

TOWN OF YUCCA VALLEY

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE COMPREHENSIVE GENERAL PLAN

II. REGIONAL ENVIRONMENTAL SETTING

Introduction

This section of the EIR describes the local and regional environment with particular attention and emphasis on those environmental constraints or resources most likely to be affected by the adoption of the General Plan. This section provides the reader with a general introduction to the environmental setting of the greater Morongo Basin, of which the Town of Yucca Valley is a part. Areas to be addressed include existing Yucca Valley and surrounding land use patterns, climate, topography, soils and geology, hydrology, biological and cultural resources, air quality and visual resources, roadways, and public services and facilities. These and other areas of concern are discussed from a regional perspective to provide the reader with a broad and comprehensive understanding of the issues associated with the project. The Town of Yucca Valley conducted an Initial Study in accordance with Sections 15063, 15064 and 15065 of the California Environmental Quality Act (CEQA) Guidelines (See Appendix A). Issues identified as potentially significant are analyzed in detail in Section III of this document.

A. Existing Land Use

The Town of Yucca Valley incorporated in 1991. Prior to incorporation and to this juncture, the Town has relied upon and has implemented the San Bernardino County General Plan to regulate land uses and development within its corporate boundaries. Town corporate boundaries and the official Sphere-of-Influence are co-terminus. Development within the Town has been shaped by the physical environment, particularly the topographic constraints that create the Morongo Basin within which the Town has developed. The following discussion briefly describes the existing land use patterns and intensity of development.

While Yucca Valley is essentially a rural community, a substantial urban core has developed along the roughly east-west trending State Highway 62, which follows the lower portions of the valley and connects Yucca Valley with the other communities of the Morongo Basin. Nearly all of the commercial development in the Town occurs along this roadway, with residential development occurring to the north and south in progressively lower densities. Development in much of the Town is constrained by topography and only approximately 25% (6,225 acres) of Town lands are currently developed. Of this, approximately 84% is in residential uses dominated by low density single family development; approximately 73% (5,456 units) of the housing stock is single family and about 27% (2,001 units) is found in multi-family development. Existing commercial and industrial land uses each occupy about 5% of all developed lands. Public/quasi-public (parks, floodways, civic center lands, etc.), including developed open space, comprises an additional 6%.

Major features of the Town of Yucca Valley affecting existing development patterns include extensive unimproved desert washes in both the northern and southern portions of Town and substantial areas that are hilly or mountainous terrain. Growth to the south is precluded by the boundaries of the Joshua Tree National Park and limited in the north by the Saw Tooth and San Bernardino Mountains.

Development has been further constrained by the costs and limits of infrastructure, especially domestic groundwater resources, which have been in an overdraft condition and are now regulated by court order. Finally, induced development has been directly tied to the slow growth in the surrounding desert communities, the result being that Yucca Valley has emerged as the commercial and administrative center of the Morongo Basin. Therefore, excepting the limited growth inducement realized from the Twentynine Palms Marine Air Ground Combat Center to the east, development in Yucca Valley is largely self-induced.

B. Surrounding Land Use

The Town of Yucca Valley is located in the Morongo Basin, with limited development occurring in the vicinity, and that being largely limited to residential development that is primarily scattered in character. Development to the north is primarily scattered large-lot residential subdivisions with limited development; this area is generally known as Yucca Mesa because of its elevated terrain. To the northwest is the small community of Pioneertown which is isolated from Yucca Valley by the Saw Tooth Mountains and Water Canyon.

Immediately west-southwest of the Town corporate limits is the community of Morongo Valley, which extends for several miles along Highway 62, with scattered residential on large lots both north and south of the highway. The easterly most portion of Morongo Valley is very narrow with only a few residences for the first few miles. The limited commercial development that does occur in Morongo Valley is largely restricted to the western areas of the valley, approximately seven miles west of the Town limits.

The southern limits of the Town are bounded by the Joshua Tree National Park along all but one section in the extreme southwest corner, where steep terrain has precluded development on these lands.

To the east of Yucca Valley is the community of Joshua Tree, which extends several miles to the east, both north and south of Highway 62. This community is more densely developed, with a central core development area including some commercial services located approximately three miles east of the Yucca Valley town limits, with well developed smaller lot single family subdivisions and scattered residential development intervening.

C. Topography

As discussed throughout this EIR and the Town General Plan, topography has and continues to play a major role in shaping the land use and circulation pattern in the Town. The Town limits include the valley floor, which is less than one mile wide in the extreme western portion and is approximately five miles wide on the east side of Town. The lowest elevation in the community is at about 3,100 feet along Yucca Creek at the eastern Town boundary, and the highest elevation is at about 4,603 feet in the southwest quadrant of Town and adjacent to the Joshua Tree National Park.

The topography of the area has been shaped by a combination of geologic uplift and erosion, with the Yucca Wash and tributary drainages shaping and filling the central east-west trending valley floor. In the south, the Little San Bernardino Mountains shape the southern boundary and encroach up to two miles into the Town proper, with major drainages emerging in canyons and alluvial fans. Elevated terrain on the north side of the valley is somewhat more complex and is shaped by the Saw Tooth Range of the San Bernardino Mountains and their easterly extensions, which include Paxton Mountain on the Town's eastern limit, and appear to terminate at the Bartlet Mountains north of the community of Joshua Tree.

The Town also has a few isolated topographic features that include Burnt Mountain in the southeastern quadrant and isolated elevated lands, which are extensions or foothills of both the Little San Bernardino and Saw Tooth Ranges. In summary, the Town topography can be described as an elevated alluvium-filled valley, defined by elevated terrain on the north and south, with areas of isolated elevated terrain (See Exhibit II-1: Regional

Topography).

D. Climate

The climatic conditions of the Town of Yucca Valley and the Morongo Basin can be best characterized as a subtropical, high desert climate with summer daytime temperatures occasionally exceeding 110°F and winter night-time temperatures occasionally falling below freezing. The surrounding mountain slopes are generally cooler, with an approximate 5°F decrease for every 1,000 foot increase in elevation.

In addition to relatively high temperatures and low precipitation, winds play a significant role in shaping the climate of Yucca Valley and the Morongo Basin. The mean annual rainfall is low, averaging less than 10 inches. Most precipitation occurs during the cooler months of November through March, but occasional high-intensity thunderstorms and tropical storms occur in late summer and early fall. In the spring and early summer months, meteorological conditions favor the development of strong winds.

Seasonally, as the desert begins to heat up, surface pressures are systematically lowered (thermal lows), creating a draw effect whereby the cooler ocean-modified air mass to the west is pulled toward the inland desert regions. The heated and displaced air of the thermal low is "filled" by the cooler coastal air mass which follows the San Bernardino Mountains and enters the Morongo basin from the west. The above mentioned summer tropical and thunder storms are capable of generating strong wind gusts.

E. Soils and Geology

Geology

The Town of Yucca Valley is located at the boundary of the Transverse Ranges and the Mojave Desert Geomorphic Provinces. The Transverse Ranges Geomorphic Province includes several ranges trending generally in an east-west direction, from the Pinto and Eagle Mountains to the east, to the Santa Monica and Santa Ynez Mountains to the west. The San Gabriel, San Bernardino and Little San Bernardino Mountains are located within the Transverse Ranges. The Transverse Ranges Geomorphic Province in the Yucca Valley area is bounded on the north by the Pinto Mountain fault and on the southwest by the San Andre as Fault.

The Town is generally located in an east-west trending valley bounded by the Little San Bernardino Mountains on the south, and the Sawtooth Mountains to the north. The Sawtooth Mountains, which extend eastward through the middle of the Yucca Valley area, are highest in the western portion of the area, and level out near Paxton Mountain to the east. The remnants of the Bartlett Mountains occur near the eastern boundary of Town. Overall, area relief is gentler in the south than in the north.

The Town and the surrounding region is located in a broad belt, or zone, of faults which transfers motion from the San Andreas fault in the Coachella and Imperial Valley to the Basin and Range Province (Death Valley Region) in eastern California, Nevada, and Utah (Savage et al., 1990; The Working Group, 1992)¹.

Approximately 15 to 20 percent of the motion between the North American and Pacific plates is being accommodated by this region, making it part of one of the most seismically-active regions in the United States. Almost all of the remaining motion between the two plates is occurring along the San Andreas and its related faults, located to west and southwest of Yucca Valley.

Fault Zones

Ground shaking during an earthquake is the most significant seismic hazard that will impact the Region including the Planning Area. All of the major faults within and surrounding the planning area are considered to be active. There are five (5) faults that have the potential to seriously impact the area.

Four of the five faults are located within the planning area. They are the Pinto Mountain Fault, the Johnson Valley Fault, the Burnt Mountain Fault, and the Eureka Peak Fault. The San Andreas Fault is the other fault within the region capable of having a significant impact on the region. All of these fault systems are discussed in detail in Section III C., Soils and Geology of this EIR.

Soils

The earth materials underlying the area are comprised of Quaternary (deposited within the last 1.6 million years) surficial sediments that rest on a thick sequence of Tertiary to Precambrian (about 1.6 million and older) rocks (Dibblee, 1967A: 1976b)².

¹ Technical Background Report for the Safety Element of the Town of Yucca Valley General Plan. Prepared by Leighton & Associates. December, 1993.
² Ibid.

Recently deposited alluvial sediments (deposited in the last 11,000 years) occur in the area along the bottoms of the canyons draining the mountains. Most of these canyons drain towards the middle of the Morongo Basin. Much of the Town's development along the highway is underlain by these recent alluvial deposits. These alluvial soils consist primarily of porous unconsolidated sand and gravel with minor amounts of clay and silt. The thickness of these soils is estimated to be 100 feet or less in the planning area.

Other surficial sediments that occur in the Planning Area include older Quaternary alluvium and conglomerates. The older alluvium consists of coarse-grained sediments, including cobbles, pebbles and coarse sand. These sediments derived from the mountains in the area and have been uplifted above the presently-active floodplain. Continual stream erosion has dissected these older deposits. This alluvium occurs north and east of the Little San Bernardino and Sawtooth Mountains and may be greater than 500 feet thick in these areas. Beneath the surficial sediments and exposed in the mountains of this region are basement rocks. The basement rocks include Quaternary/Tertiary basalt; Tertiary Old Woman sandstone; Mesozoic granitic rocks; and Precambrian gneissic rocks.

Mesozoic and Precambrian gneissic rocks comprise the Sawtooth and Little San Bernardino Mountains, respectively. These are the oldest soil compositions in the area. The Mesozoic rocks are massive, fine- to coarse-grained granitic rocks of various mineral compositions. The Precambrian gneissic rocks are massive, medium to coarsely crystalline rocks.

F. Hydrology

As discussed above in Section II-D, precipitation in the Yucca Valley area is relatively low. While the long-term average annual rainfall has been between 8 and 10 inches, during the 35- year period from 1957 to 1990 the annual average rainfall was 6.44 inches, with the highest recorded season (1977-78) generating more than 15 inches and the lowest (1988-89) generating slightly more than 2 inches³.

As with temperature, there is a rough correlation between elevation and annual rainfall, which is associated with thunderstorm formation over elevated terrain. The typical 24-hour rain fall used to estimate the 100-year storm in the area is approximately 4.5 inches, but varies by location. Rates of runoff are calculated taking into account such variables as slope, percentage of vegetation coverage and soil type.

Major channels and washes passing through and affecting the Town includes Yucca Wash located along the lowest east-west axis, and which provides the backbone drainage to which all other washes and channels are tributary. Where Yucca Wash passes beyond the Town 5 easterly limits, the discharge at this point from the 100-year storm is estimated at approximately 11,630 cubic feet per second (cfs)⁴. Other major drainages include Long Canyon Wash, Hospital Channel, High School Channel, Water Canyon Wash, Covington Wash, Carmelita Wash-West Fork and Skyline Ranch Wash, among others.

G. Water Quality/Resources

Water Resources

Domestic water is provided to the Town of Yucca Valley and other locales through the utilization of groundwater. The primary source of domestic water for the Town is the Warren Valley Basin. Limited resources are also derived from the adjoining Ames Groundwater Basin. Depths to the groundwater aquifer of the Warren Valley Groundwater Basin vary. According to the most recent study (1983), the groundwater basin contained

³ Warren Basin Perennial Yield and Quantity of Groundwater in Storage. Report prepared for the Hi-Desert Water District. Fox, R.C., and J. Egan and Associates. August, 1991.
⁴ Yucca Valley Master Plan of Drainage-Policy Report and Conceptual Master Plan. Prepared for San Bernardino County Flood Control District. Prepared by John M. Tettemer & Associates. June, 1994.

approximately 45,000-59,000 acre feet of extractable water. The study used a depth of 200 feet to the top of the aquifer and estimated that the total usable storage capacity of the basin is approximately 160,000 acre feet.

To date, groundwater recharge has come from natural local sources in the form of precipitation runs off from adjacent highlands, which infiltrates or percolates into the aquifer through porous soils, usually found in streambeds. The Warren Valley Groundwater Basin has an average annual natural recharge of approximately 200 acre feet per year (af/y)⁵, although a recent court order established the natural recharge at 900 acre feet per year. The current per capita water usage, excluding non-residential uses is approximately 103 gallon per day. This usage rate is considerably low when compared to the statewide average of 140 gallons per day⁶. The Warren Valley Basin is in a over-draft condition and water usage is currently being regulated.

The local water purveyor, the Hi-Desert Water District, receives from the Mojave Water Agency State Water Project water of 4,282 acre feet per year. Imported recharge water is expected to be infiltrated into the groundwater aquifer in same manner as natural percolation and withdrawn through existing District wells.

The Joshua Tree (*Yucca brevifolia*) is the largest of the yucca family. The largest known specimen is forty-two feet high and has a crown of thirty-four feet, and is located in the Joshua Tree National Park south of the Town. It is one of the hardiest of the Mojave Desert plants, tolerating extremes of hot and cold, and provides food, perching and nesting sites for a wide variety of animals and birds.

Animals occurring within this region are associated with both the mountainous communities to the south and west, as well as with the desert communities. Both the desert and mountain ecologies are very fragile and highly interdependent. Both are highly susceptible to damage or disruption, the effects of which may last many years.

Reptiles are very common in the area. Within and immediately adjacent to the Town are the known distributions of 42 different species (Zeiner *et al.* 1998). In addition to the many reptiles, there are many rare bird species in the Morongo Basin. Many common birds visit and are residents in this region. In 1982 the Bureau of Land Management estimated that 235 species of birds have been observed in this area, of which 71 species breed there.

Water Quality

The quality of water is defined as a complex of chemical and physical properties imparted to water by its dissolved-mineral content. The HDWD tests water at each of its wells and at numerous locations throughout the distribution system at least twice a year, measuring chemicals such as total dissolved solids and nitrates.

According to the 1992 Annual Water Quality Report, quality of the Warren Valley Groundwater Basin is generally good. The maximum contaminant level allowed for total dissolved solids is 500 milligrams per litre. Tests showed that total dissolved solids range between 119 and 125 milligrams per litre. The maximum contaminant level allowed for nitrate is 45 milligrams per litre. Additional tests showed that nitrate resulted in a range between 2.9 and 24.1 milligrams per litre⁷. For additional information on water quality and resources please refer to Section III-E.

⁵ Ibid.
⁶ Final Draft Report, Warren Valley Basin Management Plan, Warren Valley Basin Watermaster, Yucca Valley, California, Prepared by Kennedy/Jenks/Chilton, January 1991.
⁷ Water Quality Report, Calendar Year 1992, Hi-Desert Water District.

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H. Biological Resources

The unique geographic and geophysical makeup of the Morongo Basin has established an environment for many diverse and occasionally highly specialized communities of plants and animals, which occupy ecological niches ranging from the desert salt bush scrub on the valley floor to the Mojavean pinion-juniper woodland scrub region of the San Bernardino and Little San Bernardino Mountains (4,000 to 8,000 feet), with a diverse group of interwoven plant communities in between. There are eight (8) identified plant communities located in or near the Yucca Valley area, and the Town and vicinity are transitional between the Sonoran Desert to the immediate south and the Mojave Desert extending to the north⁸.

Zeiner *et al.* (1990) lists 59 mammal species with distributions encompassing the Town, or found immediately adjacent. These include bats, small burrowing mammals, coyote, kit fox, gray fox, ringtail, raccoon, striped skunk, spotted skunk, mountain lion, bobcat, and mule deer. Most of these larger animals are not common in residential areas, but may be expected in undeveloped, open-space areas, and will occasionally frequent slightly developed areas.

Sensitive Plant and Animal Species

The Town of Yucca Valley is host to a wide variety of sensitive plant and animal species, a few of which are designated on the federal and state endangered species lists. Plants especially noteworthy include the Triple-ribbed Milk Vetch and Parish's Daisy, both of which have been proposed for listing as endangered. The Joshua Tree Woodland, which occurs extensively throughout the Town, is designated as a "Community With Highest Inventory Priority" by the State. Sensitive animal species include the federally listed as endangered Desert Tortoise, the Western Yellow-Billed Cuckoo and the Willow Flycatcher (both listed by the State as endangered), and several species of bats (state listed as species of special concern).

I. Cultural Resources

Cultural resources are an integral part of any community. Their identification and protection provides the community with a real sense of its own history and heritage. Cultural resources in the Morongo Basin Region, which encompasses Yucca Valley, include Native Indian settlements and sites that were established before the arrival of European-Americans. Historical features and locations of note, from the early settlement and development of the area, also occur in the vicinity of Yucca Valley.

An assessment of archaeological and historical resources of the area was conducted by Bruce Love, Ph.D. of CAM TECH. A report was compiled and is included in this document as Appendix B. An extensive data and background search was conducted that included records searches at the San Bernardino County Museum Archaeological Information Center and the Thomas Rivera Map Library, and at the Eastern Information Center at the University of California-Riverside (UCR). In addition, drive through and spot field checks were also performed in the Planning Area.

The prehistoric record of human habitation in the Morongo Basin is not exactly known. However, it is likely that Native Indians historically common to this area have utilized the Planning Area, and certainly some of the surrounding areas. Artifacts common to all of the prehistoric periods have been located within or very near the Planning Area.

⁸ Technical Biological Assessment for the Town of Yucca Valley General Plan. Prepared by Tierra Madre Consultants, Inc. Final Report: March 1994.

The Native American group that occupied the general area surrounding the planning area during the later prehistoric and historic times was the Serrano tribe. The Serrano homeland was a large area encompassing the San Bernardino Mountains, including Cajon Pass on the west, San Gorgonio Pass on the south, Twentynine Palms on the east, and Lucerne Valley on the north. Exact tribal boundaries are impossible to assign but they have been approximated by various anthropologists based on linguistic evidence rather than real political or territorial claims⁹.

The Indians that inhabited this area, in fact, did not have a single name that referred to them as a single all inclusive tribe. Their collectiveness was determined by lineage and divided into clans. The clans were grouped into two main divisions of the Serrano social organization. These divisions, or moieties, were known as the Wildcat and Coyote moieties.¹⁰ Appendix B delineates the Serrano territorial boundaries and the general locations of these two Moieties. Individual clans did have territories that each considered their own. These were lands they considered theirs for purposes of hunting game and gathering food and other necessary resources. Interactions among the various tribes was very common for the purposes of trade, intermarriage, and performing various ceremonies.

A thorough records search at the Archaeological Information Center at the San Bernardino County Museum provided an inventory of archaeological sites within the Planning Area. In total, there are currently (1995) twenty-two (22) recorded sites and three (3) pending sites. There are a variety of types of archaeological sites that are likely to be found in or near the Planning Area. These sites are divided into two categories, "historic" and "prehistoric" Historic sites are the remains of human activities that took place during the period after initial European contact. Prehistoric sites are remains from the period of Indian occupation prior to European contact.¹¹ For a comprehensive definition of these various archaeological sites please refer to Appendix B.

Historic Sites

The Yucca Valley area was first the focus of non-Indian activity in the mid-1850s, during a time of the Colorado gold rush and the movement of cattle through the Morongo Basin during different seasons. Gold mining was also pursued locally from the early 1880s. An historically important site to grow out of this period was Warren's Ranch in Morongo Valley and Warren's Well, developed in 1881 immediately adjacent to the present day airport. This site became the focus of Yucca Valley activities for many years and, as a stage-stop, was one of the few local sources of water and became the nucleus for the Town's development.

Since that time, many other historically important site were developed, including the Lone Star Ranch, the Bea Hicks residence, and various post office and general store sites. Any evidence of human activities older than 45 years can technically be called a historical site. While numerous sites within the Town appear to qualify for designation as "recorded sites," all are currently "pending," awaiting proper study and inventorying.

Remains of historic homes or ranches may include remnants of house foundations, out buildings, wells, rock walls, fences, and other features associated with living activities. Mining sites range from whole districts with mine shafts and milling equipment to minor prospects with only shallow pits. Trash dumps or can scatters from trash that can be accurately dated can also qualify as a historic site. Historic roads are also important as markers of transportation and movement between economic centers. Historic buildings are most likely to be found at the heart of Yucca Valley, especially on either side of the main street. These would be the structures most likely associated with the early development and growth of the Town.

⁹ Cultural Resources Element, Yucca Valley General Plan, San Bernardino, Bruce Love, CAM TECH., August 19, 1994.
¹⁰ *Ibid.*
¹¹ *Ibid.*

The sites and pending sites located within the Planning Area provide a sample cross-section of various types of archaeological sites. In addition, just outside of the Planning Area are two (2) major village sites that exhibit characteristics that are associated with permanent habitation for long periods of time. Section III G. Cultural Resources further details sites within the Planning Area.

J. Visual Resources

The Town of Yucca Valley and its planning area are located in a geographically diverse area known as the Morongo Basin, between the Little San Bernardino Mountains and the Sawtooth Mountains. These two ranges provide a contrast of snow-capped mountain scenery to the vast expanses of desert landscape in the Basin. These contrasting scenes serve as the backdrop to the Town's overall scenic beauty. Topography of the area consists of steep slopes and rocky terrain ranging in elevations from 3,200 feet in the center of Town, to 4,673 feet surrounding the planning area to the west, north, and south. No natural standing water bodies are present within the planning area.

Aesthetics/Visual

Due to the elevation differences of the planning area, the Town offers excellent views in all directions. Views include Burnt Mountain and South Park Peak to the south; the Little San Bernardino Mountains to the south and southwest; the San Bernardino Mountains and Saw Tooth Range to the west; areas of high elevations to the north in the Alter's Hill area; and the Bartlett Mountains to the east.

The Town itself is highly visible from surrounding areas to the north, south and east, due to its elevated location. Mountain ranges block most views of Yucca Valley when travelling from the west. From various locations throughout the Town significant views of the surrounding landscapes are visible in every direction. For project impacts and mitigation measures on visual resources, please refer to Section III-J of this document.

K. Air Quality

The air quality of a particular locale is based on the amount of pollutants emitted and dispersed, and upon climatic conditions that may reduce or enhance the formation of pollutants. In the Yucca Valley area, the responsibility for establishing criteria by which air quality is measured rests with the Mojave Desert Air Quality Management District (MDAQMD).

Of all of the pollutants, Ozone and PM_{10} are the most prevalent. Other pollutants are more difficult to infer and are not believed to constitute significant threats to public health¹². Present air quality in the Town of Yucca Valley can generally be expected to be equal or superior to that of all but one of the other communities within the MDAQMD region. With the possible exception of occasionally high amounts of ozone and suspended particulates, which are transported from other areas of the region, the air quality for the Town can generally be referred to as "good".

The Town of Yucca Valley, in relation to other areas in Southern California, essentially has good air quality. In the past few decades noticeable deterioration of air quality has occurred due to increased development and population growth, traffic, construction activity and various site disturbances. It is apparent that although air pollution is emitted from various sources in the Morongo Basin, the most evident degradation of air quality may be attributed mainly to sources outside of the area, including air pollution originating in Los Angeles and portions of San Bernardino County.

¹² Bob Ramirez, Supervising Air Quality Technician, SCAQMD, East Desert Air Basin, personal telecommunication August 19, 1993.

In the beginning of August, 1993, two air quality monitoring devices were installed at the Community Center Complex in the center of Town, which are equipped to measure ozone and PM₁₀. There are an additional seven air quality monitoring stations under the jurisdiction of the MDAQMD and located in the cities of Barstow, Hesperia, Phelan, Trona, Twentynine Palms, Victorville and Lucerne Valley¹³.

The Twentynine Palms monitoring site, which is the most representative of the Yucca Valley area and has been collecting data over a longer period than the Town monitoring site, has recorded exceedences of the State's daily standard for Ozone (.09 ppm/hr.) 164 times, and exceedences of the Federal standard (.12 ppm/hr.) 10 times between 1989 and 1992. PM₁₀ measurements at the Twentynine Palms Monitoring Site have exceeded the State standard (50 μ g/m³) twenty-seven (27) times, and the Federal standard (150 μ g/m³) two (2) times from 1989 to 1992.

L. Noise

Concern regarding the potential psychological and physiological impacts of noise pollution has increased significantly in recent years. Excessive noise levels are not only annoying but can constitute a potentially significant health threat, resulting in temporary or permanent hearing loss and mental distress. The most common sound range is between 40 dB (very quiet) and 100 dB (very loud). Conversation at three feet is roughly at 60 dB, while loud engine noises, which can cause discomfort, equate to 110 dB.

Community noise impacts are commonly evaluated in the Community Noise Equivalent Level (CNEL) noise index, which reduces to a single number the combined effect of a daily noise exposure. The value computed by this method is the sum of the decibel values of the sound, with corrections for time of day, averaged over 24 hours. Weighing factors of 3 and 10 are employed to account for increased sensitivity in the evening (7 pm to 10 pm) and nighttime (10 pm to 7 am) periods, respectively.

Most traffic noise is highly predictable, if certain data concerning operating characteristics are available. Computer models and simulations are used to compute the noise environment along transportation routes with known vehicle operating characteristics. These projections, provided by well established quantitative models, have been verified by sound measurements at strategic and sensitive receptor locations near the Towns major transportation routes.

The predominant noise source in the Town of Yucca Valley and the area is vehicular traffic. In general, the existing noise environment in the Town is typical of a rural community with a limited number of heavily traveled roadways. The major sources of vehicular noise are local and through traffic traveling on the two Highways 62 and 247, and the major arterials, including Yucca Trail, Onaga Trail, and Joshua Lane.

Field monitoring revealed highest CNEL noise impacts along State Highways 62 and 247, as well as along Joshua Lane, Onaga Trail and Yucca Trail. Water well pumps located in residential neighborhoods also have a substantial noise impact when in operation. Finally, the Yucca Valley Airport and overflights from the Twentynine Palms Marine Corps Air Ground Combat Center also occasionally impact the local noise environment, generating short periods of intrusive noise. An acoustic study was prepared for the proposed project and is summarized in Section III-I, Noise, and contained in its entirety in Appendix F.

¹³ The San Bernardino County Air Pollution Control District's Final 1991 Air Quality Attainment Plan August 26, 1991. Updated August 19, 1993 by Bob Ramirez, Supervising Air Quality Technician, SCAQMD.
¹⁴ East Desert Mr Bass, personal telecommunication.
Ibid.

M. Traffic/Circulation

The Town of Yucca Valley is located in the west-central portion of the Morongo Basin and is served by local, regional and inter-regional roadway networks. Regional access to the Town is provided by State Highways 62 and 247. The local, intra-Town traffic is carried by a network of local roadways laid out in a predominantly conventional grid pattern. The Town's major roadways include Joshua Lane, Onaga Trail, and Yucca Trail. Each of the major roadways serving the Town both regionally and locally is briefly described below, along with 1993 ADT volumes¹⁵.

State Highway 62: This generally east/west trending roadway is a four-lane divided highway that is designated as an "Expressway (Limited Access Control)" from US Interstate- 10 north to the Riverside County Line. From the San Bernardino County line and through the Town of Yucca Valley State Highway 62 is designated "Conventional (No Access Control)" Within the Town limits, existing major intersections with HWY 62 occur at Acoma Trail, Sage Avenue, HWY 247/Joshua Lane, Warren Vista Avenue, Hilton Avenue, Balsa Avenue and Yucca Mesa Road/La Contenta Road. The 1993 average daily traffic(ADT) volumes for key locations along Highway 62 are approximately as follows: 19,940 ADT west of Kickapoo Trail; 18,950 ADT east of Acoma Trail; 22,300 ADT west of HWY 247; and 14,490 west of Yucca Mesa Road/La Contenta Road. This roadway is planned for an ultimate six travel lanes with a controlled (raised median) center turn lane.

State Highway 247: This State Highway is generally north/south trending and intersects State Highway 62 in the center of Town. HWY 247 is a regional highway connecting Yucca Valley with the Mojave Desert communities to the north. As the highway continues north out of Town, the road grade steepens and curves to the northwest. The majority of adjacent development along this highway north of the airport is rural residential, with some commercial development south to the intersection at HWY 62 and the west end of the Yucca Valley Airport just south of the Yucca Wash. Currently (1993), the HWY is a two lane facility north of the airport and widens to five lanes southward to the intersection at HWY 62, providing two lanes northbound with three lanes (one through, one right turn, one left turn) southbound. The 1993 traffic volumes were 9,330 ADT south of Buena Vista, and 14,250 ADT north of HWY 62. This roadway is planned for an ultimate right-of-way width of 110 feet, capable of supporting four to six travel lanes with raised median.

Joshua Lane: This roadway trends in a north/south direction from the intersection at Highway 62, southward to and off-set from the north end of Black Rock Canyon Road, which is an entrance to the Joshua Tree National Park. Joshua Lane is currently five lanes at the intersection of Highway 62 and continues south as a four lane facility to the intersection of Yucca Trail. South of Yucca Trail, this roadway is improved as a paved two lane facility. The 1993 traffic volumes were as follows: 4,440 ADT south of HWY 62; 2,170 ADT north of Joshua Drive; and 1,100 ADT south of Palomar Avenue.

Yucca Trail: This roadway trends in an east/west direction, parallel and south of Highway 62, extending from the intersection of Sage Avenue/Yucca Trail and Highway 62 eastward to La Contenta Road. Yucca Trail is currently improved as a two-lane roadway with varying pavement width. The 1993 traffic volumes were as follows: 8,850 ADT west of Joshua Lane; 8,810 ADT east of Joshua Lane; 5,450 ADT west of Avalon Avenue/Palomar Avenue; and 4,530 ADT west of La Contenta Road.

Onaga Trail: This roadway trends in an east/west direction parallel and south of both Highway 62 and Yucca Trail. It is currently (1994) a two lane facility between Inca Trail on the west and Warren Vista on the east. The 1993 traffic volumes along Onaga Trail are 3,370 ADT east of Deer Trail, 2,880 ADT east of Acoma Trail, 7,750 ADT west of Joshua Lane, and 3,660 west of Avalon Avenue/Palomar Avenue.

¹⁵ Average Daily Trips (ADT) are based upon a compilation of traffic counts taken by the California department of Transportation, 1990-93; Counts Unlimited, November, 1993; and Traffic Counts, Inc., December, 1993.

Sage Avenue: Sage Avenue is a north-south trending roadway, extending from Sunnyslope on the north to south of Golden Bee. This roadway provides paved two lane improvements from immediately south of Yucca Wash south to Mountain View Trail and is paved from Joshua Drive to just south of Golden Bee. The 1993 traffic volumes were as follows: 3,650 ADT north of Onaga Trail; and 1,500 ADT north of Highway 62.

Avalon/Palomar Avenue: This roadway trends in a north-south direction, located one mile west of La Contenta/Yucca Mesa Road. Currently (1993), this roadway provides paved two-lane facilities extending from Joshua Lane in the south to Barron Drive in the north, with an unpaved extension continuing approximately one-half mile to the north. The 1993 traffic volumes were as follows: 2,200 ADT north of Yucca Trail; 2,300 ADT north of Onaga Trail; 2,640 ADT south of Onaga Trail; and 1,520 ADT north of Highway 62.

The circulation system for the Town of Yucca Valley has developed peripherally from the Town's two major regional Highways, 62 and 247, as residential areas and strip commercial development along Highway 62 have expanded over the years. Existing traffic counts indicate that traffic volumes in the Town are generally low, and that all roadways are operating at acceptable levels of service. There are seven traffic signals currently (1994) installed within the Town, all along Highway 62. Signals at three additional intersections along HWY 62 at Camino Del Cielo, Deer Trail/Pioneertown Road, and Avalon Avenue/Palomar Ave have been proposed. Additional signals are also proposed along Highway 247 at Sunnyslope Drive and Buena Vista Drive/Skyline Ranch Road. A signal is currently under construction (1995) at Kickapoo Trail and SR 62.

Primary access to the General Plan Study Area will continue to be via the State Highways, 62 and 247. A regional traffic study was prepared for the proposed project and is summarized in Section III-B, Traffic/Circulation and contained in its entirety in Appendix "E".

N. Public Facilities and Services

A wide range of public services and facilities, including quasi-public services, are currently provided within the Town of Yucca Valley and the vicinity. These include local and regional governmental services, special districts, and services and facilities provided by public utilities. The following agencies provide service to the project area:

- Hi-Desert Water District (water and (future) waste water service)
- Hi-Desert Disposal (solid waste)
- Southern California Gas Company (natural gas)
- Southern California Edison (electricity)
- GTE California (telephone)
- San Bernardino County Sheriffs Department (police protection)
- San Bernardino County Fire Department/California Department of Forestry (fire protection) San Bernardino County Flood Control District (regional drainage)
- Morongo Unified School District (K-12 schools)
- San Bernardino County Library System (library services)
- Hi-Desert Memorial Hospital District and Desert Hospital (regional medical facilities)

Domestic Water

The Town of Yucca Valley is provided domestic water services by the Hi-Desert Water District, which lies within the Mojave Water Agency's service boundaries. The Hi-Desert Water District derives water resources principally from the Warren Valley Groundwater Basin underlying the Town of Yucca Valley, is currently being recharged by the State Water Project. The adequacy of the Town of Yucca Valley's water system depends on the supply of water available and the capacity of storage facilities and distribution systems to deliver water on demand. Water supplies must be capable of meeting maximum daily demands; storage must be capable of meeting peak hour demand, in addition to fire flow volumes and an emergency reserve; and finally, the distribution system must

be able to provide required service, fire flows and adequate pressures throughout the system.

With the exception of Blue Skies Country Club, the Institute of Mental Physics, and approximately another sixteen (16) individual users, domestic water resources for the Town of Yucca Valley are provided by the Hi-Desert Water District (HDWD). HDWD makes use of approximately sixteen (16) wells to extract groundwater from the Warren Valley Groundwater Basin. The other users mentioned above operate their own wells. These other wells also draw water from the Warren Valley Ground Water Basin¹⁶. Water storage facilities are provided by sixteen (16) above-ground steel reservoirs with a total holding capacity of 12.41 million gallons¹⁷.

In addition to water supplies available in 1995, the Morongo Basin Pipeline was completed in 1994, and the pipeline has the capacity to provide an additional water supply from the State Water Project. The Morongo Basin Pipeline, a \$52 million project, consists of seventy-one miles of 30 and 36 inch pipelines and a pumping station in the Johnson Valley. The Morongo Basin Pipeline is capable of delivering approximately 14,000 acre feet per year, or 19 cubic feet per second. As of 1995, the Mojave Water Agency has completed a five million gallon reservoir and pipelines directing water into the Town of Yucca Valley have been completed.

Sewage Treatment

The Hi-Desert Water District does not currently provide a sewage collection system or waste water treatment facility. On-site septic systems are utilized by residents and commercial and industrial operations throughout the Town. The Hi-Desert Water District is exploring the possibilities of establishing a wastewater treatment system in order to actively protect the groundwater of the area, and to provide a supplemental water source for non-potable users.

In May 1993, consultants for the Hi-Desert Water District conducted a feasibility study for a wastewater collection and treatment facility for two primary reasons: (1) the concentration of nitrates and total dissolved solids at some wells in the Yucca Valley area has steadily increased in recent years, possibly due to the exclusive and widespread use of septic systems, and (2) since 1958, the level of the aquifer, which provides domestic water to the area, has declined significantly¹⁸.

Solid Waste

Solid waste in the community is primarily handled by Hi-Desert Disposal, which offers both residential and commercial services, with pick-up provided once a week. Generally, residents of the Town can expect to pay approximately \$13.15 per month for service, while commercial customers (with dumpsters) will pay \$50.23 per month¹⁹.

Hi-Desert Disposal offers special services for customers, which produce large levels of waste, for example, restaurants generally require a minimum of two pick-ups per week. Efficient service is essential in assuring a clean, trash-free community. All of the trash collected in the Town of Yucca Valley is distributed between the Landers and Morongo Valley Landfills.

¹⁶ Final Draft Report, Warren Valley Basin Management Plan, Warren Valley Basin Watermaster, Yucca Valley, California, Prepared by Kennedy/Jerks/Chilton, January 1991.
¹⁷ Hi-Desert Water District, Marty Stockstell, Assistant General Manager of Operations, Yucca Valley, CA., August 1993.
¹⁸ Hi-Desert Water District Wastewater Collection and Treatment Facility Evaluation, Montgomery Watson, May 1993.
¹⁹ Hi-Desert Disposal, General Manager, personal telecommunication September 29, 1993.

Natural Gas

The Southern California Gas Company provides natural gas service to the majority of the Town. Due to the rough terrain and steep slopes in the southwest and northwest portions of Town, gas service in some areas is not presently available and propane is frequently relied upon. The Southern California Gas Company operates offices within the Town limits to service the area. Two, four and six inch transmission and distribution gas lines run throughout the community along many of the Town streets. Gas service is available to commercial, industrial and residential users in the Town, with costs varying with seasons amount of use and type of user.

Electric Power

Electrical services are provided in the Yucca Valley area by Southern California Edison (SCE). Services are provided by 115 and 12 KVe transmission lines located in the State Highway 62 and 247 rights-of-way, as well as from lines extending east and west of the Town and south of the Town limits. Various rebates are available for the installation of energy efficient equipment. In addition to providing electrical services to their customers, SCE has special rates for low income customers at 15% off the current residential rates²⁰. Typical SCE residential customers, including those living in Yucca Valley, are estimate to use approximately 6,081 KWh per year, with other customers varying widely by type of use²¹.

Public Buildings and Facilities

Public facilities are those which provide basic facilities services, and installations needed for the functioning of a community. The Town of Yucca Valley benefits from a variety of public facilities ranging from a community center complex (that includes Town Hall, Senior Center, Library, Nature Museum and public meeting rooms), Yucca Valley Airport, as well as utility vendors that operate service centers within the Town limits. Utilities facilities within the Town include a Caltrans Highway Maintenance Station, Southern California Edison substations and maintenance facilities, Southern California Gas, Century Cable, and the Hi- Desert Water District. Other public buildings and facilities include those of educational and health service providers These are briefly discussed in the remainder of Section-II and covered extensively in Section-III on this EIR.

Education

The Morongo Unified School District encompasses a service area of more than 1,350 square miles. It provides public education to the Morongo Basin, which includes the communities of Joshua Tree, Landers, Morongo Valley, the City of Twentynine Palms, the Marine Corps Air/Ground Combat Center, and the Town of Yucca Valley.

There are presently 10,237 students in the District served by ten elementary schools, two junior high schools, two high schools, two alternative high schools, and two community schools. A majority of schools within the District are located within the Town of Yucca Valley. Yucca Valley's public schools include Yucca Valley Elementary School, Onaga Elementary, La Contenta Junior High School, Yucca Valley Community School and Sky High School.

During the increased growth of the 1980s, the population within the Morongo Unified School District continued to steadily increase. Between the years of 1980 to 1994, the District's population has more than doubled making the expansion and construction of school facilities a major priority to the District. Onaga Elementary School is considered one of six new facilities needed by the year 2000 in the Town of Yucca Valley to accommodate anticipated growth. Construction began in 1994 and was completed in 1995.

²⁰ Southern California Edison, Co., September 1993.

²¹ CEQA Mr Quality Handbook, Appendix 9, Table 9-11-A. Prepared by the South Coast Mr Quality Management District. April. 1993.

Library

The Yucca Valley Branch Library is a part of the San Bernardino County Library System and is connected to a County-wide on-line computer system, connecting the Yucca Valley Library to twenty-five other County library facilities and their collections. Yucca Valley's branch consists of an 8,200 square foot facility that houses over 30,000 books and more than 1,000 video and audio cassettes. The library also subscribes to 116 magazines and 6 newspapers²². There are no current plans for the expansion of the library facility.

Health Facilities

Health facilities planning has become an increasingly important issue as people continue to live longer. Seniors over aged 65 make up 25% of the Town of Yucca Valley's population.²³ Most professional health care services are provided by the Hi-Desert Memorial Hospital District, which was created in 1972. The Hi-Desert Memorial Hospital District and its elected five member board are responsible for providing for short and long term health care planning for the region.

The Hi-Desert Medical Center (HDMC), located in Joshua Tree, is the primary hospital of the Morongo Basin. The HDMC is a non-profit, acute primary care hospital and continuing care center with 98 long-term care resident beds, and 22 sub-acute care beds. The medical center also includes an emergency room with some trauma-related facilities, general surgery, internal medicine, cardiovascular and vascular surgery. In-home hospice services for patients and their families who are coping with a terminal illness are also provided. The emergency department will be doubled in size to include two trauma rooms, a cast room, three cardiac rooms, four examination rooms, and other facilities totalling approximately 5,620 square feet.²⁴ Outpatient service modernization and expansion are also be planned for the future as finances become available.

Other health care services include Avalon Urgent Care which is a walk-in clinic providing medical assistance, Airway Surgicenter which offers imaging services such as catscans, and Desert Hospital which offers level II emergency/trauma care, not offered at the Hi-Desert Medical Center, for victims of major life-threatening injuries.

0. Socio-Economic Resources

The economy of the Yucca Valley area is based primarily on service commercial and tourist business. The community is the employment center of the Morongo Basin and an important commercial base for the lower Mojave Desert region. From 1960 to 1980 showed significant growth, with the development of modern service stations, shopping centers and professional buildings, and the continual growth of the residential community with the establishment of professional businesses, including physicians, dentists, attorneys, and other professionals throughout the area²⁵. From 1970 to 1980, the Town saw an annual average increase in the population and number of dwelling units of 10%. From 1980 to 1990 the annual growth rate slowed slightly to 9%. From 1990 to 1993, population growth continued to grow, however the growth rate slowed significantly with the entrenched recession effecting all of Southern California. The estimated population for the Town of Yucca Valley in 1993 was 17,900 persons²⁶, and 18,336 in 1994 according to the California Department of Finance.

Commercial Development

The Yucca Valley area is linked to Interstate 10 and Interstate 15 via State Highway 62 and 247, respectively. The Town benefits from its unique position as the commercial center of the Morongo Basin and lower Mojave Desert, as well as from visitors in route to the Colorado River and Laughlin, Nevada and the adjacent Joshua Tree National Park. In recent years, the Town has seen the development of major community-scale businesses, including a new K-Mart and WalMart.

²² Chamber of Commerce, Informational Sheets on the Town of Yucca Valley. "Library Services." Chamber of Commerce, Yucca Valley, 1993 23 1990 U.S. Census of Population and Housing.

²³ 1990 U.S. Census of Population and Housing

²⁴ Hi-Desert Medical Center Foundation. "Providing for Today.. and.. Tomorrow," Hi-Desert Memorial Hospital District. Joshua Tree, CA. 1993.

²⁵ Yucca Valley and Its History written by May Lillian Clark and Twilla G. Couzens. Copyright 1966, p. 7.

²⁶ Urban Decision Systems, Inc. Area Profile 1990 for the Yucca Valley City Limits. Area Summary, and the California Department of Finance 5/93.

The eastern portion of the Highway 62 commercial corridor still has large vacant areas that can serve master planned community scale commercial and mixed use development. The taxable sales figures available for the Town of Yucca Valley indicate an active and thriving economy, with the total taxable sales generated within the Town for FY '94 at \$1,367,048,000.²⁷

Employment

In 1990, the Town of Yucca Valley had approximately 3,026 residents considered to be white collar workers, and 2,486 residents as blue collar workers²⁸. The employment participation rate for the Town in 1990 was 57.8% for males, and 37.5% for females, with an unemployment rate for males of 7.2%, and 6.6% for females. The overall combined unemployment rate for the total labor pool was 6.9% in 1990²⁹. In 1993, it is estimated that these numbers were very much the same, with 54.9% of the labor force as white collar workers, and 45.1% as blue collar workers³⁰.

Income

Along with the expansion of housing units and population came an increase in the total per capita and median household income. The per capita income levels increased from \$3,083 in 1970 to \$6,692 in 1980. From 1980 to 1990, the per capita income continued to rise to \$13,697, a 105% increase. The per capita income level is currently (1993) estimated at \$18,622.00, a 36% increase from the 1990 income level³¹.

The median household income in the Yucca Valley area has also shown significant increases over the last twenty years. In 1970, the median household income was \$4,860, and in 1993 this level was estimated at \$23,741, approximately a 17% annual increase. For 1998, the per capita and median household incomes are projected to be \$23,022 and \$37,364, respectively³².

²⁷ The California State Board of Equalization Taxable Sales in California (Sales and Use Tax), 1992.

²⁸ Urban Decision Systems, Inc. Area Profile 1990 for the Yucca Valley City Limits, Area Summary, and the California Department of Finance 5/93.

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.