# Section 2: Region Description

This section presents a regional description for the Antelope Valley Region including location, climate, hydrologic features, land uses, population and demographic information, and regional growth projections. The Region description emphasizes that the combination of the increasing population growth, the lack of proper water-related infrastructure, the need to maintain the safe yield of the underlying groundwater basin, and the unparalleled opportunity to create a proactive, "smart" design for the fast-developing region makes this IRWMP essential to efficient and effective water management in the Region.

## 2.1 Region Overview

The 2400 square miles of the Antelope Valley lie in the southwestern part of the Mojave Desert in southern California. Most of the Valley is in Los Angeles County and Kern County, and a small part of the eastern Valley is in San Bernardino County. For the purposes of this plan, the Region is defined by the Antelope Valley's key hydrologic features; bounded by the San Gabriel Mountains to the south and southwest, the Tehachapi Mountains to the northwest, and a series of hills and buttes that generally follow the San Bernardino County Line to the east, forming a well-defined triangular point at the Valley's western edge. As discussed in Section 1, the drainage basin was chosen as the boundary for this IRWMP, not the boundary of the groundwater basin. The smaller groundwater basin boundary excluded some key agencies (Kern County Water Agency for example) that are dealing with similar water management issues (e.g., increasing population, limited infrastructure, increasing pumping costs). These agencies were included within the drainage basin boundary, and , therefore, it was appropriate to choose the larger, more inclusive drainage basin to define the boundary of the Region for the IRWMP.

Groundwater has been, and continues to be an important resource within the Region. Prior to 1972, groundwater provided more than 90 percent of the total water supply in the Valley; since 1972, it has provided between 50 and 90 percent (USGS 2003). Groundwater pumping in the Valley, primarily for agricultural uses, peaked in the 1950s (USGS 2000), and it decreased in the 1960s and 1970s due to increased pumping costs from greater pumping lifts and increased electric power costs resulted in a decrease in agricultural pumping (USGS 2000). The rapid increase in urban growth in the 1980s resulted in an increase in the demand for municipal and industrial (M&I) water and an increase in groundwater use. Projected urban growth and limits on the available local and imported water supply are likely to continue to increase the reliance on groundwater.

The water demands within the Antelope Valley are serviced by a variety of water purveyors, including large wholesale agencies, irrigation districts, special districts providing primarily M&I water, investor-owned water companies, mutual water companies, and private well owners. Water supply for the Antelope Valley comes from three primary sources: the SWP, local surface water runoff that is stored in Little Rock Reservoir, and the Antelope Valley Groundwater Basin, with recycled water and stormwater used as secondary sources of water supply. Rapid development demands on water quantity and water quality, coupled with the potential curtailments of SWP deliveries due to prolonged drought periods, have intensified the competition for available water supplies Consensus is needed to develop a water resource management plan and strategy that addresses the needs of the M&I purveyors to reliably provide the quantity and quality of water necessary to serve thecontinually-expanding region, while concurrently addressing the need of agricultural users to have adequate supplies of reasonably-priced irrigation water. For these reasons, the Antelope Valley is an appropriate area for integrated regional water management. Refer to Figure 1-1 for an overview of the region.

## 2.2 Location

As discussed above, the Antelope Valley, as defined for the purposes of this report, encompasses most of the northern portion Los Angeles County and the southern region of Kern County. Bordered by the mountain ranges to the north, south, and west and the hills and buttes along the east, the Antelope Valley is composed of the following major communities: Boron, Edwards AFB, Lancaster, California City, Palmdale, and Rosamond. Smaller communities include Littlerock and Quartz Hill. The communities are predominantly concentrated in the easterly portions of the Antelope Valley. In addition to these communities, the Region consists of water agencies, land use agencies, and agricultural entities.

Four major roadways traverse the Antelope Valley. The Antelope Valley Freeway (I-14) and the Sierra Highway both bisect the Antelope Valley from north to south. The Pearblossom Highway (Highway 138) traverses the southeastern and central-western portions of the Antelope Valley in an east-west direction. Highway 58 traverses the northern portion of the Antelope Valley in an east-west direction.

Figures 2-1 and 2-2 show the locations of the major roads, county lines, city lines, special districts, and water agency service areas within the Region.

Figure 2-3 provides a map of the Region boundaries, watershed boundaries, and groundwater basin boundaries.

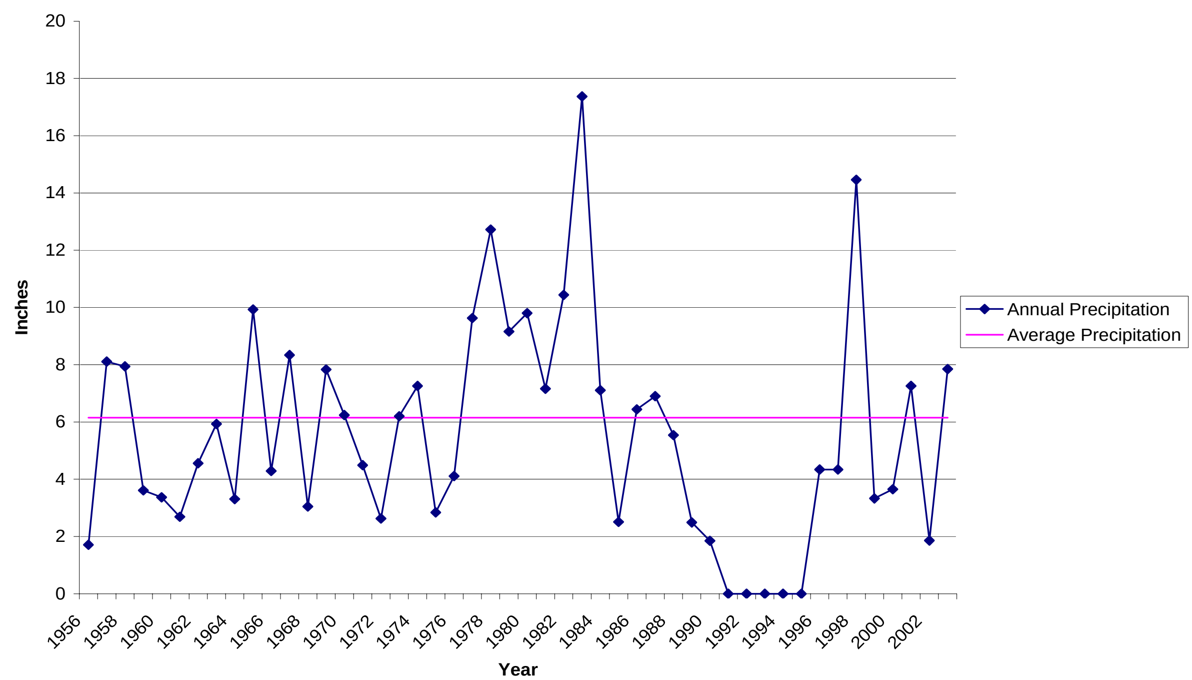
There are five nearby areas that are currently represented by, or that are in the process of developing, IRWMPs. These consist of the Mojave Water Agency IRWMP in the South Lahontan Hydrologic Region; Upper Santa Basin Management Group Integrated Regional Groundwater Management Plan in the South Coast Hydrologic Region; the upper Santa Clara River Watershed, within the South Coast Hydrologic Region; the Los Angeles and San Gabriel Rivers Watershed Council within the South Coast Hydrologic Region; and the Watersheds Coalition of Ventura County, which includes the Ventura River, lower Santa Clara River and Calleguas Creek watersheds, also within the South Coast Hydrologic region. These five plan areas nearly surround the Antelope Valley Region (the Kern County areas north and northwest of the Antelope Valley are not currently covered by an IRWMP), making the Antelope Valley IRWMP play an integral role in completing watershed analyses for the South Lahontan region and providing an important link to the neighboring South Coast Hydrologic Region. The collective efforts of these interconnected IRWMPs will not only benefit their respective regions, but the watersheds of Southern California as a whole.

## 2.3 Climate Statistics

Comprising the southwestern portion of the Mojave Desert, the Antelope Valley ranges in elevation from approximately 2,300 feet to 3,500 feet above sea level. Vegetation native to the Antelope Valley are typical of the high desert and include Joshua trees, saltbush, mesquite, sagebrush, and creosote bush. The climate is characterized by hot summer days, cool summer nights, cool winter days, and cool winter nights. Typical of a semiarid region, mean daily summer temperatures range from 63 degrees Fahrenheit ($^{o}$F) to 93$^{o}$F, and mean daily winter temperatures range from 34$^{o}$F to 57$^{o}$F. The growing season is primarily from April to October. However, most rainfall occurs between December and March, and cultivated crops and non-native plants must rely heavily on irrigation. Surface runoff for the region is divided between Mojave and Little Rock Reservoir, and precipitation ranges from 5 inches per year along the northern boundary to 10 inches per year along the southern boundary. Annual variations in precipitation are important to the annual variations in applied water required for crop production and landscape maintenance. Rainfall records indicate that runoff may be available and retained for artificial groundwater recharge use (USGS 1995).

Figure 2-4 summarizes the historical annual precipitation for the Region, based on the data for rain gauge Station 455B Lancaster.

**FIGURE 2-4**
**ANNUAL PRECIPITATION**




Source: 1956-1990, NOAA Climatological Data, as presented in Law Environmental (1991); 1996-2006, LACPWD, Water Resources Division Station 455B Lancaster.
Note: Data for 1991-1995 was not available from the sources reviewed.

Table 2-1 and the following charts provide a summary of the Region's climate. Climatic data is based on data collected from 1931 to 2005. Figures 2-5 and 2-6 present the average maximum and minimum temperature and the average rainfall and monthly evapotranspiration (ETo) in the Region.

**TABLE 2-1**
**CLIMATE IN THE ANTELOPE VALLEY REGION**

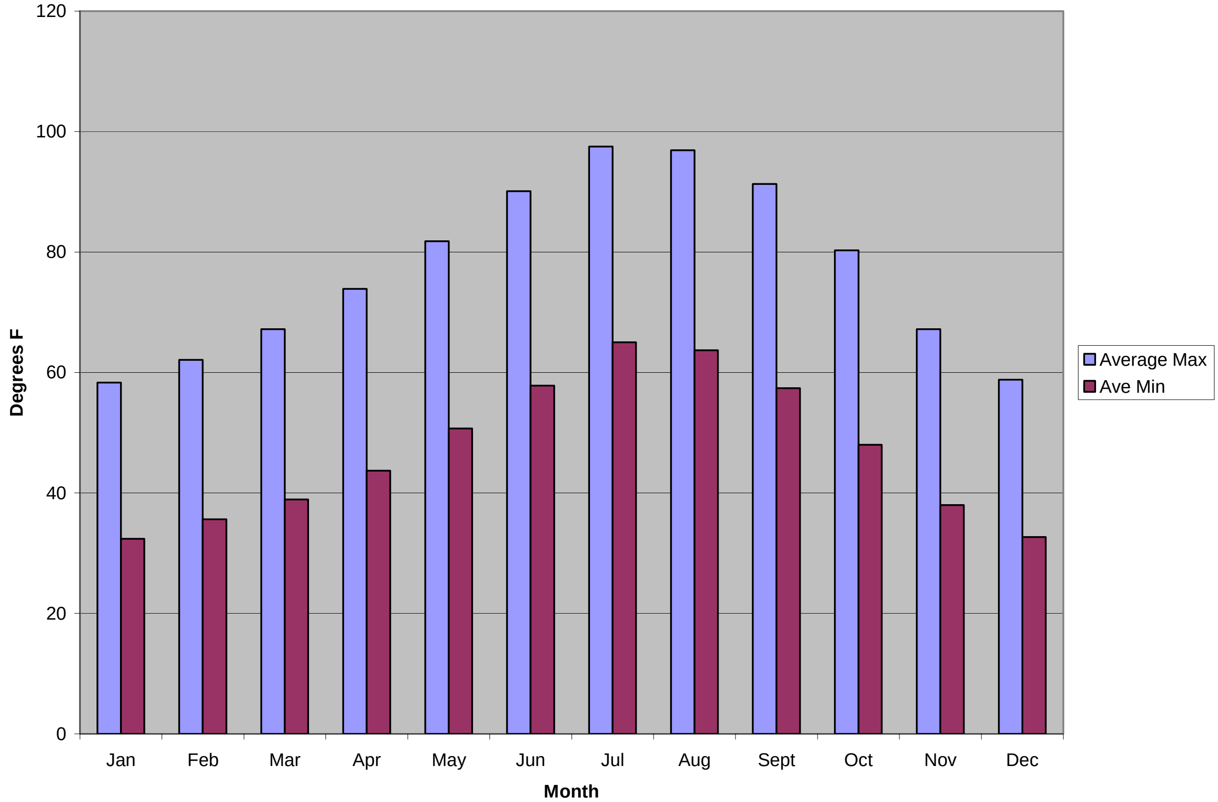
| | Jan | Feb | Mar | Apr | May | Jun |
|---|---|---|---|---|---|---|
| Standard Monthly Average ETo (inches)(1) | 2.02 | 2.61 | 4.55 | 6.19 | 7.30 | 8.85 |
| Average Rainfall (inches)(2) | 1.51 | 1.65 | 1.28 | 0.48 | 0.13 | 0.04 |
| Average Max Temperature($^{o}$F) (2) | 58.3 | 62.1 | 67.1 | 73.9 | 81.8 | 90.1 |
| Average Min Temperature ($^{o}$F) (2) | 32.4 | 35.6 | 38.9 | 43.7 | 50.7 | 57.8 |

| | Jul | Aug | Sept | Oct | Nov | Dec | Annual |
|---|---|---|---|---|---|---|---|
| Standard Monthly Average ETo (inches) (2) | 9.77 | 8.99 | 6.52 | 4.66 | 2.68 | 2.05 | 66.19 |
| Average Rainfall (inches) (2) | 0.05 | 0.18 | 0.20 | 0.34 | 0.68 | 1.37 | 7.91 |
| Average Max Temperature($^{o}$F) (2) | 97.5 | 96.9 | 91.3 | 80.3 | 67.2 | 58.8 | 77.1 |
| Average Min Temperature ($^{o}$F) (2) | 65.0 | 63.7 | 57.4 | 48.0 | 38.0 | 32.7 | 47.0 |

Source: (1) CIMIS data for Palmdale # 197 station Since April 2005
(2) Western Regional Climate Center, Palmdale station for the Years 1931 to 2005.

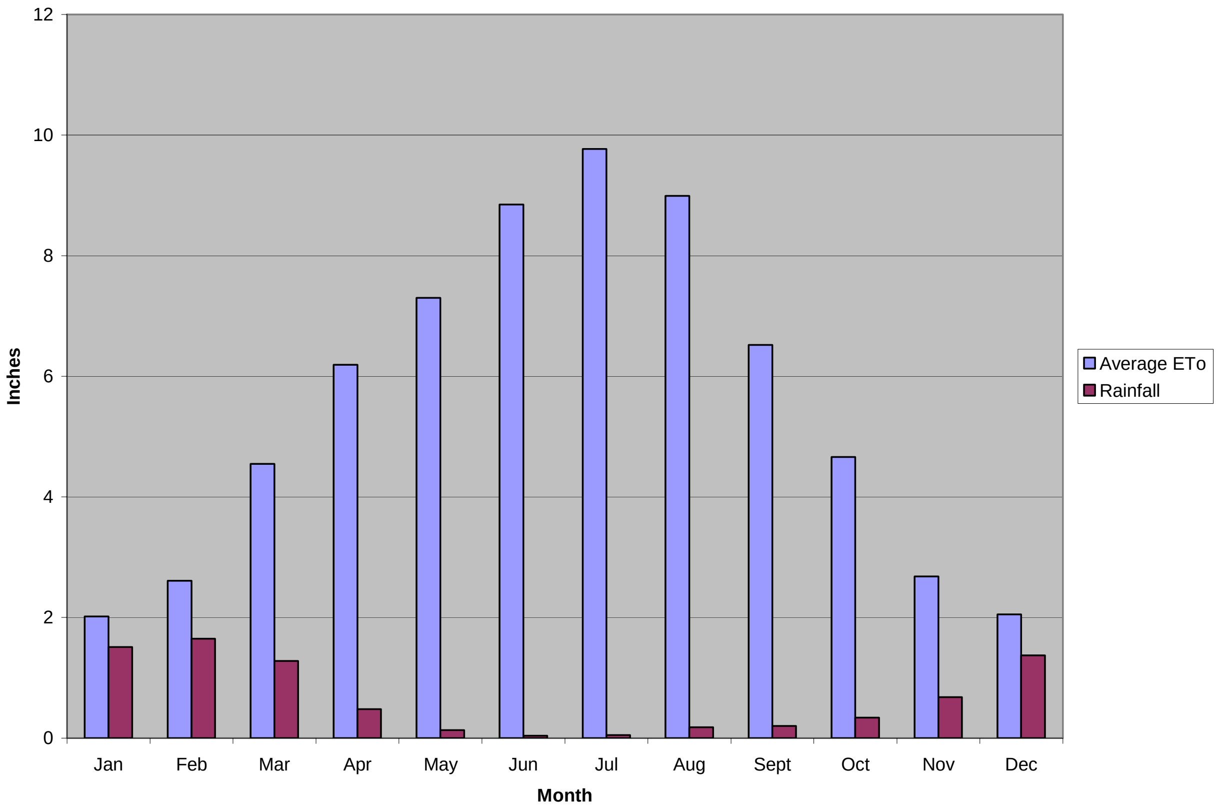
**FIGURE 2-5**

**AVERAGE MAXIMUM AND MINIMUM TEMPERATURE IN THE ANTELOPE VALLEY**




Source: Western Regional Climate Center, Palmdale station for the Years 1931 to 2005.

**FIGURE 2-6**
**AVERAGE RAINFALL AND MONTHLY ETo IN THE ANTELOPE VALLEY**




Source: CIMIS data for Palmdale # 197 station since April 2005 and Western Regional Climate Center, Palmdale station for the Years 1931 to 2005.

## 2.4 Hydrologic Features

The Antelope Valley is a closed topographic basin with no outlet to the ocean. All water that enters the Valley either infiltrates into the groundwater basin, evaporates, or flows toward the three dry lakes on Edwards AFB; Rosamond Lake, Buckhorn Lake, and Rogers Lake. In general, groundwater flows northeasterly from the mountain ranges to the dry lakes. Due to the relatively impervious nature of the dry lake soil and high evaporation rates, water that collects on the dry lakes eventually evaporates rather than infiltrating into the groundwater (LACSD 2005).

The surface water and groundwater features of the Antelope Valley are discussed in more detail below and depicted in Figure 2-3.

### 2.4.1 Surface Water

Surface water flows are carried by ephemeral streams. The most hydrologically-significant streams begin in the San Gabriel Mountains on the southwestern edge of the Valley and include, from east to west, Big Rock Creek, Little Rock Creek and Amargosa Creek, and the Oak Creek from the Tehachapi Mountains. Amargosa Creek runs south/north and is between the Antelope Valley Freeway (I-14) and Sierra Highway. The hydrologic features are shown on Figure 2-3.

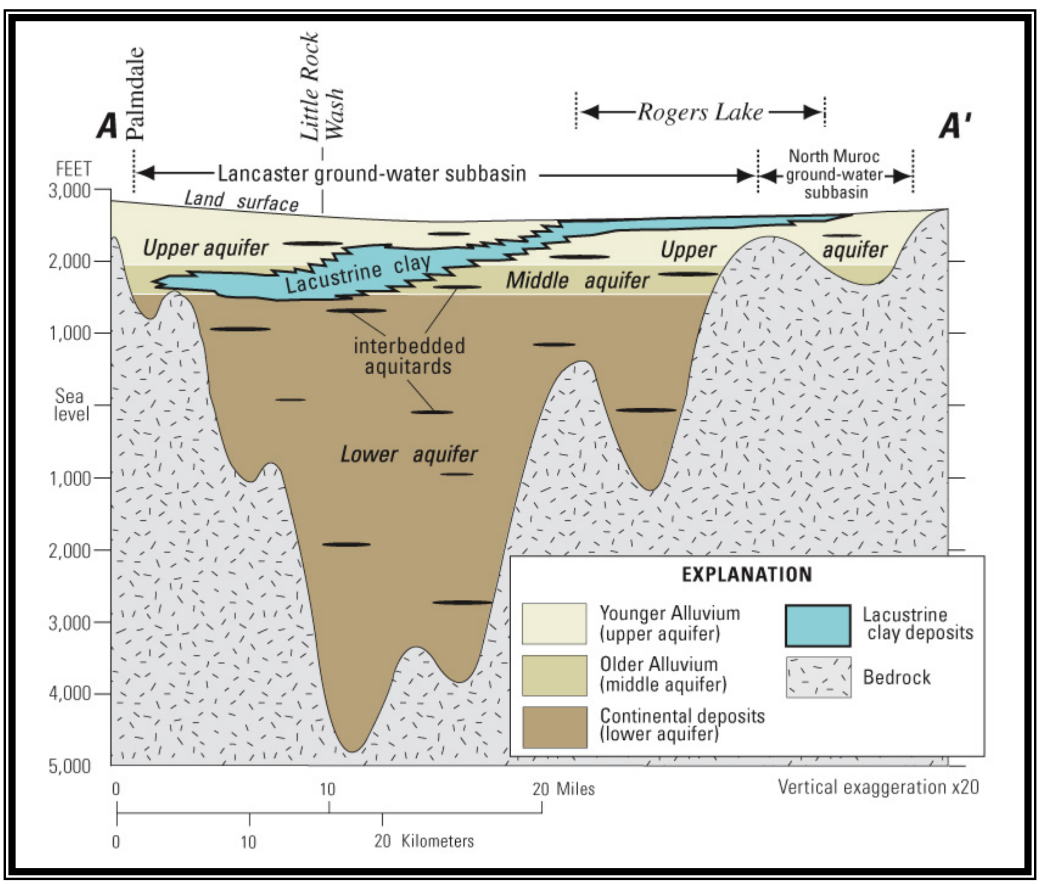
### 2.4.1.1 Little Rock Reservoir

Little Rock Creek is the only developed surface water supply in the Antelope Valley. The Little Rock Reservoir, jointly owned by PWD and LCID, collects runoff from the San Gabriel Mountains. The reservoir currently has a useable storage capacity of 3,500 AF of water (PWD 2001). Historically, water stored in the Little Rock Reservoir has been used directly for agricultural uses within LCID's service area and for municipal and industrial uses within PWD's service area following treatment at PWD's water purification plant.

### 2.4.1.2 Dry Lakes and Percolation

Surface water from the surrounding hills and from the Valley floor flows primarily toward the three dry lakes on Edwards AFB. Except during the largest rainfall events of a season, surface water flows toward the Antelope Valley from the surrounding mountains, quickly percolates into the stream bed, and recharges the groundwater basin. Surface water flows that reach the dry lakes are generally lost to evaporation. It appears that little percolation occurs in the Antelope Valley other than near the base of the surrounding mountains due to impermeable layers of clay overlying the groundwater basin. See Figure 2-7 for a sample cross-sectional illustration of the clay layer as it is position between the upper and lower aquifers in the region.

**FIGURE 2-7**
**CROSS SECTIONAL VIEW OF THE CLAY LAYER BETWEEN THE UPPER AND LOWER AQUIFERS IN THE ANTELOPE VALLEY**



The United States Geological Survey (USGS) estimates that of the 1.5 million acre-feet (AF) of precipitation in the Antelope-Fremont Valley each year, only approximately 76,000 AF percolate to the groundwater reservoirs. The remaining is lost to evapotranspiration (ET) each year (USGS, 1987).

#### *2.4.1.2.1 Geology and Soils*

The Antelope Valley represents a large topographic and groundwater basin in the western part of the Mojave Desert in southern California. It is a prime example of a single, undrained, closed basin, and it is located at an approximate elevation of 2,300 to 2,400 feet above mean sea level. Antelope Valley occupies part of a structural depression that has been downfaulted between the Garlock, Cottonwood-Rosamond, and San Andreas Fault Zones. The Valley is bounded on the southwest by the San Andreas Fault and San Gabriel Mountains, the Garlock Fault and Tehachapi Mountains to the northwest, and San Bernardino County to the east. Consolidated rocks that yield virtually no water underlie the basin and crop out in the highlands that surround the basin. They consist of igneous and metamorphic rocks of pre-Tertiary age that are overlain by indurated continental rocks of Tertiary age interbedded with lava flows (USGS1995).

Alluvium and interbedded lacustrine deposits of Quaternary age are the important aquifers within the closed basin and have accumulated to a thickness of as much as 1,600 feet. The alluvium is unconsolidated to moderately consolidated, poorly sorted gravel, sand, silt, and clay. Older units of the alluvium are somewhat coarser grained, and are more compact and consolidated, weathered, and poorly sorted than the younger units. The rate at which water moves through the alluvium, also known as the hydraulic conductivity of the alluvium, decreases with increasing depth.

During the depositional history of the Antelope Valley, a large intermittent lake occupied the central part of the basin and was the site of accumulation of fine-grained material. The rates of deposition varied with the rates of precipitation. During periods of relatively heavy precipitation, massive beds of blue clay formed in a deep perennial lake. During periods of light precipitation, thin beds of clay and evaporative salt deposits formed in playas or in shallow intermittent lakes. Individual beds of the massive blue clay can be as much as 100 feet thick and are interbedded with lenses of coarser material as much as 20 feet thick. The clay yields virtually no water to wells, but the interbedded, coarser material can yield considerable volumes of water.

Soils within the area are derived from downslope migration of loess and alluvial materials, mainly from granitic rock sources originating along the eastern slopes of the Tehachapi and San Gabriel Mountains. Additional detailed information on soil types and their distribution can be found in the Lancaster WRP 2020 Plan Final EIR.

Figure 2-8 presents a map of the soil types for the Region.

### 2.4.2 Groundwater

The Antelope Valley Groundwater Basin is comprised of two primary aquifers: 1) the principal aquifer and 2) the deep aquifer. The principal aquifer is an unconfined aquifer and historically had provided artesian flows due to perched water tables in some areas. These artesian conditions are currently absent due to extensive pumping of groundwater. Separated from the principal aquifer by clay layers, the deep aquifer is generally considered to be confined. In general, the principal aquifer is thickest in the southern portion of the Valley near the San

Gabriel Mountains, while the deep aquifer is thickest in the vicinity of the dry lakes on Edwards AFB.

Although the groundwater basin is not currently adjudicated, an adjudication process has begun and is in the early stages of development. Although there are no existing restrictions on groundwater pumping, pumping may be altered or reduced as part of the adjudication process.

#### 2.4.2.1 Groundwater Subunits

The complex Antelope Valley Groundwater Basin is divided by the USGS into twelve subunits as shown on Figure 1-1. Groundwater basins are generally divided based upon differential groundflow patterns, recharge characteristics, and geographic location, as well as controlling geologic structures. The Antelope Valley Groundwater Basin's subunits are; Finger Buttes, West Antelope, Neenach, Willow Springs, Gloster, Chaffee, Oak Creek, Pearland, Buttes, Lancaster, North Muroc, and Peerless. The USGS mentions that groundwater levels in these subunits have improved in some areas due to the importation of SWP water to the Antelope Valley Region, and declined in others due to increased groundwater pumping. Each subunit has varying characteristics, and the current conditions in each subunit are briefly summarized below (USGS 1987).

Subunit Characteristics, listed generally from north to south and west to east (USGS 1987):

*Finger Buttes*: A large part of this subunit is in range and forest lands. Flow is generally from southwest to southeast. Depth to water varies, but is commonly more than 300 feet.

*West Antelope*: Groundwater flows southeasterly to become outflow into the Neenach subunit. Depth to water ranges from 250 to 300 feet.

*Neenach*: Groundwater flow is mainly eastward into the "principal" and "deep" aquifers of the Lancaster subunit. Depth to water ranges from 150 to 350 feet.

*Willow Springs*: Groundwater flows southeast and ultimately enters the Lancaster subunit. This subunit receives recharge for intermittent surface flows from the surrounding Tehachapi Mountain area. Depth to water ranges from 100 to 300 feet.

*Gloster*: Groundwater flows to the east and southeast as outflow to the Chaffee subunit. Depth to water levels for the southeast area of the subunit are 50 and 100 feet; other water level data is sparse.

*Chaffee*: Groundwater moves into this subunit from Cache Creek and adjacent alluvial fans to the west, and lesser amounts from the Gloster subunit. Water moves eastward in the western part of the subunit, and northward in the southern part, generally toward the city of Mojave. Water levels range from 50 to 300 feet.

*Oak Creek*: This unit is recharged by flows from the Tehachapi Mountains. Groundwater flows are generally to the southeast, with some southward toward the Koehn Lake area. Data for depth to water is not available.

*Pearland*: Substantial recharge to this subunit comes from Littlerock and Big Rock Creeks. Groundwater generally moves from southeast to northwest, with outflow to the Lancaster subunit. Water levels range from 100 to 250 feet.

*Buttes*: Groundwater generally moves from southeast to northwest, with outflow to the Lancaster subunit. Depth to water ranges from 50 to 250 feet.

*Lancaster*: This is the largest and most economically important subunit, in both size and water use. Due to the use of this subunit, depths to water levels vary widely, being generally greater in the south and west. Pumping depressions can be observed in various locations. There are two major aquifers in the subunit, the "principal" and "deep" aquifers, separated by clay layers. As noted above, groundwater moves into the subunit from the Neenach, West Antelope and Finger Buttes subunits. Groundwater also moves into the principal aquifer from the Buttes and Pearland subunits. The Lancaster subunit underlies Lancaster, Palmdale, Quartz Hill, Rosamond, Antelope Acres and other smaller communities.

*North Muroc*: This unit underlies part of the Rogers Lake and Edwards AFB area. Groundwater moves north and west, then north and possibly into the Peerless subunit. Data on depth to groundwater is not available.

*Peerless*: Little information is available on this subunit, which cannot be clearly delineated, but represents the eastern limit is the limit of highly developed water-bearing deposits. As of the date of the USGS report, water levels had declined by as much as 150 feet and flow was toward a pumping depression.

#### 2.4.2.2 Groundwater Quality

Groundwater quality is excellent within the principal aquifer but degrades toward the northern portion of the dry lake areas. Considered to be generally suitable for domestic, agricultural, and industrial uses, the water in the principal aquifer has a total dissolved solids (TDS) concentration ranging from 200 to 800 milligrams per liter (mg/L). The deeper aquifers typically have higher TDS levels. Hardness levels range from 50 to 200 mg/L and high fluoride, boron, and nitrates are problematic in some areas of the basin. Arsenic is another emerging contaminant of concern in the Region and has been observed in LACWWD 40, PWD, and QHWD wells. Research conducted by the LACWWD and the USGS has shown the problem to reside primarily in the deep aquifer, and it is not anticipated that the existing arsenic problem will lead to future loss of groundwater as a water supply resource for the Antelope Valley.

#### 2.4.2.3 Groundwater Storage Capacity and Recharge

The total storage capacity of the Antelope Valley Groundwater Basin has been reported at 68 million acre-feet (MAF) (Planert and Williams 1995 as cited in DWR 2004) and 70 MAF

(DWR 1975 as cited in DWR 2004). The groundwater basin is principally recharged by deep percolation of precipitation and runoff from the surrounding mountains and hills (see Figure 2-3 for a depiction of groundwater basin boundaries). Estimates of groundwater recharge rates range from about 31,200 to 59,100 AFY (USGS 1993). Other sources of recharge to the basin include direct infiltration of precipitation, irrigation return flows, wastewater collection and treatment facilities discharges, artificial recharge, and lateral groundwater underflow from adjacent bedrock areas and basins. Depending on the thickness and characteristics of the unsaturated zone of the aquifer, these sources may or may not contribute to recharge of the groundwater. As previously stated, precipitation over the Valley floor is generally less than 10 inches per year and ET rates (along with soil requirements) are high; therefore, recharge from direct infiltration of precipitation is considered negligible (Snyder 1955; Durbin 1978 as cited in USGS 2003). Estimates of the amount of recharge to the basin attributable to the types of recharge (other than mountain-front or precipitation infiltration) could not be found.

The basin has historically shown large fluctuations in groundwater levels. Data from 1975 to 1998 show that groundwater level changes over this period ranged from an increase of 84 feet to a decrease of 66 feet (Carlson and Phillips 1998 as cited in DWR 2004).

In general, data collected by the USGS (2003) indicate that groundwater levels appear to be falling in the southern and eastern areas of the Antelope Valley and rising in the rural western and far northeastern areas of the Valley. This pattern of falling and rising groundwater levels correlates directly to changes in land use over the past 40 to 50 years. Falling groundwater levels are generally associated with areas that are developed and rising groundwater levels are generally associated with areas that were historically farmed, but have been largely fallowed during the last 40 years. However, recent increases in agricultural production, primarily carrots, in the northeastern and western portions of the Valley may have reduced rising groundwater trends in these areas (LACSD 2005).

#### 2.4.2.4 Groundwater Extraction

According to the USGS (2003), groundwater extractions have exceeded the estimated natural recharge of the basin since the 1920s. This overdraft has caused water levels to decline by more than 200 feet in some areas and by at least 100 feet in most of the Region (USGS 2003). Extractions in excess of safe yield can cause groundwater levels to drop and associated environmental damage (e.g., land subsidence). Safe yield[1], or referred to herein as the ‘empirical yield,’ for the Antelope Valley has been calculated in the references reviewed for this IRWMP. USGS estimated natural recharge to the basin at between 31,200 AFY to 59,000 AFY (USGS 2003). Law Environmental (1991) calculated an empirical yield for the basin at 47,400 AFY. Snyder (1955), as cited in Law Environmental (1991), adopted a figure of 40,000 AFY for empirical yield. For the purposes of this IRWMP, the empirical yield for the basin is assumed to be 31,200 AFY, which is the lower, more conservative estimate of recharge by USGS.

Groundwater extractions are reported to have increased from about 29,000 AF in 1919 to about 400,000 AF in the 1950’s, when groundwater use in the Region was at its highest (USGS 1995). Use of SWP water has since stabilized groundwater levels in some areas of the Antelope Valley. In recent years, groundwater pumping has resulted in subsidence and earth fissures in

[1] Safe yield is defined as “the maximum rate of extraction from a groundwater basin which, if continued over an indefinitely long period of years, would result in the maintenance of certain desirable fixed conditions.”

the Lancaster and Edwards AFB areas which has permanently reduced storage by 50,000 AF (DWR 2004). Athough an exact groundwater budget for the basin is not available, data estimates pertaining to groundwater production are available from the early 1900s through 1995. The most recent estimates from the USGS contend that during the 1991-1995 period, groundwater pumpage averaged 81,700 AFY (USGS 2003).

In the Lancaster basin, the groundwater generally moves northeasterly from the San Gabriel and Sierra Pelona Mountains to Rosamond and Rogers dry lakes. Heavy pumping has caused large groundwater depressions that disrupt this movement (LACSD 2005).

## 2.5 Land Use

Historically, land uses within the Antelope Valley have focused primarily on agriculture, and crops grown in the region have included alfalfa, wheat, barley, and other livestock feed crops. . However, the area is in transition as the predominant land use shifts from agricultural uses to residential and industrial uses.

The increase in residential land use is evident from the population growth in the Antelope Valley, which is discussed in the next section. With significantly lower home prices than in other portions of Los Angeles County, the Antelope Valley housing market has seen an increase as people choose to commute to the Los Angeles area. According to the Antelope Valley Building Industry Association (BIA) (2006), a number of trends over the last couple of years can be seen from single- and multi-family households in the Antelope Valley. From 2005-2006, single-family permits in the Antelope Valley decreased by approximately 13 percent. By comparison, the Santa Clarita Valley saw an approximate 18 percent decrease in single-family permits. Over the same time period, there was no net change in the percentage of multi-family home permit within the Antelope Valley. By comparison, the percentage change in the Santa Clarita Valley from 2005 to 2006 was 99.7 percent. With the recent slowing of the market, the BIA concluded that builders are revising housing starts for the foreseeable future, probably through 2007 and 2008. Additionally, it was recognized that the Antelope Valley Region is the last large available open space “opportunity” for development, whether it be for residential, commercial/industrial/retail or agricultural. As such, the BIA predicted that the region is expected to continue to grow in population and sustained residential growth is necessary for a strong, vibrant economy (BIA, 2006).

Industrial land use in the Antelope Valley consists primarily of manufacturing for the aerospace industry and mining. Edwards AFB and the U.S. Air Force Flight Production Center (Plant 42) provide a strong aviation and military presence in the region. Mining of borate in the northern areas and of salt extract, rock, gravel, and sand in the southern areas contribute to the Antelope Valley’s industrial land uses.

## 2.6 Population

This subsection provides demographic information from the 2000 Census as well as regional growth projections.

### 2.6.1 Demographics

Table 2-2 provides a summary of the human demographics for the Region as determined by 2000 U.S. Census Bureau data. Regional data was estimated from the data for the census tracts within the regional boundaries. Although Figure 1-5 shows several DACs near Boron, the MHI for Boron does not reflect this. This is mainly a direct result of the 1.2 percent of the Boron population with average salary above $200,000, which increases the overall median income level for Boron.

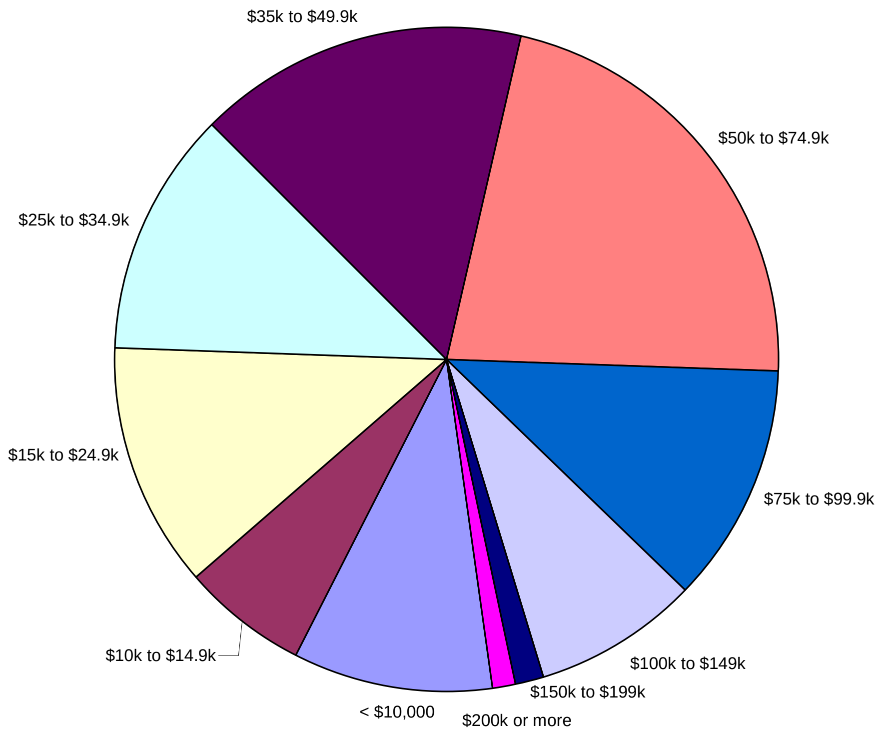
Figure 2-9 below provides shows the breakdown of the income levels in the Region as laid out in Table 2-2.

**TABLE 2-2**
**DEMOGRAPHICS SUMMARY FOR ANTELOPE VALLEY**

| Area | Lancaster | Palmdale | Unincorp. LA County | California City | Boron | Mojave | Rosamond | Edwards AFB | Unincorp. Kern County | Region |
|---|---|---|---|---|---|---|---|---|---|---|
| Age Structure (by %) | | | | | | | | | | |
| under 5 | 8.0 | 9.3 | 6.9 | 6.7 | 7.3 | 9.1 | 7.6 | 14.0 | 5.8 | 8.1 |
| 5-9 | 9.5 | 11.5 | 9.4 | 8.2 | 6.7 | 9.5 | 9.8 | 10.6 | 7.5 | 10.0 |
| 10-14 | 9.2 | 11.5 | 10.3 | 9.8 | 8.4 | 8.8 | 9.9 | 8.7 | 8.7 | 10.3 |
| 15-19 | 8.6 | 8.9 | 7.9 | 8.6 | 8.0 | 8.0 | 8.4 | 5.7 | 7.2 | 8.2 |
| 20-24 | 6.4 | 5.4 | 5.3 | 4.7 | 4.4 | 5.9 | 5.0 | 17.0 | 2.6 | 5.6 |
| 25-34 | 13.8 | 12.7 | 12.2 | 10.3 | 9.5 | 12.1 | 12.6 | 25.1 | 6.6 | 12.3 |
| 35-44 | 17.5 | 18.4 | 20.2 | 17.5 | 15.7 | 15.6 | 19.4 | 17.0 | 18.0 | 18.5 |
| 45-54 | 11.6 | 11.3 | 13.3 | 14.6 | 15.2 | 11.6 | 12.2 | 1.6 | 15.8 | 12.1 |
| 55-59 | 3.7 | 3.2 | 3.9 | 4.9 | 5.9 | 4.2 | 3.9 | 0.1 | 6.2 | 3.7 |
| 60-64 | 2.9 | 2.2 | 3.0 | 4.0 | 5.8 | 4.4 | 3.3 | 0.1 | 5.6 | 3.0 |
| 65-74 | 4.6 | 3.4 | 4.5 | 6.8 | 7.7 | 6.3 | 5.0 | 0.1 | 11.4 | 4.8 |
| 75-85 | 3.0 | 1.7 | 2.4 | 3.2 | 4.8 | 3.6 | 2.3 | 0.1 | 4.4 | 2.6 |
| 85 and over | 1.0 | 0.4 | 0.6 | 0.8 | 0.7 | 0.9 | 0.6 | 0 | 0.4 | 0.7 |
| Median Household Income | $41,127 | $46,941 | NA | $45,735 | $40,625 | $24,761 | $42,307 | $36,915 | NA | -- |
| Income Levels (by %) | | | | | | | | | | |
| < $10,000 | 9.7 | 8.8 | 8.5 | 10.6 | 14.8 | 24.9 | 6.8 | 0 | 6.8 | 9.6 |
| $10k to $14.9k | 7.0 | 5.7 | 5.6 | 6.4 | 11.9 | 6.6 | 5.4 | 1.3 | 4.7 | 6.2 |
| $15k to $24.9k | 13.4 | 10.5 | 9.8 | 11.4 | 11.7 | 18.8 | 10.4 | 19.0 | 10.4 | 11.9 |
| $25k to $34.9k | 13.0 | 11.3 | 10.6 | 12.0 | 8.6 | 12.8 | 13.2 | 24.7 | 8.8 | 12.0 |
| $35k to $49.9k | 16.2 | 16.7 | 17.1 | 12.7 | 19.4 | 15.9 | 17.0 | 25.3 | 12.7 | 16.2 |
| $50k to $74.9k | 20.5 | 23.0 | 22.6 | 25.3 | 19.4 | 11.8 | 26.6 | 21.1 | 29.1 | 21.8 |
| $75k to $99.9k | 10.4 | 12.9 | 13.1 | 12.1 | 8.9 | 5.4 | 13.8 | 6.6 | 11.2 | 11.6 |
| $100k to $149k | 7.3 | 8.8 | 9.9 | 7.2 | 4.0 | 3.9 | 5.2 | 2.0 | 11.8 | 8.0 |
| $150k to $199k | 1.3 | 1.5 | 1.3 | 1.4 | 0 | 0 | 0.7 | 0 | 2.6 | 1.4 |
| $200k or more | 1.2 | 0.8 | 1.5 | 0.9 | 1.2 | 0 | 0.9 | 0 | 1.7 | 1.2 |
| Population Density(persons per sq. mile) | 1,263 | 1,112 | 70.1 | 107.0 | 88.8 | 9.7 | 91.9 | 19.4 | 14.5 | 96.6 |
| Languages spoken(1) | | | | | | | | | | |
| English | 78% | 66% | 75% | 85% | 78% | 79% | 77% | 88% | 91% | 75% |
| Spanish | 17% | 29% | 19% | 9% | 19% | 17% | 20% | 6% | 6% | 20% |
| French | 1% | <1% | <1% | 1% | <1% | <1% | <1% | <1% | <1% | <1% |
| Tagalog | 1% | 1% | 1% | 1% | 2% | <1% | 2% | 2% | <1% | 1% |
| German | <1% | <1% | <1% | <1% | <1% | <1% | <1% | 1% | 1% | <1% |
| Other (all <1%) | 2% | 4% | 5% | 4% | 1% | 4% | 1% | 3% | 2% | 14% |

(1) For age 5 and up, 2000 Census Tract data.

**FIGURE 2-9**
**INCOME LEVELS FOR THE REGION**




### 2.6.2 Regional Growth Projections

Growth in the Antelope Valley proceeded at a slow pace until 1985. Between 1985 and 1990, the growth rate increased approximately 1,000 percent from the average growth rate between the years 1956 to 1985 as land uses shifted from agricultural to residential and industrial. The historical and projected population for the Antelope Valley is shown in Table 2-3. Historical population estimates were based on the Geolytics normalization of past U.S. Census tract data to 2000 census tract boundaries. This normalization allows for a direct comparison of the past U.S. Census tract population data. These Census tracts were then assigned to the individual jurisdictions in the Region to determine the jurisdiction's population. Projections for the Los Angeles County portion of the Antelope Valley were derived from Southern California Association of Governments (SCAG) estimates. Population projections for the Kern County portion of the Antelope Valley assume the SCAG estimated annual growth rate of 4.2 percent for the Region. Projections indicate that approximately 1,117,541 people will reside in the Antelope Valley by the year 2030. This represents an increase of approximately 121 percent from the 2005 population.

Figures 2-10A and 2-10B below graphically depict these population projections.

**TABLE 2-3**
**POPULATION PROJECTIONS**

| | 1970(1) | 1980(1) | 1985(2) | 1990(1) | 2000(1) | 2005 | 2015 | 2030 |
|---|---|---|---|---|---|---|---|---|
| California City(4) | 2,329 | 3,282 | 3,759 | 5,915 | 8,248 | 10,132 | 15,288 | 28,339 |
| Boron(4) | 2,677 | 2,816 | 2,886 | 3,169 | 2,025 | 2,488 | 3,754 | 6,958 |
| Mojave(4) | 3,986 | 4,620 | 4,937 | 6,905 | 5,793 | 7,116 | 10,738 | 19,904 |
| Rosamond(4) | 4,040 | 5,236 | 5,834 | 9,434 | 15,286 | 18,777 | 28,334 | 52,520 |
| Edwards AFB(4) | 10,334 | 8,554 | 7,664 | 7,423 | 6,577 | 8,079 | 12,191 | 22,597 |
| Unincorporated Kern County(4) | 621 | 1,988 | 2,672 | 8,426 | 11,596 | 14,244 | 21,494 | 39,842 |
| Lancaster(3) | 41,418 | 50,780 | 55,461 | 97,913 | 113,023 | 142,043 | 191,912 | 259,696 |
| Palmdale(3) | 17,179 | 21,640 | 23,871 | 66,710 | 95,904 | 145,995 | 218,387 | 337,314 |
| Unincorporated LA County(3) | 20,251 | 28,912 | 33,243 | 68,607 | 87,521 | 156,671 | 242,561 | 350,372 |
| **Region** | **102,835** | **127,828** | **140,325** | **274,502** | **345,973** | **505,545** | **744,659** | **1,117,541** |

(1) Based on Geolytics normalization of past U.S. Census tract Data to 2000 Census tract boundaries.

(2) Based on an interpolation of the 1980 and 1990 U.S. Census Data.

(3) SCAG projections for North Los Angeles County Subregion.

(4) Projections assume the SCAG growth rate of 4.2 percent for the Region.

**FIGURE 2-10A**
**POPULATION PROJECTIONS**

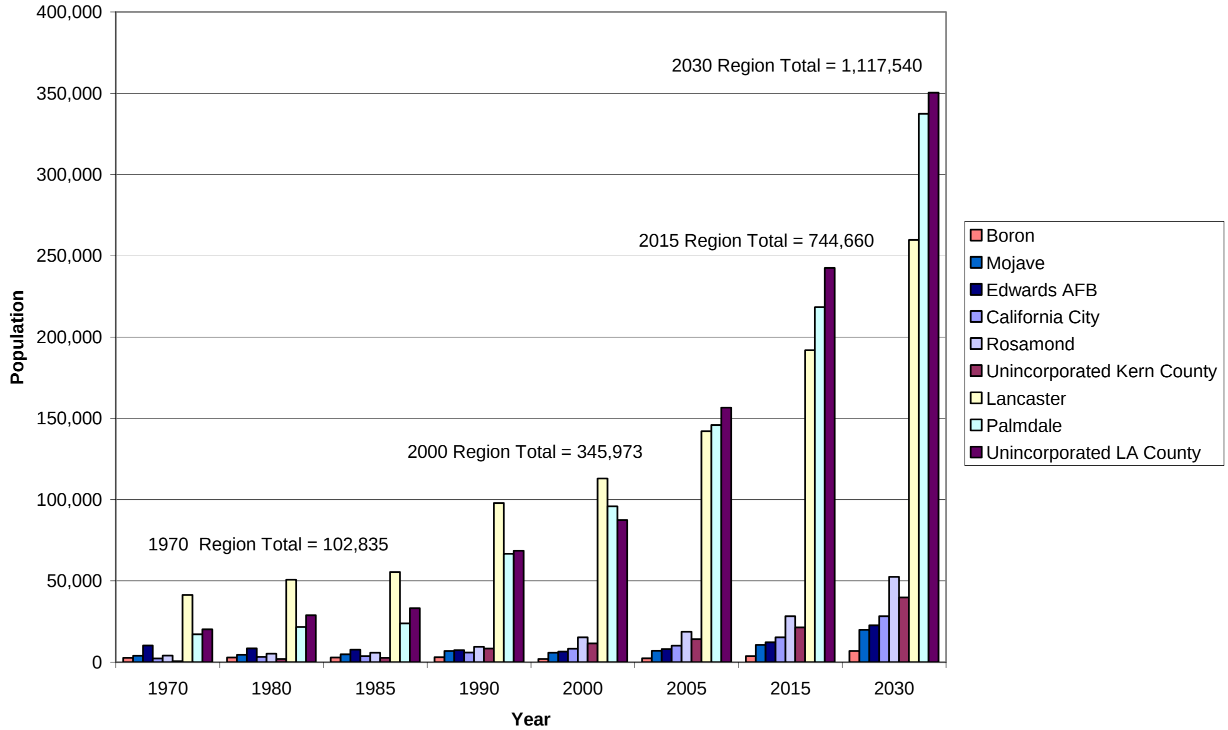


**FIGURE 2-10B**
**REGION POPULATION**