved 05/17/05 No Final Map submitted	Andora Sprecher 2084 Mahogany Big Bear City, CA 92314 909-585-7771 Rep: Warner Engineering
PM 16435	Subdivide 34,200 sq ft lot into 3 residential lots	Southeast corner of Pueblo Tr & Elk Tr	Town approved No Final Map Requested time extension	Lightner Enterprises 237 Canal St Newport Beach, CA 92663 949-650-3563
PM 16512	Subdivide 2 lots into 4 lots	Megan Ct & Taos Tr	Town approved	Copper Hills Homes

			In Final Map check	8514 Barberry Ave Yucca Valley, CA 92284 760-365-0649
SPR-04-06 EA-13-06	Proposal to construct a sq ft medical building	29 Palms Hwy/Hanford Ave		Theriac Enterprises 2234 Colonial Blvd Fort Myers, FL 33907 239-931-7380
SPR-03-06	Proposal to construct a 3810 sq ft office building with 667 sq ft of garage	Palm Dr /29 Palms Hwy 595-081-24	DRC 08/02/06	O'Connor Development 56669 29 Palms Hwy Yucca Valley, CA 92284 760-369-2724
SPR-02-06	Proposal to construct 11,130 and 10680 sq ft retail buildings	601-402-19 and 601-012-30	DRC June 07, 2006	Citicom Development 1257 W Colton Ave Redlands, CA 92374
SPR-01-06	Proposal to construct an addition to existing hotel	7500 Camino Del Cielo	Town Approved Pending Building & Safety submittal	Soon Kim 7500 Camino Del Cielo Yucca Valley, CA 92284 213-386-9230
SPR-08-05	2653 sq ft office/retail building	586-332-07 NW corner 29 Palms Hwy/Fox Tr	DRC meeting	Daniel Zwicker Rep: Brian Diebolt 57445 29 Palms Hwy Ste 304 Yucca Valley, CA 92284 (760) 365-8742
SPR-06-05	Mixed Use Center	57725 29 Palms Hwy	Under construction	Salsha Enterprises 40-530 Morningstar Rd Rancho Mirage, CA 92270 760-574-4449
SPR-06-04	Proposal to construct 12 apartment units	Palisade Dr & Lennox Ave	Planning Commission Approved 03/15/05	Jerald Hane 13308 Shawnee Rd Apple Valley, CA 92308 760-240-1504

SPR-05-04	Construct a 17,786 sq ft office and retail building	Northwest corner of SR 62 & Hopi Tr	Town approved In Building & Safety plan check	Marie & John Horak 56425 29 Palms Hwy Yucca Valley, CA 92284 760-228-3187
SPR-02-04, V-02-04	Construct 6 multi family units, including private and common open space, on approx. 32,000 sq ft lot	Southeast corner Palo Alto Ave & Alta Vista Dr	Under Construction	Larry Burge PO Box 4107 Torrance, CA 90510 310-780-1633 760-567-6533 Rep: Frank Viall
SPR-01-04 PM 16204	70 room hotel Proposal to subdivide 3.7 acres into 2 commercial parcels	Southeast corner Palm Ave & SR 62	Town approved Building & Safety Approved Engineering Approved Pending Environmental Health Approval	Studio 3 Architects 325 Second Ave Upland, CA 91786 909-982-1717 Veno Nathraj 1410 E 3rd St Riverside, CA 92507 909-682-2300
SPR-02-03/TM 16649	34 condo lots and common open space lot	Northeast corner Camino Del Cielo & Martinez Tr	Approved by Planning Commission	40 Villas Robert Gray 7144 Airway Ave Yucca Valley, CA 92284 760-861-0828 760-369-1170 – Fax
SPR-01-03	Carwash, Laundromat, retail/office	57466 29 Palms Hwy Outer Hwy South, east of Joshua Lane	Town approved Grading Plan in plan check On hold pending revised plans	Chris Velasquez 7621 Rockaway Ave Yucca Valley, CA 92284 760-365-5426
TM 18018	Subdivide 4 parcels into 12 lots	585-131-29	DRC meeting 03/01/06	Lawrence Chao
TM 17908	Subdivide 16,000 sq ft into 2 residential lots	586-182-03	Planning Commission Approved	Tom Koptis

TM 17476 PUD-01-06	Subdivide 58.23 Acres into 40 residential lots	601-021-40 & 43	DRC Meeting 06/07/06	Silvatex, Inc
TM 17379	Proposal to subdivide 18.4 acres into 32 residential lots	585-131-82	Being revised by applicant	Living Space 225 S Civic Dr Ste I-5 Palm Springs, CA 92262 760-323-1842 Rep: Phillip Fomotor
TM 17378 EA-17-05	Proposal to subdivide 18.4 acres into 32 residential lots	585-131-80		Living Space 225 S Civic Dr Ste I-5 Palm Springs, CA 92262 760-323-1842 Rep: Phillip Fomotor
TM 17633	Proposal to subdivide 42.64 acres into 61 residential lots	SW corner Palomar Ave/Onaga Tr	PC Approved No Final Map Stock Plans submitted	Burnt Mountain Haciendas 49485 Brian Ct La Quinta, CA 92253 Rep: Chris Paolini 760-641-3716 TOPSGT999@AOL.COM
TM 17354	Proposal to subdivide 86.79 acres into 61 residential lots	Southwest corner Golden Bee & Cholla Ave	Planning Comm Approved	Yucca Valley 87, LLC 2521 Point Del Mar Corona Del Mar, CA 92625 949-933-6255
TM17328	17 residential lots	Southwest corner Yucca Tr & Emerson Ave	Planning Comm Approved 05/03/05 In Final Map check	Wil-Mark PO Box 10389 Palm Desert, CA 92255 760-272-4691
TM 17240	Proposal to subdivide two 5 acre parcels in four 2.5 acre parcels	Area generally bounded by Santa Barbara, Balsa, Emerson and Terbush	Town Approved In Final Map check	Leon Strand 61175 Cougar Lane Joshua Tree, CA 92252

				760-366-2125
TM 16957	Subdivide 20 acres into 34 residential lots	East side of Acoma Tr, 800 ft south of Joshua Dr	Town approved Final Map in plan check	Living Space, LP 225 S Civic Dr Ste I-5 Palm Springs, CA 92262 760-323-1842
TM 16786	Subdivide 10 acres into 4 residential lots	South side of Vera, 300 ft west of Joshua Lane	Town approved No Final Map	Rui Da Silva 58471 29 Palms Hwy Ste 203 Yucca Valley, CA 92284 760-365-7651
TM 16787	Subdivide 98 acres into 54 residential lots	West side of SR 247, north of Crestview	Planning Commission approved	Rondel Enterprises 4616 Mission Gorge Pl Ste B San Diego, CA 92120 619-582-1212
TM 16733	Subdivide 90 acres into 17 residential lots	Easterly terminus of Santa Barbara	Planning Commission approved	Arthur Schultz 2666 Circle Dr Escondido, CA 92029 760-745-1290
TM 16587	Subdivide 33 acres into 57 residential lots	Mountain View Tr, between Acoma Tr & Church St	Town approved In Final Map check	Danmark Development, LLC PO Box 10389 Palm Desert, CA 92255 760-772-0648 Rep: Warner Engineering
TM 11740	91 unit senior housing project	Onaga Tr	County approved No construction	Bob Coste 7557 Frontera Ave Yucca Valley, CA 92284
PA-15-06	Proposal to construct a 41,230 sq ft mini storage facility	Chia Ave 595-201-13 & 14	Pre App meeting 08/02/06	JRW, LLC
PA-14-06	Proposal to construct a 17,272 sq ft retail building	SW corner of 29 Palms Hwy / Warren Vista 595-271-26	Pre App meeting 07/19/06	WD Partners
PA-13-06	Proposal to construct 4 townhomes	55627 Santa Fe Tr 586-132-01	Pre App meeting 08/02/06	VWSC Productions

PA-12-06	Proposal to add a carwash to existing service station	NW corner of SR 62 / SR 247		Freedom Design & Entitlement
PA-11-06	Proposal to construct 2 commercial	Old Woman Springs Rd	Pre App Meeting 05/17/06	Tri Star Contracting 15501 Little Morongo Rd Desert Hot Springs, CA 92240
PA-10-06	Subdivide into 3 residential lots	Palm Ave / 29 Palms Hwy	Pre App Meeting 05/17/06	Mark Leonard 777 Railroad Ave Pittsburg, CA 94565

APPENDIX F

Water Supply Documentation

- Agreement for Construction, Operation and Financing of the Morongo Basin Pipeline Project
- Ames Valley Water Basin Agreement
- Judgment – Hi-Desert Water District vs. Yucca Water Company, Ltd.
- Warren Valley Basin Conjunctive Use Agreement between Mojave Water Agency, Hi-Desert Water District, and Warren Valley Basin Watermaster
- Warren Valley Basin Management Plan
- Water Supply Contract between the State of California Department of Water Resources and Mojave Water Agency

AGREEMENT FOR CONSTRUCTION, OPERATION AND FINANCING OF THE MORONGO BASIN PIPELINE PROJECT

Dated as of March 15, 1991

By and Between

MOJAVE WATER AGENCY

and

HI-DESERT WATER DISTRICT

AMES VALLEY WATER BASIN AGREEMENT

THIS AGREEMENT is entered into as of the 10th day of January, 1991 by and between the HI-DESERT WATER DISTRICT, a County Water District (hereinafter "HDWD") and the BIGHORN-DESERT VIEW WATER AGENCY, a public agency, (hereinafter "BDVWA").

R E C I T A L S

A. HDWD is a County Water District organized and operating pursuant to Section 30000 et seq., of the California Water Code.

B. BDVWA is a public agency formed by an special act of the legislature and operating under the Water Code Appendix Section 112-1, et seq.

C. HDWD has entered into a contract for water to be extracted from a well located in Section 24, Township 2 North, Range 5 East, SBBM in San Bernardino County, California (also referred to as the "Mainstream Well") and has adopted an Environmental Impact Report (EIR) for the construction of facilities to take water from that well.

D. BDVWA has protested that EIR, and filed suit in the Superior Court of San Bernardino County (Bighorn Mountain Water Agency, et al. v. Hi-Desert Water District, Case No. BCV 5157).

E. The parties desire to enter into this AGREEMENT for the purpose of settling the litigation, and providing information on, and dealing with the environmental impacts from water extractions from the Ames Valley Water Basin in San Bernardino County. This AGREEMENT shall never be treated or otherwise construed as an admission of liability and/or inadequacy of the EIR by either party for any purpose.

C O V E N A N T S

NOW THEREFORE, in consideration of the preceding RECITALS and the mutual COVENANTS contained herein, the parties agree as follows:

Section 1.0 STIPULATED JUDGMENT AS AMENDMENT OF "EIR". The parties will enter into a Stipulation for Judgment embodying the terms and conditions of this AGREEMENT, and such stipulated judgment shall be deemed to be an amendment of the EIR.

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

HI-DESERT COUNTY WATER DISTRICT, Plaintiff, v. YUCCA WATER COMPANY, LTD., et al., Defendants.	No. 172103 JUDGMENT

I. INTRODUCTION

1. Pleadings, Parties and Jurisdiction. The complaint herein was filed on July 1, 1976, seeking an adjudication of all or substantially all water rights within Warren Valley Basin. Substantially all defendants have appeared herein, the defaults of certain defendants have been entered, and certain other defendants dismissed. By answers and order of this Court, the issues have been made those of a full inter se adjudication of water rights in and to the waters of Warren Valley Basin. This Court has jurisdiction of the subject matter of this action and of the parties.

2. Stipulation for Judgment. Stipulation for entry of

DONALD D. STARK
ATTORNEY AT LAW
2061 BUSINESS CENTER DRIVE
IRVINE, CALIF. 92715
(714) 752-8971

Office Copy

Final Draft Report

Warren Valley Basin Management Plan

Warren Valley Basin Watermaster
Yucca Valley, California

30 January 1991
K/J/C 904619.00

Kennedy/Jenks/Chilton

WARREN VALLEY BASIN CONJUNCTIVE USE AGREEMENT
BETWEEN
MOJAVE WATER AGENCY,
HI-DESERT WATER DISTRICT
AND
WARREN VALLEY BASIN WATERMASTER

This AGREEMENT is made this 28th day of October, 2004, by and between the Mojave Water Agency (hereinafter "MWA"), the Hi-Desert Water District (hereinafter "HDWD"), and the Warren Valley Basin Watermaster (hereinafter "WVBW").

RECITALS

A. WVBW is the entity established by San Bernardino Superior Court pursuant to the Judgment filed by the Superior Court on September 16, 1977, in the case entitled Hi-Desert County Water District v. Yucca Water Company, LTD., et al. (hereinafter "Judgment") to administer and enforce the provisions of the Judgment and any subsequent instructions or orders of the Superior Court under the Judgment.

B. HDWD is a County Water District organized and operating pursuant to California Water Code section 30000, et seq.

C. MWA is organized and operating according to special legislative act under the California Water Code, Appendix 97.

D. MWA has a Contract with the California Department of Water Resources to obtain up to 50,800 acre-feet of water annually from the State Water Project. MWA is obligated to make available to the Project Participants in the Morongo Basin Pipeline Contract up to one-seventh of its annual allotment from the State Water Project, subject to the terms of the Agreement for Construction, Operation and Financing of the Morongo Basin Pipeline Project (hereinafter "Morongo Basin Pipeline Contract").

E. HDWD is a party to the Judgment and a Project Participant in the Morongo Pipeline Contract. HDWD is allotted 59 percent or up to 4,282 acre-feet per year of State Water Project water, subject to the provisions of the Morongo Basin

STATE OF CALIFORNIA

THE RESOURCES AGENCY OF CALIFORNIA

DEPARTMENT OF WATER RESOURCES

WATER SUPPLY CONTRACT

BETWEEN

THE STATE OF CALIFORNIA

DEPARTMENT OF WATER RESOURCES

AND

MOJAVE WATER AGENCY

June 22, 1963

APPENDIX G

California Department of Water Resources Bulletin 118 Groundwater Basin Descriptions

Warren Valley Groundwater Basin

- Groundwater Basin Number: 7-12
- County: San Bernardino
- Surface Area: 17,200 acres (26.9 square miles)

Basin Boundaries and Hydrology

The Warren Valley Basin is located in the northwestern portion of the Colorado Desert Hydrologic Study Area. This basin includes the water-bearing sediments beneath the town of Yucca Valley and the surrounding area. The northern boundary of the basin is the Pinto Mountain fault and the southern boundary is the bedrock outcrop of the Little San Bernardino Mountains. The Warren Valley Basin is bounded on the east by a bedrock constriction called the "Yucca barrier" and on the west by a bedrock constriction and a topographic divide between Warren Valley and Morongo Valley. Precipitation in this basin ranges from 8 to 12 inches per year, with an average rainfall across the basin of about 10 inches (USDA 1999).

Hydrogeologic Information

Water Bearing Formations

The productive water-bearing materials in this basin consist of unconsolidated to partly consolidated Miocene to Quaternary continental deposits (Mendez and Christensen 1997). The continental deposits regionally are interpreted to range up to 10,000 feet in thickness (Moyle 1984); however, wells in Warren Valley Basin reach as deep as 1,610 feet without encountering bedrock. Geophysical studies suggest that the Warren Valley Basin may exceed a depth of 2,000 feet (Whitt and Jonker 1998).

The main productive water-bearing deposits are unconfined interbedded gravels, conglomerates, and silts deposited in alluvial fan systems (Schaefer 1978, BEE 1994). These deposits have an average of about 11 percent specific yield (Lewis 1972) and well yields up to 4,000 gpm.

Restrictive Structures

The Pinto Mountain fault zone juxtaposes alluvial valley fill material against consolidated bedrock. Data to evaluate whether this fault is a barrier to water at the boundary of the Warren Valley Basin is sparse, but the Pinto Mountain fault is a barrier to groundwater flow toward the east at the Copper Mountain Valley Basin - Joshua Tree Basin boundary (Mendez and Christensen 1997). A north-trending basement high causes a sharp change in water level between the towns of Yucca Valley and Joshua Tree, showing a drop of about 400 feet to the east ("Yucca barrier" of Lewis 1972).

Recharge Areas

Natural recharge to the basin is mainly from direct percolation of precipitation and percolation of ephemeral streamflow from Water Canyon in the north and Covington Canyon in the south (BEE 1994; Mendez and Christensen 1997; Whitt and Jonker 1998). Lewis (1972) suggests that annual recharge may not exceed 200 af, but actual recharge amounts are poorly constrained and quite variable from year to year. Some minor inflow may come from groundwater moving through fractures in the adjacent

bedrock. Percolation of septic tank effluent also contributes to recharge of groundwater. State Water Project water delivered via the Morongo Basin Pipeline provides recharge through spreading grounds near the Yucca Valley Airport (Hanson 1999).

Groundwater Level Trends

Hydrographs of wells in the Warren Valley Basin show water levels in 1998 above the 1986 levels (Hanson 1999). Most hydrographs show a general lowering of water levels from 1986 through about 1992 and then recovery of water levels through 1998. The range in elevation of water levels is up to 220 feet since 1986 (Hanson 1999). Groundwater in the Warren Valley Basin appears to flow northward from the Little San Bernardino Mountains to the Pinto Mountain fault and then east toward Twentynine Palms (Lewis 1972; Mendez and Christensen 1997). Groundwater flows eastward across the "Yucca barrier," a subsurface structure associated with an eastward lowering of groundwater water levels into the Joshua Tree Basin (Lewis 1972).

Groundwater Storage

Groundwater Storage Capacity. Lewis (1972) calculated 106,000 af of groundwater in storage in 1958 using a saturated thickness of 150 feet, a specific yield of 11percent, and an area of 6,400 acres. Lewis (1972) assumed that prior to 1948, groundwater levels were probably static. If so, then this storage value would represent a steady-state basin under natural conditions. According to Lewis' maps, additional storage space is available above the water levels of 1958. A total storage capacity of about 568,000 af for the Warren Groundwater Basin can be estimated using an area of 17,200 acres, an average specific yield of 11 percent, and an average total thickness of 300 feet.

Groundwater in Storage. Lewis (1972) calculated 106,000 af of groundwater in storage in 1958 using 150 feet saturated thickness, 11percent specific yield, and 6,400 acres. The annual report of the Warren Valley Basin Watermaster (Hanson 1999) does not determine available storage.

Groundwater Budget (Type-A)

Not enough data exist to compile a detailed groundwater budget for this basin. For the 1998-1999 water year, total extraction amounted to 2,201 af which includes 312 af pumped by the Blue Skies Country Club mainly for irrigation of a golf course (Hanson 1999). HDWD recharges State Water Project water, which amounted to 2,237 af for water year 1998-1999 (Hanson 1999). An estimate of natural recharge rate for this area was determined to be about 2.8 percent of precipitation by Whitt and Jonker (1998). Using the area of the watersheds for the basin, the reported precipitation, and a 2.8 percent recharge rate, the natural recharge for water year 1998-1999 is estimated to be about 330 af.

Groundwater Quality

Characterization. Water quality data for 1999 from the Hi-Desert Water District (HDWD 2000) indicates that the average water has calcium-sodium bicarbonate character. Total dissolved solids concentration ranges from 129

to 269 mg/L, with an average of 196 mg/L (HDWD 2000). Electrical conductivity ranges from 290 to 450 μmhos/cm and averages about 360 μmhos/cm (HDWD 1999).

Impairments. Fluoride concentration of groundwater exceeds 1.4 mg/l in some wells in the Warren Valley Basin (BEE 1994).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	18	1
Radiological	18	1
Nitrates	18	5
Pesticides	16	0
VOCs and SVOCs	16	0
Inorganics – Secondary	18	3

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 10 - 4,000	Average: 350 (25 wells)
	Total depths (ft)	
Domestic		
Municipal/Irrigation		

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Hi Desert WD	Groundwater levels.	17 wells/monthly (Brown 2000).
Hi Desert WD	Minerals, organic and inorganic chemicals.	11 wells/quarterly (Schwab 2000).
Hi Desert WD	Coliform.	11 wells/weekly (Schwab 2000).
U.S. Geological Survey	Quality	7
U.S. Geological Survey	Groundwater levels.	10

Basin Management

Groundwater management:	The Hi Desert WD is the court appointed watermaster for this adjudicated basin. The Warren Valley Basin Management Plan was adopted in 1991 (Hanson 1999).
Water agencies	
Public	Hi Desert WD, Mojave Water Agency.
Private	

Selected Bibliography

Akers, J.P. 1986. Geohydrology and Potential for Artificial Recharge in the Western Part of the U.S. Marine Corps Base, Twentynine Palms, California, 1982-83. U.S. Geological Survey Water-Resources Investigations Report 84-4119. 18 p.

Bader, J.S. 1963. Effect of Faulting in Alluvium on the Occurrence, Movement, and Quality of Ground Water in the Twentynine Palms Area, California (abstract). Geological Society of America Special Paper 73. 22 p.

_____. 1966. Records of Water Level and Pumpage in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 3 p.

Bookman-Edmonston Engineering Inc. (BEE). 1994. Regional Water Management Plan. Mojave Water Agency, Apple Valley, California. 135 p.

Brown, J. 2000. Hi Desert Water District. Telephone conversation with R.R. Davis (Department of Water Resources), August 22, 2000.

California Department of Water Resources (CDWR). 1960. Data on Water Wells and Springs in the Yucca Valley-Twentynine Palms Area, San Bernardino and Riverside Counties, California. Bulletin 91-2. 163 p.

_____. 1984. Twentynine Palms Ground Water Study. Southern District Report. 109 p.

Downing, D.J. 1974. Records of Water Level and Pumpage for 1973 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 15 p.

_____. 1977. Ground-Water Data for 1974-75 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report 77-80. 34 p.

_____. 1978. Ground-Water Data for 1976-77 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report 78-854. 34 p.

Freckleton, J.R. 1982. Ground Water in the Twenty-Nine Palms Indian Reservation and Vicinity, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations Report 82-4060. 46 p.

Hanson, J.C. 1999. Annual Report of the Warren Valley Basin Watermaster for Water Year 1998-99. Yucca Valley, California: Hi Desert Water District.

Hi Desert Water District (HDWD). 1999. 1998 Annual Water Quality Report. April 1999. Yucca Valley. 2 p.

Hi Desert Water District (HDWD). 2000. WaterNotes: Annual Water Quality Report. June 2000. Yucca Valley. 4 p.

Lewis, R.E. 1972. Ground-Water Resources of the Yucca Valley-Joshua Tree Area, San Bernardino County, California. U.S. Geological Survey Open-File Report. 51 p.

Mendez, G.O. and A.H. Christensen. 1997. Regional Water Table (1996) and Water-Level Changes in the Mojave River, the Morongo, and the Fort Irwin Ground-Water Basins, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations Report 97-4160. 34 p.

Miller, G.A. 1968. Test-Drilling and Pumping-Test Data, Joshua Tree National Monument, California, 1968. U.S. Geological Survey Open-File Report. 13 p.

_____. 1970. Records of Water Level and Pumpage for 1969 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 17 p.

_____. 1971. Records of Water Level and Pumpage for 1970 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 16 p.

_____. 1972. Records of Water Level and Pumpage for 1971 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 17 p.

_____. 1973. Records of Water Level and Pumpage for 1972 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 17 p.

Moyle, W.R., Jr. 1974. Geohydrologic Map of Southern California. U.S. Geological Survey Water-Resources Investigations Report 48-73.

_____. 1984. Bouguer Gravity Anomaly Map of the Twentynine Palms Marine Corps Base and Vicinity, California. U.S. Geological Survey Water-Resources Investigations Report 84-4005.

Schaefer, D.H. 1978. Ground-Water Resources of the Marine Corps Base, Twentynine Palms, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations Report 77-37. 29 p.

Schwab, S. 2000. Hi Desert Water District. Telephone conversation with R.R. Davis (Department of Water Resources), August 22, 2000.

United States Department of Agriculture (USDA). 1999. *California Annual Precipitation*, scale 1:850,000, 1 sheet.

Weir, J.E., Jr., and J.S. Bader. 1963. Ground Water and Related Geology of Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 123 p.

Whitt, A. and K. Jonker. 1998. Groundwater Survey of the Joshua Tree and Copper Mountain Subbasins, Joshua Tree, California. Consultant's report prepared by Western Water Surveys for Joshua Basin Water District.

Errata

Changes made to the basin description will be noted here.

Ames Valley Groundwater Basin

- Groundwater Basin Number: 7-16
- County: San Bernardino
- Surface Area: 110,000 acres (169.7 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies Ames Valley, Homestead Valley, and Pipes Wash in the southcentral San Bernardino County. The basin is bounded by nonwater-bearing rocks of the San Benrardino Mountains on the west, of Iron Ridge on the north, and of Hidalgo Mountain on the northeast (Rogers 1967). The Emerson, Copper Mountain, and West Calico faults form parts of the eastern and northern boundaries. The southern boundary and parts of the northern and eastern boundaries lie along surface drainage divides. The valley is drained northeastward by Pipes Wash to Emerson (dry) Lake. Average annual precipitation ranges from 4 to 12 inches.

Hydrogeologic Information

Water Bearing Formations

The water-bearing materials in this basin consist of unconsolidated to partly consolidated Miocene to Quaternary age continental deposits (Mendez and Christensen 1997). Wells in Ames Valley Groundwater Basin reach a maximum depth of 838 feet without encountering bedrock. Regionally, these deposits are estimated to range to 10,000 feet in thickness (Moyle 1984).

The main water-bearing deposits are interbedded gravels, conglomerates, and silts deposited in alluvial fans (Schaefer 1978). Other less productive deposits include alluvial channel sands and gravels; silt, clay, and sandy-clay deposits in Emerson Lake playa; and dune sands (Schaefer 1978; Bookman-Edmonston Engineering 1994). These deposits have an average specific yield of about 14 percent (Lewis 1972), and well yields range from 30 to 2,000 gpm. Groundwater is typically unconfined in the alluvial deposits (Schaefer 1978), but may be confined near dry lakes where fine-grained deposits are found.

Restrictive Structures

Several faults cut northwestward across this basin causing the water table to step down toward the east (Moyle 1974; French 1978; Mendez and Christensen 1997), which indicates they are partial barriers to groundwater flow. Groundwater levels drop eastward across the Johnson Valley fault 100 to 175 feet and across the Emerson fault 25 to 50 feet (Lewis 1972; Moyle 1974). Groundwater levels may drop eastward about 550 feet across the Homestead Valley fault (Moyle 1974).

Recharge Areas

Natural recharge of the basin is mainly from percolation of stream flow from the San Bernardino Mountains and precipitation to the valley floor (Mendez and Christensen 1997; Bookman-Edmonston Engineering 1994). Percolation of septic tank effluent from the town of Landers and surrounding communities also contributes to recharge of groundwater. Some subsurface inflow may come from Means Valley Groundwater Basin, and subsurface

outflow probably crosses the Emerson fault into Deadman Valley Groundwater Basin (French 1978; Mendez and Christensen 1997).

Groundwater Level Trends

Groundwater in this basin flows eastward from the San Bernardino Mountains to the Emerson fault and northeast toward Emerson (dry) Lake (Mendez and Christensen 1997). In the central part of the basin near Landers, one well declined about 15 feet during 1981 through 1999. In the eastern and northern parts of the basin, water levels were stable during 1952 through 2000, varying about 2 feet.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be 1,200,000 af (DWR 1975).

Groundwater in Storage. Groundwater in storage in 1969 is estimated to be 540,000 af (Lewis 1972).

Groundwater Budget (Type C)

About 500 af/yr of underflow may be moving through the sediments in Pipes Wash, the main recharge source (Lewis 1972).

Groundwater Quality

Characterization. Groundwater in the basin is sodium bicarbonate in character. The TDS content of water from one well near Landers is 233 mg/L (MWA 1999). The TSD content of water from 8 public supply wells ranges from 246 to 390 mg/L and averages 312 mg/L.

Impairments. Groundwater in the basin has locally high TDS, fluoride, and chloride contents (DWR 1975). TDS content reaches about 1,000 mg/L southwest of Emerson Lake (MWA 1999).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	10	0
Radiological	10	3
Nitrates	10	0
Pesticides	10	0
VOCs and SVOCs	10	0
Inorganics – Secondary	10	0

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the

consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Production characteristics

	Well yields (gal/min)
Municipal/Irrigation	Range: 30 – 2,000 (Well Completion Reports)
	Total depths (ft)
Domestic	
Municipal/Irrigation	

Active Monitoring Data

Agency	**Parameter**	**Number of wells /measurement frequency**
USGS	Groundwater levels	19
USGS	Miscellaneous water quality	3
Department of Health Services and cooperators	Title 22 water quality	11

Basin Management

Groundwater management:	This basin is managed under a Regional Water Management Plan adopted in 1994 by the Mojave Water Agency (MWA 1999).
Water agencies	
Public	Mojave Water Agency
Private	

References Cited

Bookman-Edmonston Engineering Inc. (BEE). 1994. Regional water management plan: Mojave Water Agency, Apple Valley California,.135 p.

California Department of Water Resources (DWR). 1975. California's Ground Water. Bulletin 118. 135 p.

French, J.J. 1978. Ground-water storage in the Johnson Valley area, San Bernardino County, California: U.S. Geological Survey Water-Resources Investigations Report 77-130. 35 p.

Lewis, R.E. 1972. *Ground-Water Resources of the Yucca Valley-Joshua Tree area, San Bernardino County, California.* U.S. Geological Survey Open-File Report. 51 p.

Mendez, G.O. and A.H. Christensen. 1997. Regional water table (1996) and water-level changes in the Mojave River, the Morongo, and the Fort Irwin ground-water basins, San Bernardino County, California: U.S. Geological Survey Water-Resources Investigations Report 97-4160. 34 p.

Mojave Water Agency (MWA). 1999. Fourth Annual Engineer's Report on Water Supply, for Water Year 1997-1998. Apple Valley, California. 77p.

Moyle, W.R., Jr. 1974. Geohydrologic map of southern California: U.S. Geological Survey Water-Resources Investigations Report 48-73.

_____. 1984. Bouguer gravity anomaly map of the Twentynine Palms Marine Corps Base and vicinity, California: U.S. Geological Survey Water-Resources Investigations Report 84-4005.

Rogers, T. H. 1967. *Geologic Map of California, San Bernardino Sheet.* Olaf P. Jenkins Edition. California Division of Mines and Geology. 1 sheet. Scale 1:250,000.

Schaefer, D.H. 1978. Ground-water resources of the Marine Corps Base, Twentynine Palms, San Bernardino County, California: U.S. Geological Survey Water-Resources Investigations Report 77-37. 29 p.

Additional References

Akers, J.P. 1986. Geohydrology and potential for artificial recharge in the western part of the U.S. Marine Corps Base, Twentynine Palms, California, 1982-83. U.S. Geological Survey Water-Resources Investigations Report 84-4119. 18 p.

Bader, J.S. 1963. Effect of faulting in alluvium on the occurrence, movement, and quality of ground water in the Twentynine Palms area, California (abstract). Geological Society of America Special Paper 73. 22 p.

California Department of Water Resources (DWR). 1960. *Data on Water wells and Springs in the Yucca Valley-Twentynine Palms area, San Bernardino and Riverside Counties, California.* Bulletin 91-2. 163 p.

Errata

Changes made to the basin description will be noted here.

Means Valley Groundwater Basin

- Groundwater Basin Number: 7-17
- County: San Bernardino
- Surface Area: 15,000 acres (23.4 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies Means Valley in southcentral San Bernardino County. The basin is bounded by nonwater-bearing rocks and a drainage divide on the north, by a drainage divide on the south, by the Johnson Valley fault on the west, and by the Homestead Valley fault on the east (Rogers 1967). Drainage is to Means (dry) Lake in the central part of the valley (Rogers 1967; French 1978). Annual average precipitation ranges from about 4 to 8 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater in the basin is found in Quaternary age alluvial and lacustrine deposits. The alluvium likely consists of unconsolidated, fine- to coarse-grained sand, pebbles, and boulders with variable amounts of silt and clay and is probably not more than 200 or 300 feet thick (French 1978).

Restrictive Structures

The southwest trending Johnson Valley and Homestead Valley faults are partial barriers to groundwater movement (Moyle 1974; French 1978).

Recharge Areas

The principal source of recharge to the basin is likely percolation of runoff from surrounding mountains, with a minor contribution from percolation of precipitation to the valley floor and subsurface flow across the Johnson Valley fault southwest of Means Lake. Groundwater may migrate through fractures in bedrock toward Emerson Lake as subsurface outflow (French 1978).

Groundwater Level Trends

A hydrograph for a well in the southern part of the basin indicates stable water levels during 1975 through 1998, varying about one foot in elevation.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimate at 260,000 (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge is estimated at 100 af/yr (DWR 1975).

Groundwater Quality

Characterization. Groundwater near Means Lake is sodium chloride-bicarbonate in character (French 1978). Groundwater samples show that

TDS content is about 1,300 mg/L, fluoride content is about 4.5 mg/L, and nitrate content is about 92 mg/L (French 1978).

Impairments. Fluoride, nitrate, and TDS concentrations are impairments locally.

Well Production characteristics

	Well yields (gal/min)
Municipal/Irrigation	
	Total depths (ft)
Domestic	
Municipal/Irrigation	

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	1
	Miscellaneous water quality	NKD
DHS and cooperators	Title 22 water quality	0

Basin Management

Groundwater management:

Water agencies

Public	Bighorn-Desert View Water Agency, County Service Area 70.
Private	

References Cited

California Department of Water Resources (DWR). 1975. *California's Ground Water*. Bulletin 118. 135 p.

French, J. J. 1978. *Ground-Water Storage in the Johnson Valley Area, San Bernardino County, California*. U. S. Geological Survey Water-Resources Investigation 77-130.

Mojave Water Agency (MWA). 1999. Fourth Annual Engineer's Report on Water Supply, for Water Year 1997-1998. Apple Valley, California. 77p.

Moyle, W.R., Jr. 1974. Geohydrologic map of southern California: U.S. Geological Survey Water-Resources Investigations Report 48-73.

Rogers, T. H. 1967. *Geologic Map of California, San Bernardino Sheet*. Single Map Sheet, Scale 1:250,000.

Additional References

California Department of Water Resources (DWR). 1954. *Ground Water Occurrence and Quality Colorado River Basin Region*. Water Quality Investigations Report No. 4.

Riley, F. S. 1956. *Data on Water Wells in Lucerne, Johnson, Fry and Means Valleys, San Bernardino County, California.* U.S. Geological Survey Open-File Report.

United States Bureau of Reclamation (USBR). 1967. *Interim Report, Inland Basins Projects Morongo-Yucca Upper Coachella Valley, California.* Unnumbered Reconnaissance Investigation.

Errata

Changes made to the basin description will be noted here.

Copper Mountain Valley Groundwater Basin

- Groundwater Basin Number: 7-11
- County: San Bernardino
- Surface Area: 30,341 acres (47.4 square miles)

Basin Boundaries and Hydrology

The Copper Mountain Valley Groundwater Basin underlies an alluvial valley in the northwestern Colorado Desert Region. This basin, which is about one mile north of the town of Joshua Tree, includes the water-bearing sediments below and adjacent to Coyote Lake (dry). The northern boundary of the basin is coincident with the surface drainage divide between this basin and the Ames Valley Groundwater Basin. The southern boundary of the basin is the Pinto Mountain fault. The contact of alluvium with consolidated rocks forming Copper Mountain and the San Bernardino Mountains mark the east and west boundaries, respectively. Average annual precipitation is about 4 inches for lower elevation, eastern part of the basin to 10 inches in the higher elevation, western part of the basin.

Hydrogeologic Information

Water Bearing Formations

The productive water-bearing materials in this basin consist of unconsolidated to partly consolidated Miocene to Quaternary continental deposits (Mendez and Christensen 1997). These deposits regionally reach 10,000 feet in thickness (Moyle 1984); however, wells in Copper Mountain Valley Groundwater Basin are known to reach a as much as 1,000 feet depth without encountering bedrock. Interpretation of resistivity surveys suggest a depth of at least 1,500 feet in this basin (Whitt and Jonker 1998).
The main productive water-bearing deposits are the interbedded gravels, conglomerates, and silts deposited in alluvial fan systems (Schaefer 1978). Other less productive deposits include alluvial channel sands and gravels; active silt, clay, and sandy-clay deposits in Coyote Lake playa; and dune sands (Schaefer 1978; BEE 1994). These deposits have an average specific yield of about 14 percent (Lewis 1972) and well yields range from 10 to 2,450 gpm. Groundwater in this basin is unconfined.

Restrictive Structures

The Pinto Mountain fault zone acts as a barrier to groundwater flow, with the water table lower by 125 feet in the Copper Mountain Valley Groundwater Basin than in the Joshua Tree Groundwater Basin to the south. (Whitt and Jonker 1998; Mendez and Christensen 1997).

Recharge Areas

Natural recharge in the basin is derived mainly from direct percolation of precipitation and the rare percolation of ephemeral streamflow (Mendez and Christensen 1997; BEE 1994). Some underflow may occur across the Pinto Mountain fault from the Joshua Tree Groundwater Basin (Lewis 1972; Whitt and Jonker 1998). Percolation of septic tank effluent also contributes to recharge of groundwater.

Groundwater Level Trends

Water level measurements taken in a well at the eastern edge of this basin, near Coyote Lake, show a total range of only about five feet during 1979 through 1999. The water level rose about five feet in late 1992 and was only about one foot below that mark when measured in 1999 (MWA 2000). Whitt and Jonker (1998) report water levels in the basin have generally remained unchanged for more than 50 years. The general regional groundwater flow pattern is from west to east, although local faults and basement highs modify this basic pattern. Groundwater in this basin appears to flow eastward from the San Bernardino Mountains to Coyote Lake (dry) (Mendez and Christensen 1997).

Groundwater Storage

Groundwater Storage Capacity. Currently a value for total storage capacity is not known to exist. The 1975 DWR value of 830,000 af is no longer valid as subsequent studies show that the basin is deeper than previously estimated. The basin boundaries have been redefined in this report based on hydrogeologic reports such as Lewis (1972), Schaefer (1978) Mendez and Christensen (1997), and Whitt and Jonker (1998). This change in configuration will affect the estimate of total storage capacity.

Groundwater in Storage. Groundwater in storage is estimated to be a minimum of 940,000 af (Whitt and Jonker 1998). This value is much larger than 67,000 af in storage estimated in 1996 because Whitt and Jonker (1998) use resistivity data to interpret a much deeper basin than previously inferred. The basin boundaries used by Whitt and Jonker (1998) are different than used in this report.

Groundwater Budget (Type A)

Recharge from precipitation was estimated to range from 728 to 1,300 af/yr (Whitt and Jonker 1998). Extractions are predominantly from urban use and estimated at 1,010 af for the year 2000 (BEE 1994).

Groundwater Quality

Characterization. Groundwater within the basin is of relatively high quality and meets all Federal and State standards for drinking water (Krieger and Stewart 1996). Data for two public supply wells in the basin have TDS content of 180 and 214 mg/L.

Impairments. DWR (1975) reports failing septic tanks may be threatening water quality in parts of the basin. Some wells exceeded TDS concentrations of 500 mg/L (BEE 1994).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	2	0
Radiological	2	0
Nitrates	2	0

Pesticides	2	0
VOCs and SVOCs	2	0
Inorganics – Secondary	2	0

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 10 – 2,450 gal/min	Average:
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	**Parameter**	**Number of wells /measurement frequency**
USGS	Water Levels	2
Department of Health Services	Title 22 Water Quality	2

Basin Management

Groundwater management:	A groundwater management plan for this basin is currently in place.
Water agencies	
Public	Mojave Water Agency, Joshua Basin Water District.
Private	

References

Bookman-Edmonston Engineering Inc. (BEE). 1994. *Regional water management plan.* Mojave Water Agency, Apple Valley California. 135 p.

California Department of Water Resources (DWR). 1975. *California's Groundwater*. *Bulletin No. 118*. 135 p.

Krieger and Stewart, Inc. 1996. *Joshua Basin Water District Groundwater Management Plan.* Prepared for Joshua Basin Water District.

Lewis, R.E. 1972. *Ground-water resources of the Yucca Valley-Joshua Tree area, San Bernardino County, California.* U.S. Geological Survey Open-File Report. 51 p.

Mendez, G.O. and A.H. Christensen. 1997. *Regional water table (1996) and water-level changes in the Mojave River, the Morongo, and the Fort Irwin ground-water basins, San Bernardino County, California.* U.S. Geological Survey Water-Resources Investigations Report 97-4160. 34 p.

Mojave Water Agency (MWA). 2000. *Annual Ground Water Level Monitoring Program for 1999. Apple Valley California*. 129 p.

Moyle, W.R., Jr. 1984. *Bouguer gravity anomaly map of the Twentynine Palms Marine Corps Base and vicinity, California.* U.S. Geological Survey Water-Resources Investigations Report 84-4005.

Schaefer, D.H. 1978. *Ground-water resources of the Marine Corps Base, Twentynine Palms, San Bernardino County, California.* U.S. Geological Survey Water-Resources Investigations Report 77-37. 29 p.

Whitt, A . and K. Jonker. 1998. *Groundwater survey of the Joshua Tree and Copper Mountain Subbasins, Joshua Tree California.* Consultant's report prepared by Western Water Surveys, for Joshua Basin Water District.

Additional References

Akers, J.P. 1986. Geohydrology and potential for artificial recharge in the western part of the U.S. Marine Corps Base, Twentynine Palms, California, 1982-83. U.S. Geological Survey Water-Resources Investigations Report 84-4119. 18 p.

Bader, J.S. 1963. Effect of faulting in alluvium on the occurrence, movement, and quality of ground water in the Twentynine Palms area, California (abstract). Geological Society of America Special Paper 73. 22 p.

_____. 1966. Records of water level and pumpage in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 3 p.

California Department of Water Resources (DWR). 1960. Data on water wells and springs in the Yucca Valley-Twentynine Palms area, San Bernardino and Riverside counties, California. Bulletin 91-2. 163 p.

_____. 1984. Twentynine Palms ground water study. Southern District Report. 109 p.

Downing, D.J. 1974. Records of water level and pumpage for 1973 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report. 15 p.

_____. 1977. Ground-water data for 1974-75 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report 77-80. 34 p.

_____. 1978. Ground-water data for 1976-77 in Joshua Tree National Monument, California. U.S. Geological Survey Open-File Report 78-854. 34 p.

Freckleton, J.R. 1982. Ground water in the Twenty-nine Palms Indian Reservation and vicinity, San Bernardino County, California. U.S. Geological Survey Water-Resources Investigations Report 82-4060. 46 p.

Moyle, W.R., Jr. 1974. Geohydrologic map of southern California. U.S. Geological Survey Water-Resources Investigations Repot 48-73.

Errata

Changes made to the basin description will be noted here.

Section 15.5b
Water Supply Assessment
Hi-Desert Water District – May 2007

HI-DESERT WATER DISTRICT

Water Supply Assessment for Old Town Yucca Valley Specific Plan

May 2007

MWH

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Section 1
Introduction

The Hi-Desert Water District ("District") has caused this Water Supply Assessment ("WSA") to be prepared to meet the requirements of California Water Code Section 10910 *et seq*., otherwise commonly referred to as Senate Bill 610 ("SB 610")(Chapter 643, Statutes of 2001) in connection with the Town of Yucca Valley's consideration of the proposed Old Town Yucca Valley Specific Plan Project (the "Old Town SP Project" or "Project").

Effective January 1, 2002, SB 610 requires a city or county that determines a project, as defined by Water Code section 10912, is subject to the California Environmental Quality Act ("CEQA") to identify the public water system that may supply water for the project, if one exists, and to request the public water system to prepare a water supply assessment for the project. The assessment is required to include certain information regarding water supplies that may be used to serve the proposed project, including, to the extent applicable, relevant information regarding water supply entitlements, water rights, water service contracts, and groundwater supplies.

The intent of SB 610 is to improve the informational link between water supply availability and certain land use decisions made by cities and counties under the CEQA process. Accordingly, SB 610 requires the water supply assessment prepared for a particular project to be included in the environmental document prepared for the project under CEQA. (Water Code § 10911(b).)

Section 2
Background

2.1 HI-DESERT WATER DISTRICT

The Hi-Desert Water District ("District") was formed in 1962 through a combination of multiple water agencies that were formed during development of the Yucca Valley area. The District is located approximately 60 miles east of the City of San Bernardino between the Cities of Joshua Tree and Morongo Valley in the high-desert area of South Central San Bernardino County. With a service area of approximately 50 square miles, the District provides water services to areas within the Town of Yucca Valley and an adjacent unincorporated area to the north known as the Mesa. The District serves approximately 25,000 people with just under 10,000 service connections. The District currently provides water service to existing commercial and residential customers at the Project site.

2.2 PROJECT LOCATION AND DESCRIPTION

The Old Town SP Project is proposed to be located in the Town of Yucca Valley, San Bernardino County. (Figure 2-1, **Error! Reference source not found.**.). The Old Town Yucca Valley Specific Plan is a re-development of the existing Old Town area. The Project provides for the development of four planning districts: the Old Town Mixed-use District, Old Town Commercial/Residential District, Old Town Industrial/Commercial District, and the Old Town Highway Commercial District. An additional overlay district, the Highway Environs Overlay, provides additional development requirements for those areas that may be affected by the potential realignment of SR-62 and require additional discretionary review. The Project would allow a maximum of 1,115 residential units and up to 2,900,604 SF of buildings for a variety of uses, including commercial/retail, industrial/commercial, office, and public facilities under build out conditions (RBF, 2006).

2.3 PROJECT WATER DEMAND

As indicated in Section 2.2 above, the projected water demands of the Old Town SP Project include those associated with multi-family (high density) residential uses and the water needs of commercial, retail, and industrial areas within the Project site. According to the District's Water System Master Plan analyses, a typical residential household within the District has an average of 2.55 persons and uses 0.328 acre-feet of water per year ("acre-ft/yr"). Table 2-1 shows the existing water demand for the project area based on the current General Plan. This demand totals 159 acre-ft/yr. (Note: One acre-foot is the amount of water that would cover an acre of land at a depth of 1 foot, or 325,852 gallons.) The water demand figures used in this table are based on information developed for the District's draft Water System Master Plan (in preparation) from District billing and production records. Accordingly, they are a practical and conservative measure of the projected water demand associated with the Old Town SP Project. In fact, for water supply planning purposes, the District has previously estimated that a typical household in the District uses approximately 0.28 acre-ft/yr. (See District 2005 Urban Water Management Plan, p. 2.) A water use factor of 0.28 acre-ft/yr is a reasonable estimate in the

District's desert community where water conservation and demand management are implemented as a standard of living. (See discussion below regarding water conservation and demand management measures practiced in the District.) Water losses (also known as unaccounted or non-revenue water) are approximately 10 percent of the District's total water production. Consequently, the District must produce approximately 0.31 acre-ft/yr of water for an average household. Nevertheless, this WSA uses a water use factor of 0.328 acre-ft/yr to ensure a conservative analysis is provided.

Table 2-1
Old Town SP Project Existing Demands by Land Use Type

DISTRICT / LAND USE TYPE	GROSS AREA (ac)	UNITS (du)	BUILDING AREA (sf)	WATER DEMAND FACTOR [1]	AVERAGE DAY DEMAND (gpd)	AVERAGE DAY DEMAND (AFY)
OLD TOWN MIXED USE						
Auto Repair	1.006	0	5,476	1,000 gpd/ac	1,006	1.1
Auto Sales	0.398	0	1,041	1,000 gpd/ac	398	0.4
Car Wash	0.148	0	1,182	1,000 gpd/ac	148	0.2
Commercial	5.601	0	63,474	1,000 gpd/ac	5,601	6.3
Dental Office	0.215	0	10,640	1,000 gpd/ac	215	0.2
Gas Station	0.610	0	3,858	1,000 gpd/ac	610	0.7
Hotel/Motel [2]	0.309	1	6,072	3,520 gpd/ac	1,089	1.2
Industrial	5.256	0	46,607	850 gpd/ac	4,468	5.0
Low Density Residential	0.461	1	0	440 gpd/ac	203	0.2
Medical Office	0.962	0	13,130	1,000 gpd/ac	962	1.1
Mini-Storage	2.411	0	4,265	850 gpd/ac	2,050	2.3
Office	1.146	0	7,000	1,000 gpd/ac	1,146	1.3
Restaurant	1.407	0	17,368	1,000 gpd/ac	1,407	1.6
Vacant	9.121	0	2,057	0 gpd/ac	0	0.0
TOTAL	**29.053**	**2**	**182,170**	**-**	**19,303**	**21.6**
OLD TOWN HIGHWAY COMMERCIAL						
Auto Repair	3.081	0	19,249	1,000 gpd/ac	3,081	3.5
Auto Sales	2.636	0	11,222	1,000 gpd/ac	2,636	3.0
Commercial	17.394	0	97,652	1,000 gpd/ac	17,394	19.5
High Density Residential	0.523	0	0	3,520 gpd/ac	1,840	2.1
Hotel/Motel [2]	2.371	12	55,907	3,520 gpd/ac	8,345	9.3
Low Density Residential	0.994	1	0	440 gpd/ac	437	0.5
Medical Office	0.687	0	4,800	1,000 gpd/ac	687	0.8
Meeting Hall	1.800	0	9,938	800 gpd/ac	1,440	1.6
Mini-Storage	6.464	0	40,952	850 gpd/ac	5,494	6.2
Office	2.574	0	22,954	1,000 gpd/ac	2,574	2.9
Park-N-Ride	1.055	0	0	0 gpd/ac	0	0.0
Restaurant	3.083	0	13,430	1,000 gpd/ac	3,083	3.5

Table 2-1 (Cont'd)
Old Town SP Project Existing Demands by Land Use Type

DISTRICT / LAND USE TYPE	GROSS AREA (ac)	UNITS (du)	BUILDING AREA (sf)	WATER DEMAND FACTOR [1]	AVERAGE DAY DEMAND (gpd)	AVERAGE DAY DEMAND (AFY)
RV Park	1.305	0	1,740	800 gpd/ac	1,044	1.2
Unknown [3]	0.012	0	0	1,000 gpd/ac	12	0.0
Vacant	14.379	0	0	0 gpd/ac	0	0.0
TOTAL	**58.355**	**13**	**277,844**	-	**48,067**	**53.8**
OLD TOWN COMMERCIAL/ RESIDENTIAL						
Church	2.577	0	16,887	800 gpd/ac	2,061	2.3
Civic	0.634	0	944	800 gpd/ac	507	0.6
Commercial	3.307	0	33,408	1,000 gpd/ac	3,307	3.7
High Density Residential	3.360	22	0	3,520 gpd/ac	11,828	13.3
Hotel/Motel [2]	0.247	9	2,864	3,520 gpd/ac	868	1.0
Industrial	1.921	0	18,288	850 gpd/ac	1,633	1.8
Medium Density Residential	18.747	83	0	1,025 gpd/ac	19,215	21.5
Medical Office	3.435	0	56,902	1,000 gpd/ac	3,435	3.8
Office	1.785	0	19,596	1,000 gpd/ac	1,785	2.0
Pet Hospital	0.451	0	6,334	1,000 gpd/ac	451	0.5
Vacant	20.910	0	0	0 gpd/ac	0	0.0
TOTAL	**57.373**	**114**	**155,223**	-	**45,091**	**50.5**
OLD TOWN INDUSTRIAL						
Civic	2.065	0	993	800 gpd/ac	1,652	1.9
Industrial	32.530	0	96,603	850 gpd/ac	27,650	31.0
Mini-Storage	0.595	0	0	850 gpd/ac	506	0.6
Vacant	4.399	0	0	0 gpd/ac	0	0.0
TOTAL	**39.589**	**0**	**97,596**	-	**29,808**	**33.4**
TOTAL EXISTING WATER DEMAND	**184.370 (ac)**	**129 (du)**	**712,833 (sf)**	-	**142,268 (gpd)**	**159.4 (AFY)**

Abbreviations: ac = acre, du = dwelling unit, sf = square feet, gpd = gallons per day, AFY = acre-feet per year
1 Water demand factors based on District's Draft Water System Master Plan.
2 Hotel / Motel assumed as high density residential.
3 Unknown land uses were assumed at 1,000 gpd/ac.
Source: Draft Water Supply Assessment Old Town Yucca Valley Specific Plan, RBF Consulting, December 2006.

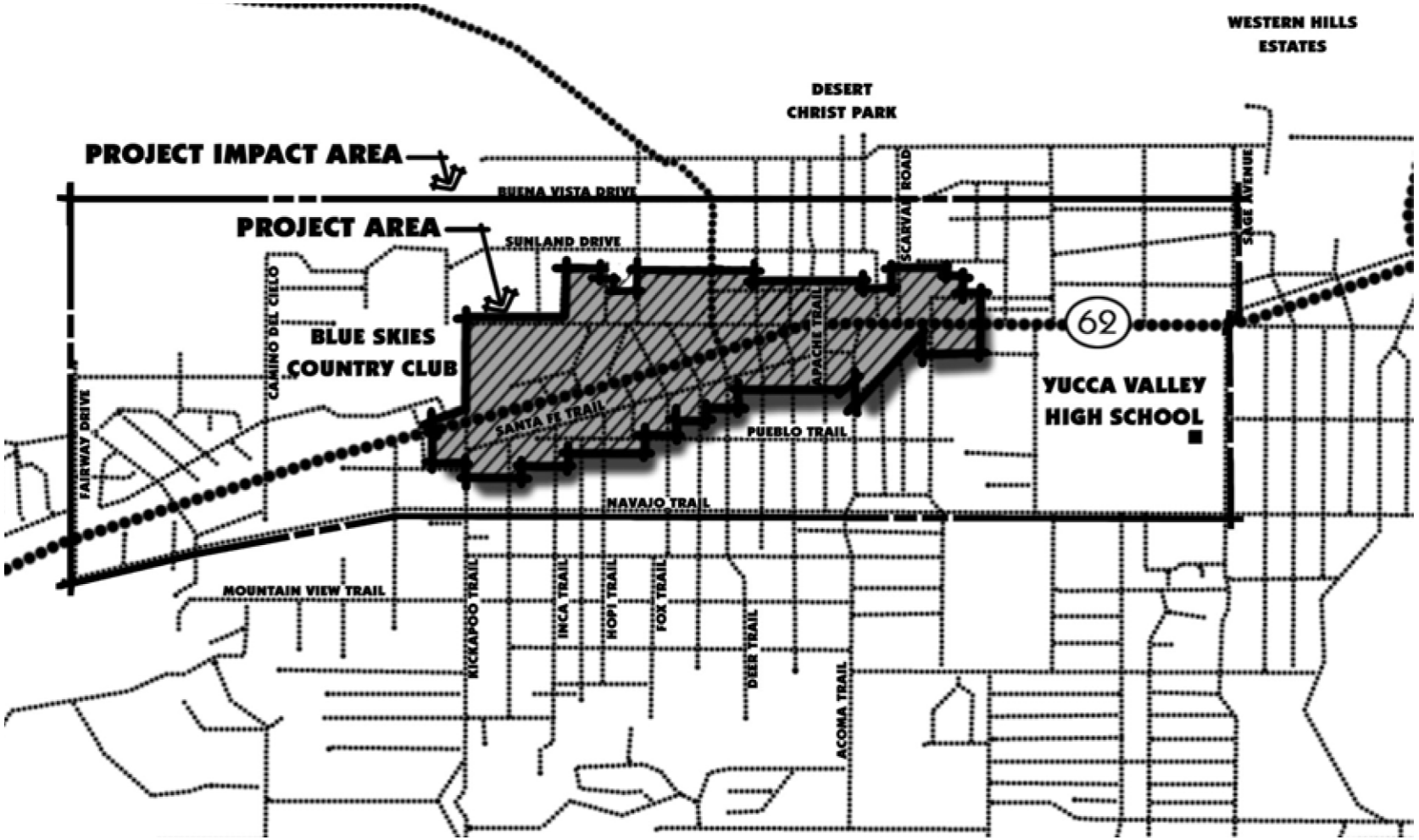
Based on the conservative water demand factors set forth in Table 2-1, the total projected water demand of the Old Town SP Project is 527 acre-ft/yr at full build-out. (Table 2-2.). Thus, the net increase in demand within the project area is 367 acre-ft/yr (projected – existing). Based on a conversation with Shane Stueckle, Deputy Town Manager at Town of Yucca Valley, growth within the project area is expected to occur linearly over a 50-year period starting in 2008 and ending in 2057. (Stueckle, pers. comm., 2007) This results in an annual growth in demand of

7.3 acre-ft/yr. Beyond 2057, the Project's additional water demand remains constant at 367 acre-ft/yr.

Table 2-2
Projected Water Demand for Old Town SP Project

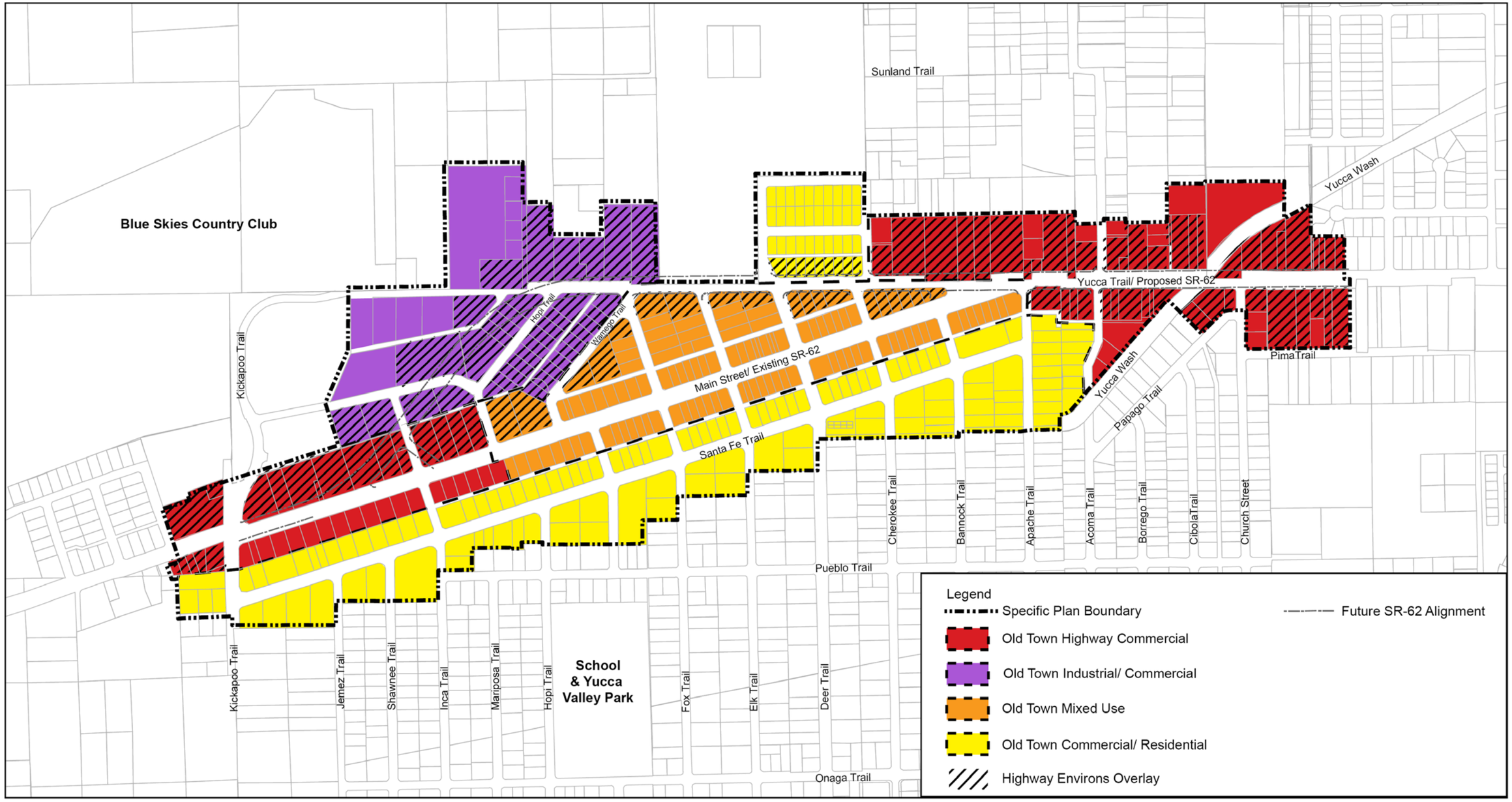
Land Use Type	Area (ac)	No. of Dwelling Units (du)	Water Demand Factor (gpd/ac)	Total Water Demand (AF/Y)
OLD TOWN MIXED USE				
Commercial / Retail	17.43		1,000	19.5
Residential	11.63	465	11,730	152.8
Total	**29.05**	**465**	**-**	**172.3**
OLD TOWN HIGHWAY COMMERCIAL				
Commercial / Retail	58.36	0	1,000	65.4
Total	**58.36**	0	-	**65.4**
OLD TOWN COMMERCIAL / RESIDENTIAL				
Commercial / Retail	40.16	0	1,000	45.0
Residential	17.21	413	7,040	135.7
Total	**57.37**	**413**	-	**180.7**
OLD TOWN INDUSTRIAL				
Industrial	31.66	0	850	30.1
Residential	7.93	238	8,800	78.2
Total	**39.59**	**238**	-	**108.3**
Total Projected Water Demand	**184.37**	1,115	-	**526.7**
Less Existing Demand		129	-	**159.4**
Total Projected Water Demand	**184.37**	1,115	-	**367.3**

Abbreviations: ac = acre, du = dwelling unit, sf = square feet, gpd = gallons per day, AFY = acre-feet per year
1 Water demand factors based on District's Draft Water System Master Plan.



Source: Draft EIR Old Town Specific Plan, RBF Consulting, May 2006

Figure 2-1
Project Vicinity Map



Source: Draft WSA Old Town Specific Plan, RBF Consulting, December 2006

Figure 2-2
Old Town Yucca Valley Specific Plan - Land Use Plan

Section 3
Water Supply Assessment

3.1 LAW GOVERNING PREPARATION OF A WSA

SB 610 requires a city or county that determines a project, as defined by Water Code Section 10912, is subject to the California Environmental Quality Act ("CEQA") to identify any water system that is, or may become as a result of supplying water to the project, a public water system that may supply water for the project. (Water Code § 10910(a)-(b).) For purposes of SB 610, a "project" is defined to include:

(1) A residential development of more than 500 dwelling units;

(2) A shopping center or business employing more than 1,000 persons or having more than 500,000 square feet of floor space;

(3) A commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;

(4) A hotel or motel having more than 500 rooms;

(5) An industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres, or having more than 650,000 square feet of floor space;

(6) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project; or

(7) A mixed use project including one or more of the aforementioned projects.

(Water Code § 10912(a).)

A "public water system" is defined as a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections. (Water Code § 10912(c).) If a public water system is identified that may serve the project, that agency must prepare the water supply assessment under SB 610. If the city or county is not able to identify any public water system for the project, the city or county must prepare the water supply assessment. (Water Code § 10910(b).)

Under SB 610, a water supply assessment is required to include certain information regarding water supplies that may be used to serve the proposed project, including, to the extent applicable, relevant information regarding water supply entitlements, water rights, water service contracts, and groundwater supplies. (Water Code § 10910 (c)-(f).) Those requirements as they apply to this WSA for the Old Town SP Project are discussed below in further detail.

3.2 HI-DESERT WATER DISTRICT AS THE PUBLIC WATER SYSTEM FOR THE OLD TOWN SP PROJECT

The Old Town SP Project is a "project" that requires the preparation of a water supply assessment because it consists of a mixed use project including a proposed residential development containing more than 500 dwelling units and business consisting of more than 500,000 SF of floor space. (Water Code § 10912(a)(7).) The District would be the "public water system" providing water service to the Old Town SP Project because the District operates a water system that provides piped water service for human consumption to more than 3,000 service connections and because the District is the current public water purveyor to the existing customers in the project area located in Town of Yucca Valley. (Water Code § 10912(c).)

3.3 HI-DESERT WATER DISTRICT'S URBAN WATER MANAGEMENT PLAN

Under SB 610, if the projected water demand associated with the proposed project was accounted for in the public water system's most recently adopted urban water management plan, the public water system may incorporate such information from the urban water management plan in preparing elements of the water supply assessment. (Water Code § 10910(c)(2).) The District adopted its most recent 2005 Urban Water Management Plan on April 5, 2006 ("2005 District UWMP"). (See Appendix H.)

SB 610 provides that if the water demand associated with the proposed project was not accounted for in the public water system's most recently adopted urban water management plan, or if the public water system does not have an urban water management plan, the water supply assessment for the project must include a discussion of "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." (Water Code § 10910(c)(3).) The District's most recent UWMP does not account for the projected water demand associated with the Old Town SP Project. Thus, the District has included a sufficiency discussion in this WSA to reflect the most current Project demand and water supply information available to the District. That sufficiency discussion is set forth below in Section 3.7.

3.4 DISTRICT'S WATER SUPPLY ENTITLEMENTS, WATER RIGHTS AND WATER SERVICE CONTRACTS (WATER CODE § 10910(D))

SB 610 requires a water supply assessment to include "an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project," and a description of the quantities of water received in prior years by the public water system pursuant to such water entitlements, rights and contracts. (Water Code § 10910(d)(1).) SB 610 further states: "An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."
(Water Code § 10910(d)(2).)

The District utilizes two principal water sources to meet demands within its service territory: imported surface water supplies from the California State Water Project ("SWP") and local groundwater supplies. Natural recharge, stormwater and wastewater return flows further augment the District's total water supply portfolio. The District's water supplies derived from the SWP are discussed below in Section 3.4.1. The District's groundwater supplies are discussed generally in Section 3.4.2 and in greater detail below at Section 3.5. Documents and information demonstrating the basis of the District's existing and projected water supplies are collectively identified in Section 5. Several such documents and information are attached in their entirety as Appendices to this WSA. For others, the first page of such documents and information are attached for reference purposes and included at Appendix H. (Water Code § 10910(d)(2).) Table 3-1 summarizes the District's existing water supply entitlements, rights and contracts as discussed in the sections below.

Table 3-1
Existing Water Supply Entitlements, Rights, and Contracts

Supply	acre-ft/yr	Entitlement	Right	Contract	Ever Used
SWP Supplies	4,282*			X	Yes
Warren Valley Basin	1,622		X		Yes
Ames/Means Basin	800 + 0.5 for each new residential meter			X	Yes

* Recharged to the Warren Valley Basin for later extraction

3.4.1 State Water Project Supplies

A. Mojave Water Agency and the Morongo Basin Pipeline

SWP supplies constitute a significant source of water for the Yucca Valley area. As set forth below, the District obtains its SWP supplies from the Mojave Water Agency ("MWA"). MWA is a special act district formed by the legislature in 1959 and approved by the electorate in 1960 to help meet the water needs within its territory. MWA, in cooperation with other water agencies, is responsible for managing the region's water resources to ensure a sustainable supply of water for present and future uses. (MWA, 2006.) MWA's service territory covers over 4,900 square miles and is divided into seven Divisions. The District and three other public water

purveyors are located in Division 2. MWA is one of the 29 SWP Contractors that holds a direct contract with the California Department of Water Resources ("DWR") to receive SWP water. The SWP contracts define "Table A Amount" as the maximum annual delivery amount for that contracting agency. Table A Amounts are used to allocate the available annual supplies from the SWP among the contractors. As discussed below, MWA's current SWP Table A Amount is 75,800 acre-ft/yr. (2005 MWA UWMP Update, p. 15; Appendix A.)

In 1990, an area known as Improvement District M ("ID-M"), generally coterminous with the boundaries of Division 2, was formed within MWA to finance construction of the Morongo Basin Pipeline Project allowing MWA to deliver a portion of its SWP water to the Division 2 / ID-M area. In 1990 the voters of ID-M approved a $66 million bond issuance needed to construct this significant water delivery infrastructure. The project was completed in 1995. Today, the Morongo Basin Pipeline delivers SWP water from a turnout in the California Aqueduct near Hesperia along a 71-mile route to the Yucca Valley area. (2005 District UWMP, p. 5.)

System capacity of the Morongo Basin Pipeline was originally based on a conceived peak delivery rate of 15 cubic feet per second ("cfs"), or 10,900 acre-ft/yr. Based on actual construction, however, and the subsequent addition of a second pumping station along the Pipeline, the actual system capacity is 22 cfs, or 15,930 acre-ft/yr. According to MWA, this additional and available capacity in the Morongo Basin Pipeline can be utilized to deliver significant water supplies to the District for storage and use. (MWA, 2006; Appendix B.) Copies of the capital outlay program for financing the Morongo Basin Pipeline, along with all applicable federal, state, and local construction permits, environmental review and regulatory approvals related to the Pipeline project are available for review at MWA and District offices. (Water Code § 10910(d)(2); See, e.g., 1991 Agreement for Construction, Operation and Financing of the Morongo Basin Pipeline Project between Mojave Water Agency and Hi-Desert Water District, Appendix H.)

The District recharges the SWP water it receives through the Morongo Basin Pipeline into the Warren Valley Groundwater Basin through a series of percolation ponds owned and operated by District. (Pat Grady, Pers. Comm., 2006). An additional recharge facility (Site 3) was recently constructed east of Pioneertown Road that increased the District's total recharge capacity to approximately 11,000 acre-ft/yr. (Pat Grady, Pers. Comm., 2006). Copies of the capital outlay program for financing the District's recharge ponds, along with all applicable federal, state, and local construction permits, environmental review and regulatory approvals related to these facilities are available for review at the District's offices. (Water Code § 10910(d)(2).)

B. Reliability of SWP Supplies

According to DWR's 2005 Final SWP Delivery Reliability Report ("DWR Reliability Report"), the long-term average delivery of contractual amounts of SWP Table A supply is expected to range from 68 percent under 2005 demand conditions to 77 percent under 2025 demand conditions. (DWR Reliability Report, pp. 17, 20; Appendix H; 2005 MWA UWMP Update, p. 15.) Within that long-term average, SWP Table A deliveries can range from 4 to 5 percent (single dry year) to 100 percent of contractual amounts. (DWR Reliability Report, p. 20.) The analyses provided in the DWR Reliability Report are based upon 73 years of historical records

for rainfall and runoff that have been adjusted to reflect the current and future levels of development in the source areas by analyzing land use patterns and projecting future land and water uses. (DWR Reliability Report, p. 4.) The 29 SWP Contractors and water agencies throughout California utilize the DWR Reliability Report in their water supply planning and reporting obligations, including SB 610.

MWA utilizes the DWR Reliability Report in determining the long-term average amount of SWP water it can expect to receive from DWR. According to MWA's UWMP, the SWP Contractors have received the entire amount of their water requests 75 percent of the time and, on average, the Contractors have received 88 percent of the water they requested from DWR. (2004 MWA UWMP, p. 4-26; Appendix H.) MWA anticipates a future increase in the variability of its SWP supply as the SWP Contractors request their maximum Table A Amounts and as system-wide issues such as Delta exports are resolved. (2004 MWA UWMP, p. 4-27.) Even assuming this variability, however, MWA states that based on information provided by DWR, MWA expects to receive a long-term average of 77 percent of its SWP Table A Amount, or 58,400 acre-ft/yr, under 2020, 2025 and 2030 conditions. (2004 MWA UWMP, p. 4-27; 2005 MWA UWMP Update, p. 15.) In addition, MWA has identified numerous measures to offset future increases in the variability of SWP supply, including banking, transfer, and exchange programs that allow MWA to increase the reliability of its SWP Table A Amount that can be made available to the District and other SWP users within MWA's service territory. (2004 MWA UWMP, p. 4-28; 2005 MWA UWMP Update, p. 24.)

C. SWP Entitlement Under the 1991 Morongo Basin Pipeline Agreement

The District receives its share of SWP water pursuant to the 1991 Morongo Basin Pipeline Agreement between the District and MWA (the "1991 Agreement"). (Appendix H.) Since MWA is divided into seven Divisions, the 1991 Agreement was structured for MWA to provide one-seventh of the SWP Table A Amount it receives from DWR to the Division 2 / ID-M area. The 1991 Agreement then apportions that one-seventh allocation on a pro-rata basis among the four public water purveyors in the ID-M area, namely, the District, Bighorn-Desert View Water Agency ("BDVWA"), County Service Area No. 70, and Joshua Basin Water District ("JBWD"). The one-seventh share of MWA's Table A Amount is apportioned as follows: the District is entitled to 59 percent; BDVWA to 9 percent, the County Service Area No. 70 to 5 percent, and JBWD to 27 percent.

At the time the District and MWA entered the 1991 Agreement, MWA had a SWP Table A Amount of 50,800 acre-ft/yr. (See 1963 Water Supply Contract between DWR and MWA, Amendment No. 2, p. 4; Appendix H.) Based on that amount, the one-seventh allocation made available to the ID-M area under the 1991 Agreement was established as 7,257 acre-ft/yr. Accordingly, the District's 59 percent share of that amount and its SWP Table A supplies under the 1991 Agreement is 4,282 acre-ft/yr. Pursuant to the March 2002 Memorandum of Understanding between MWA and the ID-M Participants (the "2002 MOU"), the 1991 Agreement is intended to extend to at least 2041. (2002 MOU, p. 6; Appendix H.) In accordance with the 2002 and 2005 DWR Reliability Reports and MWA's 2004/2005 UWMP analyses discussed above, the District includes as part of its total projected water supplies a long-term average of 77 percent, or 3,297 acre-ft/yr, of its contractual allocation of SWP supplies under the 1991 Agreement.

Several factors allow the District to utilize this long-term average amount as part of its total projected annual water supplies. As indicated above, MWA's UWMP analysis shows that MWA expects to receive a long-term average of 77 percent of its SWP Table A Amount from DWR under 2020, 2025 and 2030 conditions and states that its long-term average receipt of SWP supplies will exceed demands within MWA until at least 2025. (2005 MWA UWMP Update, pp. 15, 20.) DWR's ability to provide MWA with a long-term average of 77 percent of its Table A Amount for 2020 through 2030 conditions allows MWA to similarly provide the District with 77 percent of its long-term contractual demands under the 1991 Agreement. MWA's UWMP states that SWP allocations to the ID-M area are the only internal allocations of SWP water within MWA. (2004 MWA UWMP, p. 4-26.) Moreover, under 2005 through 2020 conditions, MWA's UWMP shows MWA has a significant surplus of SWP supplies within MWA. (2005 MWA UWMP Update, pp. 21, 24.) Thus, in years when MWA's long-term average SWP supply may range between 68 and 77 percent, the District may continue to request full contractual deliveries from MWA, particularly as other water districts in the ID-M area do not utilize their contractual SWP supplies under the 1991 Agreement. (See discussion below.) Furthermore, because the District recharges all of its SWP water to the Warren Valley Basin, the District can take advantage of full contractual deliveries up to 4,282 acre-feet in wet years which, combined with the factors discussed above, allows the District to include in its total projected water supplies a long-term average of 3,297 acre-ft/yr of SWP water from MWA.

Table 3-2 below summarizes the amount of SWP deliveries received by the District between 1995 and 2005. In the past, the District did not always take its full SWP allocation due to limitations in recharge basin capacity. However, this limitation has been eliminated with the completion of the Site 3 recharge facility in 2006. Table 3-2 also shows MWA's total deliveries of SWP water as report by DWR. Based on its Table A amount, MWA has taken less than 20 percent of its maximum Table A Amount in the past ten years.

D. Additional SWP Supplies Under the 1991 Agreement

The 1991 Agreement allows the District to obtain additional SWP water beyond its contractual amount to a long-term average supply of 3,297 acre-ft/yr. Under the 1991 Agreement, the District has the first option to take delivery of contractual amount that is not utilized by other ID-M participants, such as BDVWA and JBWD. Since completion of the Morongo Basin Pipeline, neither BDVWA nor JBWD has requested or received any portion of their SWP supplies. Under the 1991 Agreement, BDVWA's contractual amount is 9 percent of 7,257 acre-ft/yr (653 acre-ft/yr) and JBWD's contractual amount is 27 percent of 7,257 (1,959 acre-ft/yr). Collectively, this amounts to an opportunity for the District to receive up to an additional 2,612 acre-ft/yr of SWP supplies from MWA. In accordance with the 2005 DWR Reliability Report and MWA's UWMP analyses discussed above, this amounts to a long-term annual average of 2,011 acre-ft/yr that the District has the opportunity to purchase under the 1991 Agreement and store in the Warren Valley Basin.

Table 3-2
HDWD and MWA SWP Purchases – 1995-2005

Year	HDWD (acre-ft/yr)	MWA [1] (acre-ft/yr)
1995	1,608	3,722
1996	3,919	7,427
1997	4,848	10,374
1998	2,895	3,925
1999	1,918	5,144
2000	3,631	9,135
2001	3,831	4,433
2002	2,566	4,346
2003	2,681	14,435 [2]
2004	3,700	13,176
2005	3,460	N/A
Average	3,187	

1. MWA deliveries from DWR, 2006 – 2005 State Water Project Delivery Reliability Report 2005, Appendix D.
2. MWA's SWP deliveries included 3,528 acre-ft/yr of carryover water from the preceding year.

N/A – Not available.

E. Additional SWP Table A Supplies Available to the District

In addition to the District's contractual rights to SWP water discussed above, the District has tangible access to significant amounts of surplus or unused SWP Table A supplies. At the time the District and MWA entered the 1991 Agreement, MWA held a contractual right to receive 50,800 acre-ft/yr of SWP Table A water supply from DWR. (See 1963 Water Supply Contract between DWR and MWA, Amendment No. 2, p. 4; Appendix H.) In 1998, MWA acquired an additional 25,000 acre-ft/yr of SWP Table A Amount from the Berrenda Mesa Water District, increasing MWA's total Table A Amount to 75,800 acre-ft/yr. (See 1963 Water Supply Contract between DWR and MWA, Amendment No. 18, p. 4; 2005 MWA UWMP Update, p. 15.) Based on this amount and the 2005 DWR Reliability Report, MWA expects its long-term average SWP Table A deliveries to be 52,300 acre-ft/yr under 2005 demands and 58,400 acre-ft/yr under 2030 conditions. (2005 MWA UWMP Update, p. 15.) However, MWA does not utilize its entire SWP supply. In fact, MWA's UWMP states that the only current internal allocation of SWP water within MWA is for the 7,257 acre-ft/yr (or long-term average of 4,282 acre-ft/yr) to the ID-M area under the 1991 Agreement. (2004 MWA UWMP, p. 4-26.) The UWMP shows that the overall demand for SWP supplies within MWA through the year 2025 is significantly less than MWA's contractual long-term average supply. The UWMP states that MWA is expected to have an estimated total of 400,000 acre-feet of unused SWP supply between 2005 and 2020. (2004 MWA UWMP, p. 4-33; 2005 MWA UWMP Update, p. 24.)

The District is able to acquire such additional SWP Table A supplies from MWA by purchase under MWA's Ordinance No. 9. (Appendix C.) Ordinance No. 9 allows the District to purchase annual amounts of SWP water from MWA for domestic, industrial, municipal, agricultural, recreational, and/or groundwater replenishment purposes within the District. Such water may be placed in a storage account under the Rules and Regulations of the Warren Valley Basin

Watermaster or under the 2004 Warren Valley Basin Conjunctive Use Agreement between the District, MWA and the Warren Valley Basin Watermaster. (Appendix H.) As a conservative estimate for purposes of this WSA, the District projects it may purchase between 5,000 and 10,000 acre-feet of unused SWP supplies from MWA over the next 10-year period, either as a one-time purchase or as incremental purchases. Those deliveries will be made to the District via the Morongo Basin Pipeline which, as discussed above, has abundant unutilized delivery capacity.

F. Interruptible SWP Supplies Available to the District

The District also has an opportunity to purchase "interruptible" or "Article 21" water from MWA. Article 21 refers to a provision in the water supply contracts between DWR and the SWP Contractors that allows the Contractors to obtain water that is periodically available in addition to Table A amounts. (2005 DWR Reliability Report, p. 15.) According to DWR, Article 21 water is typically available only in wet months, such as December through March, and is only available to SWP Contractors who can use the water directly or store it in their own system, i.e., in a groundwater basin. (2005 DWR Reliability Report, p. 15.) The amount of interruptible water available in any given year is a function of hydrology and the supply is allocated among Contractors who wish to purchase the water in accordance with their respective Table A Amounts. DWR has estimated that an average of at least 120,000 acre-ft/yr of interruptible water will be available for purchase by the Contractors in years 2005 through 2025. (2005 DWR Reliability Report, p. 18.) In a single year, up to 547,000 acre-ft/yr of Article 21 water may potentially be available from the SWP. Evaluation of DWR modeling suggests that some Article 21 water is available in roughly six out of ten years. (2005 DWR Reliability Report, p. B-8.) Because of its ability to store water in the Mojave Groundwater Basin and in other parts of its system, MWA can accept Article 21 deliveries. Similarly, because of the District's ability to store water in the Warren Valley Basin, it is appropriate for the District to incorporate future purchases of Article 21 water from MWA into the District's projected water supply portfolio. As a conservative estimate for purposes of this WSA, the District projects it may purchase between 5,000 and 10,000 acre-feet of interruptible SWP supplies from MWA over the next 10 to 20-year period, either as a one-time purchase or in annual increments under MWA's Ordinance No. 9. Those deliveries would be made to the District via the Morongo Basin Pipeline which, as discussed above, has abundant unutilized delivery capacity.

The District has already initiated efforts to obtain additional SWP water from MWA beyond the District's minimum contractual allocation under the 1991 Agreement. That additional water is recharged and stored by the District in the Warren Valley Basin, allowing the District to build water reserves over and above its existing demands and add reliability to the District's overall water supplies, particularly insulating the District from events where SWP deliveries from MWA are subject to single-dry or multiple-dry year reductions. As of June 2006, a water supply reserve of approximately 21,910 acre-feet has been developed in the Basin, which is equal to approximately seven years of current water demand. (June 13, 2006 Warren Valley Basin Watermaster Update of Water Reserve Levels; Appendix H.)

3.4.2 Groundwater Rights

As discussed in greater detail below in Section 3.5, the District has both adjudicated and contractual rights to groundwater. The District's adjudicated groundwater rights were established in the case entitled Hi-Desert County Water District v. Yucca Water Company, Ltd., et al. (1977), County of San Bernardino Superior Court Case No. 172103. That case resulted in the 1977 Judgment establishing exclusive rights for the District and other parties to the case to extract groundwater from the Warren Valley Groundwater Basin. Under the 1977 Judgment, the District was granted an adjudicated right to extract 896 acre-ft/yr and the Yucca Water Company was granted the right to extract 726 acre-ft/yr. (1977 Judgment, ¶ 12; See Appendix D.) The District acquired the Yucca Water Company in 1990 which provided the District a total adjudicated right to extract 1,622 acre-ft/yr from the Warren Valley Basin.

The District's contractual groundwater rights in the Ames Basin were established under the January 10, 1991 Ames Valley Water Basin Agreement (the "Ames Basin Agreement") between the District and BDVWA. Under the Ames Basin Agreement, the District is entitled to extract 800 acre-ft/yr of groundwater from the Ames/Means Groundwater Basin, plus 0.5 acre-ft/yr for each new residential meter served by the District within the Ames/Means Basin area. (Ames Basin Agreement, p. 2, Section 2.0; See Appendix E.) The Warren Valley Basin and the Ames/Means Basin, along with the District's groundwater rights, are discussed in greater detail below in Section 3.4 in accordance with Water Code Section 10910(f).

3.4.3 Other Water Supply Factors

Several important factors contribute to the reliability of the District's existing and future water supplies. First, the District is fortunate to have a diversified set of water rights, including adjudicated groundwater rights, contractual groundwater rights, and contractual rights to SWP supplies. Second, the District is advantaged by having the Warren Valley Basin to use as a regulating reservoir, which the District manages in its role as a county water district and as Watermaster pursuant to the 1977 Judgment. As discussed throughout this WSA, the District utilizes the Basin to coordinate its groundwater and SWP rights, storing water in excess of demand during wet cycles and producing stored reserves during dry cycles. This utilization of the Basin allows the District to plan for and serve the water demands of its existing and future customers throughout wet, normal and dry water years. Other key factors in the District's water supply reliability are the significant amounts of local return flows to the Basin and the numerous conservation and demand management measures implemented by the District.

A. Return Flows to the Basin

Return flows play a key role in maintaining the health and reliability of the Warren Valley Basin. Currently, return flows to the Basin from precipitation and natural recharge, irrigation returns, septic returns, and stormwater runoff are approximately 900 acre-ft/yr. (2005 District UWMP, pp. 4, 6.) Indeed, as discussed in greater detail below, this current safe-yield of 900 acre-ft/yr is more than enough to satisfy the adjudicated rights of overlying producers under the 1977 Judgment, which rights total approximately 615 acre-ft/yr assuming full production. At this time, a centralized wastewater treatment facility does not exist within the District. Residences and businesses within the Town of Yucca Valley and throughout the District currently utilize

septic systems and leach fields to serve their wastewater treatment needs. It should be noted, however, that design, planning, and environmental review processes are underway to construct a wastewater treatment facility to serve the local community.

The District's 1998 Wastewater Collection and Treatment Master Plan anticipates phased construction of the wastewater treatment facility. (1998 Wastewater Collection and Treatment Master Plan, p. ES-7, Appendix H.) Currently, the District expects the first-phase capacity to range between 0.5 and 1.0 million gallons per day (mgd). Although a final design has not been adopted, the facility could ultimately have a treatment capacity of up to 8.0 mgd at full build-out. The treatment facility would be designed to incorporate all necessary permits and approvals from the California Department of Health Services and Regional Water Quality Control Board, Colorado River Basin Region allowing the treated wastewater to be available for groundwater recharge and possibly for landscape irrigation. The first phase of the treatment facility is expected to be completed by 2013 or sooner.

As indicated above, current return flows to the Warren Valley Basin are approximately 900 acre-ft/yr, a significant portion of which are attributable to irrigation and septic system returns. (2005 District UWMP, p. 6.) As water uses increase within the Town of Yucca Valley and other portions of the District, the amount of return flows will increase proportionately. For general planning purposes and for this WSA, the District estimates that approximately 32 percent of the water used within the portion of the District overlying the Warren Valley Basin returns to the Basin. That calculation is based on dividing the estimated average return flows by the Warren Valley groundwater pumping over the past 18 years. Based on the projected annual water use increase within the District over the next 20 years, return flows to the Basin in the year 2028 are estimated to be 1,747 acre-ft/yr without the Old Town SP Project. Section 3.6 below provides additional discussion regarding projected population growth rates in the District along with associated increases in water demand. Accordingly, wastewater return flows (whether by septic systems, a centralized wastewater treatment facility, or a combination thereof) will continue to play a key role in stabilizing the Warren Valley Basin and maintaining its reliability as a water supply reservoir.

B. Water Conservation and Demand Management

Since 1990, the District has implemented formal and informal water conservation and demand management measures throughout the District. As indicated below, these measures have significantly reduced and will continue to reduce water usage and per capita consumption in the District. Formal measures are adopted and implemented by way of District ordinances and resolutions. For instance, in March 1990, the District adopted Resolution No. 90-4 establishing a residential and commercial plumbing retrofit program. (See Appendix H.) Resolution 90-4 requires plumbing fixtures such toilets and showerheads to be replaced with low-flow and ultra low-flow fixtures whenever a structure is sold or rented to a new tenant. The District estimates that approximately 65 percent of the District has been retrofitted under Resolution 90-4 and that approximately 9,700 gallons per year, per residence, are saved through the retrofit program. (District 2005 UWMP, p. 10.)

In 1992, the District adopted Ordinance No. 68 establishing prohibitions and restrictions on certain water uses within the District. (See Appendix H.) District Ordinance No. 68 is an

aggressive water conservation and demand management measure. Under the Ordinance, the following prohibitions and restrictions apply:

> (1) No hose washing of sidewalks, walkways, driveways, parking areas, etc., unless required by a regulatory agency for health or safety reasons;
> (2) No water shall be used to clean, fill, operate or maintain levels in decorative fountains, unless such water is part of a recycling system;
> (3) No person shall knowingly permit water to leak from any facility within a premises;
> (4) No use of potable water is permitted to irrigate, water or sprinkle grass, lawns, etc. between the hours of 9:00 a.m. and 5:00 p.m. during the high-use season which begins June 1 and ends September 30 of each year, and during this season, watering shall only be permitted on any three days of the week of the customer's choosing;
> (5) In the low-use season beginning October 1 and ending May 31, watering is permitted during hours of the day at the customer's discretion, taking temperature and wind factors into account, but shall not exceed three days per week;
> (6) Water shall be allowed for construction purposes, but shall be used in an efficient manner and not result in runoff;
> (7) Potable water from within the District shall not be used to maintain dirt roads without application to the District;
> (8) Restaurants shall provide water to customers only upon request;
> (9) Non-commercial washing of privately owned vehicles, trailers, motor homes, buses or boats is not permitted unless such washing is made from a bucket and hose equipped with an automatic shut-off nozzle; and
> (10) Any use of water for any purpose, except as provided in Ordinance No. 68, which results in flooding or runoff onto hardscape, driveways, streets, adjacent lands or into gutters is prohibited. (District 2005 UWMP, p. 15.)

District Ordinance No. 72 is another formal water conservation and demand management measure employed by the District. Adopted in July 2001, Ordinance No. 72 establishes water budgets and requires water audits for all new and rehabilitated landscape areas greater than 500 square feet for industrial, commercial and recreational projects, and for developer-installed landscaping. (See Appendix H.) The water budget is allocated based on water tolerant plants and turf. If water usage is 10 percent or more above the budgeted amount in any given year, a water rate penalty is applied. If water usage is 10 percent or more below the budgeted amount in any given year, a water rate bonus is applied. (District 2005 UWMP, p. 12.)

Informal water conservation and demand management measures include, but are not limited to: the District's voluntary water survey program for single-family and multifamily residential customers; an aggressive pipeline and water meter replacement program that targets undersized and aging transmission and distribution pipelines to reduce leakages and replaces malfunctioning meters to ensure proper water accounting; and the District's ongoing public information and educational programs. (2005 District UWMP, pp. 9-15.)

3.5 GROUNDWATER SUPPLIES IN THE DISTRICT (WATER CODE § 10910(F))

In addition to its contractual rights to SWP supplies (discussed above in Section 3.4), the District is entitled to extract water from the Warren Valley Groundwater Basin and the Ames/Means

Groundwater Basin. SB 610 requires a separate analysis for groundwater supplies that may be used to serve a project. (Water Code § 10910(f).) Water Code Section 10910(f) states: "If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(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 … has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department [DWR] 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 characterized the condition of the groundwater basin, and a detailed description by the public water system … 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 … 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 … 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. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631 [i.e., the public water system's urban water management plan]."

(Water Code § 10910(f).)

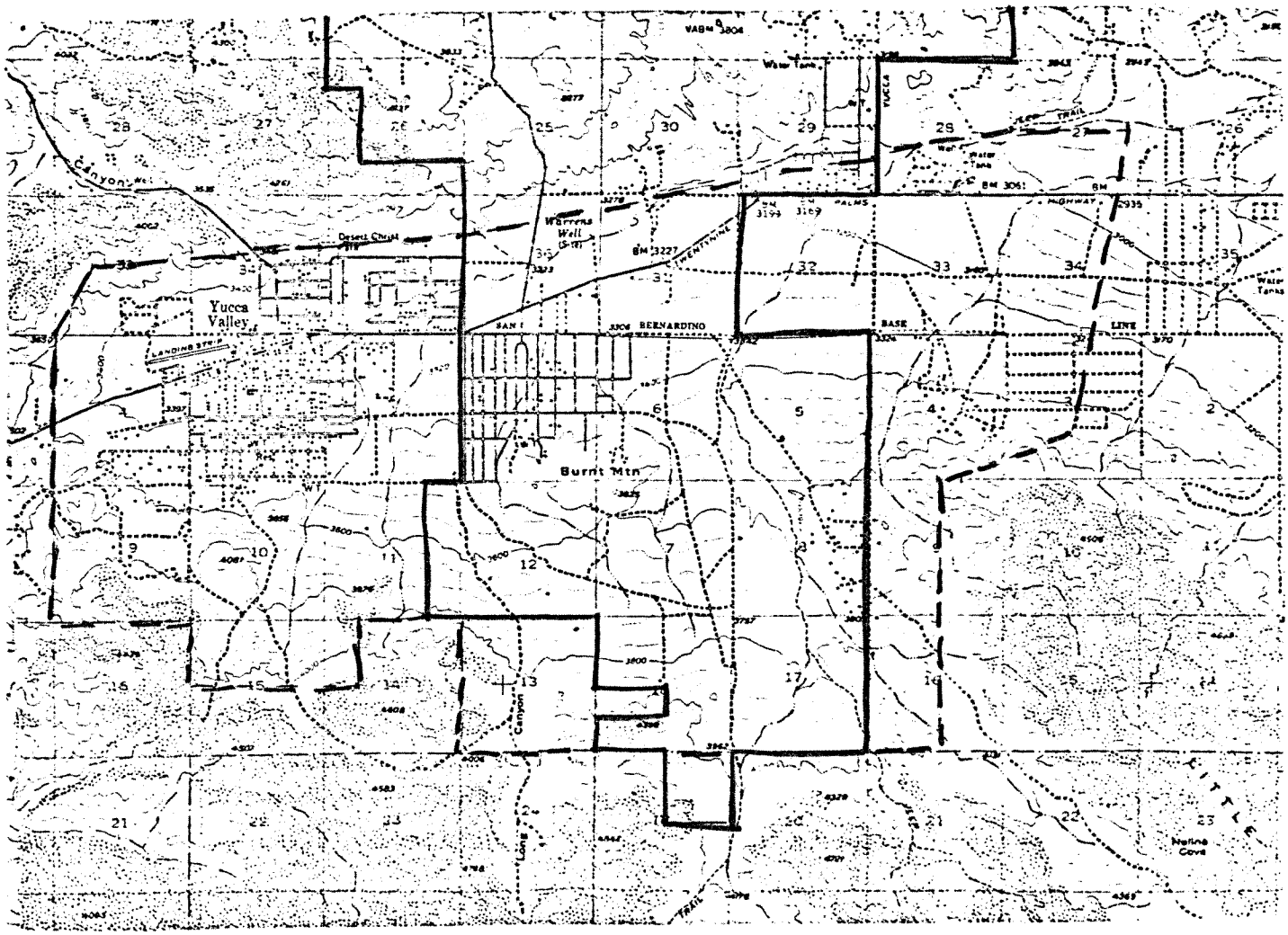
As set forth in this Section, most of the District's groundwater-related activities are focused in the Warren Valley Basin. The District operates one groundwater well in the Ames/Means Basin, however, that water is only utilized to serve customers in the Ames/Means Valley area and will not be used as part of the water supply to serve the Old Town SP Project. Thus, while a detailed description of the Ames/Means Basin is provided below and the groundwater from that Basin is identified as a part of the District's total water supplies, a full SB 610 analysis of the Ames/Means Basin is not required in this WSA since that groundwater source will not be utilized to serve the Project. (Water Code § 10910(f).)

3.5.1 Warren Valley Groundwater Basin

The Warren Valley Basin covers an area of approximately 26.9 square miles (17,200 acres) and lies entirely within the District's political jurisdiction. The Basin's boundaries and hydrology have been studied on numerous occasions and are described in several documents, including the District's 2005 Urban Water Management Plan, the 1991 Warren Valley Basin Management Plan, DWR's 2003 Bulletin 118, MWA's 2004/2005 Urban Water Management Plan, and the 1977 Judgment from San Bernardino County Superior Court Case No 172103. While each of these documents provides a unique description of the Basin and its history, there are no differences among those descriptions that affect the water supply analysis of this WSA. For this background discussion, the Basin's hydrogeologic description is based on DWR's 2003 Bulletin 118 since that document serves as a statewide technical authority for groundwater basins. The Basin's general boundary description is based on the 1977 Judgment since that document establishes the basis of the District's legally adjudicated right to extract groundwater from the Basin. (See Figure 3-1.)

A. Basin Information from the District's UWMP and Basin Description (Water Code § 10910(f)(1)-(2).)

The Warren Valley Basin includes the water-bearing sediments beneath the Town of Yucca Valley and surrounding unincorporated County lands. It is bounded on the north by the Pinto Mountain fault, on the south by the bedrock outcrop of the Little San Bernardino Mountains, on the east by a bedrock constriction known as the Yucca Barrier, and on the west by a bedrock constriction and a topographic divide between the Warren Valley and the Morongo Valley. The productive water-bearing materials in the Basin consist of unconsolidated to partly consolidated Miocene to Quaternary continental deposits. The main productive water-bearing deposits are unconfined interbedded gravels, conglomerates, and silts deposited in alluvial fan systems. (DWR 2004 Bulletin 118; Appendix H.)



GENERAL LOCATION MAP

WARREN VALLEY BASIN

Basin Boundary

District Boundary

Hi-Desert CWD v. Yucca W Co.
July 1, 1976

FIGURE 3-1

The District's 2005 UWMP provides relevant background information regarding the Warren Valley Basin adjudication and the subsequent physical solution that was developed and implemented to restore the Basin's water supplies. (2005 District UWMP, p. 3.) It appears the Basin fell into overdraft as early as the 1950s. Over time, as significant growth continued in the Yucca Valley area, the overdraft condition worsened and historic groundwater levels declined. (2005 District UWMP, p. 3.) Recognizing the severity of overdraft and need to develop an institutional framework to address the problem, the District filed a complaint seeking adjudication of all or substantially all groundwater rights within the Basin. (Hi-Desert County Water District v. Yucca Water Company, Ltd., San Bernardino Superior Court Case No. 172103.) A stipulated judgment was entered by the court on September 15, 1977 (the "1977 Judgment"). Pursuant to SB 610, a complete copy of the 1977 Judgment is included with this WSA as Appendix D. (Water Code § 10910(f)(2).)

B. Basin Adjudication and Judgment (Water Code § 10910(f)(2).)

The 1977 Judgment established the exclusive rights to extract groundwater from the Warren Valley Basin among overlying and appropriative right holders that were parties to the case. The two appropriative right holders were the District and the Yucca Water Company, Ltd. The District subsequently acquired the Yucca Water Company and its water rights in 1990. The overlying right holders are generally categorized as the Blue Skies County Club, 16 Minimal Pumpers with production rights limited to one acre-foot per year, and the Institute of Mental Physics. According the Judgment, groundwater production by the Institute of Mental Physics does not have a significant effect on the Basin because their production is made from a subsurface drainage area known as the zone of transmission that merely intercepts outflow from the Warren Valley Basin. (1977 Judgment, ¶ 10.) The groundwater extraction rights established by the 1977 Judgment are shown in Table 3-3 As a result of the District's 1990 acquisition of the Yucca Water Company, the District's adjudicated groundwater rights in the Basin total 1,622 acre-ft/yr.

Table 3-3
Warren Valley Basin Groundwater Pumping Rights

Party to the Adjudication	Pumping Right (Acre-ft/yr)
Hi-Desert Water District	896
Yucca Water Company[1]	726
Blue Skies Country Club	585
Institute of Mental Physics[2]	80
16 Minimal Producers	16
Total	**2,303**

1 The District acquired Yucca Water Company in 1990, giving the District a total extraction right of 1,622 acre-ft/yr.
2 Production by the Institute of Mental Physics occurs in the "zone of transmission" which captures Basin outflow.

In addition to limiting groundwater extraction rights in the Warren Valley Basin, the adjudication and 1977 Judgment ordered the development of a physical solution for the Basin and outlined several fundamental elements of that solution. (1977 Judgment, ¶ 17.) Notably, the Judgment does not limit groundwater production to the Basin's safe yield. Instead, the Judgment provides:

> "To restrict production of the basin to its native safe yield would frustrate all development and use of its resources. … In the ultimate development of the lands overlying the Warren Valley Basin, supplemental water supplies will be required. To that end, the lands overlying the Basin were included within the Mojave Water Agency, which has a contractual right to purchase supplemental water from the State Water Resources System. In addition, salvage conservation and reclamation may well afford additional supplemental water." (1977 Judgment, ¶ 17(a)-(b).)

The Court appointed the District as the Watermaster to administer and enforce the provisions of the Judgment, including the requirement to develop a physical solution capable of bringing supplemental water to the Basin. (1977 Judgment, ¶ 16.) In 1983, the Watermaster commissioned a geophysical study of the Basin to determine the configuration and prospective capacity of the Basin. The study concluded in part that the Basin contained approximately 45,000 to 59,000 acre-feet of remaining extractable water and that the total usable subsurface storage capacity of the Basin is approximately 160,000 acre-feet. (2005 District UWMP, p. 4.) Subsequently, an additional study concluded that in 1991 the Basin contained as much as 75,000 acre-ft of extractable water. (Fox and Egan, 1991 Appendix H)

In January 1991, the Watermaster adopted a final draft report of the Warren Valley Basin Management Plan (the "1991 Basin Plan"). (Appendix H.) The 1991 Basin Plan identified several activities to serve as key components of a physical solution for the Basin, including, but not limited to: voter-approval and construction of the Morongo Basin Pipeline; an aggressive water conservation program; settlement of litigation between the District and BDVWA; development of new water connection limitations and restrictions; ongoing evaluations of potential new imported water sources; and the District's purchase of the Yucca Water Company. (1991 Basin Plan, pp. 1.1-1.2.) As set forth throughout this WSA, each one of these components of the physical solution has been accomplished in the Basin.

The principal component of the physical solution developed under the 1977 Judgment and the 1991 Basin Management Plan was the construction of the 71-mile Morongo Basin Pipeline and related facilities to bring SWP water to the District. As set forth above in Section 3.4.1, those SWP supplies are utilized to replenish the Basin and to serve existing, planned and future water demands within the District's service territory. The District's first deliveries of SWP water through the Morongo Basin Pipeline occurred in 1995. Since that time, the District has engaged in groundwater recharge and banking efforts with SWP water that has allowed the District to build significant groundwater reserves in the Basin. According to the 2005 Annual Report of the Warren Valley Basin Watermaster, the District is "solely responsible for purchasing supplemental water. Securing supplemental supplies and monitoring water levels to ensure that there is adequate water in storage to meet the demands of the Basin is consistent with good water management practices and is a better use of available funds than preparing safe yield determinations." (2005 Watermaster Annual Report, p. 1; Appendix H.)

C. Amount and Location of Basin Pumping for the Prior Five Years (Water Code § 10910(f)(3).)

The District extracts water from the Warren Valley Basin from 17 groundwater production wells with pumping levels ranging between approximately 310 and 480 feet. (Figure 3-2.) The total amount of groundwater produced in the Basin by the District and other groundwater right holders between 1995 and 2005 is set forth below in Table 3-4.

Table 3-4
Historical Groundwater Production
Warren Valley Groundwater Basin
(acre-ft/yr)

Year	Warren Valley Basin		Total Production
	HDWD[1]	Private Pumpers[2]	
1995	1,613	350	1,963
1996	1,366	330	1,696
1997	2,142	424	2,566
1998	1,677	353	2.030
1999	1,883	342	2,225
2000	2,213	258	2,471
2001	2,167	330	2,497
2002	2,305	503	2,808
2003	2,553	256	2,809
2004	2,378	207	2,585
2005	2,388	230	2,618

1. Includes production of both adjudicated groundwater rights and contractual SWP supplies.
2. Includes Blues Skies Country Club, Minimal Producers, and Institute of Mental Physics.

D. Amount and Location of Projected Basin Pumping (Water Code § 10910(f)(4).)

The District expects that the location of its production wells in the Warren Valley Basin will remain substantially the same over the next 20-year period. To the extent any well relocation activity may be required or to the extent new or additional wells may be constructed, the District currently anticipates such relocated or new or additional wells would be located in substantially the same proximity as the District's existing wells. The District expects the amount of groundwater to be produced in the District over the next 20-year period will be limited to the amount of the groundwater extraction rights established by the 1977 Judgment plus extractions by the District of its previously stored SWP supplies to serve existing and future demands. The amount of projected extractions from the Basin to meet existing and future water demands is set forth in greater detail below in Section 3.6.

E. Sufficiency of the Basin to Meet Project Demand (Water Code § 10910(f)(5).)

The District's utilization of the Warren Valley Basin to coordinate its groundwater rights, its SWP water rights, and local return flows provides a significant degree of reliability to the

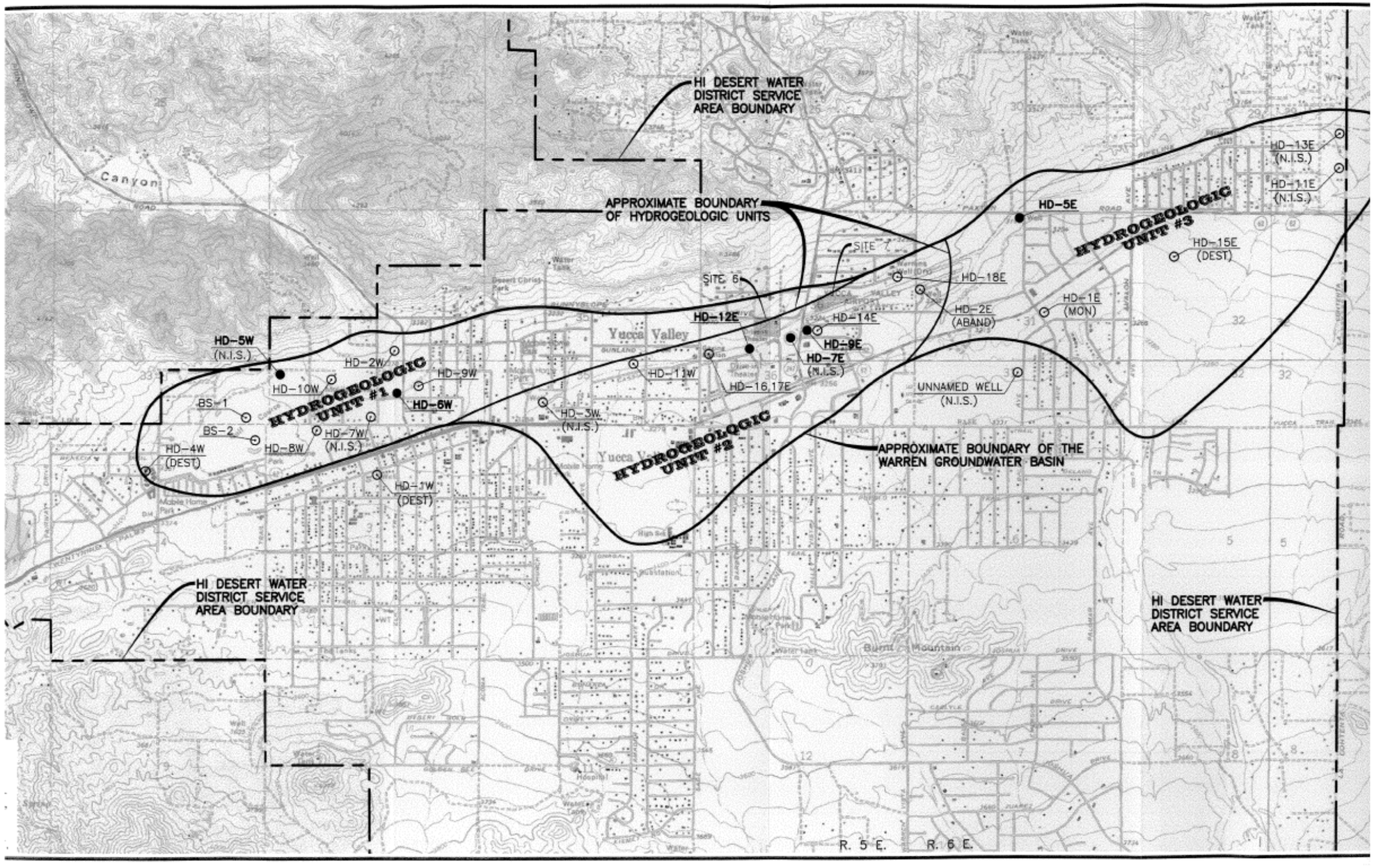


Figure 3-2
Well Location Map – Warren Valley Basin

District's overall water supply portfolio. As indicated above, water provided to the District's customers in the Warren Valley Basin is local groundwater that is augmented and replenished with SWP supplies obtained from MWA and delivered to the District through the Morongo Basin Pipeline. The SWP provides a water supply to millions of water users throughout the State and its reliability is carefully projected and accounted for by DWR and MWA. (See discussion above in Section 3.4.1.B regarding DWR Reliability Reports and MWA's UWMP and UWMP Update.) However, even though SWP supplies can be subject to dry-year reductions, the District's Basin supplies remain reliable because SWP water previously stored in the Basin in excess of District demands can be extracted during dry periods to serve the District's customers. This type of water supply reliability is expressly recognized by DWR and MWA. MWA describes the District's use of the Basin as follows:

> The groundwater basins act as the primary water storage facility for the MWA service area, and all water supplies generated within the MWA or imported from outside MWA are recharged into the groundwater basins for future use. This provides water users in the basins with a buffering capacity to absorb the effects of dry years without an immediate impact on water supply availability. (2005 MWA UWMP Update, p. 11.)
>
> Because water use within the MWA service area is supplied entirely by groundwater, MWA does not have any inconsistent water sources that cause reduced deliveries to users within the service area. … While many of the sources that recharge the groundwater basin have high annual variability, including … supplies from the State Water Project, the groundwater basins used within the MWA service area are sufficiently large to allow for continued water use during dry periods with only a temporary decline in groundwater levels. (2005 MWA UWMP Update, p. 20.)

DWR shares the same opinion regarding the District's ability to manage its water supply reliability by coordinating its diversified water rights through use of the Warren Valley Basin:

> The local provider may have access to local surface water and groundwater supplies, to reclaimed water, or to other sources of imported water, which have different levels of reliability. If so, the local provider will manage all sources of supply together, each with its individual degree of reliability, to enhance overall reliability. It is also at the local level that demand itself may be managed to meet supply through conservation, water use efficiency, drought response planning, and land use planning decisions made by local jurisdictions. (2002 DWR Reliability Report, p. 21; Appendix H.)

As indicated above, the District is responsible in its role as a county water district and as Watermaster under the 1977 Judgment for managing water resources in the Warren Valley Basin. The Basin's reliability is characterized by the District's access to multiple sources of water, including groundwater, contractual SWP supplies, surplus SWP supplies and return flows, and the District's ability to store those resources in the Basin for later use. Also discussed above, the Basin's reliability is furthered by the various water conservation and demand management measures implemented by the District. Indeed, the ultimate reliability of the Basin is defined by the District's growth-limiting reserve policy which ensures a sufficient amount of groundwater supplies remain in the Warren Valley Basin to serve existing and future needs of the District. In December 2003, the court overseeing the 1977 Judgment approved a growth-limiting measure that restricts the number of water meters issued by the District in the event Basin reserves fall below prescribed levels. The 2003 Order establishes the following limitations:

> Stage 1: In the event reserves are equal to or fall below 5 years or 500 percent of water demand for that particular year, the Watermaster shall implement a two percent growth limitation.
>
> Stage 2: In the event reserves are equal to or fall below 4 years or 400 percent of water demand for that particular year, the Watermaster shall implement a one percent growth limitation.
>
> Stage 3: In the event that reserves are equal to or fall below 3 years or 300 percent of water demand for that particular year, the Watermaster shall implement a zero percent growth limitation.

In response to this court-approved methodology, the District adopted Policy No. 26-04 which implements the same three-stage limitation on the issuance of new water meters in the District. A copy of this Policy in included in Appendix F. The intent and effect of District Policy No. 26-04 is to ensure the District maintains sufficient water supplies to meet current and future demands during dry years without causing a significant depletion of accumulated Basin reserves. The District has not been required to enforce the terms of Policy No. 26-04 since its adoption because Basin reserves have not fallen below the 5-year level.

F. Watermaster Reports

Each year, the Warren Valley Basin Watermaster ("Watermaster") issues a report addressing current conditions in the Warren Valley Basin relating to matters such as seasonal precipitation, water demand and production, water deliveries from outside the Basin, and existing water levels and trends. As indicated in the 2005 Watermaster Report, the Basin is comprised of three main hydrologic units which are monitored by Watermaster/District staff according to water levels of key wells located in each unit. [DJR1](2005 Watermaster Report, p. 5.)[1] The 2005 Report concludes that static water levels in each of the hydrologic units have risen since 1995-1996, as follows:

[1] As of the date of this WSA, the 2006 Watermaster Report has not been issued.

> Hydrologic Unit #1: Well #5W experienced an initial increase in the groundwater elevation during the 1992-93 water year of about 75 feet, the water level has since maintained a steady increase of about 3 feet per year. During the 2004-05 water year, the groundwater elevation increased approximately 12 feet and is currently 35 feet above the 1993 level. This represents an increase in groundwater elevation of about 121 feet from the 1992 level when the Watermaster began reporting. Well #6W had risen steadily through the 2001-02 water year and was about 50 feet above the 1992 level. During the 2002-03 water year the groundwater elevation decreased about 17 feet, however, during the last two years the groundwater level has increased 10 feet and 20 feet respectively and is currently about 65 feet above the 1992 level.
>
> Hydrologic Unit #2: Well #7E shows an increase in groundwater elevation of about 40 feet from the 2004 level. Although this shows a decrease in water level of about 75 feet from the previous high reading of 1998 it is still about 145 feet above the 1992 level. Well #9E shows a decrease of about 7 feet from last year's level, however, this still shows an increase of 145 feet over the last five years and an overall increase of about 275 feet above the 1992 level. Well #12E had shown a decrease of about 70 feet from 2001 through 2003, however, during the 2003-04 and 2004-05 water years, the water level has increased about 10 feet and 145 feet respectively and is currently about 345 feet above the 1992 level.
>
> Hydrologic Unit #3: Well #5E shows a decrease in the groundwater elevation of about 48 feet from the 2004 level, however, this still represents an increase of about 38 feet above the 1992 level.
>
> (2005 Watermaster Report, p. 5.)

As of June 2006, the Watermaster estimates that total recharge in excess of extractions will total approximately 21,910 acre-feet for year 2005-06, which represents an approximate 7.1-year groundwater reserve based on current production levels. (June 13, 2006 Warren Valley Basin Watermaster Update of Water Reserve Levels; Appendix H.)

3.5.2 Ames/Means Valley Groundwater Basin

As indicated above, the District operates one groundwater well in the Ames/Means Basin. However, as required by the Ames Basin Agreement, that water is only utilized to serve customers in the Ames/Means Basin area and will not be used as part of the water supply to serve the Old Town SP Project or any other District demands in the Warren Valley Basin. Nevertheless, this WSA provides a detailed description of the Ames/Means Basin since groundwater produced by the District from that Basin is identified as a part of the District's total water supplies. As used in this WSA, the Ames/Means Basin includes the Ames Valley basin as designated by DWR. The following basin descriptions are based on information in DWR Bulletin 118. (DWR, 2004; Appendix H.)

The Ames Valley Basin covers an area of 169.7 square miles (110,000 acres). The Basin underlies Ames Valley, Homestead Valley, and Pipes Wash in the south-central portion of San

Bernardino County. The Basin is bounded by non-waterbearing rocks of the San Bernardino Mountains on the west, Iron Ridge on the north, and Hidalgo Mountain on the northeast. The Emerson, Copper Mountain, and West Calico fault also form parts of the eastern and northern boundaries. A surface water drainage divide with the Copper Mountain Valley Basin forms the southern boundary. The water-bearing materials in this Basin consist of unconsolidated to partly consolidated Miocene to Quaternary age continental deposits. The main water-bearing deposits are interbedded gravels, conglomerates, and silts deposited in alluvial fans. Other less productive deposits include alluvial channel sands and gravels, silt, clay, sandy-clay deposits in Emerson Lake playa, and dune sands. The total storage capacity is estimated to be 1,200,000 acre-feet. (DWR, 2004; Appendix H.)

In approximately 1987, the District contracted with the Mainstream Water Development Company to construct and receive water from a groundwater production well in the Ames/Means Basin. BDVWA protested construction of the well which resulted in litigation between the District and BDVWA. In 1991 the District and BDVWA entered a settlement agreement (the "Ames Basin Agreement") which resolved the litigation and established terms and conditions for the District's production of groundwater from the Ames/Means Basin. Pursuant to the Ames Basin Agreement, the District is entitled to extract 800 acre-ft/yr of groundwater from the Basin. In addition, the amount of water pumped in the Basin may be increased depending on the water needs of property owners within the Basin by an amount equal to 0.5 acre-ft/yr for each new residential meter installed by the District within the Basin. (Ames Basin Agreement, p. 2, Section 2; 2005 District UWMP, pp. 4-5.)

The District extracts groundwater from the Ames/Means Basin through a production well located in Section 24, Township 2 North, Range 5 East, SBBM in San Bernardino County, also referred to as the Mainstream Well #24E. (Ames Basin Agreement, p. 1; 2005 Watermaster Report, Table 2.) The amount of water produced by the District from the Mainstream Well over last five years is set forth in the 2005 Watermaster Report as follows: 706 acre-feet in 2000-01; 755 acre-feet in 2001-02; 549 acre-feet in 2002-03; 723 acre-feet in 2003-04; and 522 acre-feet in 2004-05. (2005 Watermaster Report, Table 2.)

The District currently expects the location of its groundwater production in the Ames/Means Basin to remain constant and to continue from the Mainstream Well. To the extent any well relocation or reconstruction may be required, or to the extent the District utilizes any additional wells to extract groundwater from the Ames/Means Basin, such activity would be carried out under the terms of the Ames Basin Agreement. The District expects the amount of its groundwater production from the Ames/Means Basin over the next 20-year period will be limited to the amount allowed under Section 2 of the Ames Basin Agreement. Currently, the District estimates that amount will not exceed approximately 960 acre-ft/yr under 2028 conditions.

Under the Ames Basin Agreement, the parties established and implemented a groundwater monitoring program to ensure production from the Mainstream Well would not result in environmental damage to the hydrologic resources of the Ames Means Basin. Under the monitoring program, representatives from the District and BDVWA collect, measure and record well data to ensure water levels and water quality of the Basin are not negatively affected by the

District's use of the Mainstream Well. (Ames Basin Agreement, Sections 3.0-3.4.) As indicated above, it is important to note for purposes of SB 610 that groundwater produced by the District from the Ames/Means Basin can be utilized only in the Ames Valley area. (Ames Basin Agreement, p. 2, Section 2.) Therefore, this water source will not be utilized to serve the proposed Project or any other District demands in the Warren Valley Basin.

3.6 HISTORICAL AND PROJECTED WATER DEMANDS WITHIN THE DISTRICT

This section describes historical and projected water demands in the District, as well as the projected water demands associated with the proposed Project.

3.6.1 Historical Water Demands

The District utilizes multiple sources of water to serve the demands of its customers in the Warren Valley Basin, all of which are extracted from groundwater production wells in the Warren Basin. As indicated throughout this WSA, prior to construction of the Morongo Basin Pipeline and before the District had obtained rights to SWP supplies, all water demands within the District were met from local groundwater resources. Since the Morongo Basin Pipeline was completed and the District began importing SWP supplies to the Warren Valley Basin in 1995, water demands within the District have been met from a combination of the District's groundwater rights and contractual SWP supplies. The District does not provide SWP water directly to any of its customers. Rather, all SWP supplies received by the District are recharged into the Warren Valley Basin and extracted later as part of the District's combined groundwater and SWP water rights to meet the District's water demands. Hence, historical production in the District is generally synonymous with historical demand. Total historical demands in the District, including demands of the District's customers and demands of other groundwater producers under the 1977 Judgment, are summarized below in Table 3-5. It should be noted that about 80 percent of the District's water demands overlie the Warren Valley Basin.

Table 3-5
Historical Water Demands
(acre-ft/yr)

Year	Blue Skies Country Club	Institute of Mental Physics	Minimal Producers	HDWD	Total Demand
1995	320	14	16	2,724	3,074
1996	300	14	16	2,906	3,236
1997	394	14	16	2,741	3,165
1998	323	14	16	2,528	2,881
1999	312	14	16	2,657	2,999
2000	228	14	16	2,814	3,072
2001	300	14	16	2,823	3,153
2002	473	14	16	3,101	3,604
2003	226	14	16	3,126	3,382
2004	177	14	16	3,188	3,395
2005	200	14	16	2,975	3,205

Reference: 2005 Watermaster Report, Table 2

As described above in Section 3.4.3, the District has implemented various water conservation and demand management measures to reduce overall water demands in the District. The following non-exclusive list provides an overview of the various programs currently in effect:

> (1) Residential plumbing retrofit and low-flush fixture replacement program, District Resolution 90-4;
> (2) Landscape water budgeting and incentive program, District Ordinance No. 72;
> (3) Prohibitions on water use resulting in waste, District Ordinance No. 68;
> (4) Voluntary water survey program for single-family and multifamily residential customers;
> (5) Pipeline and water meter replacement program;
> (6) Conservation pricing and rate structures; and (7) Ongoing public information, outreach and educational programs. (2005 District UWMP, pp. 9-15.)

Although the District has not quantified the total annual water savings realized from these conservation and demand management measures, they contribute to the very low per capita water consumption rate in the District, which the District has estimated to be 0.28 acre-ft/yr per service connection. (2005 District UWMP, p. 2.)

3.6.2 Projected Water Demands Within the District

Under SB 610, a public water system providing a sufficiency analysis must determine "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." (Water Code § 10910(c)(3).) An issue that arises under this standard is what projects the public water system should include within its "planned future uses" when calculating total projected water demands over the ensuing 20-year horizon.

It should be noted that the language of SB 610 does not specifically require public water systems to identify water supplies that may be available to serve projected population estimates.[2] Instead, SB 610 requires an evaluation of whether total projected water supplies will meet the projected water demand of the proposed Project in addition to existing and "planned future uses." The term "planned future uses" is not defined by SB 610. However, the California Department of Water Resources Guidebook for Implementation of SB 610 and SB 221 states: "[I]t 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." (DWR Guidebook, October 8, 2003, pp.

[2] On the other hand, the Urban Water Management Planning Act (Water Code § 10610 *et seq.*) specifically requires urban water management plans to describe projected population estimates in five-year increments, based on data from applicable state, regional, or local agencies, and to identify and quantify the existing and planned sources of water available to the water supplier over the same five-year increments. (See Water Code §§ 10631(a)-(b); 10635.) This type of analysis required for urban water management plans does not appear required for water supply assessments under the language of SB 610.

23, 67; Appendix H.) According to DWR, planned future uses may include "proposed developments that have a reserved (or entitlement to) future water supply and are considered to be moving towards construction." (DWR Guidebook, pp. 23, 67.) The DWR Guidebook further states: "[P]roposed 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." (DWR Guidebook, pp. 23, 67.) Thus, SB 610 does not appear to require this WSA to compare the District's total projected water supplies to a water demand associated with a projected population growth rate in the District over the next 20 years for which construction applications or approvals have not been initiated or granted. Notwithstanding, as a conservative measure, this WSA provides such an analysis.

A. Projected Water Demands Associated with the Project

The total projected water demand of the Old Town SP Project is 527 acre-ft/yr at full build-out, of which 367 acre-ft/yr represents increased demand as evaluated in this WSA. (See Section 2.3 and Table 2-2) Due to lack of information on the timing of the project, for the purpose of this WSA, it is assumed that the growth in water demand within the project area will occur linearly over a 50-year period starting in 2008 and ending in 2057. This results in an annual growth in demand of 18.4 acre-ft/yr. Beyond 2057, the Project's water demand remains constant at 367 acre-ft/yr.

B. Projected Water Demands Associated with the Proposed Project in Addition to Existing and Planned Future Uses Identified by the Town of Yucca Valley (Water Code § 10910(c)(3).)

According to information obtained from the Town of Yucca Valley, approximately 62 other development projects are under some stage of consideration by the Town. (Figure 3-3; Appendix G.) These proposed development projects are estimated to include approximately 984 single-family and multifamily residential units and 27 retail and commercial developments. In addition, the proposed Mountain Vista development will add 1,420 residential units. The projects and the water usage rates associated with these land uses are summarized below in Table 3-6.

Table 3-6
Estimated Water Demand of Planned Future Developments
Town of Yucca Valley

Development Type	Residential Dwelling Units	Non-residential (Equivalent Dwelling Units)	Total (Equivalent Dwelling Units)
Mountain Vista[1]	1,420	64	1,484
Other Residential	984	0	984
Retail/Commercial	0	340	340
Total Units (EDUs)	2,404	404	2,808
Unit Water Demand	0.328 acre-ft/yr	0.328 acre-ft/yr	
Total Demand	788.5 acre-ft/yr	132.5 acre-ft/yr	921 acre-ft/yr

1 Demand for Mountain Vista from Water Supply Assessment for Mountain Vista Development (HDWD, 2007).

Active Projects

January 2007

Town of YUCCA VALLEY

SCALE: 1" = 1,500'

0 0.1 0.2 0.3 0.5 0.75 1.0

Scale In Miles

Updates By:

Warner engineering

CIVIL ENGINEERING PLANNING LAND SURVEYING

Project Summary Index

1. SPR-08-05 (Daniel Zwicker): Proposal to construct 2,659 SF office/retail building on NW corner of Fox Tr. and 29 Palms Hwy. APN 586-332-07

2. SPR-01-04 & PM 16204 (Vena Nathraj): Proposal to allow the construction of a 94-room, 3-story hotel, over 2 phases, and to divide a 3.73 acre parcel into 2 parcels. The proposed site is located on the southeast corner of SR 62 and Palm Avenue.

3. CUP-07-03 & Vesting PM 16506 (In-N-Out Burger): Proposal to construct a 3,220 S.F. fast food restaurant with drive-thru lane and a proposal to merge four existing parcels resulting in a single 1.5 acre site. The site is located on the northeast corner of SR 62 and SR 247.

4. SPR-01-03 (Chris Velasquez): Proposal to construct 12,000 sq. ft. of retail/office building located at 57466 29 Palms Hwy/ east of Joshua Lane. APN 595-191-02

5. CUP-02-04 / SP-01-04 / PM 16632 (Yucca Valley Retail Center - DRC, Inc.): A proposed 27-acre retail center that will include a 215,000 S.F. Wal-Mart Super Center. The parcel map proposes to subdivide the site into 8 commercial parcels. Seven of the 8 parcels will be to accomodate future commercial development. A specific plan and EIR are being prepared for the site.

6. TM-16587 / GPA-01-04 (Danmark Development): Proposal to subdivide approximately 33 acres into 57 residential lots. Site is located on the northeast corner of Acoma Trail and Zuni Trail.

7. CUP-05-04 (Morrison & Heard): Proposal to construct a Mini Storage facility, located at the northwest corner of Hopi Trail and Benecia Trail, APN 586-381-08 and 586-081-03 & 12.

8. PD-01-04 / TM 16471 amended (Fast Building Systems): Proposal to develop 106 lot manufactured housing park located on Palm Avenue, APN 587-091-02, 03, 34 & 35.

9. TM 16957 (Living Space, GP.): Proposal to subdivide approximately 20 acres into 34 lots ranging in size from 14,000 S.F. to 20,000 S.F., located about 800 feet south of Joshua Drive on the east side of Acoma Trail.

10. SPR-02-04 & V-02-04 (Larry Burge): Proposal to construct 6 multi-family units, including private and common open space, on an approximate 32,000 S.F. lot located on the southeast corner of Palo Alto and Alta Vista Drive.

11. CUP-02-06 / EA-04-06 (James Vickery): Proposal to construct a mini storage facility at Yucca Tr. / WALL ST., APN 594-041-22, 27, 28 & 44

12. PM 17600 (Living Space): Proposal to divide .66 acres into 2 lots on the east side of Elk Tr. one lot North of Pueblo Tr. APN 586-363-04

13. TM 16786 (Dr. Rui Da Silva): Proposal to divide 10 acres into 4 parcels, each 2.5 acres, located about 300 feet west of Joshua Lane on the south side of Vera Lane.

14. PM 18035 (Thomas Kaptrik): Proposal to subdivide .37 acres into 2 residential lots on NE corner of Shawnee Tr./ Navajo Tr. APN 586-182-03

15. PM 16435 (Lightner Enterprises): Proposal to divide a 34,200 S.F. parcel into 3 residential lots ranging in size from 9,500 S.F. to 15,200 S.F. Site is located on the southeast corner of Pueblo Trail and Elk Trail.

16. CUP 09-05 (Valley Comm. Chapel): Proposal to build a multi-purpose room at 59025 Yucca Tr. APN 588-041-42

17. TM 18011, GPA 02-06 RZ 02-06, EA 20-06 (Specialty Homes): Proposal to rezone RL-5 ro RL-1 and subdivide into 12 residential lots. SE corner of Challa Ave. / Joshua Dr. APN 585-131-11

18. SPR-02-03 & TM 16649 (40 Villas): A proposal to construct 40 condo dwelling units and related recreation amenities. The project site is located on the northeast corner of Camino del Cielo and Martinez Trail.

19. SPR-05-04 (Horak): A proposal to construct a 17,786 S.F. single-story professional office and retail building located on the corner of SR 62 and Hopi Trail.

20. CUP 04-06/ EA 09-06 (De Pierro): Proposal to build an ARCO/ AM-PM with 8 pumps & a 2,880 s.f. store, drive-thru mini car wash; 3,000 s.f. fast food and 9,900 s.f. retail &/ or restaurant. SE corner Balsa @ SR62. APN 601-412-12; 20 & 21

21. CUP 05-06 (Alcoa/Nextel-Sprint): Proposal to construct a 75 ft. mono palm cell phone tower and plant 3 live 35 ft. palm trees on the NW corner of Oracle Plaza. SE corner of Warren Vista @ SR62. APN 601-601-25

22. CUP 01-06 (Hutchins Motor Sports) Proposal to construct a 15,000 sq ft motor sports dealership located on the south side of 29 Palms Hwy between Prescott Ave & Hanford Ave. APN: 601-412-22

23. TM 16787 (Rondel Enterprises): A proposal to subdivide 98 acres into 54 residential lots. Site is located northerly of Crestview Drive and westerly of Old Woman Springs Road, APN 595-152-01 & 596-201-03.

24. TM 16733 (Arthur Schultz): A proposal to subdivide 90 acres into 17 residential parcels. Site is located between Camilita Circle and the eastern town boundary, APN 589-051-11, 14, & 15.

25. TM 11740 (Rob Koste): Dove Run - proposal to construct a 91-unit condo project. Site is located on south side of Onaga Trail between Warren Vista Avenue and Hilton Avenue.

26. EA-01-05 / GPA 03-05 / RZ 03-05 / TM 17340 (Century Homes): A proposal to subdivide 476 acres into 1,667 residential lots. Site is located at the southwest corner of the intersection of Yucca Trail and La Contenta Road., APN 588-041-2, 3, 44, 39, 40, 22, 23, 28, 24, 25, 27, & 26.

27. SPR-01-06 / EA-07-06 (Soon Kim): Addition to existing hotel. 7500 Camino Del Cielo

28. TM 17328: Proposal to subdivide 9.35 acres into 17 residential lots, located on the southwest corner of Emerson Avenue and Yucca Trail, APN 588-311-09.

29. CUP-02-05 (Byron Guss): Proposal to construct a mini storage and RV storage facility between Canyon Lane and State Route 247 (Old Woman Springs Road), APN 597-091-07 & 29.

30. TPM 17012 (Andono Sprecher): Proposal to subdivide 5 acres into 4 residential lots, located on the southwest corner of Temez Trail and Mountain View Trail, APN 586-211-05.

31. TM 17354 (Yucca Valley 87, LLC): Proposal to subdivide 87 acres into 61 residential lots, located south of Carlyle Drive, between Church Street and Challa Avenue, APN 585-131-63.

32. TM 18421, SPR 05-06, GPA 03-06, RZ 03-06, EA 22-06 (Nikolias Ventures): Proposal to rezone C-MU to RM-10 and construct 108 condo units. East side fo Warren Vista, 500 feet south of SR 62. APN 601-601-01 THRU 24

33. SPR-06-05 (Salsha Enterprises, LLC): Proposal to remodel an existing structure in a mixed use retail development located at 57725 29 Palms Hwy. APN 601-601-25

34. PM 17093 (Paul Cook/Jean Smith): Proposal to subdivide 10 acres into 4 residential lots, located at the southeast corner of Cortez Drive and Dulce Avenue, APN 589-011-21.

35. TM 17240 (Lean Strand): Proposal to subdivide 2.5-acre parcels into a total of 4 2.5-acre parcels, located south of Terbush Avenue and west of Balsa Avenue, no APN available yet.

36. CUP-06-05/ PM 17455: A proposed retail center on a 38-acre site. A specific plan and EIR are being prepared for the site. The project will be divided into 4 parcels containing a restaurant, three retail buildings and a 138,000 S.F. Home Depot store, located easterly of Avalon Avenue and south of SR 62. APN 601-201-31 and 601-201-32.

37. TM 17862 GPA-01-06 / RZ-01-06 (Bill Shack): Proposal to subdivide 4 parcels into 105 lots rezone RL-5 to RS-3.5 APN 585-071-16, 17, 25 & 26

38. SPR 04-06 (Therioc Enterprises) Proposal to construct a 12,000 sq. ft. medical building located at SE corner 29 Palms Hwy/Hanford Ave. APN 601-412-17

39. CUP 04-02 (Culver Construction): Proposal to construct a contractor's yard on the northwest corner of Wamego Tr. and Sunland Ave. APN 594-051-28 and 29

40. PM 17271 (Ted Phillips / Janet Grace): Proposal to subdivide 10 acres into 4 2.5 acre residential lots, located SE corner of Warren Vista / Santa Barbara, APN 598-011-03

41. TM 17633 (Burret Mountain Haciendas): Proposal to subdivide 42.64 acres into 61 residential lots, located SW corner Palomar Avenue / Onaga Trail, APN 601-412-20 & 21

42. CUP 06-06 (Mendlik): Proposal to operate a wholesale plumbing supply bisiness in existing 5,400 sq. ft. warehouse at 57420 Aviation Dr. AON 595-211-05

43. SPR 02-06 (Dollar Tree Store): Proposal to build an 11,130 s.f. store and 7 leasable spaces totaling 10,680 s.f. (next to Stater Bros.) on Balsa north of SR62. APN 601-402-19 & 601-012-30

44. TM 17378/EA-17-05 (Living Space): Proposal to subdivide 18.4 acres into 32 residential lots. APN: 585-131-80

45. TM 17379/EA-18-05 (Living Space): Proposal to subdivide 18.4 acres into 32 residential lots. APN: 585-131-82

46. SPR 03-06 (O'Connor): construct 3,477 sq. ft. office bldg w/ parking & landscape @ the NE cornerof Palm Dr. & Antelope. APN 595-081-24

47. TM 18056 (Melby): Divide 2 lots totaling 2.2 acres into 4 SFR lots. NE Corner of Challa a Buena Vista. APN 595-061-14 & 15

48. TM 17476 EA 02-06 PD 01-06 (Silvatex): Divide 58 ac into 40 SFR lots Planned Development w/ open space, debris & retention basins. APN 601-021-40 & 43

49. CUP 08-06 (Omnipoint Communications, Inc.) Proposal to construct a 45' cell tower located at 7248 Joshua Lane APN 595-171-05

50. CUP 07-06 (Verizon Wireless) Proposal to construct an 80' cell tower Located on Paxton hill at the southern terminus of Serin Drive. APN 598-011-07

51. PM 18321 (Marcos Ocequeda) Proposal to subdivide one parcel into two residential lots located at SW corner of Papago Tr and Borrego Tr. APN 587-063-10

52. PM 18009 (Robert & Amelia Smith) Proposal to subdivide 2.5 acres in 2 residential lots located at SW corner Yucca Tr and Valley Vista. APN 601-412-17

53. PM 17784 EA 18-06 (Phyllis Haley): Proposal to subdivide 5 acres into 2 lots. Balsa Ave./Vaduz Ave.

54. TM 17958 PD 02-02 (Yucca Estates): Proposal to subdivide 20 acres into 20 residential lots. Palomar Ave./Desert Gold Dr. APN 588-031-12

55. TM 18312 EA 19-06 (Tamina Development): Proposal to subdivide 7.5 acres into 14 residential lots. Church st./Onaga Ave. APN 587-011-02 & 03

56. CUP 09-06 EA 23-06 (Morongo Basin Transit Authority): Proposal to construct a bus transfer station. Yucca Tr./Airway Ave. APN 595-182-03 THRU 06

FIGURE 3-3

According to the water schedules described above, the total projected water demand associated with other "planned future" projects within the Town of Yucca Valley is approximately 921 acre-ft/yr. Based on this analysis, Table 3-7 sets forth the total projected water demand in the District's service area with and without the Old Town SP Project, in addition to existing and planned future water uses in the District, including agricultural and manufacturing needs. (Water Code § 10910(c)(3).) For purposes of this water supply assessment, it is assumed that these developments would be constructed between 2008 and 2015. The District and the Town of Yucca Valley have not identified any planned agricultural or manufacturing needs over the next 20-year period.

Table 3-7
Projected Water Existing and Planned Future Demand

Water Use	Water Demand (acre-ft/yr)
Existing Uses	2,510
Planned Future Uses (including Mountain Vista Project)	921
Total – Existing and Planned Future Uses	**3,431**
Old Town SP Project (net increase in demand)	367
Total – Existing and Planned Future Uses with Old Town SP	**3,798**

C. Projected Water Demands Associated with the Proposed Project in Addition to Existing Demand and Demand Associated with a Projected 2.3 Percent Annual Increase in Water Demand

As noted above, this WSA provides a conservative analysis that estimates future water demands in the District associated with the proposed Project plus a projected 2.3 percent annual increase in water demand in addition to the demands associated with the Mountain Vista and Old Town SP Project. The District reviewed several informational sources in arriving at a projected 2.3 percent annual population growth rate. For instance, MWA's 2004 UWMP estimated an average population growth rate of 2.4 percent for the Warren Valley and 2.2 percent for the Ames/Means Valley between 2000 and 2020. (2004 MWA UWMP, p. 5-18.) MWA's 2005 UWMP Update lowered those estimates to a projected 2.1 percent growth rate for both the Warren Valley and the Ames/Means Valley between 2005 and 2030. (2005 MWA UWMP Update, p. 13.) The California Department of Finance has projected the annual growth rate for San Bernardino County as 1.8 percent from 2020 to 2030. The Southern California Association of Governments (SCAG) projected a population growth rate of just 0.7 percent for the County in 2004.

As a conservative measure, the District assumes for purposes of this analysis that the District will experience a projected annual increase in water demand over the next 20-year period based on 2.3 percent of the estimated demand in 2006 in addition to the growth associated with the Mountain Vista Project and the Old Town SP Project. This base demand increase equates to 58 acre-ft/yr or 176 new connections per year. Table 3-8 presents the total projected water demands in the Warren Valley Basin with and without the Old Town SP Project, in addition to existing demand and a projected 2.3 percent annual water demand increase. This analysis includes projected HDWD water demands in the Warren Valley Basin because increased demands in the

Ames/Means Basin will be served from the Mainstream Well and not from water produced in the Warren Basin. (See Section 3.4.2 above regarding the Ames Basin Agreement, p. 2, Section 2.) In addition, demands of the overlying producers in the Warren Valley Basin as set forth by the 1977 Judgment are not included as part of the District's demands because those overlying rights are adequately satisfied by the Basin's safe-yield of 900 acre-ft/yr. Accordingly, the overlying producers in the Warren Basin are not served from the District's adjudicated groundwater rights under the 1977 Judgment or from the District's rights to SWP supplies.

Table 3-8
Projected Water Demand with Old Town SP Project – 2.3 Percent Growth Rate
(acre-ft/yr)

User	2008	2013	2018	2023	2028
HDWD – Warren Valley[1]	2,744	3,338	3,748	4,037	4,325
Old Town SP Project (net increase)[2]	7	44	81	118	154
Total Demand (w/ Old Town SP)	**2,751**	**3,382**	**3,829**	**4,155**	**4,479**

1 HDWD – Warren Valley demand includes existing customers, an annual increase of 58 acre-/yr (2.3 percent of existing demand) and projected demand for the Mountain Vista development.

2 The net demand increase is used because the existing demand of the Old Town area is included in the existing demand projection.

3.7 SUFFICIENCY ANALYSIS

This section incorporates the information and discussion above and analyzes whether the District's total projected water supplies available during normal, single dry, and multiple dry water years during the next 20-year projection will meet the projected water demand associated with the proposed Old Town SP Project in addition to the District's existing and planned future uses, including agricultural and manufacturing needs. (Water Code § 10910(c)(3).) Consistent with the analysis provided above in Section 3.6, this sufficiency analysis considers alternative demand scenarios in the District over the 20-year period, 2008-2028.

Specifically, this analysis compares both (1) the District's total projected water supplies to the projected water demand associated with the proposed Project in addition to the District's existing and "planned future uses" in the Warren Valley Basin as identified by the Town of Yucca Valley; and, as a conservative measure, (2) the District's total projected water supplies to the projected water demand associated with the proposed Project in addition to the District's existing demands and the demands associated with a projected 2.3 percent annual water demand increase in Warren Valley Basin over the next 20 years. For each of these alternative analyses, additional scenarios are presented to determine whether the District's total projected water supplies are sufficient to serve the proposed Project during normal, single dry, and multiple dry water years. For the single and multiple dry year analysis, it is assumed that the years prior to the analysis have experienced normal (average) deliveries of SWP water.

As indicated below, the District will utilize a combination of its adjudicated groundwater rights in the Warren Valley Basin and its SWP supplies to serve existing and projected demands within the Warren Basin over the next 20-year period. Under current demand conditions, the District's

long-term average of 77 percent of its contractual SWP supplies under the 1991 Agreement (i.e., 3,297 acre-ft/yr) is more than sufficient to meet existing demand of the District's customers in the Warren Basin (i.e., approximately 2,626 acre-ft/yr in 2007). In the analyses below, the overlying producers under the 1977 Judgment are not included in the District's demand figures for the Warren Basin because, as indicated above in Section 3.4.3.A, current return flows to the Basin are approximately 900 acre-ft/yr, which is more than sufficient to meet the total adjudicated water rights of the overlying producers (i.e., approximately 615 acre-ft/yr assuming full production of their rights).

Tables 3-9 through 3-20 below illustrate that as water demands increase in the Warren Basin, the District will utilize an increasing amount of its adjudicated groundwater rights to serve that demand. Importantly, this will not interfere with the overlying producers' ability to extract their rights. Based on a projected 2.3 percent annual population increase within the District over the next 20 years, return flows to the Basin in the year 2028 are estimated to be 1,796 acre-ft/yr. This gradually increasing natural safe-yield of the Basin will allow the overlying producers to continue to extract the full amount of their adjudicated right and allow the District to extract additional groundwater without utilizing Basin reserves. For this reason, the adjudicated rights of the overlying pumpers have been subtracted from the total basin return flows when evaluating supply available to the District for its existing and future uses.

3.7.1 Total Projected Supplies Compared to Total Projected Demands Associated with the Proposed Project in Addition to Existing and Planned Future Uses Identified by the Town of Yucca Valley (Water Code § 10910(d)(3).)

Tables 3-9 through 3-14 present the water supply and demand evaluation for existing and planned future uses identified by the Town of Yucca Valley without and with the Old Town SP Project through 2028. These tables show that water supplies are adequate to meet demands in normal, single dry and multiple dry years both without and with the proposed Project while maintaining District supply reserves in the Warren Valley Basin exceeding five years through 2028. In addition, the analysis shows that for a normal water year in 2028, the District's supplies are sufficient to serve the remaining additional demand of the proposed Project through build-out with an annual surplus of about 362 acre-ft/yr.

This analysis reflects the acquisition of additional SWP supplies by the District on behalf of the Mountain Vista development in the initial years which can be obtained from any one or a combination of several alternative sources, including: (1) unused SWP allotment of other ID-M Participants under the 1991 Agreement; (2) unused SWP Table A supplies from MWA; and (3) Article 21 supplies obtained through MWA. (See further discussion regarding these water supplies in Section 3.4 above.) The District's acquisition of these additional supplies is subject to Mountain Vista's payment of all then-applicable costs, fees, charges and/or expenses associated with the securing of such additional supplies available to the District.

Table 3-9
Water Demand and Supply – Existing and Planned Future Uses
Normal Year Conditions

Without Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,682	3,265	3,498	3,498	3,498
Total Demand (w/o Old Town SP)	**2,682**	**3,265**	**3,498**	**3,498**	**3,498**
Supply					
SWP [1]	4,758	3,297	3,297	3,297	3,297
Adjudicated Rights [2]	471	764	881	881	881
Total Supply (w/o Old Town SP)	**5,229**	**4,061**	**4,178**	**4,178**	**4,178**
Supply - Demand (w/o Old Town SP)	**2,547**	**796**	**680**	**680**	**680**
Groundwater Storage	2,547	796	680	680	680
Groundwater Reserve	22,802	30,283	33,743	37,144	40,546
Years of Demand Supplied by Reserve [3]	**8.5**	**9.3**	**9.6**	**10.6**	**11.6**

With Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	7	44	81	118	154
HDWD	2,682	3,265	3,498	3,498	3,498
Total Demand (w/ Old Town SP)	**2,690**	**3,309**	**3,579**	**3,615**	**3,652**
Supply					
SWP[1]	4,758	3,297	3,297	3,297	3,297
Adjudicated Rights[2]	473	778	907	919	930
Total Supply (w/ Old Town SP)	**5,231**	**4,075**	**4,204**	**4,216**	**4,227**
Supply - Demand (w/ Old Town SP)	**2,542**	**766**	**625**	**600**	**575**
Groundwater Storage	2,542	766	625	600	575
Groundwater Reserve	22,797	30,179	33,413	36,465	39,391
Years of Demand Supplied by Reserve [3]	**8.5**	**9.1**	**9.3**	**10.1**	**10.8**

1 SWP supplies include purchase of 1,461 acre-ft/yr of additional water over three years from 2008-2010 during wet and normal years on behalf of the proposed Mountain Vista development.

2 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

3 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-10
Water Demand and Supply – Existing and Planned Future Uses
Single Dry Year Conditions

Without Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,682	3,265	3,498	3,498	3,498
Total Demand (w/o Old Town SP)	**2,682**	**3,265**	**3,498**	**3,498**	**3,498**
Supply					
SWP	214	214	214	214	214
Adjudicated Rights [1]	471	764	881	881	881
Total Supply (w/o Old Town SP)	**685**	**978**	**1,095**	**1,095**	**1,095**
Supply - Demand (w/o Old Town SP)	**-1,997**	**-2,287**	**-2,403**	**-2,403**	**-2,403**
Groundwater Storage	-1,997	-2,287	-2,403	-2,403	-2,403
Groundwater Reserve	18,258	27,201	30,660	34,061	37,463
Years of Demand Supplied by Reserve [2]	**6.8**	**8.3**	**8.8**	**9.7**	**10.7**

With Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	7	44	81	118	154
HDWD	2,682	3,265	3,498	3,498	3,498
Total Demand (w/ Old Town SP)	**2,690**	**3,309**	**3,579**	**3,615**	**3,652**
Supply					
SWP	214	214	214	214	214
Adjudicated Rights [1]	473	778	907	919	930
Total Supply (w/ Old Town SP)	**687**	**992**	**1,121**	**1,133**	**1,145**
Supply - Demand (w/ Old Town SP)	**-2,002**	**-2,317**	**-2,458**	**-2,483**	**-2,508**
Groundwater Storage	-2,002	-2,317	-2,458	-2,483	-2,508
Groundwater Reserve	18,253	27,096	30,330	33,382	36,308
Years of Demand Supplied by Reserve [2]	**6.8**	**8.2**	**8.5**	**9.2**	**9.9**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-11
Water Demand and Supply – Existing and Planned Future Uses
Multiple Dry Year Conditions - 2009-2013

Without Old Town SP

	2009	2010	2011	2012	2013
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,799	2,915	3,032	3,148	3,265
Total Demand (w/o Old Town SP)	**2,799**	**2,915**	**3,032**	**3,148**	**3,265**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	530	588	647	705	764
Total Supply (w/o Old Town SP)	**1,943**	**2,001**	**2,060**	**2,118**	**4,061**
Supply - Demand (w/o Old Town SP)	**-856**	**-914**	**-972**	**-1,030**	**796**
Groundwater Storage	-856	-914	-972	-1,030	796
Groundwater Reserve	21,946	21,032	20,059	19,029	19,825
Years of Demand Supplied by Reserve [2]	**7.8**	**7.2**	**6.6**	**6.0**	**6.1**

With Old Town SP

	2009	2010	2011	2012	2013
Demand					
Old Town SP	15	22	29	37	44
HDWD	2,799	2,915	3,032	3,148	3,265
Total Demand (w/ Old Town SP)	**2,814**	**2,937**	**3,061**	**3,185**	**3,309**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	530	588	647	705	764
Total Supply (w/ Old Town SP)	**1,943**	**2,001**	**2,060**	**2,118**	**4,061**
Supply - Demand (w/ Old Town SP)	**-871**	**-936**	**-1,002**	**-1,067**	**752**
Groundwater Storage	-871	-936	-1,002	-1,067	752
Groundwater Reserve	21,926	20,990	19,988	18,922	19,674
Years of Demand Supplied by Reserve [2]	**7.8**	**7.1**	**6.5**	**5.9**	**5.9**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-12
Water Demand and Supply – Existing and Planned Future Uses
Multiple Dry Year Conditions - 2014-2018

Without Old Town SP

	2014	2015	2016	2017	2018
Demand					
Old Town SP	0	0	0	0	0
HDWD	3,381	3,498	3,498	3,498	3,498
Total Demand (w/o Old Town SP)	**3,381**	**3,498**	**3,498**	**3,498**	**3,498**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	822	881	881	881	881
Total Supply (w/o Old Town SP)	**2,235**	**2,294**	**2,294**	**2,294**	**4,178**
Supply - Demand (w/o Old Town SP)	**-1,146**	**-1,204**	**-1,204**	**-1,204**	**680**
Groundwater Storage	-1,146	-1,204	-1,204	-1,204	680
Groundwater Reserve	29,138	27,934	26,730	25,526	26,207
Years of Demand Supplied by Reserve [2]	**8.6**	**8.0**	**7.6**	**7.3**	**7.5**

With Old Town SP

	2014	2015	2016	2017	2018
Demand					
Old Town SP	51	59	66	73	81
HDWD	3,381	3,498	3,498	3,498	3,498
Total Demand (w/ Old Town SP)	**3,433**	**3,557**	**3,564**	**3,571**	**3,579**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	839	900	902	905	907
Total Supply (w/ Old Town SP)	**2,252**	**2,313**	**2,315**	**2,318**	**4,204**
Supply - Demand (w/ Old Town SP)	**-1,181**	**-1,244**	**-1,249**	**-1,254**	**625**
Groundwater Storage	-1,181	-1,244	-1,249	-1,254	625
Groundwater Reserve	28,998	27,754	26,505	25,252	25,877
Years of Demand Supplied by Reserve [2]	**8.4**	**7.8**	**7.4**	**7.1**	**7.2**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-13
Water Demand and Supply – Existing and Planned Future Uses
Multiple Dry Year Conditions - 2019-2023

Without Old Town SP

	2019	2020	2021	2022	2023
Demand					
Old Town SP	0	0	0	0	0
HDWD	3,498	3,498	3,498	3,498	3,498
Total Demand (w/o Old Town SP)	**3,498**	**3,498**	**3,498**	**3,498**	**3,498**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	881	881	881	881	881
Total Supply (w/o Old Town SP)	**2,294**	**2,294**	**2,294**	**2,294**	**4,178**
Supply - Demand (w/o Old Town SP)	**-1,204**	**-1,204**	**-1,204**	**-1,204**	**680**
Groundwater Storage	-1,204	-1,204	-1,204	-1,204	680
Groundwater Reserve	32,539	31,335	30,132	28,928	29,608
Years of Demand Supplied by Reserve [2]	**9.3**	**9.0**	**8.6**	**8.3**	**8.5**

With Old Town SP

	2019	2020	2021	2022	2023
Demand					
Old Town SP	88	96	103	110	118
HDWD	3,498	3,498	3,498	3,498	3,498
Total Demand (w/ Old Town SP)	**3,586**	**3,593**	**3,601**	**3,608**	**3,615**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	909	912	914	916	919
Total Supply (w/ Old Town SP)	**2,322**	**2,325**	**2,327**	**2,329**	**4,216**
Supply - Demand (w/ Old Town SP)	**-1,264**	**-1,269**	**-1,274**	**-1,279**	**600**
Groundwater Storage	-1,264	-1,269	-1,274	-1,279	600
Groundwater Reserve	32,149	30,881	29,607	28,328	28,929
Years of Demand Supplied by Reserve [2]	**9.0**	**8.6**	**8.2**	**7.9**	**8.0**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-14
Water Demand and Supply – Existing and Planned Future Uses
Multiple Dry Year Conditions - 2024-2028

Without Old Town SP

	2024	2025	2026	2027	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	3,498	3,498	3,498	3,498	3,498
Total Demand (w/o Old Town SP)	**3,498**	**3,498**	**3,498**	**3,498**	**3,498**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	881	881	881	881	881
Total Supply (w/o Old Town SP)	**2,294**	**2,294**	**2,294**	**2,294**	**4,178**
Supply - Demand (w/o Old Town SP)	**-1,204**	**-1,204**	**-1,204**	**-1,204**	**680**
Groundwater Storage	-1,204	-1,204	-1,204	-1,204	680
Groundwater Reserve	35,940	34,737	33,533	32,329	33,010
Years of Demand Supplied by Reserve [2]	**10.3**	**9.9**	**9.6**	**9.2**	**9.4**

With Old Town SP

	2024	2025	2026	2027	2028
Demand					
Old Town SP	125	132	140	147	154
HDWD	3,498	3,498	3,498	3,498	3,498
Total Demand (w/ Old Town SP)	**3,623**	**3,630**	**3,637**	**3,645**	**3,652**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	921	923	926	928	930
Total Supply (w/ Old Town SP)	**2,334**	**2,336**	**2,339**	**2,341**	**4,227**
Supply - Demand (w/ Old Town SP)	**-1,289**	**-1,294**	**-1,299**	**-1,304**	**575**
Groundwater Storage	-1,289	-1,294	-1,299	-1,304	575
Groundwater Reserve	35,176	33,882	32,584	31,280	31,855
Years of Demand Supplied by Reserve [2]	**9.7**	**9.3**	**9.0**	**8.6**	**8.7**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

3.7.2 Total Projected Supplies Compared to Total Projected Demands Associated with the Proposed Project in Addition to Existing Demand and Demand Associated with a Projected 2.3 Percent Annual Increase in Water Demand

Tables 3-15 through 3-20 present the water supply and demand evaluation for a projected 2.3 percent increase in water demand without and with the Old Town SP Project through 2028. These tables show that water supplies are adequate to meet demands in normal, single dry and multiple dry years both without and with the proposed Project through 2028while maintaining District supply reserves in the Warren Valley Basin exceeding five years. However, beyond the 20-year analysis period (2028), the District will need to acquire additional supplies above its current contracted SWP supply to meet the entire build-out demand of the Old Town SP Project. As discussed in Section 3.4.1 (E) of this WSA, the District is able to purchase additional SWP supplies from MWA pursuant to MWA's Ordinance No. 9.

As included in the WSA for the Mountain Vista Development, the analysis for the Old Town SP Project reflects the acquisition of additional SWP supplies by the District on behalf of the Mountain Vista Development in the initial years which can be obtained from any one or a combination of several alternative sources, including: (1) unused SWP allotment of other ID-M Participants under the 1991 Agreement; (2) unused SWP Table A supplies from MWA; and (3) Article 21 supplies obtained through MWA. (See further discussion regarding these water supplies in Section 3.4 above.) The District's acquisition of these additional supplies is subject to the payment by Century Vintage Homes of all then-applicable costs, fees, charges and/or expenses associated with the securing of such additional supplies available to the District. Beyond the 20-year analysis period, the District may need to acquire additional water supplies from MWA over and above its contracted amount to meet the build-out needs of the development.

Table 3-15
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Normal Year Conditions

Without Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,744	3,338	3,748	4,037	4,325
Total Demand (w/o Old Town SP)	**2,744**	**3,338**	**3,748**	**4,037**	**4,325**
Supply					
SWP [1]	4,758	3,297	3,297	3,297	3,297
Adjudicated Rights [2]	491	787	961	1,054	1,146
Total Supply (w/o Old Town SP)	**5,249**	**4,084**	**4,258**	**4,351**	**4,443**
Supply - Demand (w/o Old Town SP)	**2,504**	**747**	**510**	**314**	**118**
Groundwater Storage	2,504	747	510	314	118
Groundwater Reserve	22,719	29,968	32,931	34,893	35,873
Years of Demand Supplied by Reserve [3]	**8.3**	**9.0**	**8.8**	**8.6**	**8.3**

With Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	7	44	81	118	154
HDWD	2,744	3,338	3,748	4,037	4,325
Total Demand (w/ Old Town SP)	**2,752**	**3,382**	**3,829**	**4,154**	**4,480**
Supply					
SWP [1]	4,758	3,297	3,297	3,297	3,297
Adjudicated Rights [2]	493	801	987	1,091	1,195
Total Supply (w/ Old Town SP)	**5,251**	**4,098**	**4,284**	**4,388**	**4,492**
Supply - Demand (w/ Old Town SP)	**2,499**	**717**	**455**	**234**	**13**
Groundwater Storage	2,499	717	455	234	13
Groundwater Reserve	22,714	29,863	32,602	34,214	34,719
Years of Demand Supplied by Reserve [3]	**8.3**	**8.8**	**8.5**	**8.2**	**7.8**

1 SWP supplies include purchase of 1,461 acre-ft/yr of additional water over three years from 2008-2010 during wet and normal years on behalf of the proposed Mountain Vista development.

2 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

3 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-16
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Single Dry Year Conditions

Without Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,744	3,338	3,748	4,037	4,325
Total Demand (w/o Old Town SP)	**2,744**	**3,338**	**3,748**	**4,037**	**4,325**
Supply					
SWP	214	214	214	214	214
Adjudicated Rights [1]	491	787	961	1,054	1,146
Total Supply (w/o Old Town SP)	**705**	**1,001**	**1,175**	**1,268**	**1,360**
Supply - Demand (w/o Old Town SP)	**-2,040**	**-2,336**	**-2,573**	**-2,769**	**-2,965**
Groundwater Storage	-2,040	-2,336	-2,573	-2,769	-2,965
Groundwater Reserve	18,175	26,885	29,848	31,810	32,790
Years of Demand Supplied by Reserve [2]	**6.6**	**8.1**	**8.0**	**7.9**	**7.6**

With Old Town SP

	2008	2013	2018	2023	2028
Demand					
Old Town SP	7	44	81	118	154
HDWD	2,744	3,338	3,748	4,037	4,325
Total Demand (w/ Old Town SP)	**2,752**	**3,382**	**3,829**	**4,154**	**4,480**
Supply					
SWP	214	214	214	214	214
Adjudicated Rights [1]	493	801	987	1,091	1,195
Total Supply (w/ Old Town SP)	**707**	**1,015**	**1,201**	**1,305**	**1,409**
Supply - Demand (w/ Old Town SP)	**-2,045**	**-2,366**	**-2,628**	**-2,849**	**-3,070**
Groundwater Storage	-2,045	-2,366	-2,628	-2,849	-3,070
Groundwater Reserve	18,170	26,780	29,519	31,131	31,636
Years of Demand Supplied by Reserve [2]	**6.6**	**7.9**	**7.7**	**7.5**	**7.1**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-17
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Multiple Dry Year Conditions – 2009-2013

Without Old Town SP

	2009	2010	2011	2012	2013
Demand					
Old Town SP	0	0	0	0	0
HDWD	2,863	2,982	3,100	3,219	3,338
Total Demand (w/o Old Town SP)	**2,863**	**2,982**	**3,100**	**3,219**	**3,338**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	550	609	669	728	787
Total Supply (w/o Old Town SP)	**1,963**	**2,022**	**2,082**	**2,141**	**4,084**
Supply - Demand (w/o Old Town SP)	**-900**	**-959**	**-1,019**	**-1,078**	**747**
Groundwater Storage	-900	-959	-1,019	-1,078	747
Groundwater Reserve	21,819	20,860	19,841	18,763	19,510
Years of Demand Supplied by Reserve [2]	**7.6**	**7.0**	**6.4**	**5.8**	**5.8**

With Old Town SP

	2009	2010	2011	2012	2013
Demand					
Old Town SP	15	22	29	37	44
HDWD	2,863	2,982	3,100	3,219	3,338
Total Demand (w/ Old Town SP)	**2,878**	**3,004**	**3,130**	**3,256**	**3,382**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	530	588	647	705	764
Total Supply (w/ Old Town SP)	**1,943**	**2,001**	**2,060**	**2,118**	**4,061**
Supply - Demand (w/ Old Town SP)	**-935**	**-1,003**	**-1,070**	**-1,137**	**679**
Groundwater Storage	-935	-1,003	-1,070	-1,137	679
Groundwater Reserve	21,779	20,777	19,707	18,569	19,248
Years of Demand Supplied by Reserve [2]	**7.6**	**6.9**	**6.3**	**5.7**	**5.7**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-18
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Multiple Dry Year Conditions – 2014-2018

Without Old Town SP

	2014	2015	2016	2017	2018
Demand					
Old Town SP	0	0	0	0	0
HDWD	3,456	3,575	3,633	3,690	3,748
Total Demand (w/o Old Town SP)	**3,456**	**3,575**	**3,633**	**3,690**	**3,748**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	846	906	924	943	961
Total Supply (w/o Old Town SP)	**2,259**	**2,319**	**2,337**	**2,356**	**4,258**
Supply - Demand (w/o Old Town SP)	**-1,197**	**-1,256**	**-1,295**	**-1,335**	**510**
Groundwater Storage	-1,197	-1,256	-1,295	-1,335	510
Groundwater Reserve	28,771	27,515	26,220	24,885	25,395
Years of Demand Supplied by Reserve [2]	**8.3**	**7.7**	**7.2**	**6.7**	**6.8**

With Old Town SP

	2014	2015	2016	2017	2018
Demand					
Old Town SP	51	59	66	73	81
HDWD	3,456	3,575	3,633	3,690	3,748
Total Demand (w/ Old Town SP)	**3,508**	**3,634**	**3,699**	**3,764**	**3,829**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	863	925	945	966	987
Total Supply (w/ Old Town SP)	**2,276**	**2,338**	**2,358**	**2,379**	**4,284**
Supply - Demand (w/ Old Town SP)	**-1,232**	**-1,296**	**-1,340**	**-1,385**	**455**
Groundwater Storage	-1,232	-1,296	-1,340	-1,385	455
Groundwater Reserve	28,631	27,335	25,995	24,610	25,066
Years of Demand Supplied by Reserve [2]	**8.2**	**7.5**	**7.0**	**6.5**	**6.5**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-19
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Multiple Dry Year Conditions – 2019-2023

Without Old Town SP

	2019	2020	2021	2022	2023
Demand					
Old Town SP	0	0	0	0	0
HDWD	3,806	3,863	3,921	3,979	4,037
Total Demand (w/o Old Town SP)	**3,806**	**3,863**	**3,921**	**3,979**	**4,037**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	980	998	1,017	1,035	1,054
Total Supply (w/o Old Town SP)	**2,393**	**2,411**	**2,430**	**2,448**	**4,351**
Supply - Demand (w/o Old Town SP)	**-1,413**	**-1,452**	**-1,492**	**-1,531**	**314**
Groundwater Storage	-1,413	-1,452	-1,492	-1,531	314
Groundwater Reserve	31,518	30,066	28,574	27,043	27,357
Years of Demand Supplied by Reserve [2]	**8.3**	**7.8**	**7.3**	**6.8**	**6.8**

With Old Town SP

	2019	2020	2021	2022	2023
Demand					
Old Town SP	88	96	103	110	118
HDWD	3,806	3,863	3,921	3,979	4,037
Total Demand (w/ Old Town SP)	**3,894**	**3,959**	**4,024**	**4,089**	**4,154**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	1,008	1,029	1,049	1,070	1,091
Total Supply (w/ Old Town SP)	**2,421**	**2,442**	**2,462**	**2,483**	**4,388**
Supply - Demand (w/ Old Town SP)	**-1,473**	**-1,517**	**-1,562**	**-1,606**	**234**
Groundwater Storage	-1,473	-1,517	-1,562	-1,606	234
Groundwater Reserve	31,128	29,611	28,050	26,444	26,678
Years of Demand Supplied by Reserve [2]	**8.0**	**7.5**	**7.0**	**6.5**	**6.4**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Table 3-20
Water Demand and Supply – Projected 2.3 Percent Annual Increase
Multiple Dry Year Conditions – 2024-2028

Without Old Town SP

	2024	2025	2026	2027	2028
Demand					
Old Town SP	0	0	0	0	0
HDWD	4,094	4,152	4,210	4,268	4,325
Total Demand (w/o Old Town SP)	**4,094**	**4,152**	**4,210**	**4,268**	**4,325**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	1,072	1,090	1,109	1,127	1,146
Total Supply (w/o Old Town SP)	**2,485**	**2,503**	**2,522**	**2,540**	**4,443**
Supply - Demand (w/o Old Town SP)	**-1,609**	**-1,649**	**-1,688**	**-1,727**	**118**
Groundwater Storage	-1,609	-1,649	-1,688	-1,727	118
Groundwater Reserve	33,284	31,635	29,947	28,220	28,337
Years of Demand Supplied by Reserve [2]	**8.1**	**7.6**	**7.1**	**6.6**	**6.6**

With Old Town SP

	2024	2025	2026	2027	2028
Demand					
Old Town SP	125	132	140	147	154
HDWD	4,094	4,152	4,210	4,268	4,325
Total Demand (w/ Old Town SP)	**4,219**	**4,284**	**4,350**	**4,415**	**4,480**
Supply					
SWP	1,413	1,413	1,413	1,413	3,297
Adjudicated Rights [1]	1,112	1,133	1,154	1,174	1,195
Total Supply (w/ Old Town SP)	**2,525**	**2,546**	**2,567**	**2,587**	**4,492**
Supply - Demand (w/ Old Town SP)	**-1,694**	**-1,739**	**-1,783**	**-1,827**	**13**
Groundwater Storage	-1,694	-1,739	-1,783	-1,827	13
Groundwater Reserve	32,519	30,781	28,998	27,170	27,183
Years of Demand Supplied by Reserve [2]	**7.7**	**7.2**	**6.7**	**6.2**	**6.1**

1 Over time, the District is shown to exercise a greater amount of its rights under the 1977 Judgment to serve District demands in Warren Valley (see Section 3.7).

2 Years of Demand Supplied by Reserves is the groundwater reserve in a given year divided by the demand in that year.

Section 4
Conclusions

In accordance with the foregoing, it is the conclusion of this WSA that the District's total projected water supplies available during normal, single dry and multiple dry water years during the next 20-year projection will meet the projected water demand associated with the proposed Old Town SP Project, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses. (Wat Code § 10910(c)(3).) This conclusion applies to both alternative water demand scenarios presented in Sections 3.6. Thus, the District's total projected water supplies available during normal, single dry and multiple dry years are sufficient to meet the projected water demand associated with the proposed Project in addition to the District's existing and planned future uses over the next 20-year period. Moreover, under the more conservative analysis, the District's total projected water supplies available during normal, single dry and multiple dry years are sufficient to meet the projected water demand associated with the proposed Project in addition to the District's existing demands and the demands associated with a projected 2.3 percent annual population increase over the next 20 years. However, beyond the 20-year analysis period (2028), the District's contracted SWP supplies are not sufficient to meet the build-out demand of the proposed Project. Consequently, the District will need to acquire additional imported water supplies from MWA pursuant to MWA's Ordinance No. 9 over and above its contracted amount to meet the entire build-out needs of the Old Town SP Project. It should be noted as indicated in the WSA for Mountain Vista Development, the analyses and conclusions of water supply sufficiency set forth in this WSA are subject to the payment by Century Vintage Homes of all then-applicable costs, fees, charges and/or expenses associated with the District's securing of sufficient water supplies available to the District to serve the Mountain Vista Project in addition to the District's existing and planned future uses during normal, single dry and multiple dry years over the ensuing 20-year period excluding the Old Town SP Project.

Section 5
References

Documents and information demonstrating the basis of the District's existing and projected water supplies include, but are not limited to the documents and information identified in this Section. As indicated below, copies of several reference documents utilized in this WSA are attached in their entirety as Appendices hereto. Other documents and information referenced in the WSA are available for review at the District's offices upon request. For reference purposes, the first page of each of these documents and information are set forth at Appendix H.

- Mojave Water Agency 2005 Urban Water Management Plan Update. December 8, 2005. (Appendix A.)
- Letter from Mojave Water Agency to Hi-Desert Water District. November 15, 2006. (Appendix B.)
- Mojave Water Agency, Ordinance No. 9. April 25, 1995. (Appendix C.)
- Judgment, Hi Desert Water District v. Yucca Water Company, Ltd., San Bernardino County Superior Court Case No. 172103. September 16, 1977. (Appendix D.)
- Ames Valley Water Basin Agreement between Hi-Desert Water District and Bighorn-Desert View Water Agency. January 10, 1991. (Appendix E.)
- High-Desert Water District Policy No. 26-04. March 24, 2004. (Appendix F.)
- Potential/Planned Future Projects in the Town of Yucca Valley prepared by Yucca Valley Community Development Department and Warner Engineering. January 2007. (Appendix G.)
- Mojave Water Agency 2004 Regional Water Management Plan; Integrated Regional Water Management Plan; Groundwater Management Plan; Urban Water Management Plan. February 24, 2005. (Appendix H.)
- Hi-Desert Water District 2005 Urban Water Management Plan. April 5, 2006. (Appendix H.)
- Water Supply Contract and Related Amendments between the State of California Department of Water Resources and Mojave Water Agency. June 22, 1963. (Appendix H.)
- The State Water Project Delivery Reliability Report 2005, prepared by the California Department of Water Resources, Bay-Delta Office. (Appendix H.)
- The State Water Project Delivery Reliability Report 2002, prepared by the California Department of Water Resources, Bay-Delta Office. (Appendix H.)
- California's Groundwater, Bulletin 118, Individual Basin Descriptions, prepared by the California Department of Water Resources. February 27, 2004. (Appendix H.)
- Annual Report of the Warren Valley Basin Watermaster for the period October 1, 2004 through September 30, 2005, prepared by James C. Hanson Consulting Civil Engineer, December 21, 2005 (Appendix H.)
- Warren Valley Basin Watermaster Update of Water Reserve Levels. June 13, 2006. (Appendix H.)

- Rules and Regulations of the Warren Valley Basin Watermaster. July 9, 2003. (Appendix H.)
- Warren Valley Basin Conjunctive Use Agreement between Mojave Water Agency, Hi-Desert Water District, and Warren Valley Basin Watermaster. October 28, 2004. (Appendix H.)
- Warren Valley Basin Management Plan of the Warren Valley Basin Watermaster. January 31, 1991. (Appendix H.)
- Hi-Desert Water District Resolution No. 90-4. March 21, 1990. (Appendix H.)
- Hi-Desert Water District Ordinance No. 68. June 17, 1992. (Appendix H.)
- Hi-Desert Water District Ordinance No. 72. July 18, 2001. (Appendix H.)
- Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, prepared by the California Department of Water Resources. October 8, 2003. (Appendix H.)
- Agenda Item No. 5, Pipeline Capacity Discussion, Morongo Basin Pipeline Commission. December 13, 2006. (Appendix H.)
- Hi-Desert Water District, Wastewater Collection and Treatment Master Plan, prepared by Montgomery Watson (now MWH), January 1998.
- RBF, 2006 – Draft Water Supply Assessment Old Town Yucca Valley Specific Plan, RBF Consulting, December 2006. (Appendix H.)
- Stueckle, pers. comm., 2007 – Personal communication between Pat Grady, HDWD and Shane Stueckle, Town of Yucca Valley, May 15, 2007.

Appendices