# Chapter III.

# ENVIRONMENTAL RESOURCES

# WATER RESOURCES ELEMENT

## PURPOSE

The Water Resources Element of the General Plan addresses water sources, availability, current and future demand, conservation, water quality, and the future of the water resources serving the community. A discussion of local water purveyors and the importance of coordination between the purveyors and the Town is also included below. The topics covered by this element include regional and local water supplies, consumptive demand within the Town and Sphere-of-Influence, and groundwater conservation and protection. And finally, the goal, policies and programs are set forth in this element which direct Town staff and other officials in the management of this vital resource.

## BACKGROUND

The Water Resources Element is directly related to both the Land Use Element and considers the management of water demand and water quality as essential to land use planning. This Element is also directly related to the Flooding and Hydrology Element, which discusses the protection and enhancement of groundwater recharge, as well as the protection of life and property from flood damage. The Emergency Preparedness Element, Police and Fire Protection, and the Water, Sewer and Utilities Element also are related to and address water availability and water quality issues.

The Water Resources Element addresses key topics of California Government Code Section 65302(d), including the discussion and evaluation of available water supplies, conservation of water resources, and water quality control. In addition, the Town is authorized by the California Environmental Quality Act, Section 21083.2(g), to require the research and documentation of potential water resource impacts associated with projects within the Town that may have significant impacts to water and other important resources.

## WATER RESOURCES

### Mojave River Groundwater Basin

The Town of Apple Valley is located within the boundaries of the Mojave River Groundwater Basin, which encompasses approximately 1,400 square miles along the Mojave River within the management area of the Mojave Water Agency (MWA). The management area for the MWA covers approximately 4,900 square miles. MWA is responsible for managing the long-term reliability of surface and groundwater within its service area, and as a State Water Project (SWP) contractor, has an SWP water allocation of 75,800 acre-feet per year. Local water purveyors contract with MWA for water, which is delivered from the SWP facilities extending as far north as Lake Oroville to Lake Perris in the south. The SWP includes 660 miles of aqueduct and conveyance facilities, and delivers SWP water to MWA for storage and distribution.

The MWA Urban Water Management Plan utilizes SWP reliability factors of 69% to 77%, which yield a conservative 53,800 to 58,400 AF of entitlement for MWA. However, recent events involving water deliveries and impacts to endangered species in the San Joaquin River basin have reduced current (2008) and may reduce future deliveries of SWP water allocations to SWP contractors, including MWA.

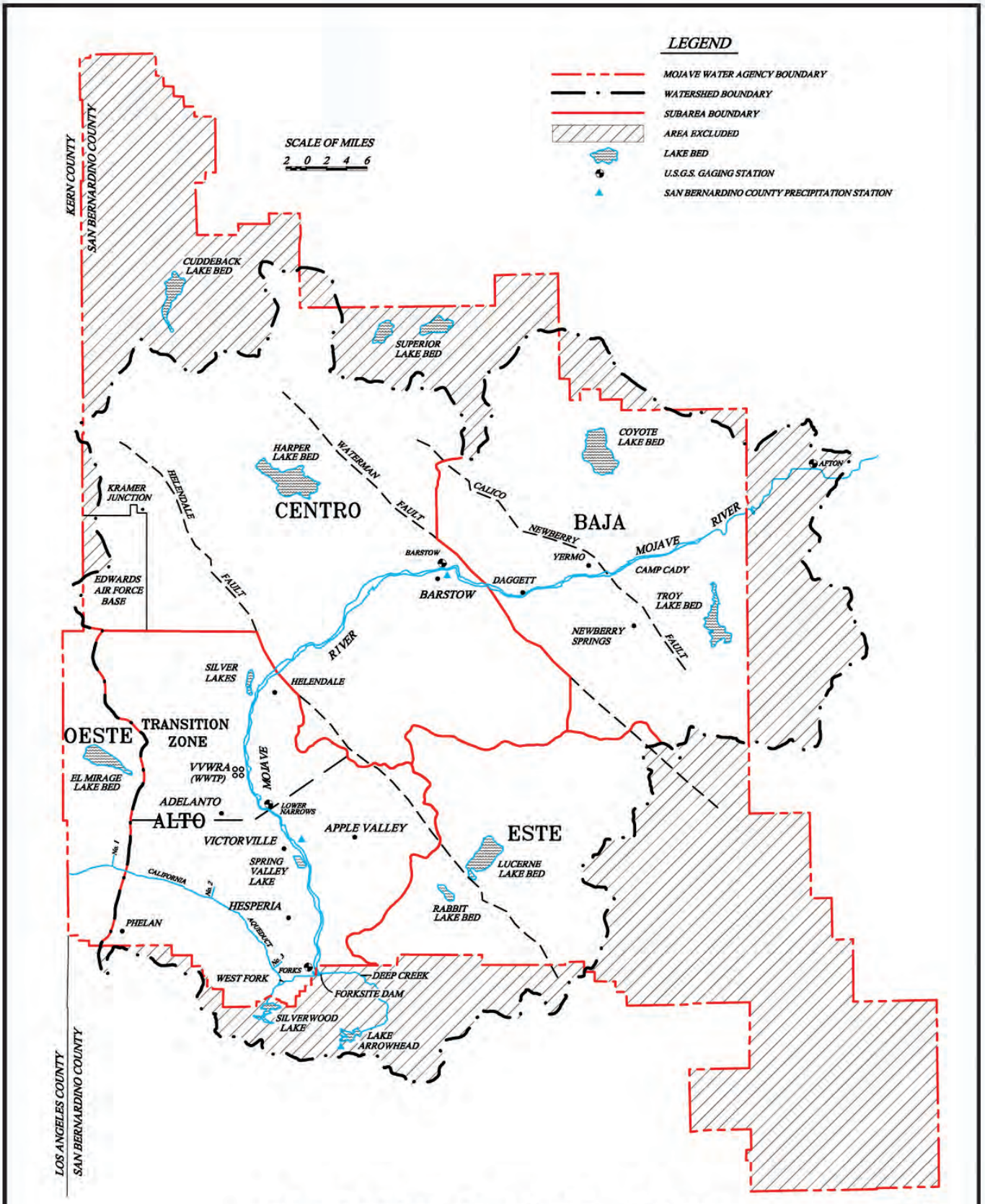
The MWA service area is underlain by several subsurface aquifers known as subareas. Within the Mojave Basin Judgment Area (see Water Demand, below), these subareas include the Alto, the Baja, the Centro, the Este, and the Oeste Subareas (see Exhibit III-1, Groundwater Basins within the MWA Service Area). The Morongo Basin/Johnson Valley Subarea lies to the southeast of the Este Subarea, and is outside the Mojave Basin Judgment Area. Geologic (faults) and topographic features that restrict groundwater flow and surface water drainage define these subareas. The Town of Apple Valley is located near the center of the Alto Subarea of the Mojave River Groundwater Basin.

The Mojave River is the primary natural source of recharge for the Mojave River Groundwater Basin; however, most of the streambed is dry much of the year except for periods of spring runoff and at other times from flows associated with intense rainstorms. The topographic relief that runs along the Mojave River on the west side of the Town generally divides local drainage. To the east of these hills, most of the drainages from the surrounding hills and mountains in Apple Valley flow towards the Apple Valley Dry Lake. The drainage channels in the local mountains are well defined but lose their strong definition when they reach the valley floor, where they spread out into ephemeral stream channels and sheet flow. Drainages along the western side of Apple Valley eventually discharge into the Mojave River. The largest tributary to the Mojave River within Apple Valley is Bell Mountain Wash, a natural channel that collects runoff primarily in the area north and west of Bell Mountain. Numerous small, unnamed drainages drain the western part of the Ord Mountains and flow towards the Mojave River. Elevations within the Town average approximately 3,000 feet above sea level, ranging from about 2,700 feet above sea level along the Mojave River and up to 3,897 above sea level at Bell Mountain peak.

**Alto Subarea**

The Alto Subarea consists of water-bearing strata underlying a 35-mile length of the Mojave River, generally encompassing the communities of Apple Valley, Victorville, Adelanto, Hesperia, Helendale, and Phelan.

The Alto Subarea is generally bounded by the non-water-bearing rocks of the San Bernardino Mountains to the south, by the non-water bearing rocks of the San Gabriel Mountains to the west, and by the Helendale Fault to the northeast. However, it is not wholly isolated from the surrounding subareas. The headwaters of the Mojave River occur to the south, at the confluence of the West Fork and Deep Creek streams. To the east, the Alto Subarea merges with the Este Subarea, to the west it merges with the Oeste Subarea, and to the north (down-gradient) it merges with the Centro Subarea. The Alto Subarea is recharged by snowmelt of the San Bernardino Mountains via the Mojave River. Due to its proximity to the headwaters of the Mojave River, the Alto Subarea has the largest water supply in the Mojave Basin.




# MOJAVE BASIN AREA

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Source: Fourteenth Annual Report of the Mojave Basin Area Watermaster for Water Year 2006-2007 Mojave Water Agency, April 1, 2008

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**Apple Valley General Plan**
**Groundwater Basins in the**
**Mojave Water Agency Service Area**
**Apple Valley, California**

**Exhibit**
**III-1**

The subbasin that comprises the Alto Subarea contains approximately 82,400 acre-feet of water with out-flows and losses calculated at 47,700 ac-ft. Thus the net volume of water in the Alto Subarea is estimated to be 34,700 ac-ft of water, plus importation of 75,800 acre-feet of State Water Project entitlements available to the MWA. Water withdrawals are from wells in the Subarea.

Factors that contribute to increases and decreases in the amount of water stored in the Alto Subarea include variations in local and regional precipitation, percolation rates, the movement of water from dams and river basins, and water transmission lines into the basin. The amount of water withdrawn supplies residential, commercial, industrial, institutional and all other uses by water purveyors in the Alto Subarea. The annual production in the subarea between 1994 and 2007 is shown in the following table.

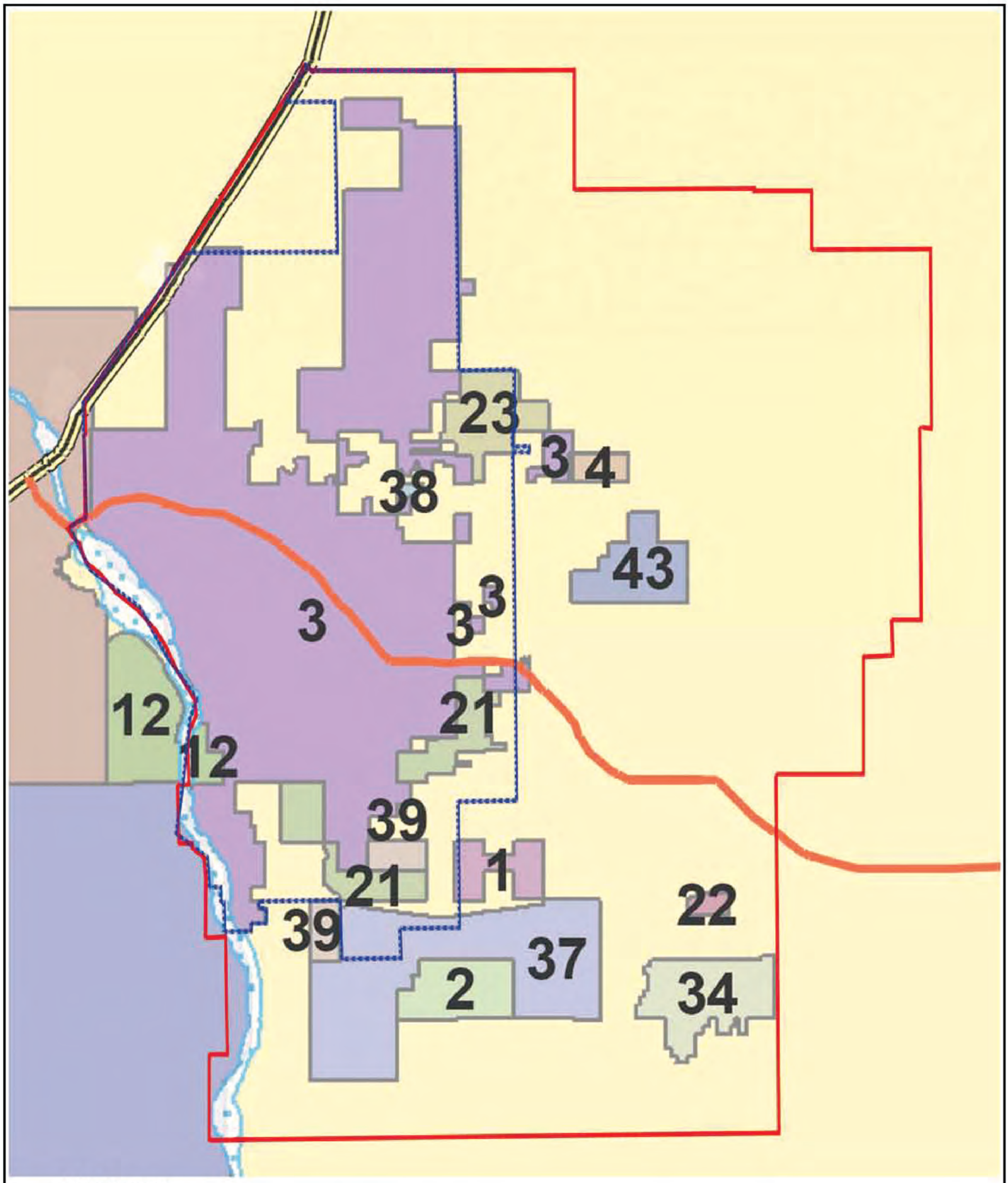
**Table III-1**
**Alto Subarea Verified Annual Production**
**1994 – 2007**

| Year | Acre-Feet | Million Gallons |
|---|---|---|
| 1994 | 81,100 | 26,427 |
| 1995 | 75,100 | 24,471 |
| 1996 | 87,500 | 28,512 |
| 1997 | 88,500 | 28,838 |
| 1998 | 75,900 | 24,732 |
| 1999 | 83,300 | 27,143 |
| 2000 | 88,300 | 28,773 |
| 2001 | 82,800 | 26,980 |
| 2002 | 87,100 | 28,382 |
| 2003 | 86,700 | 28,251 |
| 2004 | 92,700 | 30,206 |
| 2005 | 88,900 | 28,968 |
| 2006 | 95,900 | 31,247 |
| 2007 | 99,900 | 32,561 |

Source: Mojave Basin Area Watermaster Annual Water Reports, 1994 - 2008.

**Distribution Facilities**

Domestic water service for most of the Town of Apple Valley is provided by Apple Valley Ranchos Water Company. Portions of the Town are served by other water purveyors, some of which have very small customer service areas. Those serving 100 or more service connections include Apple Valley Foothill County Water District, Apple Valley Heights County Water District, Apple Valley View Mutual Water Company, County Service Area 64, Golden State Water Company, Juniper Rivera County Water District, Mariana Ranchos County Water District, Rancheritos Mutual Water Company and Thunderbird County Water District. One other small water purveyor serves, Navajo Mutual Water Company, serves approximately 80 service connections within Apple Valley. These are discussed below. Exhibit III-2 shows the respective service area boundaries in relationship to the Town and Sphere-of-Influence.




**Water Purveyors**

1. Apple Valley Foothill County Water District
2. Apple Valley Heights County Water District
3. Apple Valley Ranchos Water Company
4. Apple Valley View Mutual Water Company
12. County Service Area 64
21. Golden State Water Apple Valley
22. Golden State Water System 3
23. Golden State Water System 5
34. Juniper-Riviera County Water District
37. Mariana Ranchos County Water District
38. Navajo Mutual Water Company
39. Rancheritos Mutual Water Company
43. Thunderbird County Water District

Source: Mojave Water Agency
Water Purveyor Geographic Guide
and Contact Information, Prepared by Mojave Water Agency

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**Apple Valley General Plan**
**Water Purveyors in Apple Valley**
**Apple Valley, California**

Exhibit
**III-2**

Apple Valley Ranchos Water Company

Apple Valley Ranchos Water Company (AVRWC or AVR) is an investor-owned water utility, regulated by the California Public Utilities Commission (CPUC) that provides water service to the majority of the Town of Apple Valley and the General Plan area.

AVRWC currently serves over 19,000 customer connections. The sole source of water is groundwater with the majority of its 23 wells located along the Mojave River. These wells pump groundwater into the distribution system, which is equipped with over 11 million gallons (MG) of elevated storage. Many of the wells are equipped with stationary emergency generators or quick connections for mobile generator hook-ups. The water distribution system consists of over 400 miles of pipelines generally ranging in size from 4 inches to 20 inches in diameter.

Golden State Water Company

Golden State Water Company is a subsidiary of American States Water. It is a public utility company that serves the northeastern and southern portions of the Town, and encompasses nearly 4± square miles. Golden State's system currently (2008) includes approximately 2,847 active service connections. Historical water demand for productions for the years 1996 to 2005 averaged 0.64 acre-feet per year per connection.

Small Water Purveyors and Private Companies

A number of other, smaller water purveyors serve portions of the Town of Apple Valley and/or its Sphere of Influence. Several of these are San Bernardino County Service Areas (CSA) that were established to provide domestic water services and facilities to specific development. Other purveyors are private water companies.

*Apple Valley Foothill County Water District* encompasses an approximately 2 square mile service area located at the southeastern edge of the Town's corporate limits near Central Road and Del Oro Road. It serves 180 service connections, and has 2 wells and 2 elevated storage units, with approximately 150,000 gallons of capacity.

*Apple Valley Heights County Water District* covers a service area of approximately 2 square miles, and is located south of the Town corporate limits and its Sphere of Influence. The district has approximately 290 service connections, with two wells and has 260,000 gallons of elevated storage.

*Apple Valley View Mutual Water Company* has a service area of approximately 1 square mile. It currently (2008) has 100 service connections, of which 81 are active. There are 3 wells, one storage tank with a capacity of 20,000 gallons, and one 5,000-gallon pressure tank. It is estimated that the service area has potential to build out with up to 301 connections, which would require a facilities upgrade. The company has purchased lands to upgrade through construction of a larger capacity storage tank.

*County Service Area (CSA) 64* covers an approximately 3 square mile service area, which is bisected east to west by the Mojave River. The eastern portion is within Apple Valley and the largest portion is to the west in the City of Victorville. CSA 64 serves approximately 3,801

active service connection, of which approximately 20% are within the Town of Apple Valley. Its facilities include five wells, three elevated storage tanks, and approximately 2.65 million gallons of storage capacity.

*Juniper Rivera County Water District* service area encompasses approximately 2 square miles and serves 168 connections. There are two wells and two storage tanks with approximately 150,000 gallons of capacity.

*Mariana Ranchos County Water District* encompasses approximately 7 square miles, most of which is located south of the Town's corporate limits but within its Sphere of Influence. It serves 650 service connections with 2 wells and three elevated storage tanks with approximately 900,000 gallons of storage capacity.

*Rancheritos Mutual Water Company* has a service area of approximately 1.25 miles in the southern portion of Apple Valley and within its Sphere-of-Influence. It serves 269 service connections with three wells. Rancheritos has no elevated storage; wells are equipped with small reserve storage tanks and pressure is maintained hydro-pneumatically. Water is distributed via small distribution tanks directly to service connections. Rancheritos may erect additional, possibly elevated storage on two sites in the future, however plans are not complete and site selection has not been finalized.

*Thunderbird County Water District* serves approximately 325 service connections within its approximately 2 square mile service area. It is located east of the Town limits and includes service area within the Town's Sphere of Influence. Thunderbird has three wells and three storage reservoirs with a capacity of approximately 410,000 gallons.

## ADDITIONAL WATER SOURCES

### Imported Water

The Alto subarea of the Mojave River Groundwater Basin is currently the primary water supply for the Town and General Plan area. Additional water sources are considered as a supplement to groundwater in that they are used to either recharge the subarea or serve as a source substitution for groundwater.

As noted above, MWA imports water from the California State Water Project (SWP) to recharge groundwater in the Mojave River Basin. The SWP system also allows the MWA to purchase and/or facilitate delivery of additional water from sources other than the SWP. The Mojave Water Agency is subject to the Mojave Basin Area Adjudication, which requires that additional surface water be imported to help balance the Basin. The Adjudication provides a court-approved mechanism for MWA to finance and obtain supplemental water to recharge the Basin and augment water supplies for parties to the Judgment, including AVRWC.[1]

In addition to the Mojave Water Agency's contract with the SWP, in 2003, MWA reached agreement with the Metropolitan Water District (MWD) of Southern California to allow MWD to store up to 75,000 acre-feet of water in the Mojave basin. This "water banking" or conjunctive

[1] Mojave Basin Area Adjudication, Judgment After Trial, sections II(C)(9), V(B)-(C). January, 1996.

use of the water basin, was in exchange for MWD's right to receive an equal amount of water in the future, through entitlement exchange, should there be a significant drought.

### Reclaimed Water

The treatment and use of reclaimed and recycled water will further reduce the impacts of development on groundwater resources. Wastewater typically undergoes two levels of treatment before it is released to percolation ponds and reintroduced into the groundwater table. Tertiary treated wastewater, however, undergoes an additional stage of treatment, making it suitable for irrigation purposes.

No reclaimed water is currently available to the Town of Apple Valley or the planning area. However, the Victor Valley Wastewater Reclamation Authority (VVWRA) is considering the construction of interceptors to serve the Town of Apple Valley pending approval of funding by the VVWRA Board. Assuming that these facilities are constructed in the future, the Town may have access to recycled water. The wastewater treatment capacity of VVWRA is currently (2008) 18 mgd.

## WATER DEMAND

The Town currently relies on groundwater that is recharged by precipitation and runoff from the adjacent mountains, and from water imported into the subarea serving the Town and planning area. MWA will continue to recharge the aquifer so that it will remain a reliable source of water for the foreseeable future. Among other things, MWA has established its groundwater replenishment program for the Mojave Water Basin, including the Alto Subarea, the purpose of which is to reduce annual and cumulative groundwater overdraft through artificial recharge to the groundwater basin.

Based on historic water withdrawals from the Alto Subarea it is clear that the subarea water table has experienced a steady decline. Water production within the Apple Valley Ranchos service area from 1999 through 2007, is shown in Table III-2. Water production within the Apple Valley Golden State north and south service areas for years 1996 through 2005 is shown on Table III-3.

**Table III-2**
**Apple Valley Ranchos Annual Water Production**
**1999 - 2007**

| Year | Acre-Feet | Million Gallons |
|---|---|---|
| 1999 | 14,916 | 4,860 |
| 2000 | 16,002 | 5,214 |
| 2001 | 14,741 | 4,803 |
| 2002 | 15,853 | 5,166 |
| 2003 | 15,536 | 5,062 |
| 2004 | 16,100 | 5,246 |
| 2005 | 16,189 | 5,275 |
| 2006* | 15,123 | 4,928 |
| 2007* | 16,527 | 5,385 |

Source: "Urban Water Management Plan," Table 6, prepared by Apple Valley Ranchos Water Company, 2005.
*Mojave Basin Area Water Master, Annual Reports 2007 and 2008.

**Table III-3**
**Golden State Annual Water Production**
**1996 - 2005[1]**

| Year | Acre-Feet | Million Gallons |
|---|---|---|
| 1996 | 1,052 | 3,251 |
| 1997 | 929 | 2,871 |
| 1998 | 893 | 2,759 |
| 1999 | 997 | 3,081 |
| 2000 | 1,038 | 3,207 |
| 2001 | 1,013 | 3,130 |
| 2002 | 1,136 | 3,510 |
| 2003 | 1,116 | 3,448 |
| 2004 | 1,206 | 3,727 |
| 2005 | 1,205 | 3,723 |

[1]Portions of the North and South systems are outside Town corporate limits but within its Sphere of Influence. Source: Combined totals: "Existing and Future Water Demands: Apple Valley North System," and "Existing and Future Water Demands: Apple Valley South System," prepared by CH2M Hill. 2007

Overdraft or depletion of the groundwater in storage has continued with the expansion of development of the Town of Apple Valley and other areas within the subarea. As shown in the table above, groundwater production has increased within the Town, which coupled with low precipitation within the region has led to a decline in groundwater levels within the Alto Subarea, resulting in a condition of overdraft. In overdraft conditions, the demand for groundwater exceeds the amount of recharge into the groundwater basin over a period of time. According to AVR's 2005 Urban Water Management Plan, the Alto Subarea experienced a groundwater level decline of approximately 60 feet from 1960 to 1995, declining from an elevation of 2,815 feet in 1960 to approximately 2,755 feet over that period. Presently, overdraft conditions continue to exist in almost all of the basins within the Mojave River Basin.

Overdraft conditions can produce significant adverse social, environmental and economic impacts, including an increased potential for land subsidence, which can result in ground fissuring and damage to buildings, sidewalks, and subsurface pipelines. Other adverse impacts

associated with overdraft conditions include increased infrastructure and energy costs associated with drilling deeper wells and installing larger pumps, and the threat of a diminishing long-term water supply.

In order to avoid an overdraft condition, and to maintain a safe water balance within the Alto Subarea and the other subareas throughout the Mojave Basin, a Free Production Allowance (FPA) has been established for each subarea. The FPA was established when the Mojave River Groundwater Basin was adjudicated through the Mojave Basin Area Judgment. As a result, a court reviews and adjusts the FPA on an annual basis. The MWA serves as the court appointed "Watermaster" for the Mojave Water Basin. The role of the Watermaster is to avoid overdraft by assuring that extractions do not exceed supply. This is accomplished, in part, by the assigned FPA.

All groundwater pumped beyond the FPA is subject to replacement, which can be achieved through payment to the Watermaster of a replenishment fee ($277 acre-feet for 2007-08) to be used to acquire additional water, or through the transfer of unused water rights within the Alto Subarea from another party to the Judgment. For water year 2005-06, AVR's consumption achieved a safe yield (imports, inflows, return flows and outflows equal consumption).[2]

Each year the Watermaster takes an account of the average and minimum annual flows, which must be maintained between subareas making up the Mojave Basin. The Judgment requires that all water extracted in excess of any producer's share of the FPA must be replaced by the producer, which is typically in the form of payment to the Watermaster of funds sufficient to purchase an equal amount of replacement water. It should be noted that an underlying assumption of the Judgment is that sufficient water supplies will be available to the MWA to meet the needs of the basin from future supplies that are a combination of natural recharge, imported water (SWP and other sources), water conservation, water reuse and transfers of FPA among producers.

According to the MWA 2005 Urban Water Management Plan Update, as water demands increase over the next 20 years, additional projects and water management actions are needed to continue to recharge the groundwater basins to maintain groundwater levels and protect groundwater quality for municipal, agricultural, industrial, recreational, and environmental uses. If such projects are not implemented and groundwater overdraft persists or intensifies, the presiding Judge for the Mojave Basin Area Judgment could require mandatory cutbacks in production.

## WATER CONSERVATION EFFORTS

To enhance water conservation, local stakeholders in and around the Apple Valley planning area established the Alliance for Water Awareness and Conservation (AWAC) in August of 2003. According to the MWA Regional Water Management Plan (2004), the purpose of the AWAC is

[2] Under the Mojave Basin Judgment, "production safe yield" is defined as: "The highest average Annual Amount of water that can be produced from a Subarea: (1) over a sequence of years that is representative of long-term average annual natural water supply to the Subarea net of long-term average annual natural outflow from the Subarea, (2) under given patterns of Production, applied water, return flows and Consumptive Use, and (3) without resulting in a long-term net reduction of groundwater in storage in the Subarea."

to "provide a vehicle to attract support for a regional water conservation program and coordinate implementation of activities by forming partnerships to obtain common measurable goals."[3] Goals of the AWAC include the reduction of regional water use by 10% gross per capita by 2010 and 15% gross per capita by 2015.

The California Public Utilities Commission adopted a Water Action Plan in 2005 with the primary objective to strengthen water conservation programs of regulated water utilities. This plan also contains a number of specific actions designed to increase water conservation programs.

AVR and Golden State work closely with the County of San Bernardino and the Town of Apple Valley to encourage water conservation. The County has promulgated several General Plan policies that both require and encourage water conversation. Furthermore, the County requires the use of drip irrigation systems or systems of equivalent efficiency for all landscaping at commercial facilities and all common areas of residential developments.

The Town of Apple Valley adopted a Water Conservation Plan ordinance (Development Code Chapter 9.75) that includes water regulations prohibiting wasteful water use practices, including washing driveways and walkways with water and excessive runoff of landscape irrigation water. Penalties have been established for violation of these regulations. In addition, a goal of 10% municipal conservation by 2020 has been established by MWA, and in an effort to meet this goal development within the Town shall follow the recently adopted MWA 2005 Urban Water Management Plan.[4]

The availability of water supplies for local purveyors to meet the demand associated with build out of the General Plan is dependent upon MWA's ability to manage the basin and to implement whatever additional infrastructure projects and water management actions are needed to continue to recharge the groundwater basin, maintain groundwater levels, secure additional sources of supply and protect groundwater quality. MWA's Supplement A: 2005 Urban Water Management Plan Update, concludes that adequate supplies will be available through 2030. This availability is based on a combination of project demand management measures, increased reliance on stored groundwater, and management mechanisms implemented through the Mojave Basin Judgment, Warren Basin Judgment, and the MWA Regional Water Management Plan.

## WATER QUALITY

Groundwater quality is dependent upon a number of factors, including the water source, type of water-bearing materials in which groundwater water occurs or is stored, depth to the water table, proximity to faults, presence of surface or subsurface contaminants, and quality of well maintenance. The Consumer Confidence Report generated by AVR states that the local water quality within the Town is considered to be very high. According to this report, hundreds of water samples are taken every month and analyzed to assure AVR complies with all federal and state drinking water standards. Similarly, Golden State Water Annual Water Quality Report provides testing results for approximately 80 types of constituents. In many instances, water

[3] Mojave Water Agency 2004 Regional Water Management Plan, p. 7-1.
[4] Urban Water Management Plan, prepared by the Mojave Water Agency, November 2005.p. 17.

quality in Golden State wells exceeds U.S. EPA and California Department of Health Services standards.

Total Dissolved Solids

Based on data provided in the AVR 2006/2007 Annual Water Quality Report, AVR water wells within the Town of Apple Valley contain total dissolved solids (TDS) concentrations ranging from 120 to 960 milligrams per liter (mg/L), with an average of 248 mg/L. The State Maximum Contaminant Level (MCL) is 1,000 mg/L. AVR indicates that run-off and leaching from natural deposits are the potential sources of TDS.

The Golden State Water Company Water Quality Report for 2007 shows TDS concentrations in its wells ranged from 400 to 470 mg/L (average 435 mg/L) based on year 2005 sampling data for the Apple Valley North system. In the Apple Valley South system, year 2006 sampling data show these concentrations within a range of 120 to 680 mg/L, averaging 310 mg/L.

Nitrates

The long-term discharge from on-lot septic systems has the potential to adversely impact groundwater supplies. The greatest impacts to groundwater quality are expected to occur where septic systems serve large populations in high densities. Well-maintained community sewer systems provide excellent protection of groundwater resources through the prompt removal of sewage materials and levels of treatment at the plant and in the soil column to assure safe recharge into the subsurface groundwater basin.

AVR water quality data for 2006/2007 indicate that AVR wells average concentrations range between 2.5 and 17 parts per million (ppm) of nitrates as $NO_3$, with an average of 6.4 ppm. The State MCL and Public Health Goal (PHG) or Maximum Contaminant Level Goal (MCLG) is 45 ppm.

Golden State water quality data for nitrates shows concentrations at a range of between 5.7 to 7.7 mg/L, averaging 6.7 mg/L in the Apple Valley North system. For Apple Valley South, nitrate concentrations ranged from "not detectable" to 5.0 mg/L, with an average of 2.8 mg/L. Sampling data for both systems was from year 2006.

As discussed in the Water, Wastewater and Utilities Element, approximately 30 percent of the Town of Apple Valley is connected to the existing sewer system. The Town adopted a Sewer Connection Policy in January 2006 requiring all new single-family subdivisions with lots less than one acre and within one-half mile of existing sewer infrastructure to connect to the Town sewer system. Developers of subdivisions with less than one-acre lots and located further than one-half mile from existing sewer lines are required to install a dry sewer system on-site. The policy provides for options to the dry sewer requirement, which are subject to Town and/or California Regional Water Quality Control Board (CRWQCB) approval. These include an interim holding tank system or a community septic system, both of which are designed as sewage collection and treatment systems located within the developments they may serve. Many of these systems will be abandoned over time, as future development occurs and infrastructure is expanded, thereby allowing projects on their own collection and treatment systems to connect to the larger community system. Given the costs to convey wastewater from many areas of the

Town that are outside the existing wastewater treatment system to the VVWRA, the Town has identified areas where sub-regional wastewater treatment plants might be located to serve existing and future development. The possible expansion of these facilities is further discussed in the Water, Wastewater and Utilities Element.

## WATER QUALITY REGULATION

Water quality control efforts are legislated through a variety of federal and state laws and regulations that are intended to ensure that water quality control efforts are adequately planned, implemented and enforced. On the federal level, these include the Clean Water Act and the National Environmental Policy Act (NEPA). The State of California has enacted water quality statutes and administrative laws such as the California Water Code, California Environmental Quality Act (CEQA) and California Code of Regulations, as well as other applicable codes that include the Health and Safety Code, Fish and Game Code and Public Resources Code.

California Water Code (Section 13260) requires "any person discharging waste or proposing to discharge waste that may affect waters of the State, except to a community sewer system, to file a report of waste discharge with the regional board of that region" where densities exceed two (2) dwelling units/acre. Commercial and industrial wastewater discharges are also subject to these requirements where discharge volumes exceed certain thresholds.

The California Regional Water Quality Control Board, Lahontan Region (CRWQCB), implements federal and state laws and regulations pertaining to water quality. The Town and the CRWQCB have entered into a Memorandum of Understanding (MOU) that allows the Town to issue building permits for development projects that use individual septic systems without obtaining RWQCB approval, based on certain conditions.

As discussed above, the CRWQCB addresses issues regarding septic and sewer systems, as well as concerns about the Mojave River and other sources of surface water. CRWQCB oversight and monitoring also includes responding to illegal discharges of human or animal waste, leaking fuel storage tanks, and unauthorized hazardous and toxic materials dumping sites.

### National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) was adopted in 1990. It implements the federal Clean Water Act and requires that municipalities develop, adopt and implement storm water management plans and programs. The NPDES is intended to ensure that local jurisdictions "effectively prohibit non-storm water discharge into the storm drain and require controls to reduce the discharge of pollutants from storm water systems to waters of the United States to the maximum extent possible." CEQA analysis is not required for pollutant control measures. The Town of Apple Valley's NPDES program is managed by the Town Engineering Division.

## FUTURE DIRECTIONS

Apple Valley and other Southern California communities will need to continue to focus on water conservation measures and wise water usage policies and practices. The Town's development code requires that developers utilize water-efficient irrigation design and drought-tolerant landscaping materials; the use of water-conserving home appliances and fixtures is also encouraged. The Town will continue to work with AVR, Golden State, and other water companies serving the Town and Sphere of Influence to further reduce water consumption.

Groundwater pollution or contamination can affect a region as well as a local jurisdiction, since groundwater subbasins in the planning area overlap jurisdictional boundaries. Extension of sewer services within the Town will aid in the protection of the region's groundwater quality.

In order to ensure adequate water supplies for future development of the Town, additional long-term sources for ground water, including but not limited to imported water and the use of reclaimed water, will need to be secured. New development will generate a need for additional water capacity. The responsibility for provision of this additional water for future development projects will rest largely on the new development.

## GOAL, POLICIES AND PROGRAMS

### Goal

A dependable supply of safe, high-quality domestic water to meet the needs of all segments of the community.

**Policy 1.A**
The Town shall coordinate land development and assure a balance of development and water supply that ensures the long-term maintenance of an adequate supply of water, and its continued high quality.

**Program 1.A.1**
The Town shall coordinate with the Apple Valley Ranchos Water Company, Golden State Water Company, and other water purveyors to assure that State Water Project water allotted to the Town can be delivered.
**Responsible Agency:** Planning Division, Public Works Division, Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors.
**Schedule:** 2009-2010, Ongoing

**Policy 1.B**
To ensure that overall and per capita water demand from new development is reduced, the Town shall continue to require the use of drought-tolerant, low water consuming landscaping, intelligent irrigation controllers, and other water-conserving strategies and technologies in irrigated areas.

**Program 1.B.1**
The Town shall, by requiring the use of native and other drought-tolerant planting materials, and efficient irrigation systems, continue to implement its Water Conservation/Landscaping Regulations.
**Responsible Agency:** Public Works Division, Planning Division
**Schedule:** Ongoing

**Program 1.B.2**
The Town shall confer and coordinate with the Apple Valley Ranchos Water Company, Golden State Water Company, and other water purveyors serving the Town and its Sphere of Influence, to strengthen and expand programs that educate the public about the importance of water conservation and water-efficient landscaping.
**Responsible Agency:** Public Works Division, Planning Division, Apple Valley Ranchos Water Company, Golden State Water Company**,** other water purveyors
**Schedule:** Ongoing

**Policy 1.C**
The Town shall continue to coordinate with the Building Industry Association and other members of the building industry to encourage the use of faucets, showerheads and appliances that exceed Titles 20 and 24 water efficiency requirements.

**Program 1.C.1**
Provide educational information on the use of low-flush toilets, and low-flow showerheads and faucets, and require the application of water-conserving technologies in conformance with Section 17921.3 of the Health and Safety Code, Title 20, California Administrative Code Section 1601(b), and applicable sections of Title 24 of the State Code.
**Responsible Agency:** Planning Division, Public Works Division, Building Industry Association, Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors
**Schedule:** Immediate, Ongoing

**Program 1.C.2**
Continue to implement the Town's Water Conservation/Landscaping Regulations to optimize conservation and comply with State Assembly Bill 325 (AB 325), by requiring the use of native and other drought-tolerant planting materials and efficient irrigation systems.
**Responsible Agency:** Public Works Division, Planning Division, Apple Valley Ranchos Water Company, Golden State Water Company**,** other water purveyors
**Schedule:** Continuous

**Program 1.C.3**
The Town shall coordinate and cooperate with the Mojave Water Agency and local water purveyors to expand and strengthen educational/public relations programs regarding the importance of water conservation and water-efficient landscaping. Programs may include informational flyers, community workshops, technology transfer fairs and other means of education and information dissemination.
**Responsible Agency:** Public Works Division, Community Development Department, MWA, Water Purveyors
**Schedule:** Immediate; Continuous

**Policy 1.D**
To the greatest extent practicable, the Town shall direct new development to provide irrigation systems that are able to utilize reclaimed water, when available, for use in common area and streetscape landscaping.

**Program 1.D.1**
The Town shall confer and coordinate with the Victor Valley Wastewater Reclamation Authority to explore the possible future provision of recycled/reclaimed wastewater that can serve new and existing development projects in the Town.
**Responsible Agency:** Planning Division, Public Works Division Victor Valley Wastewater Reclamation Authority
**Schedule:** Immediate, Ongoing

**Policy 1.E**
To the greatest extent practicable, the Town shall continue to require new development to connect to the community sewer system. Where sewer service is not available and lots are created of less than one (1) acre in size, the Town shall require the installation of "dry sewers" and the payment of connection fees for future sewer main extensions.

**Policy 1.F**
Consistent with community design standards and local and regional drainage plans, the Town shall provide development standards and guidelines for the construction of on-site storm water retention facilities

**Program 1.F.1**
Require that the development and maintenance of project-specific on-site stormwater retention/detention basins implements the NPDES program, enhances groundwater recharge, complements regional flood control facilities, and addresses applicable community design policies subject to all applicable regulations, standards and guidelines.
**Responsible Agency:** Public Works Division, Planning Division
**Schedule:** Ongoing.

**Policy 1.G**
To facilitate the sharing of information on potential groundwater contamination and potential sources, the Town shall confer and coordinate with the California Regional Water Quality

Control Board, Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors that serve the Town and its Sphere of Influence.

**Program 1.G.1**
The Town shall initiate and maintain regular consultation and coordination with and between Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors that serve the Town and its Sphere of Influence, as well as CRWQCB and other appropriate agencies. The parties shall jointly develop and maintain a system to share records and technical information with regarding sites that have the potential to contaminate groundwater resources serving the Town.
**Responsible Agency:** Public Works Division, Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors that serve the Town and its Sphere of Influence, California Regional Water Quality Control Board.
**Schedule:** 2008-09; Ongoing.

**Policy 1.H**
The Town shall confer with appropriate water agencies and purveyors, as necessary, to assure adequate review and mitigation of potential impacts of proposed development on local water resources.

**Policy 1.I**
Existing development shall be encouraged to institute water conservation measures, including the reduction in turf areas and increased use of native and drought-tolerant planting materials, as well as the installation of efficient irrigation systems and controllers.

**Program 1.J.1**
The Town and Apple Valley Ranchos Water Company, Golden State Water Company and other water purveyors that serve the Town and its Sphere of Influence shall establish incentive programs to encourage that existing development be retrofitted to utilize water conserving fixtures, and landscaping and irrigation materials and controllers.
**Responsible Agency:** Public Works Division, and Apple Valley Ranchos Water Company, Golden State Water Company, other water purveyors that serve the Town and its Sphere of Influence.
**Schedule:** 2009-2010

# OPEN SPACE & CONSERVATION ELEMENT

## PURPOSE

Thoughtful planning and resource management will enable the Town of Apple Valley to preserve and enhance the community's open space areas and conservation lands, and to assure that long-term growth within the Town and vicinity does not adversely affect natural resources.

The Open Space and Conservation Element is intended to provide for the inclusive long-term preservation and conservation of valuable natural resources and open space lands located within the General Plan study area. The Element identifies the location of important natural resources including water resources, mineral deposits, scenic resources, and recreational opportunities and sets forth guidelines for the protection and conservation of such resources.

One of the major objectives of the Open Space/Conservation Element of the General Plan is to identify and protect both public and private lands that contain valuable natural resources through preservation. The protection and management of such lands ensures that natural resources remain intact and invaluable ecosystem functions are preserved, thereby maintaining the quality of life and the aesthetic value of the community. In order to accomplish this objective, natural resources within the Town's planning area have been identified and classified.

Policies and programs have been set forth in this element to allow future growth without compromising the protection and preservation of natural resources. These will serve as a mechanism to safeguard important natural resources and maintain undisturbed open space areas. They also function to assure the long-term viability of open space and conservation lands by discouraging the inappropriate conversion of these lands to more intensive uses.

Conservation and open space have been integrated into one comprehensive element of the General Plan. State law requires that open space and conservation elements and management of natural resources prevent waste, and minimize the destruction or neglect of vacant lands. The Open Space Element emphasizes open space as a land use designation, and requires that preservation and management of natural resources be considered in land use planning and decision-making. This combined Open Space and Conservation Element describes methodology

for the management and preservation of open space lands within the Town of Apple Valley, thereby meeting the requirements of both elements under law.

## BACKGROUND

The issues and subjects within this Element relate directly and indirectly to many other elements of this General Plan, and have a direct influence on policies and programs set forth in the Land Use Element. Parks and Recreation, Energy and Mineral Resources, Biological and Cultural Resources, Water Resources, and Geotechnical Elements are also pertinent to this Element.

Open space land is generally defined as any parcel or area of land or water that is essentially unimproved, vacant, or devoted to an open space use. Such lands are designated for the preservation of natural resources, including plant and animal species; for passive recreational uses; or for the production of resources, including agricultural production and mineral extraction (Government Code 65560(b)). The Open Space Lands Act (Government Code 65566) requires that local governments prepare open space plans prior to adopting required open space ordinances. The Act helps assure consistency between the open space plan and zoning regulations.

Government Code Section 65563 requires that every city and county prepare and adopt a local open-space plan that assures the comprehensive and long-range preservation of open space land within its jurisdiction. This plan, which must be submitted to the Secretary of the Resources Agency, may consist of the Open Space Element that is adopted by the Town Council, and must contain specific programs that will implement the open-space plan (Government Code Section 65565). Building permits, subdivision maps, and open-space zoning ordinances must be consistent with the open-space plan (Government Code Section 65567).

The General Plan must also include elements that address issues of resource conservation, including development, utilization, and reclamation, prevention of pollution or resource degradation, and protection of watersheds (Government Code Section 65302(d)). The Energy and Mineral Resources, Air Quality, and Water Resources elements of this Plan also discuss these issues.

## OPEN SPACE CATEGORIES

Within the Town of Apple Valley and the Sphere of Influence there are four categories of open space land use designations: open space for the preservation of natural resources; open space for resource management; open space for recreation; and open space for public health and safety. The following discussion defines each of these open space categories.

The designation of an area as Open Space does not preclude all other use of the land. Such a designation recognizes the importance of resources that need to be protected from the over-development of uses, which could upset or diminish the value of the resource.

The discussion below describes each category of Open Space, and identifies the lands within the Town, which meet the definition of that category.

**Open Space for the Preservation of Natural Resources**

The preservation of natural resources refers to open space areas that are utilized for the protection of scenic resources, plant and animal resources, and crucial habitat for animal or plant species, as well as areas required for ecologic reserves and scientific study. Hillside preservation lands, including slopes greater than 15%, trails, and riparian areas are among those lands that are to be preserved in the long term as an open space resource. The Biological Resources Element further describes the value of this open space category.

Conservation of unique and valuable habitat is increasingly important due to the number of federally listed species in the region. Conservation areas for most species of concern are identified in the Biological Resources Element, and will be addressed in the Town of Apple Valley Multiple Species Habitat Conservation Plan, which is currently (2008) being prepared. The MSHCP will set forth guidelines and criteria that identify biologically important areas within the Town and Sphere of Influence and establish policies and programs to preserve these areas as open space for the preservation of natural resources.

The following provides brief descriptions of open space areas that should be considered for the preservation of natural resources.

Riparian Areas Along the Mojave River

The Mojave River represents an important water resource and associated riparian habitat within the Town of Apple Valley. The Mojave River is ephemeral, originates in the San Bernardino Mountains, and flows underground in some places. It creates a greenbelt through the High Mojave Desert. Protection of riparian areas along the Mojave River will help maintain water quality as well as preserve key habitat and wildlife corridors for plant and animal species. In addition, preserving the floodplain as Open Space is important in maintaining public health and safety by reducing potential impacts as a result of flooding. The Mojave River corridor is presently utilized for recreation via the trails and paths along the river's edge.

Utilization of the riparian and floodplain areas for development along, or adjacent to, the Mojave River must be carefully evaluated and planned due to the river's importance as a water resource and as a critical habitat and wildlife corridor for many animal and plant species in the area. As shown in Exhibit III-3, Open Space Classes, the Mojave River occupies approximately 639.2 acres within the Town of Apple Valley.

Wildlife Preservation

Many species of wildlife inhabit the Town of Apple Valley and the Sphere of Influence. Several of these species are listed by the State of California or the Federal government as threatened or endangered. The Town must ensure that viable habitat for these species is protected in order to maintain and preserve diversity in desert and riparian ecosystems. Within the Town, the most important wildlife preservation areas are associated with the Mojave River and ephemeral streams (also please see Biological Resources Element).

Desert Preservation

Desert ecosystems are fragile environments that regenerate slowly after disturbance. Destruction of this environment can result in negative environmental impacts, such as increased temperature, humidity, particulate air pollution, and loss of biotic elements that make the region unique. In order to maintain the integrity of these lands, the Town has designated open space land use throughout the general plan area (See Exhibit III-3).

Knolls, Mountains, and Peaks

There are a number of mountains and peaks within and near the Town of Apple Valley. The Summit of Bell Mountain is 3,852 feet above sea level and is located in the northern portion of the Town. Fairview Mountain is northeast of Apple Valley, and has a peak elevation of 4,288 feet above sea level. The Town's knolls, mountains, and rock outcroppings occupy an estimated 1,792.4 acres within the Town of Apple Valley, and should be preserved for their aesthetic quality, habitat, and use as a recreational resource.

Scenic Resources

The protection of local scenic resources is necessary for the overall livability of the community and to maintain the aesthetic qualities of the Town and vicinity. The Mojave River, surrounding knolls, hillsides, mountains, and the natural desert environment are an important natural resource that should be preserved as Open Space.

**Open Space for Resource Management**

The management of natural resources refers to those lands that contain open space resources that are utilized for a specific purpose, such as agricultural lands, cultural resource lands, areas containing major mineral deposits, areas of economic importance for the production of food or energy, and areas required for recharging groundwater or for water storage.

Agricultural Lands

The use of lands for agricultural purposes has played a significant role in Apple Valley's history. Although no significant agricultural lands remain within the Town (less than 40 acres), the Sphere of Influence contains 1,991.6 acres that are designated for agricultural uses. Agriculture serves as a productive use of open space and enhances the rural character of the community. There are 403.6 acres within the Sphere of Influence that are currently used for agricultural production. The remaining 1,588.0 acres do not have an established agricultural use and remain vacant.

Lands within the Town limits that were historically used for agricultural purposed have trended toward animal keeping and equestrian activities rather than crop production. As lands within the Town build out, the potential for agricultural uses within the Town limits diminishes.

*Williamson Act*

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, allows local governments to enter into contracts with private landowners to restrict specific parcels of land to agricultural or related open space use. Landowners in return receive lower-than-normal property tax assessments, based upon farming and open space uses as opposed to full market value. Local governments receive an annual subsidy of property tax revenues from the state.

Based on information provided by San Bernardino County, there is one Williamson Act contract in effect over approximately two acres in the Town of Apple Valley.[5] It is located north of Seneca Road near the Mojave River. [6]

Archaeological/Historical Resources

There is an abundance of materials of a historic and prehistoric nature in the Apple Valley area, particularly in the vicinity of the Mojave River. The river itself was a route heavily used by the early Spanish explorers. The preservation of these materials is important to understanding the history of the Indian nations, the United States, and the history of North America in general. The Cultural Resources Element discusses the location and value of archaeological/historical resources within the Town.

Mineral Resources

Mineral resources are naturally occurring deposits that are considered useful in the production of materials. Important mineral resources that occur in the Apple Valley area are aggregate and limestone, both of which are used in the manufacturing of cement. The availability of these resources has the potential to be significantly impacted and restricted by urbanization or development of nearby properties.

Current sources of aggregates and limestone are, for the most part, located within the Sphere of Influence and are found adjacent to the Mojave River floodplain or within the mountain ranges in the region. The State of California Department of Conservation, Division of Mines and Geology, as required by the Surface Mining and Reclamation Act of 1975 (SMARA), has identified significant aggregate deposits within the Town of Apple Valley and Sphere of Influence. The State has established a classification system for mineral resources, based on the presence or absence of significant concrete-grade aggregate deposits. These land classifications are presented in the form of Mineral Resource Zones (MRZ). These are further discussed in the Energy and Mineral Resources Element..

[5] Personal communication with Chrissie Barialla, Land Use Service Department, San Bernardino County, July 30, 2008.

[6] Personal communication with Chrissie Barialla, Land Use Service Department, San Bernardino County, July 30, 2008.

As described in the Department of Conservation's 2006 Geological Survey, "Aggregate Availability in California," the Barstow Victorville P-C Region contains 133 million tons of permitted aggregate resources as of January 1st, 2006. In Apple Valley, the Mineral Resource Zones where significant mineral resources have been determined or inferred to be present are located primarily along the Mojave River and near the western boundary of the Town, east of U.S. I-15. Most to the Town, as well as the annexation areas, has been mapped within MRZs containing known mineral deposits of undetermined significance. Areas available for mining concrete aggregate are identified as Aggregate Resource Areas (ARA) and are considered to have current land uses compatible with mining. In Apple Valley these occur along the Mojave River. Mapping of MRZs and ARAs within the planning area is shown in the Energy and Mineral Resource Element.

The Town of Apple Valley has designated 452.5± acres as mineral resources land use. Of these lands, approximately 111.56 acres are developed for mining and processing of aggregate materials, and an additional 340.95± acres are designated for the use and production of mineral resources.

Both CEMEX, Inc. and TXI Riverside Cement own and operate mineral extraction operations in the Sphere of Influence. TXI has a permit through 2034 to mine the quarry. Several quarries are located within the Black and White Mountains, and the Alvic and Scheerer quarries are mined for limestone. The Piercy quarry has been sold for use as open space on the approved Bridle Path Specific Plan site.

It is expected that development proposals will be submitted to the Town that may generate land use conflicts with aggregate and limestone quarries. Mining activities may be incompatible with surrounding land uses. For example, dust, noise, and heavy truck traffic may create conflicts with residential and commercial uses. These issues are further considered in the Land Use Element and the Energy and Mineral Resources Element.

Soil Conservation

To protect community infrastructure and agricultural uses, conservation of specific soil types is necessary. The identification of soil types can assist in developing programs to conserve soils and protect prime agricultural lands. Although no significant agricultural lands occur within the Town's limits, preservation of these resources occurring in the Sphere of Influence will assure that agricultural productivity does not decline and the rural character of the Town and vicinity are preserved. See the Geology and Soils Element for additional information pertaining to soils and soil characteristics.

Resource Management Plans

In order to manage open space resources within the Town of Apple Valley, the Bureau of Land Management has set forth the Desert Conservation Plan, which describes the overriding goals and policies for open space management in the region. The plan identifies important open space areas and unique geological features including steep slope areas exceeding 15%, the Mojave River bottom, and Apple Valley Dry Lake. These areas are identified within Exhibit III-6 below. The Biological Resources Element further describes conservation management plans in the Town and Sphere of Influence.

**Open Space for Outdoor Recreation**

Open space for outdoor recreation includes areas of outstanding scenic, historic and cultural value, areas that are suitable for park and recreational purposes, and areas that can serve as links between major recreation and open space areas, including utility easements, trails, and scenic highway corridors. The Town's Recreation and Park District's Master Plan is a planning tool that sets forth goals and policies for the development and implementation of such recreational amenities and periodically evaluates those goals. This plan is further discussed within the Parks and Recreation Element.

Open space for parklands is an important resource for providing recreational opportunities to Town residents. The Town currently contains approximately 346.8 acres of existing recreational resource lands, including Mini Parks, Community Parks/Athletic Fields, Neighborhood Parks, and Special Use Parks. Another 65 acres of parks facilities are planned in approved Specific Plans, and the Town owns 27 acres of currently undeveloped lands that are allocated for parks. In addition to the active and passive recreation opportunities that the local parks provide, there are also trails and facilities that support passive and active recreation on a regional scale. These include local trails such as the Town's lifeline trails, and numerous mountain trails for hiking and biking, and other recreational activities including backpacking, camping, and horseback riding within the Sphere of Influence and the vicinity.

Parklands

While many regional parks provide open space desert environments, there is a shortage of developed parks for active recreation within the community. According to the National Recreational Park Association, the park-to-population standard is 5 acres to 1,000 residents. The Parks and Recreation Element of this General Plan provides effective and coordinated implementation strategies to address park facility and development of recreational programs.

Equestrian Trails

Resolution No. 89-63 of the Town Council states in part *"The establishment of a comprehensive network of Town wide equestrian/ recreational trails will promote a continued rural lifestyle in the Town of Apple Valley..."* A suggested trail system and policies specific to recreation trail use and development are included in this General Plan's Circulation Element.

**Open Space for Public Health and Safety**

Lands that require special management or regulation because of hazards or special conditions are referred to as open space for public health and safety. Open Space lands required for the protection of public health and safety include air and water quality, water supply, the Mojave River floodplain, and Apple Valley Dry Lake. (Also see the Geotechnical, Hydrology, Emergency Preparedness, and Water Resources Elements for more detailed information).

Lands that are designated as open space for public health and safety have the potential for other compatible uses. For example, land located within Apple Valley Dry Lake contains some residential development, and lands adjacent to or within the Mojave River floodplain have been proposed for use as recreational walking trails. Nonetheless, future or proposed development within areas designated as open space for public health and safety should require special

consideration prior to approval. The following natural conditions should remain as undeveloped open space for the purpose of preserving public health and safety: flood control facilities, mapped floodways, floodplains, and dry lake beds. Open Space for public health and safety is important to water quality and supply, reducing loss/damage to private and public property, and preserving air quality.

Air Quality

Adverse air quality is an important issue in the region and within the Town of Apple Valley. Increased urbanization in the high desert is creating air pollution concerns where none had existed in the recent past. Estimates of air pollutant levels based on the build out of land uses described in the General Plan can be found in the General Plan Environmental Impact Report. (See the Air Quality Element for additional information pertaining to air quality.)

Water Supply

Water supply in the Apple Valley area is and will continue to be an issue of paramount importance. This issue affects most aspects of the community, from continued agricultural uses and landscaping standards to building codes and, in some cases, the types of business that could operate effectively within the Town. In addition, maintaining the water supply while meeting the needs of residents is a priority. (The Water Resources/Quality discussion contained in the General Plan EIR provides an assessment of the water supply versus demand at build out of the General Plan.)

Water Quality

While the quality of water in Apple Valley is suitable for all purposes, future use of reclaimed water will be a useful consideration to extend water resources in light of continued growth Preservation of riparian areas, wetlands, and recharge areas is critical to maintaining good water quality as most of these areas act as natural water filters.

Water Conservation

Conserving water is especially important in the desert environment where water resources are scarce and annual precipitation is low. The Water Resources Element further discusses the conservation of water resources.

Apple Valley Dry Lake

The dry lake occupies approximately 1,820.6 acres within the Town of Apple Valley. Although the dry lake is considered a potential issue to public health and safety due to disturbance of particulate matter and a subsequent degradation to air quality, the dry lake has been partially developed in residential land uses. Restrictions imposed in the residential development significantly limit the development potential on these lands.

Mojave River Floodplain

There are approximately 639.2 acres that have been designated as part of the Mojave River floodplain within Town limits. Protecting lands within the floodplain from development will avoid the potential for the loss of, or damage to, structures or buildings as a result of a flood.

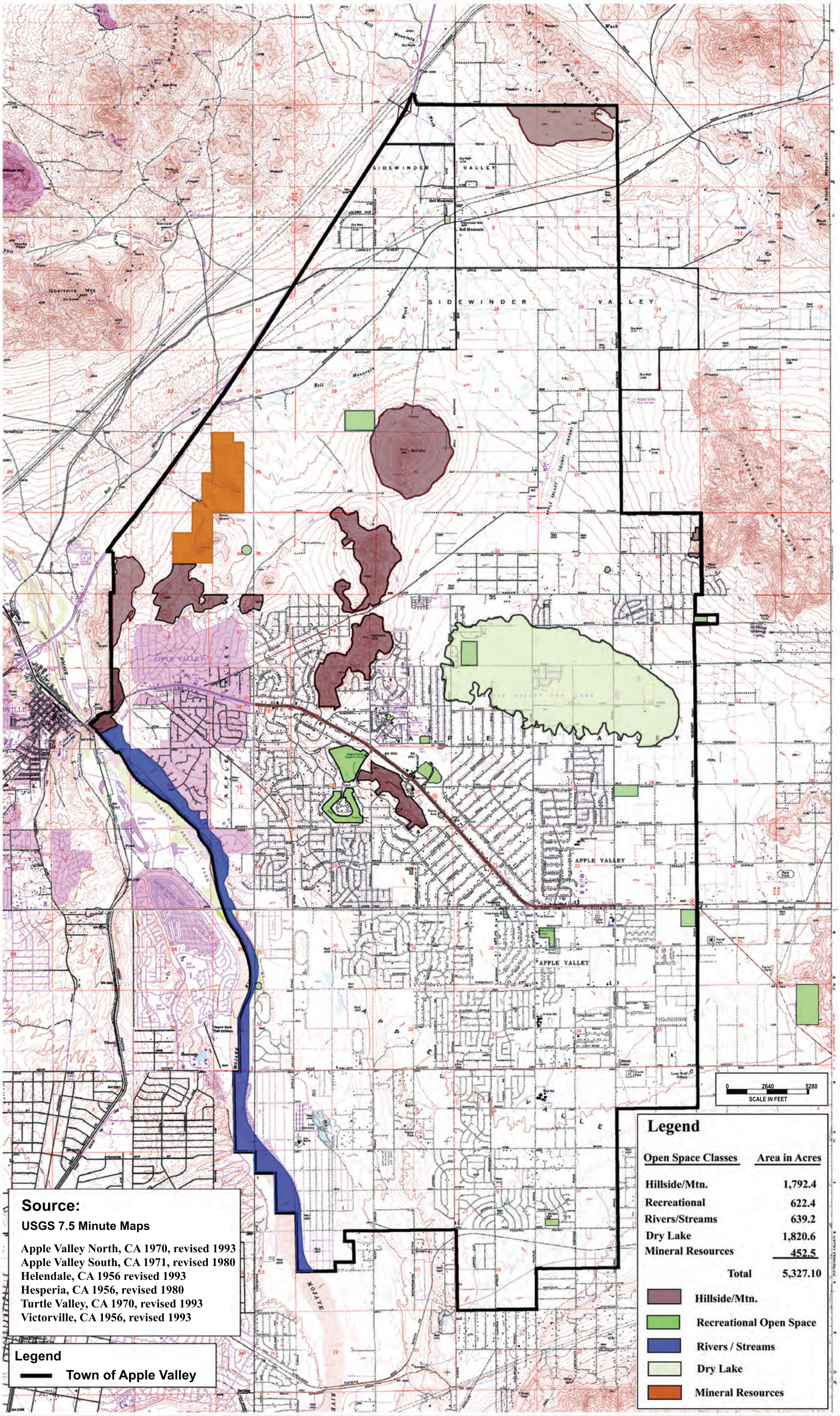
**Open Space Land Use Categories**

The Town of Apple Valley contains an estimated 5,341 acres of open space land uses including mineral resources. Open Space land uses represents approximately 11.4% of the total area within the Town boundaries. The types of designated open space land uses and the acreages of each are shown in Table III-4, below.

**Table III-4**
**Acres Allocated for Open Space**

| Open Space Type | Total Acres |
|---|---|
| Hillside/Mountains | 1,792.4 |
| Recreational Resources | 637.0 |
| River/Stream | 639.2 |
| Dry Lake | 1,820.6 |
| Mineral Resources | 452.5 |
| **Total** | **5,341.7** |

Source: Open Space Classes provided by Aerial Information Systems, August, 2008.




TERRA NOVA®
Planning & Research, Inc.

**Apple Valley General Plan**
**Open Space Classes**
**Town of Apple Valley**

Exhibit
**III-3**

## LAND ACQUISITION

The designation of open space ensures that the development or preservation of natural resources is consistent with the goals and policies of the Town. The mindful regulation of open space areas can permit land to be used and/or preserved for the good of the entire community, while remaining largely undeveloped. Many conservation programs and legislative enactments have been put into effect that help conserve and retain open space within California, including the Conservation Easement Act, Open-Space Easement Act of 1974, less-than-fee real property interests, and the Scenic Deed Act.

*The Conservation Easement Act*
Civil Code Sections 815-816, also known as The Conservation Easement Act, was established to encourage the dedication of open space lands for ongoing conservation. Under this act, a conservation easement is a voluntary agreement that allows a landowner to limit the type or amount of development on their property, while retaining private ownership of the land. The purpose of a conservation easement is to retain land predominantly in its natural, scenic, historical, agricultural, or open space condition. The easement is a binding contract that applies to successive owners of the land. By granting conservation easements, a landowner can assure that the property will be protected forever, regardless of who owns the land in the future.

*Open Space Easement Act*
The Open Space Easement Act of 1974 (Government Code Sections 51070-51097) gives local governments the authority to accept easements granted to them or to non-profit organizations for the purpose of conserving open space and agricultural lands.

*The Scenic Easement Deed Act*
The Scenic Easement Deed Act authorizes local governments to purchase land or scenic easements, but offers no special mechanism for obtaining them. Permitted land uses are regulated by the Act, and local governments are authorized to adopt an ordinance to establish open space covenants with property owners. (Government Code Sections 6950-6954)

### Land Trusts
The preservation of open space and natural resource lands can be facilitated through the use of land conservation trusts. Public and private land conservation trust offers protection to open space, agricultural lands, wildlife habitats and natural resource lands. Land trusts achieve their objectives primarily through acquiring and managing interests in land.

The preservation of open space and natural resource lands can be facilitated through the use of land conservation trusts. Trust funds can be used to acquire fee simple interest in real estate to then manage or lease back holdings, or to purchase conservation easements that protect sensitive land from development.

Land trusts are usually able to respond more quickly than governmental entities to purchasing opportunities, since they are less restrained by formalities and regulations. In addition, they tend to have more experience in helping public agencies with the technicalities of acquisition. Land

trusts preserve environmentally sensitive open space and conservation lands. They pursue State and Federal financing with grants and loans and other assistance methods for the preservation of open space.

**Methods of Funding Open Space**
In order to finance the acquisition and management of open space lands, viable funding mechanisms are essential. Some financing opportunities include State obligation bonds, grants and tax increment financing. In addition, the California Legislature has helped organizations create grant and loan programs that can aid open space financing. The following are available on a competitive basis for specific projects:

- Land and Water Conservation Fund/Department of Parks and Recreation
- Habitat Conservation Program/Department of Parks and Recreation
- Simms Trail Bill/Department of Parks and Recreation
- Public Access Program/Department of Fish and Game
- Wildlife Conservation Board/ Department of Fish and Game
- Urban Forestry Program/California Department of Forestry

## FUTURE DIRECTIONS

The Town of Apple Valley contains many valuable natural resources and open space lands that contribute to the desirability of the area by enhancing the quality of life in the community. Ongoing preservation of open space areas and natural resources is a continuous effort that will need to be pursued and evaluated by the Town as build out continues. Implementation of the General Plan, Development Code, and other regulatory mechanisms will effectively promote conservation and ensure that growth and development will not interfere with or interrupt open space and conservation lands within the Town. Use of the development review process should be encouraged in order to promote the dedication and conservation of open space lands by public and private developers and landowners.

In addition, the Town of Apple Valley can play an important role in encouraging and supporting the preservation efforts of non-profit and other conservation groups, and assist in acquiring other open space lands, including locating federal and state grants for the purchase of conservation easements and/or fee simple ownership interests.

## GOALS, POLICIES, AND PROGRAMS

### Goal 1

The Town will conserve and protect natural resources in perpetuity.

**Policy 1.A**
The Town will cooperate with Federal, State and County governments and local agencies concerning the maintenance and improvement of the quality and quantity of local and regional groundwater resources.

**Program 1.A.1**
The Town shall preserve all watercourses and washes necessary for regional flood control, ground water recharge areas and drainage for open space and appropriate recreational purposes.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.2**
The Town shall seek to reduce per capita water consumption by requiring the use of planned landscapes in new developments, and by requiring review of all new agricultural and mining uses related to water.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.3**
New developments will be required to utilize measures designed to conserve water resources including low flow irrigation and plumbing fixtures.
**Responsible Agency:** Apple Valley Ranchos Water District, Mojave Water Agency
**Schedule:** Ongoing

**Program 1.A.4**
The Town shall use and promote reclaimed water for irrigation in parks, golf courses, agricultural uses, recreation areas, and industrial uses, as well as from residential and other urban uses where practical and economically feasible.
**Responsible Agency:** VVWRA, Public Works Division
**Schedule:** Ongoing

**Policy 1.B**
Encourage the preservation, integrity, function, productivity and long-term viability of environmentally sensitive habitats, wildlife corridors, and significant geological features within the Town.

**Program 1.B.1**
The Town shall protect and preserve significant habitats, wildlife corridors, and geological features as described in the Apple Valley MSHCP.
**Responsible Agency:** Planning Division, Apple Valley MSHCP
**Schedule:** Ongoing

**Program 1.B.2**
Identify and assess lands in the Town that are suitable for preservation. Identified lands may be preserved as public or private lands and as passive or active open space.
**Responsible Agency:** Planning Division
**Schedule:** Every few years.

**Policy 1.C**
Environmental hazard zones, including floodways, floodplains, and hillsides or slopes greater than 15% shall be designated as open space on the land use map.

**Policy 1.D**
The Land Use Map and Development Code shall regulate development at the boundaries of the Town to assure the preservation of a well-defined, functional, or visual edge.
**Responsible Agency:** Planning Division
**Schedule:** Every few years.

**Goal 2**

The Town shall encourage the preservation of significant native trees, native vegetation, landforms and wildlife habitat.

**Policy 2.A**
The Town shall seek to reduce soil erosion caused by wind and water.

**Program 2.A.1**
Erosion control measures shall be included as a component of a grading plan and to assure compliance for agricultural and mining uses through the use of Best Management Practices (BMPs).
**Responsible Agency:** Town Engineer, Planning Division
**Schedule:** Ongoing

**Policy 2.B**
The Town will only allow types and patterns of development that will minimize destruction of, or damage to, significant biotic resources, such as wildlife corridors along the Mojave River.

**Policy 2.C**
The Town will encourage the planting and preservation of native species of trees and plants to enhance the environment.

**Program 2.C.1**
Drought tolerant landscaping materials and design features shall be incorporated into parks, roadway medians, common area landscaping, public facilities, and other appropriate open space lands to retain and preserve the natural environment.
**Responsible Agency:** Planning Division, Community Services Division
**Schedule:** Ongoing

**Policy 2.D**
The Town shall provide specific parameters for development within and adjacent to natural hillsides.

**Program 2.D.1**
The Town shall only allow types of development and construction practices that adequately control grading and minimize impacts to geological formations within the hillside areas of Apple Valley.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Goal 3**

The Town will encourage and support the preservation of historic and cultural resources.

**Policy 3.A**
Lands on which cultural resources are identified may be preserved as Open Space.

**Policy 3.B**
The Town will require that archaeological, cultural, and historical resources are preserved or salvaged if threatened by new development.

**Program 3.B.1**
The Town will require that prehistoric and historic archaeological resources, and historic structures, be inventoried in identified areas and evaluated according to CEQA regulations and appropriate California Office of Historic Preservation guidelines prior to the adoption of mitigation measures and the acceptance of conditions of approval and permit approvals.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Goal 4**

The Town shall continue to emphasize the maintenance of, and access to, open space areas within the Town and vicinity.

**Policy 4.A**
The Town shall continue to monitor and manage designated open space areas and maintain improved recreational open space.

**Program 4.A.1**
The Town shall cooperate with other jurisdictions to implement measures that preserve and protect significant natural environments and areas designated for open space preservation.
**Responsible Agency:** Planning Division, Community Services Division, Public Works Division, U. S. Bureau of Land Management, various utility providers,
**Schedule:** Ongoing

**Program 4.A.2**
Maintenance of, and access to, open space and recreational resources within the Town shall be monitored and considered when development is proposed.
**Responsible Agency:** Planning Division, Community Services Division
**Schedule:** Ongoing

**Program 4.A.3**
Desirable hillside lands currently owned by public agencies, shall be considered for recreational usage and if appropriate shall be acquired and secured as open space lands. Similarly, the Town shall inquire about desirable lands owned by private entities and shall negotiate public access provisions.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 4.A.4**
Recreational facilities shall be sited and maintained to meet the needs of all segments of the community including use for activities, relaxation, and social interaction.
**Responsible Agency:** Planning Division, Parks and Recreation
**Schedule: Ongoing**

**Policy 4.B**
Subject to appropriate permitting or approvals, where practical, new development shall integrate pipeline, above- and under-ground utility corridors and other easements (including electric, cable and telephone distribution lines) into a functional open space network.

**Program 4.B.1**
Pedestrian, equestrian and bicycle trails shall be encouraged and utilized as linkages between open space and recreational facilities within the Town.
**Responsible Agency:** Planning Division, Community Services Division, and Utility Companies
**Schedule:** Ongoing

**Policy 4.C**
Public or private lands protected through conservation easements, acquired by private or public agencies, or dedicated for open space shall be designated for the appropriate Open Space land use designation on the Land Use Map.

**Program 4.C.1**
Review development proposals adjacent to designated open space lands and assure that land uses are compatible, and buffers and/or linkages are provided when necessary to maintain natural resource values.
**Responsible Agency:** Planning Division, Planning Commission, Town Council
**Schedule:** Ongoing

**Program 4.C.2**
Coordinate the Land Use Map with preservation areas identified in the Multiple Species Habitat Conservation Plan as these lands are identified.
**Responsible Agency:** Planning Division, Planning Commission, Town Council
**Schedule:** Ongoing

**Goal 5**

The Town will promote land use decisions that ensure compatibility between mineral resource extraction and adjacent land uses.

**Policy 5.A**
The Town shall require that potential adverse environmental effects from mineral extraction operations are prevented or minimized to the greatest extent possible.

**Program 5.A.1**
All mined lands must be reclaimed to a usable condition which is readily adaptable for alternative uses in such a way that the continued mining of valuable minerals is not precluded, at the earliest possible time after the cessation of mining activity within a given resource area in compliance with the approved Reclamation Plan adopted for each mining activity permit.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Policy 5.B**
Aggregate, limestone and other mineral resource extractions shall be allowed only in cases where all residual hazards to public health and safety are effectively mitigated.

# BIOLOGICAL RESOURCES ELEMENT

## PURPOSE

Government Code Section 65302(d) requires the General Plan to include an element that provides for the conservation and preservation of wildlife resources and establishes inventories of natural vegetation, fish and wildlife, including rare and endangered species and their habitats.

The Biological Resource Element evaluates and identifies Biological Resources that exist within the Town of Apple Valley and its Sphere of Influence. For the purpose of this document, Biological Resources include plants and wildlife species, their habitats, the ecosystems, and ecosystem functions that support those habitats. This element is intended to identify the variety of biological resources within the Town and vicinity, and provide management strategies for the preservation and protection of the natural environment and the many biological resources that are present in the area.

This Element provides a basis for understanding the biological resource issues that are inherent to the planning area, offering information and sources that are intended to promote the protection of biological resources and also allow for orderly build-out of the general plan. The element is designed to guide decision makers towards land use decisions that protect critical environmental resources. Goals, policies and programs are set forth within this element that ensure the long-term preservation of biological resources.

## BACKGROUND

Major policy issues presented within the Biological Resources Element are directly related to the Land Use, Open Space/Conservation, and Soils/Geotechnical Elements. This Element is also pertinent to the Parks and Recreation Element.

The Town of Apple Valley and the Sphere of Influence are located within the planning area for the West Mojave Habitat Conservation Plan. Once established West Mojave Plan will be the largest habitat conservation plan developed in the United States. The plan covers 9.3 million acres in Kern, Los Angeles, Inyo, and San Bernardino Counties. The habitat conservation plan is a regional effort designed to protect and plan for the preservation of the region's biological resources including plant and animal species and their habitats. It should be noted that the plan is only active on Federal Lands, and that a complimentary plan is being developed for private lands within the WEMO planning area.

The Biological Resources Element has been prepared in conformance with and is supportive of the West Mojave Habitat Conservation Plan with regard to public lands. The Element has been designed to influence and contribute to the effective implementation of conservation strategies, goals, policies and programs within the Town of Apple Valley. The Town is also actively working to develop a Multi-Species Habitat Conservation Plan to protect local environmental resources.

Federal and state laws establish a number of regulations that govern and protect biological resources, including habitat and wildlife species. Among the most effective laws for protecting species and their habitat are the State and federal Endangered Species Acts, which establish laws and regulations that directly and indirectly protect plant and wildlife species through the identification of threatened and endangered species, and protection of listed species and their habitat(s). In addition to the Endangered Species Acts, California has several regulatory agencies responsible for encouraging the preserving biological resources including state enforcement of the federal Clean Water Act, the Migratory Bird Treaty Act, and California Fish and Game Code.

## REGIONAL SETTING AND THE PHYSICAL ENVIRONMENT

Apple Valley lies in the High Desert, between the City of Victorville and the communities of Lucerne Valley on the southeast and Hesperia on the southwest. There is a mix of private and public lands within the Town limits and its surrounding Sphere of Influence. Private lands tend to predominate within the Town of Apple Valley and Federal lands, managed by the U.S. Bureau of Land Management (BLM), form the largest land blocks within the surrounding Sphere of Influence. These Federal lands are natural areas managed as open space, which both benefit and characterize the overall setting of the Town.

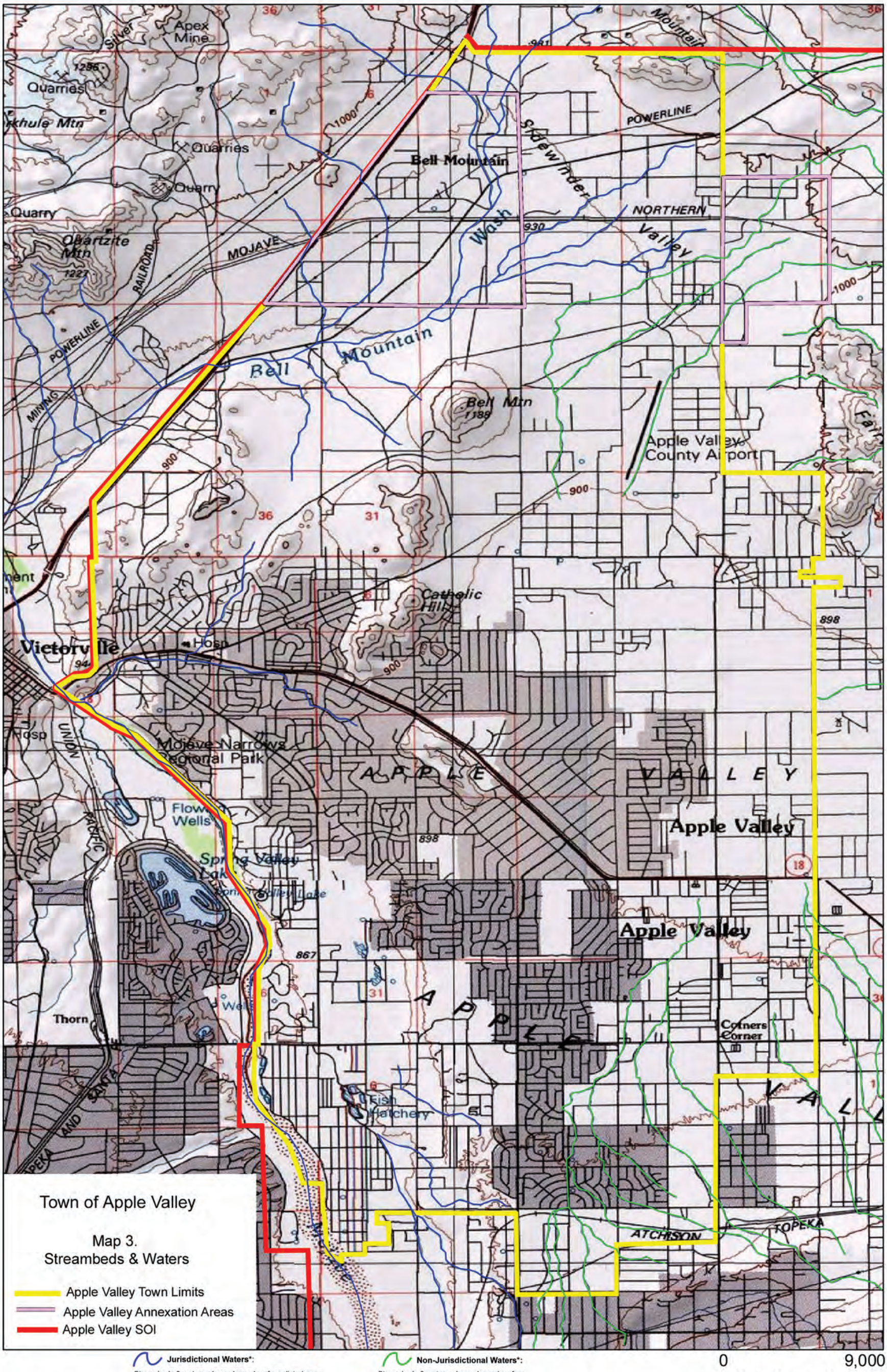
### Climate

The planning area is located in the southern portion of the Mojave Desert. The Mojave Desert is considered a high desert with elevations ranging from 2,000 to 5,000 feet above mean sea level. (MSL). Climate within the planning area is representative of a high desert ecosystem, including extreme fluctuations of daily temperature, strong seasonal winds, and less than 5 inches of annual precipitation.

### Topography

Elevations within the Town and vicinity range from 2,550 to 4,800 feet above MSL. The north face of the San Bernardino Mountains, south of Apple Valley, contains some of the higher elevations in the region. Generally terrain within the boundary of Apple Valley consists of lower elevations ranging from 2,550 to 3,186 feet above MSL, while the Sphere of Influence contains elevated terrain as high as 4,800 feet. There are scattered mountains north and east of the planning area as well. The lowest elevation within the planning area is associated with the Mojave River, located on the west side of Town.

The mountain drainages and ephemeral streams associated with the Mojave River have contributed to the topography of the region. The Mojave River is a federally regulated waterway that contains several associated tributary dry washes, including the Bell Mountain/Knolls wash, which contains a partially lined concrete drainage basin that ultimately drains into the Mojave River. Other watercourses in the planning area flow into the Apple Valley Dry Lake. Most of these are considered to be ephemeral in that they rarely contain overland water flow and generally have poorly defined banks. An exhibit showing potential streambed and appropriate jurisdiction is shown in Exhibit III-4.




Source: AMEC 11.2007

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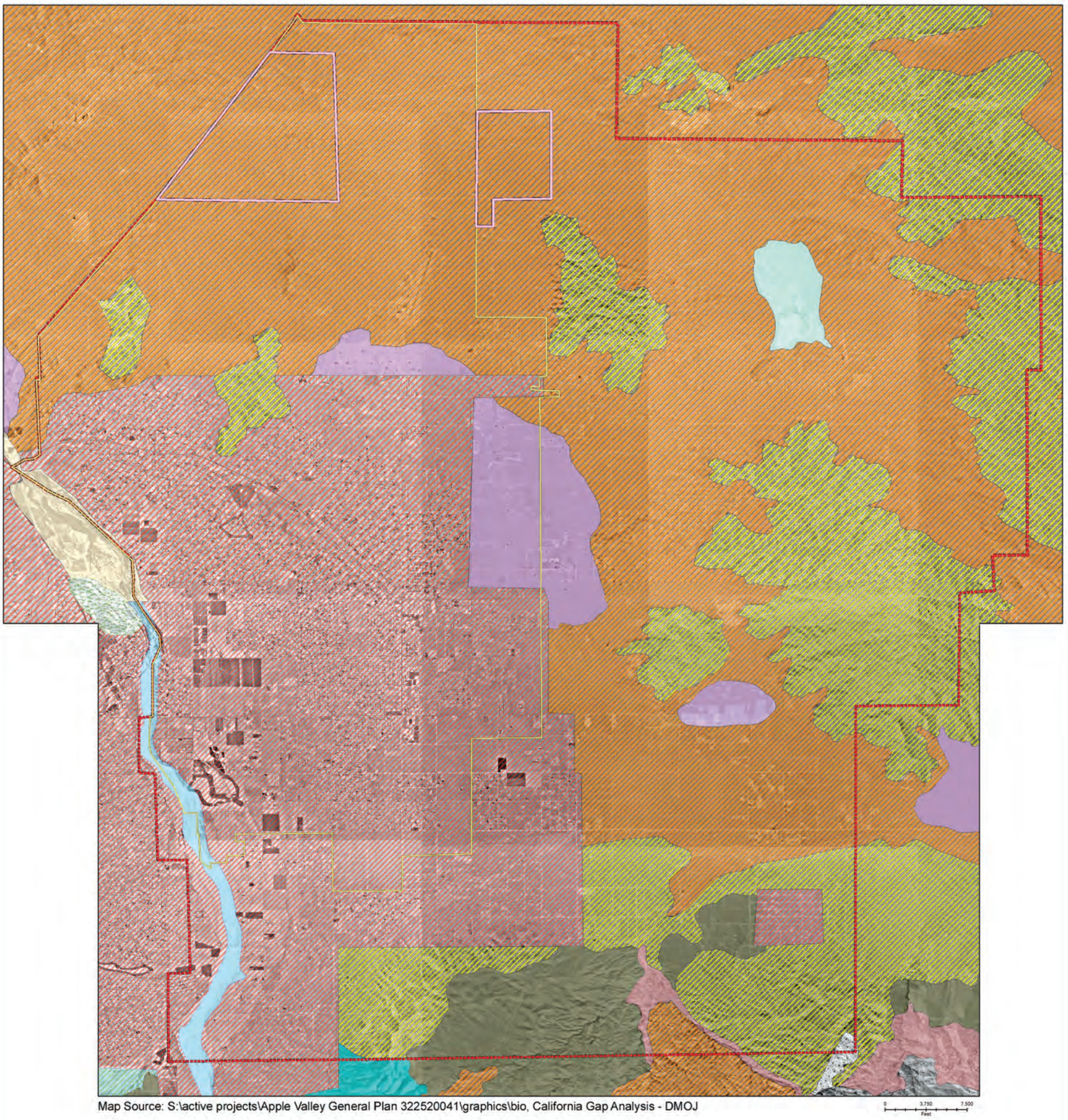
Planning & Research, Inc.

**Apple Valley General Plan**
**Streams, Washes, and Waterways**
**Apple Valley, California**

Exhibit
**III-4**




# Legend

- Apple Valley Town Limits
- Apple Valley SOI
- Apple Valley Annexation Areas

**Regional VegetationType**

- Pinyon-Juniper & Desert Wash
- Pinyon-Juniper
- Juniper
- Montane Hardwood-Conifer
- Annual Grassland & Saltbush Scrub
- Mojave Riparian Forest
- Mojave Mixed Woody Scrub
- Urban/Rural
- Saltbush Scrub
- Creosote Bush Scrub
- Lacustrine
- Mojave River Sand Fields

**Source: AMEC 11.2007**

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Planning & Research, Inc.

**Apple Valley General Plan**
**Natural Communities by Vegetation Type**
**Apple Valley, California**

**Exhibit**
**III-5**

**Regional Habitats And Natural Communities**

General vegetation types within the Town of Apple Valley have been classified into distinct natural communities. Minimally disturbed areas in Apple Valley support a Saltbush Scrub plant community in lower elevation areas, Creosote Scrub in mid-elevation areas, and a low-diversity Mojave Mixed Woody Scrub or Joshua Tree Woodland in the highest elevations. Joshua Trees occur as a minor component in these plant communities, with the densest Joshua Tree stands occurring in the southwestern portion of Apple Valley. The western portion of Apple Valley contains Mojave Riparian Forest, which is associated with the Mojave River. Landscaped areas and more disturbed areas are classified as non-native communities. The several separate natural communities represented in the Apple Valley General Plan planning area include:

Saltbush Scrub

This type of vegetation is found within the eastern portion of the Town limits and the Sphere of Influence. It is generally comprised of Saltbush, Allscale, and Shadscale. Joshua Tree, Cheesebush, Anderson Boxthorn, and Cholla are also sometimes a component of this vegetation type.

Mojave Riparian Forest

This habitat consists of small areas of water-dependent plants, and is supported by the Mojave River that flows through the western portion of the planning area. Specifically, the Upper Narrows River contains an extensive Mojave Riparian Forest. This community is dominated by Cottonwood, Willow, Saltcedar, Quailbush, Rabbitbrush, and Saltgrass. Although this habitat represents only a small proportion of the planning area, it is valuable for the diversity of wildlife that it supports.

Wash Vegetation

There are a number of small washes within the Town of Apple Valley and the Sphere of Influence that support specific species including Rabbitbush, Cheesebrush, and Brickellbush. This community type may be associated with Mojave Riparian Forest species and usually contains some non-native grasses and flowering plants.

Sandfield Plant Community

This community assemblage is found within the upstream area of the Mojave River where water flow is primarily subsurface, except during times of heavy rainfall. Vegetation is generally limited to short lived annual plants, and lacks perennial species. Representative species include Sand Verbena, Tiquilia, Sandpaper Plant, Saltbush, and Ricegrass.

Joshua Tree Woodlands

Found on alluvial slopes with sandy/loamy soils, this community type often contains California Buckwheat, Green Ephedra, Desert Needlegrass, Paperbag Bush, and may contain Mojave Yucca. This vegetation type is observed south of the Town within the Sphere of Influence.

Creosote Bush Scrub
This community type is the predominant vegetation type within the Town of Apple Valley and the Sphere of Influence. This community is composed of Creosote Bush, Burrobush, Golden Cholla, Pencil Cholla, Beavertail, Cheesebush, Boxthorn, Rabbitbrush, and may contain Joshua Trees.

Mojave Mixed Woody Scrub
This community assemblage is limited to small patches within the Town limits, and occupies larger swaths of land within the Sphere of Influence east of the Town. Steep and rocky soils that are shallow and overly drained tend to support this community. Buckwheat, Bladderpod, Beavertail, Goldenbush, Cheesebush, and some cactus species such as Clustered Barrel Cactus and Hedgehog Cactus are representative of this vegetation type.

Montane Woodlands
Located southwest of the Town limits is a small community of this vegetation type, which extends south in the vicinity of the Sphere of Influence. This open woodland vegetation type is dominated by California Juniper, Joshua Tree, and a number of shrubs including Blackbush, Cliffrose, Turpentine Broom, and may contain an understory that is typical of Mojave Mixed Scrub species.

Non-native Communities
The Town and Sphere of Influence contain non-native species interspersed within natural assemblages. Within urbanized areas, non-native species tend to be associated with landscaping, slope stabilization, and abandoned or vacant lots. Immediately adjacent to the Apple Valley Airport and in disturbed land within residential areas of the Town, ruderal or weedy flora predominate, with a few components of former native plant communities occasionally represented. In the Sphere of Influence non-native species may occupy abandoned farmland, or washes. Although not native, this community type provides open space and habitat and foraging opportunities for a variety of common species.

## WILDLIFE HABITAT AND FAUNA

Wildlife habitat in the Town and Sphere of Influence generally follow the natural community descriptions. Within the Town and Sphere of Influence primary habitat is found within the fragmented assemblages of Creosote, Saltbush, and Mojave Mixed Woody Scrub. These natural communities are critical habitat types for numerous plant and animal species.

Developed and urban lands also provide habitat to a number of common species that are able to survive in ruderal (weedy) plant communities or in proximity to urban development.

Common animal species identified in Apple Valley include invertebrates, amphibians, reptiles, birds and mammals. Invertebrates include insects, such as ants (Harvester and Crater-nest ant), beetles (Broad-necked Darkling beetle), bees (Honey and Bumble bees), scorpions (Sand and Desert Hairy scorpions), as well as spiders (Daddy Longlegs, Black Widow, Desert Tarantula, and orb weaver spiders) are located throughout the area. Amphibians primarily include frogs (Pacific Tree frog and Bullfrog) and toads (Western and Red-spotted toad) commonly found in the Mojave River corridor and various periodically wet habitats within the Town and Sphere of Influence. Reptiles include lizards (western Whiptail, Zebra-tailed, Western Fence, Desert Night, Southern Alligator, Desert Horned, and Side-blotched lizards), iguanas (Desert iguana), and snakes (Western Patch-nosed, Spotted Leaf-nosed, Coachwhip, Glossy, Gopher, Sidewinder, Mojave Rattle, and Speckled Rattle snakes), which can be found in habitats ranging from sand, boulders, and Creosote scrub, to old woodpiles in more urbanized areas. Various bird species can be found throughout Apple Valley, nesting in developed and undeveloped areas, including common landscape features found in residential areas. Three hundred and one bird species have been documented in and around the Town of Apple Valley (Myers 2007), and include sparrows, finches, woodpeckers, and hawks, to name a few. And finally, mammals identified in the Town and Sphere of Influence include larger species such as rabbits (Black-tailed jackrabbit and Desert Cottontail), skunks (Spotted and Striped skunks), raccoons (Ringtail), fox (Kit fox) and coyotes, as well as smaller species including mice (Pocket, Southern Grasshopper, and Deer mice), rats (Kangaroo rat and Desert Woodrat), gophers (Botta's Pocket gopher), and squirrels (White-tailed Antelope and California Ground squirrels).

An assemblage of wetland-dependent species and associated riparian habitat is located in the western portion of Apple Valley in conjunction with the Mojave River. The River is a significant north/south corridor that links a number of natural communities within the planning area. Similarly, hills, ridges (i.e., The Knolls, Falchion Boulderlands, Bell Mountain, Catholic Hill, Bass Hill) and associated washes serve as important corridors for movement between Turtle and Black Mountains located north of the planning area; Fairview Mountain to the northeast; the Granite Mountains to the southeast; and the Juniper Flat foothills located within the San Bernardino Mountains to the south. Linkage corridors are further discussed below.

**Sensitive, Rare, And Endangered Species**

A number of plant and animal species occurring within the Planning Area have been termed Special Status Species due to a variety of designations issued by federal, state and/or local governing authorities. Rapid urbanization in the region has led to the listing of some plant and animal species as threatened, or endangered, while other species have been designated as sensitive species.

Future development in Apple Valley must comply with laws and regulations affording protection to special status and sensitive species. Land with potential habitats for these species is to be evaluated prior to surface disturbance. Non-listed biological features, such as state streambeds/federal waters, Joshua Trees and rare plants/animals, are also to be evaluated in site-specific environmental reviews, which identify all final necessary mitigation and permitting requirements. The following briefly describes Apple Valley's sensitive, rare, and/or endangered species.

"Endangered" species are those considered in imminent danger of extinction due their limited numbers or loss of habitat, while "Threatened" species refers to those likely to become endangered within the foreseeable future, primarily on a local scale, and "Sensitive" species are those that are naturally rare or have been locally depleted or put at risk by human activities. Tables III-5 through III-10 provide a list of sensitive species that have been reported by federal and state wildlife agencies and quasi-public conservation organizations as potentially occurring within the Town and Sphere of Influence.

**Table III-5**
**Special Status Plant Species from the Vicinity of Apple Valley**

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Camissonia boothii*** **ssp. *Boothii*** **Booth's Evening Primrose** | Sandy habitats | CNPS List 2 | | Yes (West Edge PA) |
| ***Cymopterus Deserticola*** **Desert Cymopterus** | Sandy habitats | CNPS List 1B | | Yes (Central PA along Hwy 18) |
| ***Yucca Brevifolia*** **Joshua Tree** | Creosote Bush, Saltbush, Mojave Mixed Woody, Scrub | Apple Valley Ordinance | | Yes (PA) |
| ***Saltugilia Latimeri*** **Latimer's Woodland-gilia** | Creosote Bush Scrub | CNPS List 1B.2 | | No |
| ***Opuntia basilaris*** **var. *bracyclada*** **Short-jointed Beavertail** | Joshua Tree Woodland | CNPS List 1B.2 | | No |
| ***Scutellaria bolanderi ssp. austromontana*** **Southern Skullcap** | Meadows, riparian habitat | CNPS List 1B.2 | | Yes (Mojave River at Upper Narrows) |
| ***Symphyotrichum defoliatun*** **San Bernardino Aster** | Meadows, riparian habitat | CNPS List 1B.2 | | No |

**Table III-6**
**Special Status Invertebrate Species from the Vicinity of Apple Valley**

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Plebulina Emigdionis*** **San Emigdio Blue [butterfly]** | Saltbush Scrub & riparian habitat | | | Yes (reported from west edge PA along Mojave River) |
| ***Helminthoglypta Mojaveana*** **Victorville Shoulderband** | Granite boulders base of Mojave River | | | Yes (reported from west edge PA along Mojave River at Upper Narrows) |

## Table III-7
## Special Status Amphibian Species from the Vicinity of Apple Valley

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Rana aurora Draytonii*** **California Red-legged Frog** | Wetlands with deep water & adjacent Riparian habitat | Special Concern | Threatened | No (reported historically from Mojave River at Upper Narrows) |
| ***Bufo californicus*** **Arroyo Toad** | Streams with sandy banks | Special Concern | Endangered | No ( historically southwest of PA within Mojave River) |

## Table III-8
## Special Status Reptile Species from the Vicinity of Apple Valley

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Phyrnosoma coronatum (blainvillei population)*** **Coast Horned Lizard** | Friable, rocky or shallow sandy habitats with ants | Special Concern | | No (reported southwest PA along dry portions of the Mojave River) |
| ***Sauromalus ater*** **Chuckwalla** | Rocky habitat, Creosote Bush Scrub | | | Yes (from Mojave River Narrows) |
| ***Gopherus Agassizii*** **Desert Tortoise** | Creosote Bush Scrub | Threatened | Threatened | Yes (from central west of Mojave River and north PA) |
| ***Actinemys marmorata pallida*** **Western Pond Turtle** | Wetlands & adjacent riparian areas | Special Concern | | Yes (reported from west edge PA at Upper Narrows) |

## Table III-9
## Special Status Mammal Species from the Vicinity of Apple Valley

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Lasiurus cinereus*** **Hoary Bat** | Dense foliage of large trees next to open habitats | Special Concern | | Unknown ( from west edge PA, exact location unknown) |
| ***Spermophilus Mojavensis*** **Mojave Ground Squirrel** | Creosote Bush & Saltbush Scrub | Threatened | | No (1955 report just southeast of the PA) |
| ***Microtus Californicus Mojavensis*** **Mojave River Vole** | Wet herbaceous Habitat | Special Concern | | Yes (reported from west edge PA along Mojave River) |
| ***Corynorhinus Townsendii Pallescens*** **Pale Big-eared Bat** | Crevices, Mineshafts, Creosote Bush Scrub near water | Special Concern | | No (reported southeast of PA) |
| ***Chaetodipus fallax pallidus*** **Pallid San Diego Pocket Mouse** | Sandy habitats rocks/ coarse gravel, wash habitat, succulent scrub | Special Concern | | Possibly (reported from west edge PA & Granite Mountains) |

**Table III-10**
**Special Status Bird Species from the Vicinity of Apple Valley**

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Toxostoma Bendirei*** **Bendire's Thrasher** | Joshua Tree Woodland, Mojave Mixed Woody Scrub | Special Concern | | Yes (reported from North PA) |
| ***Myiarchus tyrannulus*** **Brown-crested Flycatcher** | Riparian woodland | Special Concern | | Yes (reported from Mojave River) |
| ***Athene Cunicularia*** **Burrowing Owl** | Burrows/abandoned foundation structures, Creosote Bush & Ruderal Scrub | Special Concern | | Yes (reported throughout PA) |
| ***Accipiter cooperii*** **Cooper's Hawk** | Riparian habitat with large cottonwoods | Special Concern | | Yes (west edge PA; Mo River at Upper Narrows) |
| ***Vireo vicinior*** **Gray Vireo** | Dry chaparral, Pinyon-juniper Woodland, Mojave Desert Mountains | Special Concern | | No (reported from north slope San Bernardino Mountains) |
| ***Vireo bellii pusillus*** **Least Bell's Vireo** | Riparian habitat, willow trees, seep-willow scrub | Endangered | Endangered | Yes (reported from west edge PA along Mojave River) |
| ***ToxostomaLecontei*** **Le Conte's Thrasher** | Shrubs, washes, Creosote Bush Scrub | Special Concern | | Yes (reported throughout PA) |
| ***Asio otus*** **Long-eared Owl** | Riparian habitat next to open fields | Special Concern | | No (reported south west of PA along Mojave River) |
| ***FalcoMexicanus*** **Prairie Falcon** | Cliff faces (nesting), Open habitats for Foraging | Special Concern | | Yes (from northeast PA spring/summer; throughout PA during winter) |
| ***Empidonax traillii Extimus*** **Southwestern Willow Flycatcher** | Riparian habitat | Endangered | Endangered | Yes (reported from west edge PA along Mojave River) |
| ***Piranga rubra*** **Summer Tanager** | Riparian habitat | Special Concern | | Yes(reported from west edge PA along Mojave River) |
| ***Buteo swainsoni*** **Swainson's Hawk** | Riparian Habitat (Migration) | Threatened | | Yes (from Mojave River Corridor) |
| ***Pyrocephalus Rubinus*** **Vermillion Flycatcher** | Riparian habitat | Special Concern | | Yes (reported from west edge PA along Mojave River) |

**Table III-10** (Cont'd)
**Special Status Bird Species from the Vicinity of Apple Valley**

| Species Name | Habitat | Local or CDFG Status | Federal Status | Reported Within Planning Area (PA) |
|---|---|---|---|---|
| ***Coccyzus americanus occidentalis*** **Western Yellow-billed Cuckoo** | Riparian habitat with Large cottonwood and willow canopy | Threatened | Candidate for listing | Yes (reported from west edge PA along Mojave River) |
| ***Icteria virens*** **Yellow-breasted Chat** | Riparian habitat | Special Concern | | Yes (reported from west edge PA along Mojave River) |
| ***Dendroica Petechia brewsteri*** **Yellow Warbler** | Riparian habitat | Special Concern | | Yes (reported from west edge PA along Mojave River) |

**Habitat:** terrestrial natural community descriptions per Holland (1986) as modified by general observations of the planning area in 2007.

**State of California and Local Status**: Endangered, Threatened, Protected, Special Concern status per the California Fish and Game Code of 2007, as well as all species protected by local Town of Apple Valley Ordinance.

California Native Plan Society (CNPS) listing rankings (CNPS 2001) are described as follows:

**List 1B**: Plants considered rare and endangered in California and throughout their range. All of the plants constituting List 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code and are eligible for state listing. It is mandatory that these plant species be fully considered during preparation of environmental documents pertaining to the California Environmental Quality Act.

**List 2:** Plants considered rare, threatened or endangered in California but which are more common elsewhere.

**Federal Status:** Endangered, Threatened and Candidate for listing status per the Endangered Species Act of 1973 (as amended). It is mandatory that federally listed plant species be fully considered during preparation of environmental documents pertaining to the California Environmental Quality Act, or National Environmental Policy Act, or any federal authorization.

**Reported within Planning Area**: Includes observations by AMEC personnel, reports by knowledgeable individuals, entries in the California Natural Diversity Database (CDFG 2007) and San Bernardino Museum records.

Ecosystem Management and Biodiversity Protection

Ecosystems are composed of complex interactions between species and the natural environment that represent the culmination of evolutionary processes including soil formation, waste disposal, air and water purification, nutrient cycling, solar energy absorption, and biogeochemical and hydrological cycles. While the complexity of the earth's ecosystems are not fully understood, it is clear that every part of an ecosystem fills an important role and helps to maintain a balanced and healthy system.

Ecosystem management integrates ecological, economic, and social goals in a unified manner, which is an important step towards protecting biodiversity and encouraging healthy ecosystems.

Successful management operates under the principle that environmental components are interrelated. Legislation, policies, and management plans that seek to restore, maintain, and safeguard ecological systems will preserve environmental integrity for future generations.

Public Land Agencies and Ecosystem Management

Public land agencies aid in ecosystem management and biological resource protection. The primary objective for these agencies is the safeguarding of cultural, scenic and biological resources.

There are a number of public land agencies in the Town of Apple Valley and the vicinity that work together to manage the region's open space lands. Federal agencies include the National Park Service, the United States Forest Service, United States Fish and Wildlife Service, and the Bureau of Land Management. On a state level, agencies include the California Department of Fish and Game, State Water Quality Control Board, and the California Department of Parks and Recreation. Lands owned and managed by these agencies and organizations may, among other uses, provide for recreational uses, which has the potential to impact and disturb the land to varying degrees.

**Endangered Species Acts**

Endangered Species Acts establish laws and regulations that directly and indirectly protect plant and wildlife species through the identification of threatened and endangered species, protection of listed species, and their habitat(s). The U.S. Endangered Species Act (ESA), enacted in 1973, established powerful legislation for the protection of biological resources. This act set forth regulations that required identification of all endangered species and populations with an emphasis on "game" animals in order to preserve as much biodiversity as possible. The Department of Commerce, through the National Oceanic and Atmospheric Administration, is responsible for marine mammals and anadromous fish, while the U.S. Department of the Interior, through the U.S. Fish and Wildlife Service, is responsible for the protection of most threatened and endangered species. The structure of the Endangered Species Act contains the following components:

1. Listing of species and designation of critical habitat;
2. Recovery planning; and
3. Prohibitions and exceptions to prohibitions.

A wide range of activities involving endangered species is regulated by the ESA, including accidentally or intentionally "taking" (harassing, harming, pursuing, hunting, shooting, trapping, killing, capturing or collecting), importing into or exporting out of the United States (possessing, selling, transporting or shipping), and selling or offering for sale any endangered species. Violators of the ESA are subject to fines up to $100,000 and one-year of imprisonment. As of February, 2008, the United States had 1,351 species on its endangered and threatened species lists, 9 proposed for listing, and about 283 candidate species waiting to be considered.

Private land is essential in the protection of endangered species, since nearly eighty percent of habitat for more than half of all listed species occurs on such properties. Regulatory agencies have been successful in establishing precedent for the protection of species on private lands. In

1995, the Supreme Court ruled that destroying habitat is as harmful to endangered species as directly taking them. In order to provide a nexus for private land owners with threatened or endangered species or habitat present on their land, the USFWS has been negotiating Habitat Conservation Plans (HCPs) with public entities and private landowners, wherein a portion of their land can be disturbed as long as the species benefit overall. Impacts to listed species can also be addressed through a Section 7 consultation where a project includes a federal action.

California Endangered Species Act

At the state level, the Department of Fish and Game regulates and manages endangered species through the provision set forth in Code Sections 2050 et. seq, which define the California Endangered Species Act (CESA). State laws regulate the "take" of any endangered or threatened species per Section 2080 of the Fish and Game Code where Take is defined as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" a protected species. CESA allows for take incidental to otherwise lawful development projects, and emphasizes early consultation with the Department to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset losses of listed species populations and their essential habitats caused by projects.

Section 2080 of the Fish and Game code allows the agency to authorize permits or memorandums of understanding for individuals, public agencies, universities, zoological gardens, and scientific or educational institutions, to import, export, take, or possess any endangered species, threatened species, or candidate species of plants and animals for scientific, educational, or management purposes.

This state law largely parallels the federal law, by providing similar requirements and mandates as those described in the ESA. In addition, CESA prohibits the taking of endangered species and species petitioned for listing at the state level. Plant species are also included under protection within CESA, whereas the federal ESA only protects plants on federally owned lands or, where there is a federal nexus on private lands. Such a nexus might include the existence of a federally regulated resource or facility.

Town Responsibility under ESA and CESA

To ensure development projects minimize impacts to the environment, the Town of Apple Valley is responsible for regulating development. In fulfilling this responsibility, the Town must make certain that all proposed projects conform with the standards and mandates of both the federal and state acts, as applicable. The Western Mojave Habitat Conservation Plan and the Apple Valley Multi Species Habitat Conservation Plan (see below) must also conform to the standards of both laws. In addition, both habitat conservation plans will assist the Town in implementing its responsibilities under these laws.

**Habitat Protection**

Habitat protection, along with land conservation and ecosystem management, provides for maximum biological diversity, ensuring the long-term protection of all species. Over the last few years, advances in the field of conservation biology have given rise to a new discipline of restoration ecology, which seeks to repair or reconstruct ecosystems that have been damaged by human or natural forces. Restoration of degraded natural communities is an important factor in reversing habitat loss and improving wildlife diversity and ecosystem functions. However, the preservation of intact environmental systems, natural communities, and habitats before they are degraded provides greater surety that these values do not have to be eventually recreated at a greater cost to the Town. An important element in habitat preservation and restoration is the connectivity of that habitat with the greater ecological system.

Habitat fragmentation is a severe threat to species' survival. Fragmentation of natural communities results in an overall decrease in habitat and creates isolated pockets of natural land surrounded by human impacted areas. Habitat fragmentation leads to smaller populations with less genetic diversity, and reduced biodiversity. Ecosystems become unstable when fragmented and may result in negative changes, including increased predators, competitors and parasites. Due to urbanization and human population growth, habitat fragmentation is one of the greatest threats to species and the ecosystems upon which they rely.

**Habitat Connectivity**

Providing an interconnected network with established corridors is crucial in minimizing biodiversity losses due to fragmentation.

The Town of Apple Valley and the Sphere of Influence contain areas of valuable habitat that support special status species. These areas are identified in Exhibit III-6, and should be preserved as open space, require species specific surveys for other land uses, and/or provide mitigation, if impacted. Development of the Apple Valley MSHCP will provide important guidelines and criteria for these habitats.

The Apple Valley MSHCP will establish guidelines for the preservation and maintenance of wildlife movement corridors within the Town and vicinity. In the interim the Town will apply standards set forth in the CEQA Guidelines for projects within or adjacent to Special Linkage areas. The Mojave River corridor is an important linkage area within the western portion of the Town and Sphere of Influence in that it links a number of natural communities within the planning area. Washes also can serve as important corridors for movement between Turtle and Black Mountains located north of the planning area; Fairview Mountain to the northeast; the Granite Mountains to the southeast; and the Juniper Flat foothills located within the San Bernardino Mountains to the south.

There are a number of special survey areas within the Town and Sphere of Influence that should require species-specific surveys as part of the application process for projects and/or should be considered for preservation as open space. These areas are depicted on Exhibit III-6, and include the following species: Desert Tortoise, Mojave Ground Squirrel, Burrowing Owls. Joshua Trees, and/or Migratory/Nesting/Other Protected Birds. In addition to the, washes and streams

delineated in Exhibit III-4, (Streams, Rivers, and Washes) special surveys using appropriate agency methodology should conducted prior to development to delineate other jurisdictional areas.

**Habitat Conservation Planning**

West Mojave Habitat Conservation Plan

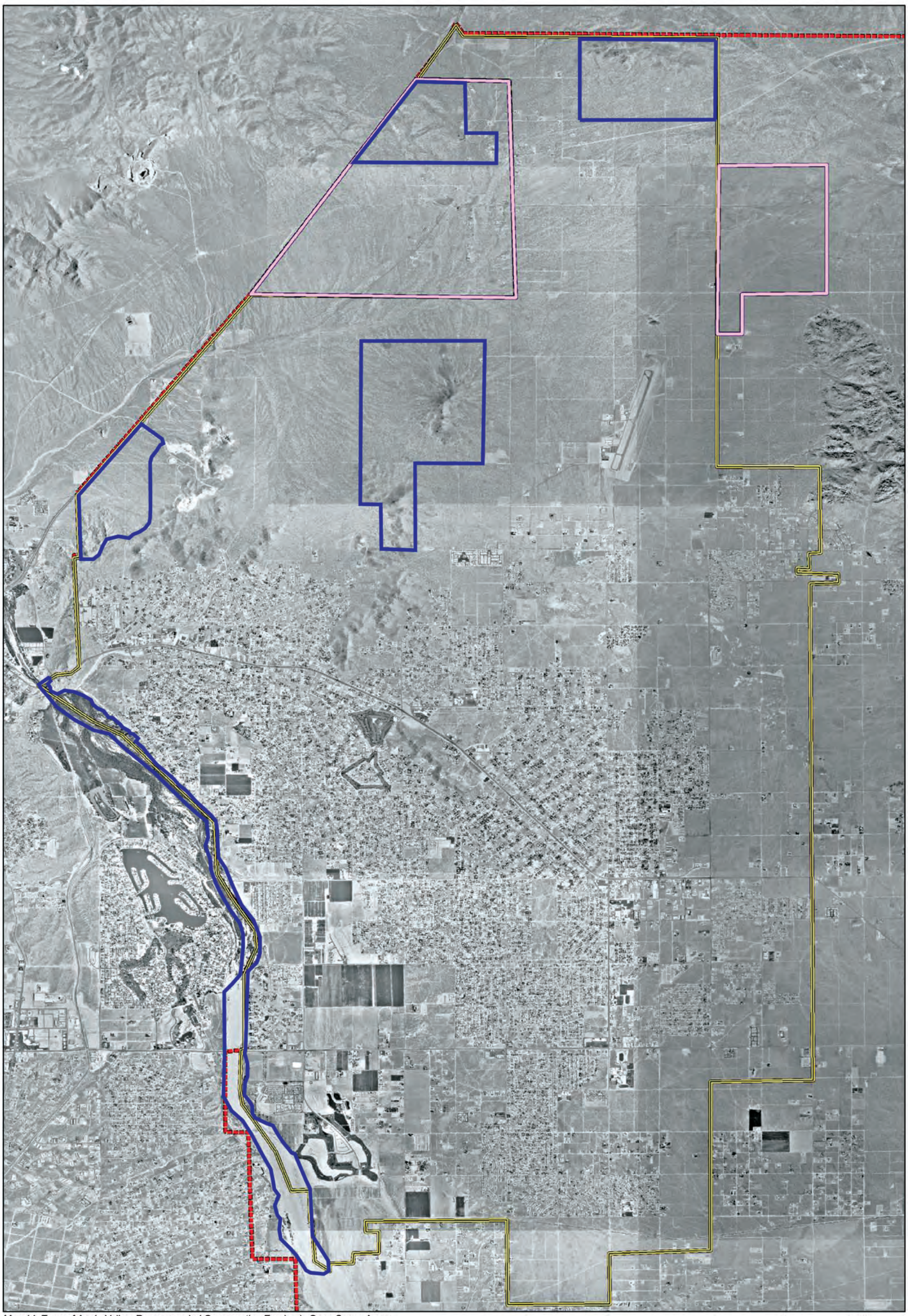
The West Mojave Conservation Plan was developed by the Bureau of Land Management and is the largest habitat conservation plan ever developed in the United States, encompassing 9.3 million acres of land within San Bernardino (including Apple Valley), Kern, Los Angeles, and Inyo counties. This plan provides a comprehensive strategy to conserve and protect state and federally listed species, as well as other special status species and their habitats.

Conservation of lands for specifically covered species, like the Desert Tortoise, Mojave Ground Squirrel, Le Conte's Thrasher, Burrowing Owl, etc., is mandated in the framework of this plan. The approved West Mojave HCP is currently only applicable to federal lands, as it has only completed NEPA certification. Local, state, and federal entities are in the process of developing a private lands counterpart to the West Mojave Plan. However, the private lands HCP will have a significantly reduced scope when compared to the federally adopted West Mojave Plan.

Apple Valley Multi-Species Conservation Plan

There are approximately 30 sensitive species found throughout the Town and within the Sphere of Influence, including state and/or federally listed species such as the desert tortoise and the Least Bell's vireo. These listed species are protected by the state and/or federal Endangered Species Acts (ESAs). Currently in the Town of Apple Valley, each individual development project (private or public) that may impact a listed species is processed separately through the state and/or federal permit processes to address compliance with the CESA and/or ESA. Depending on the project and the biological impacts associated with it, the process takes a year or more to complete. The processes are both time consuming and expensive.

On a parallel track with the General Plan Update, the Town is undertaking the preparation of a Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP will provide a means to address impacts to sensitive and listed species in order to ensure that the updated General Plan can be implemented, which will enable the Town to streamline the development entitlement process while ensuring protection of sensitive environmental resources.




Map 14. Town of Apple Valley: Recommended Conservation Emphasis Open Space Areas

Source: AMEC 11.2007

TERRA NOVA®
Planning & Research, Inc.

**Apple Valley General Plan**
**Habitat Areas Requiring Additional Biological Study**
**Apple Valley, California**

Exhibit
**III-6**

## FUTURE DIRECTIONS

Participation in the Western Mojave Habitat Conservation Plan, and development of the Apple Valley MSHCP is an important step by the Town for the long-term protection of important biological resources on a local and regional level. The Western Mojave Plan establishes a regional ecological preservation system that will be able to support important and intact ecosystems and communities, while the Apple Valley MSHCP will provide for local preservation within the Town, while encouraging thoughtful development. Through implementation of the General Plan, and adherence to policies and programs, the Town can continue to grow in a manner that is compatible with the natural environment.

## GOALS, POLICIES, AND PROGRAMS

### Goal 1

Establish a pattern of community development that supports a functional, productive, and balanced relationship between the manmade environment and the natural environment.

**Policy 1.A**
Habitat for endangered, threatened, and sensitive species shall continue to be protected and preserved as Open Space by the Town.

**Program 1.A.1**
The Town shall continue to work on identifying critical habitat areas, biological corridors, and ecosystems functions that must be preserved to maintain a healthy, self-sustaining environment.

**Program 1.A.2**
The Town shall continue to contribute and participate in the local and regional conservation plans including the Western Mojave Habitat Conservation Plan.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.3**
The Town shall continue developing and eventually adopt a MSHCP.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.4**
Once the Western Mojave Habitat Conservation Plan and/or the Apple Valley MSHCP have been finalized, they shall be used to maintain an accurate and regularly updated map of sensitive plant and animal species and for management of biological resources within the Town.
**Responsible Agency:** Planning Division
**Schedule:** 2009-2010, Ongoing

**Program 1.A.6**
Biological resource surveys and assessments shall continue to be required by Town staff as part of the application process for new development especially within or adjacent to linkage corridors or, special survey areas and potential jurisdictional areas.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.7**
Areas containing valuable habitat shall be managed accordingly for the preservation and protection of their biological and natural resources, and if not already designated as Open Space such lands shall be considered for an open space land use designation as appropriate.
**Responsible Agency:** Planning Division
**Schedule:** Continuous

**Policy 1.B**
The Town shall promote the use of native vegetation for landscaping to enhance and create viable habitat for local species.

**Program 1.B.1**
The Town shall require developers to recover, preserve, or utilize native vegetation within the project or shall require that viable vegetation is transplanted to other appropriate sites in conformance with its Native Plant Ordinance.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.B.2**
Native and drought tolerant plant materials, including vegetation that provides or enhances habitat for local species, shall be incorporated into project landscaping and design.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.B.3**
A comprehensive list of planting materials that emphasizes native vegetation, but may also include non-native plants that are compatible with the local environment, shall be made available at the Town Hall. A list of invasive exotics that shall not be planted also will be made available. In addition, information on salvaging and transplanting native species shall also be made available.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Policy 1.C**
The Town shall continue to promote biodiversity by protecting natural communities with high habitat value, protecting habitat linkages to prevent further fragmentation, and encouraging an appreciation for the natural environment and biological resources.

**Goal 2**

The Town shall work with local, state, and regional agencies to protect, preserve, and manage biological resources, especially threatened, endangered, and sensitive plants and wildlife species and their habitats.

**Policy 2.A**
The Town shall coordinate with CDFG and USFWS when working on projects that are proposed to be located within or adjacent to linkage areas or special survey areas.

**Policy 2.B**
The Town shall support and cooperate with other agencies in establishing multiple use corridors that link open space areas through drainage channels and utility easements, thereby encouraging the connectivity of natural communities.

**Program 2.B.1**
Through consultation and coordination with the County of San Bernardino Flood Control District, utility companies, and public and private land owners, the Town shall designate a network of multiple use corridors for movement of people and wildlife between open space areas.
**Responsible Agency:** Planning Division, San Bernardino County Flood Control District, and BLM.
**Schedule:** Ongoing

**Policy 2.C**
The Town shall work with CDFG and the USFWS to approve and implement a MSHCP for the Town and Sphere of Influence.

**Program 2.C.1**
Through consultation and coordination with the CDFG and the USFWS, the Town shall complete and adopt an MSHCP that addresses species of concern and sets forth policy and regulation to manage important habitat, linkage corridors, and special survey areas.
**Responsible Agency:** Town of Apple Valley, CDFG, USFWS, and BLM.
**Schedule:** Ongoing until MSHCP is adopted.

**Policy 2.D**
The Town shall work with CDFG and USFWS to ensure that state and federal protections required by the Migratory Bird Treaty Act addressed during the planning process.

**Policy 2.E**
The Town shall work with CDFG, RWQCB and ACOE to ensure that state and federal jurisdictional areas are properly identified.

# ARCHAEOLOGICAL AND HISTORIC RESOURCES ELEMENT

## PURPOSE

Cultural resources are important in contributing to a community's sense of place, and they provide residents with a meaningful understanding of history and heritage; as such, these resources are integral to Apple Valley. The Archaeological and Cultural Resources Element describes the regional and local pre-history and history as well as the context of development in the 20th century. This element also sets forth goals, policies and programs that preserve the Town's cultural heritage and are intended to help protect it for future generations.

## BACKGROUND

California Government Code Section 65560(b) and Public Resources Code Section 5076 partially determine the issues addressed in the Archaeological and Cultural Resources Element, which is directly related to the Land Use and Open Space and Conservation Elements of the General Plan. Under Section 21083.2(g) of the California Environmental Quality Act (CEQA), a community is authorized to require that sufficient research, documentation and preservation are undertaken when the potential exists for significant cultural resources.

Development proposals are currently reviewed by The Town of Apple Valley to identify potential impacts on archaeologically and culturally significant resources. Additional comprehensive studies may be required if a potential for negative impacts is determined. Future development proposals will be carefully evaluated to determine the need for site-specific cultural resource assessments.

The Victorville-Apple Valley region has been continuously occupied by humans for thousands of year. Therefore, while the Town of Apple Valley is a relatively "new" community, there is evidence that both prehistoric and historic cultural resources exist within portions of the Town and Sphere of Influence. These are further discussed below.

The region has historically served as an essential transportation link between Southern California and inland areas such as Utah and Santa Fe, New Mexico. The ancient Mojave Trail was used by the Santa Fe Railroad in the 19th century, by the legendary U.S. Route 66 during the early and mid-20th century, and most recently, by U. S. Interstate 15.

### The Prehistoric Period

The Prehistoric Period identifies the time preceding the arrival of non-native peoples to the area and when Native American society, based on traditions resulting from thousands of years of cultural development, was intact and viable. During this period, the area's proximity to the

Mojave River would have provided aboriginal groups a dependable source of water and subsistence resources. The river was also a major route for interregional trade and exchange.

In the Mojave Desert region, the prehistoric period is generally divided into five sequential time periods, beginning with the Newberry period and associated distinctive cultural changes in land use occurring between 1500 B.C.–A.D. 500. The two ensuing periods, Saratoga (A.D. 500–1200) and Tecopa (A.D. 1200–1700s) are characterized by seasonal group settlements near accessible food resources. Many of the prehistoric sites identified in and around Apple Valley include ancient habitation debris and rock shelters, with a number of rock art panels being recorded. As expected, a significant number of these ancient sites occur along the banks of the Mojave River.

**Ethnohistory**

The Town of Apple Valley is situated near the approximate boundary between the traditional territories of the Vanyume and Serrano peoples. The Vanyume were probably related linguistically to the Serrano, their southern neighbor, although politically they seem to have differed. The Vanyumes' population diminished rapidly between 1820 and 1834, at which time southern California native peoples were removed to various missions. By 1900 the group had virtually disappeared, and today very little is known about the Vanyume.

The name "Serrano" was derived from a Spanish term meaning "mountaineer" or "highlander." The Serrano's territory is centered at the San Bernardino Mountains, and includes the southern rim of the Mojave Desert from Victorville to the east to Twentynine Palms. The nature of the tribe's clan-based organization, as well as the lack of reliable data, make it difficult to assign definitive boundaries for the Serrano territory.

Before contact with Europeans, the Serranos were mostly gatherers and hunters, and occasional fishers, establishing settlements primarily where water flows emanated from the mountains. The tribe was loosely organized by clans directed by hereditary leaders. These clans were affiliated with one of two moieties. Members married outside their own clan and moiety. There was no overall tribal union among the clans.

In the early 1770s Serranos experienced contact with Europeans, however Spanish influence on their lifestyle was not discernible until mission was established on the southern edge of Serrano territory in 1819. The mission period continued until 1834, and during this time most of the Serranos in the San Bernardino Mountains, like the Vanyume, were removed to the nearby missions. Present-day Serrano descendants can be found on the San Manuel and the Morongo Indian Reservations.

**Archaeological Resources in the Planning Area**

A variety of resources were consulted to determine the presence of known archeological resources in the planning area. These resources included historical maps, previous cultural resource surveys, aerial photographs, topographic maps and other cultural records.[4]

[4] "Cultural Resources Technical Report for the Town of Apple Valley General Plan Update", prepared by CRM Tech, September 21, 2007.

Development in the Town, including residential and commercial structures and associated landscaping and other improvements, has impacted much of the natural landscape. As a result, surface evidence of prehistoric archaeological sites as well as early historic-period settlements

Based on a review of previous surveys, most of the Town and Sphere of Influence have not been surveyed systematically for cultural resources, especially older development in the Town that occurred prior to current federal and state regulations that require such surveys as a part of the planning process. Most surveys have occurred where development has occurred in recent decades, including areas along the Mojave River, where sensitive cultural resource sites are concentrated.

Archaeological records in the California Historical Resource Information System identify a total of 48 historical/archaeological sites in the Town and Sphere of Influence. Of these, 16 prehistoric are (Native American) archaeological sites and 32 are historic-period sites. There are also seven sites prehistoric in nature that are pending designation, and 28 isolates (localities with fewer than three artifacts).

Of the recorded prehistoric sites, six have been identified as large Native American habitation areas/villages along or in close proximity to the banks of the Mojave River, as have and five of sites pending designation. Artifacts at these sites included rock shelters, bedrock milling features, pictographs and/or petroglyphs on surfaces of boulders, human cremations and associated grave goods, aboriginal trails, and midden. Gatherings of large, wide-spread Native American living areas indicates that the Mojave River and its tributaries provided subsistence resources for daily life.

Table III-11 lists the recorded Archaeological, Prehistoric and Historic sites within the area.

**The Historic Period**

Sites classified as “historic” are generally those older than forty-five to fifty years of age, however, this category may also include older resources dating from the earliest European contact (around the mid 1770s in the Apple Valley area) up to the end of World War II. trails and Historic resources sites may range from highways to living areas and small-scale remains of single activities.

The historic Mormon Trail, identified in the maps as "Road to Salt Lake City", is the only evidence of human activity in the mid-1850s in the vicinity of the planning area. At its closest point the trail traversed north-south direction approximately 3.5 miles northwest of Apple Valley. Based on a review of historic mapping, there were no man-made features within or adjacent to the Town and associated Sphere of Influence at that time. The earliest settlements by other than Native peoples began to appear around 1860, however, due to the harsh environment development was slow and population in the area remained sparse until after the mid-20$^{th}$ century.

Historical background research conducted for the General Plan has identified three phases in which settlement and development of Apple Valley occurred during the historic period 1) the 1860s to the 1880s, 2) the 1890s to the mid 1940s, and 3) 1946 to present day.

Early Settlement (1860s-1880s)

Cattle herder Silas Cox is credited with the first semi-permanent development in the area, in 1860. A small gold rush in the San Bernardino Mountains in 1861 resulted in the development of an important transportation route to the Apple Valley area. The Van Dusen Road, a wagon road connecting Holcomb Valley to the Cajon Pass Toll Road, was constructed using funds raised by miners.

There were several permanent settlements in and near Apple Valley around 1870, including the Brown ranch, Atkinson's homestead, and McKenney and Taylor's supply station. Of these, the best-known example of properties in this era was the Brown Ranch, later known as Rancho Verde. At one time it exceeded 3,000 acres and extended from present-day Apple Valley and Bear Valley Roads to the Upper Mojave Narrows.

The great southern California land boom of the 1880s brought other settlers to the region and completion of the Santa Fe Railroad marked the beginning of serious settlement activities in the area. Subsequent development has largely eradicated physical evidence of these early settlement activities.

Agrarian Development (1890s-1940s)

With the initiation of activities by the Appleton Land and Water Company in the 1890s, the second development phase of development began. The Company constructed a valley-wide irrigation system to serve the extensive apple orchards it planted on the east side of the Mojave River. This period was characterized by a gradually growing number of large cattle ranches and apple plantations.

Settlers during this period launched a coordinated effort to boost the area’s image, and to this end in 1910 created the Apple Valley Improvement Association. By the mid-1910s there were 14 major ranches in the Apple Valley area. These were clustered mostly along the Mojave River; however, the total population remained relatively small (approximately 50),
Ursula Poates, the “Mayoress of Apple Valley, owned a number of these ranches and is credited with naming the Town. None of these early ranches are currently in existence, however, archaeological remains associated with these establishments are still to be found in less developed portions of the Town and Sphere of Influence.

A new type of tourist industry began to develop in the area in the 1930s, evolving partly as a consequence of the Great Depression, which largely resulted in the economic failure of the orchards. Many of the ranch owners began to take advantage of their isolated desert setting and marketed it to city-dwellers seeking health, relaxation, and recreation, converting their properties into dude ranches, retreats and sanitariums, and the area attracted Hollywood film companies. After flourishing for nearly a decade, these activities gradually diminished in the post-World War II era and eventually vestiges of the orchards and ranches disappeared as other development occurred in the area.

Birth and Growth of the Town (1940s-Present)

The third identifiable phase in the settlement and development of Apple Valley began in 1945 and was marked primarily by the town-building efforts of Newton Bass, Bud Westlund, and the Apple Valley Ranchos enterprise. Later renamed the Apple Valley Building and Development Company, the enterprise was reportedly the first business establishment of the post-WWII era to plan and develop an entire community. Bass and Westlund conducted a series of high-profile promotion campaigns that, over a 20-year period, effectively transformed the sparsely settled desert lands into the area into a western-themed town of 11,000 residents. The Apple Valley Ranchos Company oversaw development of several commercial and residential projects, such as construction of the Branding Iron, the Bank of Apple Valley, and the Apple Valley Inn. The Hilltop House was a new establishment used for entertaining potential buyers. Bass and Westlund established an Architectural Board to review new project, avoid “boom town” construction that might degrade or decrease the value of older buildings, and ensure that all development in the community would "complement the natural beauty of the valley and of building of permanence". This period prominently featured a rambling, California Ranch-style architecture, which was typical of the era immediately following World War II and was fostered by the scattered development patterns in the Town. For the most part commercial development were clustered along State Highway 18.

A number of public facilities that were developed in the Town during this period were on lands donated by Bass and Westlund. These included the James A. Woody Community Center, the Yucca Loma Elementary School, and St. Mary's Academy. Other development included the El Pueblo Shopping Center, the Black Horse Motel, the Terri Lee Doll Company, and the Buffalo Trading Post. True to Bass and Westlund's original plan for “Apple Valley Ranchos”, now the Town of Apple Valley, growth has been largely driven by residential and commercial development. Finally, in 1988 the Town of Apple Valley was incorporated.

**Archeological and Historical Resources in the Planning Area**

Of the 48 known cultural resource sites within the defined area, 16 are pre-historic, however most are from the historic period. The historic resources reflect the Town’s development along transportation routes, as well as its evolution from a frontier settlement to a desert retreat destination, from which it developed into a into a post-World War II boom town. Both historic and pre-historic period sites are located along and within a mile of Mojave River, while the remains of 19$^{th}$ and early 20$^{th}$ century homesteads and ranches are expected to occur in the southern part of Town. Many of the residential and commercial buildings dating to the early years of the present-day community of Apple Valley (1946-1960 are located between Apple Valley Road and Central Road along State Route 18 (also known as Happy Trails Highway).

Table III-11 lists the recorded archaeological, prehistoric and historic sites within the area.

**Table III-11**
**Recorded Historical/Archaeological Sites in the Town and Sphere of Influence**

| Resource | Recorded by/Date | Description |
|---|---|---|
| 36-000058 | Mohr and Bierman 1949 | Habitation area with groundstone, chipped stone, and fire-affected rock |
| 36-000059 | Bierman and Mohr 1949 | Habitation area with bedrock milling features, groundstone, and chipped stone |
| 36-000060 | Bierman and Mohr 1949; Smith 1965 | Habitation area with rock shelter, rock art panel, bedrock milling features, midden, groundstone, and chipped stone pieces |
| 36-000061 | Mohr and Bierman 1949 | Chipped stone scatter |
| 36-000062 | Bierman and Mohr 1949 | Chipped stone scatter and groundstone |
| 36-000063 | Smith 1941; Mohr 1949; Haenszel 1964/1976 | Large habitation area containing multiple loci with rock art panels, trails, bedrock milling features, chipped stone and groundstone scatters, and midden |
| 36-000065 | ? | ? |
| 36-000433 | McKinney 1963 | Groundstone, chipped stone, and fire-affected rocks |
| 36-000572 | Turner 1971 | Nineteen rock art panels |
| 36-000967 | Smith 1977 | Midden area with chipped stone, groundstone, faunal remains, and fire-affected rock |
| 36-001548 | McKinney 1963 | Groundstone and chipped stone |
| 36-001588 | ? | ? |
| 36-002198 | Chace 1963 | Large habitation area with cremation remains, groundstone, chipped stone, shell ornaments, and faunal remains |
| 36-003033 | Hanks 1975 | Mojave Trail |
| 36-004341 | Schneider 1989 | Habitation area with chipped stone, groundstone, faunal remains, and fire-affected rock |
| 36-004411 | Arbuckle 1979 | Mormon Trail (Stoddard Wells Road) |
| 36-006301 | McLean and Lanier 1989 | Historic-period refuse deposit |
| 36-006311 | Kinney 1989 | Chipped stone and groundstone pieces |
| 36-006838 | Sundberg and Des'Austels 1990 | Historic-period rock alignment |
| 36-006839 | Sundberg and Des'Austels 1990 | Historic-period wood-lined depression |
| 36-006840 | Sundberg and Des'Austels 1990 | Historic-period wood-lined depression |
| 36-006841 | Sundberg and Des'Austels 1990 | Historic-period refuse deposit |
| 36-006842 | Sundberg and Des'Austels 1990 | Historic-period refuse deposit |
| 36-006843 | Sundberg and Des'Austels 1990 | Historic-period refuse deposit |
| 36-006981 | Weir 1990 | Historic-period refuse deposit |
| 36-007061 | McKenna 1991 | Bear Valley Road/Big Bear Cutoff |
| 36-007146 | McKenna 1992 | Historic-period rock alignments |
| 36-007147 | McKenna 1992 | Historic-period refuse deposit |
| 36-007148 | McKenna 1992 | Historic-period refuse deposit |
| 36-008545 | Ramsey 1980 | Remains of Murray's Dude Ranch, ca. 1920 |
| 36-009360 | Romani 1998 | Stoddard Wells Road (also 36-004411 in the planning area) |
| 36-009985 | Wright, James, and Bark 1999 | Historic-period refuse deposit |
| 36-010315 | Neuenschwander and Miller 1988 | Edison Company's Boulder Dam-San Bernardino Electrical Transmission Line, ca. 1930 |
| 36-010505 | Neves et al. 1999 | Original Apple Valley School site, ca. 1913 |
| 36-010860 | Dice 2002 | Chipped stone scatter |
| 36-012231 | Jones 2005 | St. Mary Medical Center, ca. 1950s |
| 36-012360 | Lozano 2005 | Historic-period structures/foundations and refuse |
| 36-012598 | Austerman and Sorrell 2006 | Historic-period building foundations |
| 36-012649 | Hatheway 2006 | Dirt access road, ca. 1940 |
| 36-012650 | Hatheway 2006 | Historic-period quarry and access road, ca. 1954 |

**Table III-11**
**Recorded Historical/Archaeological Sites in the Town and Sphere of Influence**

| | | |
|---|---|---|
| 36-012651 | Hatheway 2006 | Historic-period quarry, buildings, and structures, ca. 1940 |
| 36-012652 | Hatheway 2006 | Dirt access road, ca. 1890s |
| 36-012655 | Hatheway 2006 | Remnants of the Victorville Lime Rock Company's power line, ca. 1940 |
| 36-012657 | Romani and Keith 2006 | Historic-period refuse deposit |
| 36-012658 | Hatheway 2006 | Segment of Interstate 15 between Victorville and Barstow, ca. 1957-1959 |
| 36-013094 | Ballester 2007 | Structural remains of the Circle M Ranch, 1940s-1950s |
| 36-013314 | Tsunoda 2006 | Historic-period foundations and refuse |
| 36-015012 | ? | Apple Valley Inn, ca. 1948 |
| P1322-6* | Cambridge n.d. | Prehistoric village site with burials |
| P1322-7* | Cambridge 1969 | Prehistoric occupation site |
| P1322-8* | Cambridge n.d. | Prehistoric village site |
| P1322-9* | Cambridge and Smith 1972 | Prehistoric occupation site |
| P1331-1* | Cambridge 1972 | Groundstone pieces and fire-affected rock |
| P1331-2* | Cambridge n.d. | Prehistoric village site |
| P-SBR16* | Smith 1941 | Groundstone artifacts and clusters of rocks |

* "Pending" sites

Designated Historic Properties

Of the previously recorded historical/archaeological sites in the area, six have been previously evaluated and determined eligible for listing on the National Register of Historic Places, and two others have been proclaimed as California Historical Landmarks. In addition, the Town of Apple Valley has designated 20 sites as Historical Points of Interest, while designation of a further two sites is pending. The 28 designated Historic Properties and two pending properties located within the Town of Apple Valley and associated Sphere of Influence are listed in Table III-12.

**Table III-12**
**Designated or Eligible Historic Properties in the Town and Sphere of Influence**

| Resource | Location | Status* |
|---|---|---|
| 36-000058 | East of Mojave River and south of SR 18 | NRHP-E |
| 36-000060 | East of Mojave River and south of Apple Valley Road | NRHP-E |
| 36-000063 | West of Mojave River and south of SR 18 | NRHP-E |
| 36-000967 | West of Apple Valley Road and south of SR 18 | NRHP-E |
| Mojave Trail | Across the western tip of the planning area | CHL #963 |
| Mormon Trail/Stoddard Wells Road | Across the northern portion of the planning area | CHL #577 |
| Boulder Dam-San Bernardino Electrical Transmission Line | Across the northern portion of the planning area | NRHP-E |
| Murray's Dude Ranch | Northwest corner of Dale Evans Parkway and Waalew Road | NRHP-E |
| Terri Lee Doll Factory | 15001 Wichita Road | HPI |
| Railroad Tie House | 21849 Waalew Road | HPI |
| John Charles Thomas' Romany Hall | 21066 Outer Highway 18 North | HPI |
| El Pueblo Shops | 21810 Highway 18 | HPI |
| Conrad Publishing House | 21825 Highway 18 | HPI |
| Yucca Loma Elementary School | 21351 Yucca Loma Road | HPI |
| James A. Woody Community Center | 13467 Navajo Road | HPI |
| Western White House | 22974 Bear Valley Road | HPI |

**Table III-12**
**Designated or Eligible Historic Properties in the Town and Sphere of Influence**

| | | |
|---|---|---|
| Lone Wolf Company | 23200 Bear Valley Road | HPI |
| Ranchos del Oro Sign | Corner of Navajo Road and Wren Street | HPI |
| Mendel/Circle M Ranch | Corner of Kiowa and Tussing Ranch Roads | HPI |
| Original Apple Valley School Site | Southeast corner of Bear Valley and Deep Creek Roads | HPI |
| Jess Ranch | 11000 Apple Valley Road | HPI |
| Adobe House | 14546 Riverside Drive | HPI |
| St. Mary's Regional Catholic School | 18320 Highway 18 | HPI |
| Bud Westlund/Roy Rogers Home | 19900 Highway 18 | HPI |
| Lewis Center for Educational Research | 20702 Thunderbird Road | HPI |
| Apple Valley Inn | 22434 Nisqually Road | HPI** |
| Buffalo Trading Post Sign and Totem Pole | 20129 Highway 18 | HPI** |
| Fairhope House | 14695 Tiger Tail Road | HPI |
| Pink House | 13733 Navajo Road | HPI |
| Yucca Loma Cottage | 13342 Rincon Road | HPI |

* Abbreviations: NRHP-E—eligible for listing in the National Register of Historic Places; CHL—California Historical Landmarks; HPI—Town of Apple Valley Historical Points of Interest
** Designation pending

## Archaeological and Cultural Resources Sensitivity Assessment

Based on the various research methodologies used to determine archaeological and cultural sensitivity in the General Plan area, project archaeologists determined that the area within one mile of the Mojave River appear to be highly sensitive for both prehistoric and historic-period cultural resources. In this area the potential for subsurface archaeological deposits also exists. There are sensitive historic period sites located along portions of State Route 18, and across portions of the southern portion of the Planning Area. Sensitivity for prehistoric archaeological remains has been identified in the northernmost planning area, including portions of the Town.

Records of previous surveys indicate that systematic and intensive-level surveys have been conducted over approximately one-third of the total acreage of the Town and its Sphere of Influence. Previously unsurveyed lands may contain prehistoric and historic sites that have not been identified or recorded. Potentially sensitive resource areas are identified in Exhibit III-7.

## HISTORIC PRESERVATION PROGRAMS

Federal Programs Available to the Town of Apple Valley

All federal agencies are required to assume responsibility for the preservation of historic properties owned or controlled by the U.S. government, according to the National Historic Preservation Act (NHPA) of 1966. When involved in federal projects, such as some programs funded by the U.S. Department of Housing and Urban Development, local governments may take the lead in enforcing the NHPA.

The National Park Service and the State Historic Preservation Officers of each state administer the Certified Local Government (CLG) program, a joint federal-state initiative providing technical assistance and small grants to local governments for historic preservation purposes that meet certain requirements. CLGs can benefit from historic preservation expertise, technical assistance, information exchange, special grants, and statewide preservation programs coordinated by the State Office of Historic Preservation (OHP).

The Secretary of the Interior maintains the National Register of Historic Places, a nationwide inventory of sites, buildings, districts, structures, objects or other features with national, state, or local historical significance. Currently, there are no National Register-listed resources located within Town, although six sites have been determined as eligible for listing and a number of others may also be eligible for inclusion.

State Programs Available to the Town

Established in 1992, the California Register of Historic Resources is the State of California's counterpart to the National Register of Historic Places. All properties listed in, or officially determined to be eligible for the National Register, are included. The OHP also maintains a listing of California Historical Landmarks, which designates properties of statewide importance, and a listing of Points of Historical Interest, identifying properties of countywide or regional importance. Registered properties may receive a variety of state historic preservation incentives, such as property tax reductions, State Historic Building Code alternative building regulations, California Heritage Fund benefits, special historic preservation bond measures, and seismic retrofit tax credits. Further, under the Mills Act, the Town is authorized to offer incentives to private property owners of qualifying historic properties. Funding may be used to rehabilitate and maintain properties for no less than 10 years. As previously noted, the Mojave Trail and the Mormon Trail are the two designated California Historical Landmarks that occur within or partially within the Town or Sphere of Influence.

## PALEONTOLOGICAL RESOURCES

The potential for geological formations to produce fossils is evaluated based on what fossil resources have been produced in the past at other nearby locations of similar geologic composition. There are substantial exposures of Mesozoic-age (65,000,000 to 245,000,000 years ago) rocks in more elevated portions of the Town that may contain no fossils. Shallow grading of younger Quaternary alluvium that occurs throughout most of the area is not likely to reveal significant fossil remains. Potential for the presence of significant non-renewable paleontological resources exists where surface or subsurface Pleistocene-age (1,808,000 to 11,550 years ago) soils occur in the planning area. High priority is also given to older sediments along the Mojave River and at unknown depth below the surface.

Based on research of surface deposits, the soils in the planning area, which are relatively young, have a low potential for containing significant fossil remains. Surface deposits may in some areas constitute only a "veneer cover" that directly overlays older sediments; however, research indicates that no fossils have been reported in Town. Reports have, however, identified localities with fossil resources of an age that is similar soil deposits to those that occur in the Town and Sphere of Influence. In the overall, research indicates that there is a range of likelihood from low

to high of encountering paleontological resources during future development projects; as discussed above, the potential depends on the location and sediments encountered.

## FUTURE DIRECTIONS

Public Resources Code Section 5020.1 defines "historical resources" including but not limited to an object, building site, area, place, record, or manuscript that is historically or archaeologically significant. Architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may also qualify as historical resources under the PRC definition.

The manner in which the Town must review and address issues related to archaeological and historic resources is identified by the California Environmental Quality Act. The CEQA Guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources. The relevant criteria for determining significance are briefly described below.

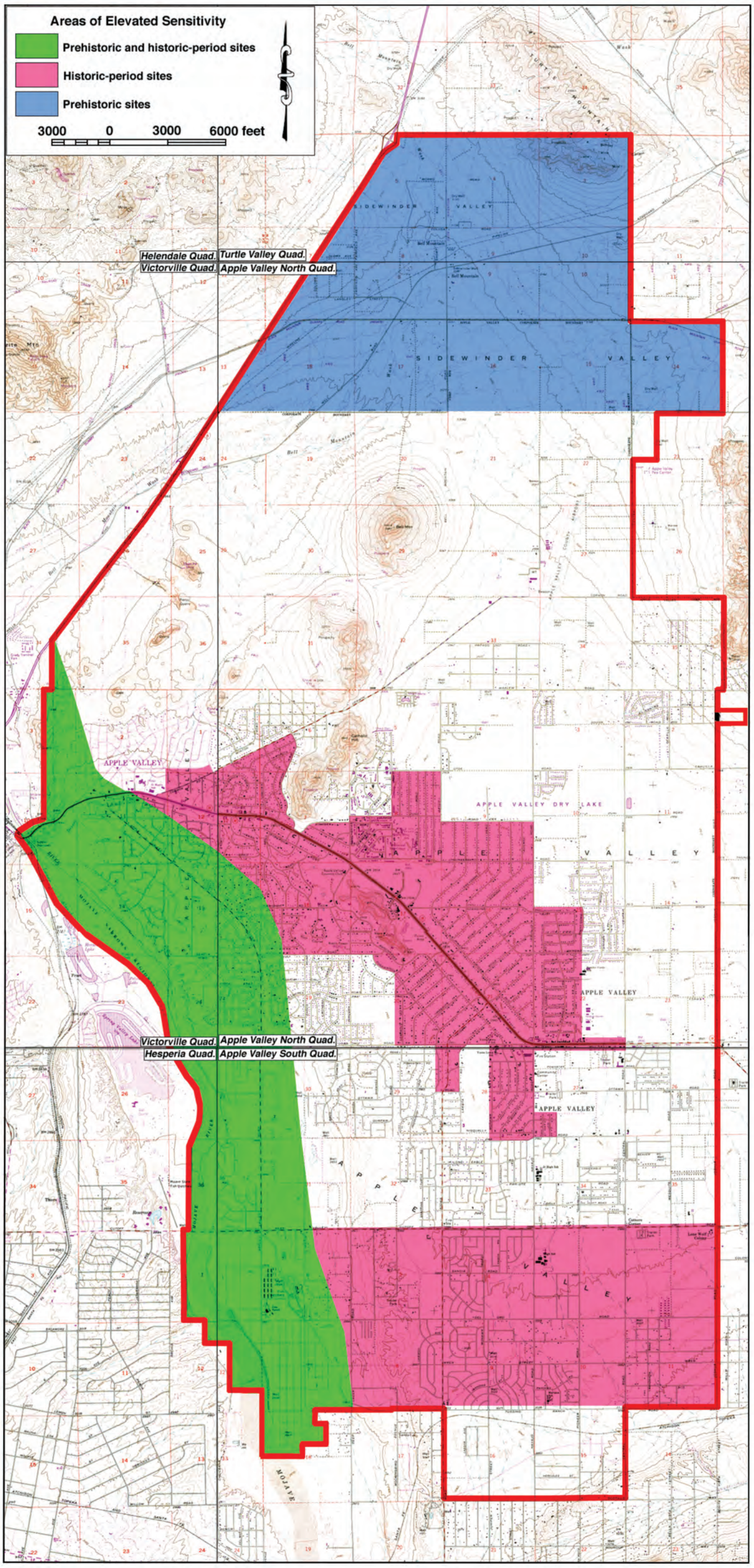
1. Association with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2. Association with the lives of persons important in our past.

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or representative of the work of an important creative individual, or possessing high artistic values.

4. Has yielded, or may be likely to yield, information important in prehistory or history.

The Town, when acting as Lead Agency, is required to ensure that archaeological, historical and cultural sites within its jurisdiction, are located, identified, and evaluated to the greatest extent feasible. The possibility of documenting and preserving archaeological and historic sites and artifacts will diminish as the development continues in the community. The Town should encourage the research and registration of appropriate sites and structures within its jurisdiction in order to maintain its important traditions and heritage for future generations. Where future development has the potential to negatively impact sensitive cultural resources, it will be required to conduct site-specific cultural resources studies and mitigate any potential impacts.




Source: CRM Tech 9/21/07

TERRA NOVA®
Planning & Research, Inc.

**Apple Valley General Plan**
**Cultural Resources Sensitivity Map**
**Apple Valley, California**

Exhibit
**III-7**

## GOAL, POLICIES AND PROGRAMS

### Goal

That all elements of the Town's cultural heritage, including archaeological and historic sites, artifacts, traditions and other elements, shall be professionally documented, maintained, preserved, conserved and enhanced.

**Policy 1.A**
Early in the planning process, the Town shall implement its obligation to identify, document and assess archaeological, historical and cultural resources that proposed development projects and other activities may affect.

**Program 1.A.1**
Where proposed development or land uses have the potential to adversely impact sensitive cultural resources, it shall be subject to evaluation by a qualified specialist, comprehensive Phase I studies and appropriate mitigation measures shall, as necessary, be incorporated into project approvals.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.A.2**
The Town shall implement the requirements of state law relating to cultural resources, including Government Code 65352.3, and any subsequent amendments or additions.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Policy 1.B**
The Town shall establish and maintain a confidential inventory of archaeological and historical resources within the Town, including those identified in focused cultural resources studies.

**Policy 1.C**
The Town shall, to the greatest extent possible, protect sensitive archaeological and historic resources from vandalism and illegal collection.

**Program 1.C.1**
Any information, including mapping, that identifies specific locations of sensitive cultural resources, shall be maintained in a confidential manner, and access to such information shall be provided only to those with appropriate professional or organizational ties.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing.

**Policy 1.D**
Public participation in and appreciation of the Town's cultural heritage shall be encouraged.

**Program 1.D.1**
The Town shall implement a systematic program to enhance public awareness of Apple Valley's heritage, engender wide-ranging support for its preservation, and enhance community pride.
**Responsible Agency:** Planning Division, Historical Society, Town Council, regional Native American groups.
**Schedule:** 2009-2010

**Program 1.D.2**
The Town shall support the efforts of local cultural associations to obtain historical materials and artifacts, and to educate the public about the Town's and region's cultural heritage.
**Responsible Agency:** Town Council, Planning Division, Historical Society, regional Native American groups, Apple Valley Unified School District.
**Schedule:** Ongoing.

# AIR QUALITY ELEMENT

## PURPOSE

The Air Quality Element is intended to provide background information and disclose the regulatory framework and physical environment that have the potential to affect the air quality in the Town and region. The Air Quality Element identifies any components within the Town and region that directly or indirectly affect air quality. Goals, policies, and programs are set forth in this element that are designed to avoid, reduce, or limit impacts to air quality that may result from build out of the General Plan.

This Element is intended, in conjunction with local and regional air quality planning efforts, to address ambient air quality standards set forth by the federal Environmental Protection Agency (EPA) and the California Air Resources Board (CARB).

## BACKGROUND

Over the past few decades, a noticeable deterioration in air quality has occurred in the Town of Apple Valley and the region due to increased local development and population growth, traffic, construction activity and various site disturbances. Although air pollution is emitted from various sources locally, some of the degradation of air quality can be attributed to sources outside of the Mojave Desert Air Basin (MDAB), in which Apple Valley is located, including air basins to the west and southwest.

The Air Quality Element is directly related to a number of elements within the General Plan. The Land Use and Circulation Elements have the greatest potential to directly affect the Air Quality Element since local and regional air quality are directly influenced by land use types, patterns and intensities. The Town's circulation and transportation system, and the number, length and timing of traffic trips, also impact local and regional air quality. Issues associated with circulation are discussed in greater detail in the Circulation Element of this document.

## REGULATORY ENVIRONMENT

Federal and state government air quality standards and regulations have been established to monitor and regulate a variety of air pollutants and to assure that people and the environment are not adversely impacted by poor air quality. The Town of Apple Valley is part of the Mojave Desert Air Basin (MDAB) and is regulated on a regional level by the Mojave Desert Air Quality Management District (MDAQMD).

### Federal Regulation

The Clean Air Act (CAA) was initially passed by Congress in 1963 and has subsequently been amended. The Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS) in 1971, which set forth regulation that is intended to protect the health and welfare of citizens and the economy by establishing primary and secondary air quality standards. Primary standards are designed to protect sensitive sectors of the population such as

children and the elderly, whereas secondary standards protect the public welfare as related to crops, buildings, and visibility. NAAQS are established for six criteria pollutants. These are discussed individually below and shown in Table III-13.

**State Regulation**

On January 1, 1989 the state mandated California Clean Air Act (AB 2595) became effective, and established health-based air quality standards at the state level. The bill established ambient air quality standards and set forth deadlines for attainment. The California Air Resources Board (CARB) developed these state standards, which are generally more stringent than federal standards. For areas in non-compliance with federal standards, State Implementation Plans (SIP) may be prepared to help regional air quality management districts meet the federal and state ambient air quality standards by the deadlines specified in the federal Clean Air Act, and emission reduction targets of the California Clean Air Act. The severity of the region's air pollution determines required emission reductions and attainment deadlines. In addition to oversight of regional air pollution, CARB is charged with evaluating agencies and districts to assure compliance with the California Clean Air Act requirements.

In 2006 the CARB approved the State Area Designations for criteria pollutants, which became effective in July of 2007. CARB sets area designations for nine criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, sulfates, lead, hydrogen sulfide, and visibility reducing particles.

**Regional Regulation**

As part of its responsibilities in regulating air quality in the MDAB, the MDAQMD is charged with establishing air quality measurement criteria and relevant management policies for the Town of Apple Valley, the Sphere of Influence, and neighboring communities within San Bernardino County and the northeastern portion of Riverside County.

The Town of Apple Valley is subject to the provisions of the MDAQMD Rule Book[7], which sets forth policies and other measures designed to help the District achieve federal and state ambient air quality standards. The Rule Book, along with the MDAQMD CEQA and Federal Conformity Guidelines[8], are intended to satisfy the planning requirements of both the federal and state Clean Air Acts. The MDAQMD also monitors daily pollutant levels and meteorological conditions throughout the District. The MDAQMD is also involved in regional management of air quality through various attainment plans.

The County of San Bernardino, including the Town of Apple Valley, is in non-attainment for ozone and particulate matter. In order to meet the requirements for basins that are in non-attainment, the MDAQMD has established attainment plans for Ozone and $PM_{10}$.

[7] "Mojave Desert Air Quality Management District Rule Book," prepared by the Mojave Desert Air Quality Management District, September 2005.

[8] "Mojave Desert Air Quality Management District California Environmental Quality Act and Federal Conformity Guidelines," prepared by the Mojave Desert Air Quality Management District, June 2007.

## CRITERIA POLLUTANTS

Criteria pollutants are air pollutants for which federal and state air quality standards have been established. They include carbon monoxide, lead, ozone, nitrogen dioxide, sulfur dioxide, and suspended particulate matter, each of which is described briefly below.

### Carbon monoxide (CO)

Carbon monoxide is produced from the partial combustion of fossil fuels, most notably from motor vehicles. In the atmosphere, carbon monoxide contributes to the production of methane, ozone, and carbon dioxide. It is a colorless, odorless, and tasteless toxic gas that at high concentrations can contribute to the development of heart disease, anemia, and impaired psychological behavior.

### Lead (Pb)

Lead occurs in the atmosphere as particulate matter resulting from the manufacturing of batteries, paint, ink, ammunition, and to a lesser extent, leaded gasoline, the use of which has been phased out. Excessive exposure to airborne lead can contribute to anemia, kidney disease, gastrointestinal dysfunction, and neuromuscular and neurological disorders.

### Nitrogen Oxide ($NO_x$)

Nitric oxide (NO) and Nitrogen Dioxide ($NO_2$) are the primary oxides of nitrogen that are considered criteria pollutants. These oxides are produced at high temperatures during combustion and are a by-product of motor vehicles. Incomplete combustion in motor vehicle engines, power plants, and other industrial operations comprise the primary sources of nitrogen dioxide ($NO_2$). Short-term exposure to nitrogen dioxide can result in airway constriction, diminished lung capacity, and is highly toxic by inhalation.

### Ozone ($O_3$)

Ozone is formed when by-products of the internal combustion engine and other urban processes react in the presence of ultraviolet sunlight. It is a pungent, colorless, toxic gas commonly referred to as smog. Excessive exposure to ozone can result in diminished breathing capacity, increased sensitivity to infections, and inflammation of the lung tissue.

### Sulfur Dioxide ($SO_2$)

Sulfur dioxide results from the combustion of high-sulfur content fuels, such as coal and petroleum. Sources include motor vehicle fuel combustion, chemical manufacturing plants, and sulfur recovery plants. Sulfur dioxide acts as an acid and is a colorless, odorous gas. Short-term exposure can result in airway constriction and severe breathing difficulties, as well as lung tissue damage and fluid accumulation in the lungs.

**Suspended Particulate Matter**

Suspended particulate matter consists of fine solid or liquid particles suspended in gas. These fine particles may be from soil and dust, soot and smoke, or aerosols, and are byproducts of fuel combustion, tire wear, and wind erosion. Particulate matter of ten microns (millionths of a meter), or smaller in diameter are referred to as $PM_{10}$, whereas $PM_{2.5}$ consists of particles smaller than 2.5 microns. Fine particulate matter poses a significant threat to public health and can cause increased respiratory infections, asthma attacks, and lung cancer.

**Air Quality and Climate Change**

Air quality has become an increasing concern associated with human health issues, and because air pollutants are thought to be contributing to global warming and climate change. The primary contributor to air pollution is the burning of fossil fuels through the use of automobiles, power and heat generators, and industrial processes. Emissions from the combustion of fossil fuels are responsible for the poor air quality that is evident in industrial centers worldwide.

Some air polluting agents are also greenhouse gases, such as carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons, which are released into the atmosphere through natural processes and human activities. These gases are termed greenhouse gases due to their shared characteristic of trapping heat, and may be responsible for the global average increase in surface temperature observed over the last decade. There is much debate over what the effects of climate change will be, but there is a general consensus that the levels of emissions need to be reduced in order to minimize air pollution and limit the amount of carbon dioxide and other pollutants that are released.

In 2006, the California Global Warming Solutions Act (Assembly Bill 32) was passed in order to comprehensively limit greenhouse gas emissions (GHG) at the state level, by establishing an annual reporting program of GHG emissions for significant sources, and set emission limits to cut the state's GHG emissions to 1990 levels by 2020. Significant thresholds as well as standards for calculated greenhouse gas emissions are expected to be established by CARB in the spring of 2009.

## AMBIENT AIR QUALITY STANDARDS

As mentioned above, federal and state air quality standards established for criteria pollutants are designed to protect that segment of the population that is most susceptible to respiratory distress or infection, including the elderly, children, asthmatics, or those who are weak from disease or illness. The following table provides a comparison of state and federal ambient air quality standards. State standards are generally more restrictive than federal standards, particularly in regard to sulfur dioxide and particulate matter.

**Table III-13**
**State and Federal Ambient Air Quality Standards**

| Pollutant | State Standards | | Federal Standards | |
|---|---|---|---|---|
| | Averaging Time | Concentration | Averaging Time | Concentration |
| Ozone | 1 hour<br>8 hour | 0.09 ppm<br>0.07 ppm | 1 hour<br>8 hour | 0.12 ppm<br>0.075 ppm* |
| Carbon Monoxide | 1 hour<br>8 hours | 20.0 ppm<br>9.0 ppm | 1 hour<br>8 hours | 35.0 ppm<br>9.0 ppm |
| Nitrogen Dioxide ($NO_2$) | 1 hour<br>AAM | 0.18 ppm<br>0.030 ppm | <br>AAM | <br>0.053 ppm |
| Sulfur Dioxide | 1 hour<br>24 hours | 0.25 ppm<br>0.04 ppm | AAM<br>24 hours | 0.03 ppm<br>0.14 ppm |
| Particulate Matter ($PM_{10}$) | 24 hours<br>AAM | 50 $\mu g/m^3$<br>20 $\mu g/m^3$ | 24 hours<br>AAM | 150 $\mu g/m^3$<br>50 $\mu g/m^3$ |
| Particulate Matter ($PM_{2.5}$) | AAM<br>24 hours | 12 $\mu g/m^3$<br>35 $\mu g/m^3$ | AAM<br>24 hours | 15 $\mu g/m^3$<br>35 $\mu g/m^3$ |

Notes: ppm = parts per million ; $\mu g/ m^3$ = micrograms per cubic meter of air;
AAM = Annual Arithmetic Mean;
Source: California Air Resources Board, March 2008
* Note that this standard is effective as of May 27, 2008.

MDAQMD operates and maintains six regional air quality monitoring stations throughout its jurisdiction, to determine whether existing ambient air quality complies with the standards shown above. The nearest monitoring station to the Town of Apple Valley is located in Victorville. This station monitors contaminant levels and meteorological conditions on a daily basis.

The Environmental Protection Agency (EPA) and the California Air Resource Board (CARB), respectively, are the federal and state agencies responsible for regulating greenhouse gas emissions . The EPA Office of Air Quality Planning and Standards is responsible for setting the National Ambient Air Quality Standards for criteria pollutants. With the passage in 2006 of Assembly Bill 32, CARB became the responsible state agency for monitoring and reducing greenhouse gas (GHG) emissions in the state of California.

## SENSITIVE RECEPTORS

Sensitive receptors are persons or land uses that may be subject to respiratory stress and/or significant adverse impact as a result of exposure to air contaminants. The CARB designates people with cardiovascular and chronic respiratory diseases, children under 14, seniors over 65, and athletes as sensitive receptors. Accordingly, hospitals, nursing and retirement homes, schools, daycares, playgrounds, parks, athletic facilities, and residential and transient lodging facilities are all considered sensitive land uses.

## REGIONAL CLIMATE AND METEOROLOGY

The local and regional air quality is a function of the amount of pollutants emitted and dispersed and the climatic, meteorological, and geophysical conditions that reduce or enhance the formation of pollutants.

The Town of Apple Valley, Sphere of Influence, and the region are influenced by moderate coastal conditions, though the area is far enough inland that temperatures can reach over 100º F during the summer, and drop below freezing during the winter. The prevailing wind patterns in the region are controlled by on-shore westerly winds during the day, and off-shore easterly winds in the evenings and at night, with the dominant wind out of the west and southwest. During fall and winter months, climatic conditions associated with strong, dry winds can affect the region, creating a condition known as the Santa Ana winds, which can blow for multiple days. These strong wind events suspend and transport large quantities of particulate matter, including sand and dust, which can reduce visibility, damage property and pose a significant health threat.

The Town of Apple Valley is also susceptible to air inversions, which trap a layer of stagnant air near the ground, where it can be further loaded with pollutants. Inversions in the Mojave Desert Air Basin generally occur between 6,000 and 8,000 feet above ground surface, and create conditions of haziness caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces and various other sources.

The Town of Apple Valley is influenced by the surrounding region's natural geological conditions. Air pollution generated in the South Coast Air Basin enters the Mojave Desert Air Basin by passing over the San Gabriel and San Bernardino Mountains. Similarly, air pollution from the San Joaquin Air Basin passes through the Tehachapi Mountains, thereby entering the Mojave Desert Air Basin and contributing criteria pollutants.

On the valley floor, temperatures range from the lower 20s during winter months, and commonly exceed 100 degree Fahrenheit in the summer. Prevailing winds range from 5 to 10 knots per hour from the west and southwest. On average the Town of Apple Valley receives approximately 2 inches of rainfall annually and experiences 350 days of sunshine.

Natural vegetation is representative of the desert ecosystem and contains sparse and widely spaced natural groundcover. Surface soils, therefore, are readily exposed to wind. The area is frequently subjected to strong winds, causing sand and dust to become airborne. This condition, known as blowsand, poses an often destructive environmental hazard. In addition to health problems associated with the presence of dust particles in the air, dust storms reduce highway and air traffic visibility.

## REGIONAL POLLUTANTS OF CONCERN

The Mojave Desert Air Basin, including the desert portions of San Bernardino County, Riverside County, Los Angeles County, and Kern County, covers 21,480 square miles. The Mojave Desert Air Basin, which includes the Town of Apple Valley, exceeds state and federal standards for fugitive dust ($PM_{10}$) and for ozone. State and federal standards for carbon monoxide, nitrogen oxides, sulfur dioxide, and lead are in attainment within the Town of Apple Valley and the Mojave Desert Air Basin.

As previously mentioned, the Mojave Desert Air Quality Management District operates and maintains regional air quality monitoring stations at numerous locations throughout its jurisdiction, including the Victorville Monitoring Station, which monitors air in the Town of Apple Valley. According to the EPA, and supported by the Victorville monitoring station, the Town of Apple Valley and the Mojave Desert Air Basin are in non-attainment for ozone, $PM_{10}$, and $PM_{2.5}$. These pollutants are further discussed below.

**Ozone**

Based on data collected at the Victorville Monitoring Station, from 2000 through 2008 ozone levels in the area were exceeded for the State 1-hour standard an average of 14 days a year. The Federal 1-hour ozone standard was exceeded on 8 days over the 9-year period from 2000 through 2008, and the Federal 8-hour standard was exceeded an average of 12 days per year.[9]

The Mojave Desert Air Basin has a history of exceeding state and federal ozone standards, and is currently (2008) designated as a "moderate" ozone non-attainment area under the federal Clean Air Act.

In the Town of Apple Valley, ozone is generated by motor vehicles, both from local and regional roadways, as well as other local sources. In addition, ozone transported from the nearby South Coast Air Basin (SCAB) contributes to the total ozone in the Mojave Desert Air Basin. The South Coast Air Quality Management District (SCAQMD) reports that in 2006 the Basin exceeded federal health 1-hour standards for ozone on a total of 35 days, and the federal 8-hour standard on 86 days. The more stringent State standards for the 1-hour and 8-hour standards were exceeded on 102 and 121 days, respectively in the SCAQMD.[10]

The 2008 Ozone Attainment Plan sets forth strategies and control methods to attain federal air quality standards for ozone. As part of this plan, the MDAQMD has adopted emission limitations, maintains a permitting program for emitters and has set up monitoring systems throughout the District. Based on ozone concentrations from 2001 through 2003, the EPA classified the region as moderate non-attainment and established an attainment year of 2010. Air quality modeling results show that expected level of emissions will not achieve established ozone concentration standards by 2010.Therefore, the MDAQMD has requested a reclassification to Severe-17, with an attainment date of June 15, 2021. Modeling results indicate that MDAQMD could achieve attainment by 2021.[11]

**Particulate Matter**

$PM_{10}$ Emissions

The region has a history of elevated $PM_{10}$ emissions, which are the result of both human activities, such as vehicle use and construction activity, and natural occurrences, such as windstorms. For the period between 2000 and 2007, the 24-hour state standards for $PM_{10}$ levels were exceeded on an average of approximately 4 days per year. Although state standards are

[9] "Air Quality Management District: Exceedances of Standards and Maximum Concentrations," Victorville Monitoring Station, MDAQMD, 2000-2008.

[10] "2006 Air Quality Data Tables" prepared by South Coast Air Quality Management District, October 2007.

[11] "MDAQMD Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area," prepared by Mojave Desert Air Quality Management District, June 9, 2008.

more stringent than federal standards $PM_{10}$ levels also exceeded federal standards, but only on one (1) day during the period. The Basin is currently designated as a $PM_{10}$ non-attainment area for both state and federal standards.

The Town relies on applicable state code and AQMD Rules, including Rule 403 (Fugitive Dust), for authority to enforce fugitive dust compliance as needed since it does not have its own fugitive dust ordinance. The Town's Municipal Code does include provisions for off-road dust generation by prohibiting nuisance dust or dirt emissions (Chapter 11.30, Section 020).

In 2005 the MDAQMD adopted the "List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d)," which identifies the most readily available, feasible, and cost-effective control measures that could reduce particulate matter in the District. The document identifies measures that are currently being employed to reduce particulate matter in the District, sets forth new measures that could further reduce particulate matter, and lists those new measures that need further evaluation prior to implementation.

Particulate matter in the Town of Apple Valley is generated by vehicle emission, construction, and fugitive dust. One of the state's largest contributors of particulate matter, Cemex, is located in the Apple Valley Sphere of Influence.[12] Cemex operates the Black Mountain Quarry for the production of cement and aggregate. The facility is estimated to emit 277 tons per year of $PM_{10}$ and 183 tons per year of $PM_{2.5}$.

Mineral extraction operations and associated processes have the potential to generate fugitive dust and emit other criteria pollutants into the atmosphere, which adversely impact local and regional air quality. The Town of Apple Valley, Sphere of Influence, and the surrounding region have identified valuable mineral deposits, some of which are actively being mined. In order to minimize fugitive dust generation resulting from mineral extraction facilities operating within the Town's jurisdiction, a number of policies and programs have been developed to regulate extraction procedures and reduce impacts to air quality. These are outlined below.

$PM_{2.5}$ Emissions

Federal and state standards have been developed to regulate fine particulate matter smaller than 2.5 microns in diameter. To achieve federal attainment, a jurisdiction must provide the Environmental Protection Agency (EPA) with air quality monitoring data that does not violate the fine particle standards over a three-year period. In March of 2007 the EPA issued the Clean Air Fine Particle Implementation Rule, which describes the framework and requirements that state and local governments must achieve in developing their $PM_{2.5}$ implementation plans. The Rule requires that states meet the $PM_{2.5}$ standards by 2010, but may grant attainment extensions of up to 5 years. Therefore, the 2007 Rule requires that all states meet federal standards for attainment no later than 2015.

The Mojave Desert Air Basin and the Town of Apple Valley are classified as being in non-attainment for $PM_{2.5}$, based on the 2007 State Area Designations. Although the region is classified as being in non-attainment for the state standard, the region is classified as being in

[12] "High Emitting Facilities for the Mojave Desert Air Basin Appendix A," prepared by the California Air Resources Board, 2007.

attainment/unclassifiable for the national standard, based on 2006 national area designations despite the air quality monitoring data from the Victorville station that shows zero (0) exceedances for either the state or federal 24 hour standard from 2000 through 2007.

**Toxic Air Contaminants**

Pursuant to Assembly Bill 1807, which was enacted in 1983, Toxic Air Contaminants (TACs) include substances such as asbestos, benzene, beryllium, inorganic arsenic, mercury, vinyl chloride, and any other contaminants not addressed by the national ambient air pollution program. TACs are required to be inventoried on a statewide level. There are a number of processes and facilities within the state that generate TACs, including electroplating and anodizing operations, gasoline distribution facilities, petroleum refineries, and others. TAC generation and emissions are regulated by the Toxic Air Contamination Control Program. The primary health concern associated with TACs is from mobile sources of particulate matter which are known for their carcinogenic potential. Approximately 70 percent of the risk is attributed to diesel particulate emissions, and about 20 percent to other toxics associated with mobile sources.

## FUTURE DIRECTIONS

The Town will continue to act locally to meet existing and future state and federal air quality regulations. Apple Valley is pursuing alternative energy options, such as wind turbines and solar energy, electric and alternative fuel vehicles, and Green Building technology as viable options for enhancing air quality by reducing greenhouse gas emissions and other air pollutants.

In compliance with the California Clean Air Act (Assembly Bill 2595), which requires that air quality policies and programs be developed to protect and preserve the environment and general public from the harmful effects of air pollutants, the following goals, policies, and programs have been developed.

In an effort to reduce greenhouse gases and address climate change, the County of San Bernardino, has set forth the Green Valley Initiative. This Initiative invites cities and towns to participate in the County's effort to reduce greenhouse gases, increase production of green technologies, and integrate residents and businesses with natural resources. These efforts are intended to create jobs, reduce environmental impacts, and enhance the quality of life for residents by creating healthy economic and environmental conditions.

Participating jurisdictions document their commitment to the Initiative by identifying a Green Valley coordinator and pledging to address at least five of the following:

1. Green Building Programs
2. Buy Green/Buy Local
3. Green Business Programs
4. Conservation and Recycling
5. Solar and Alternative Energy
6. Encourage Green Economic Development
7. Green Valley Land Use
8. Green Valley Coordinators

## GOAL, POLICIES, AND PROGRAMS

### Goal

To preserve and enhance local and regional air quality.

**Policy 1.A**
The Town shall cooperate with the Mojave Desert Air Quality Management District to assure compliance with air quality standards.

**Program 1.A.1**
Apple Valley shall adhere to existing and future greenhouse gas and global warming rules, regulations, and requirements to monitor and reduce emissions.
**Responsible Agency:** Planning Division, and MDAQMD.
**Schedule:** 2009 and Ongoing

**Policy 1.B**
The Town shall proactively regulate local pollutant emitters by coordinating and cooperating with local, regional and federal efforts to monitor, manage and decrease the levels of major pollutants affecting the Town and region, with particular emphasis on $PM_{10}$ and ozone emissions, as well as other emissions associated with diesel-fueled equipment and motor vehicles.

**Program 1.B.1**
The Town shall participate in efforts to monitor and manage emissions from construction and other sources for all criteria pollutants, TAC's, and all other air pollutants of regional concern.
**Responsible Agency:** Building and Safety Division, Public Services Department, Planning Division, MDAQMD.
**Schedule:** 2009 and Ongoing

**Program 1.B.2**
The Town shall work to establish fugitive dust criteria to limit particulate matter generated by mining operations.
**Responsible Agency:** Public Services Department, Planning Division, MDAQMD.
**Schedule:** 2009 and Ongoing

**Policy 1.C**
The Town shall coordinate land use planning efforts to assure that sensitive receptors are reasonably separated from polluting point sources including mineral extraction operations.

**Program 1.C.1**
The Town's General Plan Land Use Element shall assure that air pollution point sources, such as manufacturing operations and highways, are sited at an appropriate distance from sensitive receptors, including hospitals, schools, hotels/motels and residential neighborhoods.
**Responsible Agency:** Planning Division, MDAQMD
**Schedule:** 2009-2010

**Policy 1.D**
All proposals for development activities within the Town shall be reviewed for their potential to adversely impact local and regional air quality and shall be required to mitigate any significant impacts.

**Program 1.D.1**
All projects that have the potential to generate significant levels of air pollution shall be required to provide detailed impact analyses and design mitigation measures that incorporate the most advanced technological methods available. Prior to the issuance of grading or demolition permits, the Town shall review and determine the effectiveness of proposed mitigation measures and set forth additional measures as needed.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.D.2**
The Town shall provide consistent and effective code enforcement for construction, grading activities, and off-road vehicle use to assure ground disturbances do not contribute to blowing sand and fugitive dust emissions.
**Responsible Agency:** Building and Safety Division, Code Enforcement, Sheriff's Department, MDAQMD
**Schedule:** On-going

**Policy 1.E**
The use of clean and/or renewable alternative energy sources for transportation, heating and cooling, and construction shall be encouraged by the Town.

**Program 1.E.1**
The Town shall consider incentive programs, rebates, and refunds for the use of energy efficient appliances, windows, and building designs for new and remodeled structures.
**Responsible Agency:** Utility providers, Building and Safety Division, Planning Division.
**Schedule:** Ongoing

**Program 1.E.2**
The Town shall, when purchasing new vehicles for its fleet, purchase vehicles that use alternative fuel sources, such as compressed natural gas and electricity.
**Responsible Agency:** Town Council, Finance Department
**Schedule:** Ongoing

**Policy 1.F**
The Town shall support, encourage, and facilitate the development of projects that enhance the use of alternative modes of transportation, including pedestrian-oriented retail and activity centers, dedicated bicycle paths and lanes, and community-wide multi-use trails.

**Program 1.F.1**
To minimize vehicle miles traveled, the Town shall pursue a balance of employment and housing opportunities that encourage pedestrian and other non-motorized transportation alternatives.
**Responsible Agency:** Economic and Community Development Department, Redevelopment Agency..
**Schedule:** On-going

**Program 1.F.2**
The Town shall continue to promote the use of mass transit services, coordinating with all agencies to link residential and commercial business and employment centers with the Town's residential neighborhoods and nearby communities. Mass transit services shall be expanded as needed.
**Responsible Agency:** Economic and Community Development Department, Redevelopment Agency, Victor Valley Transit Authority, Municipal Services Department.
**Schedule:** Ongoing

**Program 1.F.3**
Ridesharing, carpooling, flexible work scheduling, telecommuting, and Park and Ride programs shall be encouraged for public and private employers.
**Responsible Agency:** Public Works Division, Economic and Community Development Department, Municipal Services Department, Transit Agencies, major regional and local employers.
**Schedule:** Ongoing

**Program 1.F.4**
Shade trees with non-damaging root systems shall be planted in medians, within street easement, and parking lots as appropriate, to cool the asphalt and reduce Reactive Organic Compounds (ROC) and Volatile Organic Compounds (VOC) generated by streets and parking lots. A list of permitted trees with non-damaging root systems shall be developed.
**Responsible Agency:** Planning Division, Public Works Division.
**Schedule:** 2010-2011, Ongoing

**Policy 1.G**
Future residential, commercial, and industrial development and remodeling projects, shall strive to exceed Title 24 standards by 15% and/or achieve LEED certification or similar performance standards for buildings.

**Program 1.G.1**
The Town shall initiate public events that highlight green building materials, designs, and techniques. The program should include a recognition programs for companies and developers that offer energy conservation products and/or manufacture or use recycled products.
**Responsible Agency:** Town of Apple Valley.
**Schedule:** 2009 and Ongoing

**Program 1.G.2**
The Town shall consider economic development incentives for green building construction.
**Responsible Agency:** Town of Apple Valley.
**Schedule:** 2009 and Ongoing

**Policy 1.H**
Residential, commercial, and industrial projects that reduce vehicle miles traveled (VMTs) by providing alternative transportation options, home office and live/work spaces, and/or promote employees living close to work are preferred.

**Program 1.H.1**
The Town shall encourage all new development to include wiring for high speed internet for all tenants and/or residents.
**Responsible Agency:** Planning Division, and utility providers.
**Schedule:** 2009 and Ongoing

**Policy 1.I**
The Town shall continue to reduce waste generation, enhance recycling or reuse programs, and expand grey water systems for landscape irrigation.

**Program 1.I.1**
The Municipal Services Department and JPA shall coordinate to assure that waste reduction programs are effective and achieve established targets.
**Responsible Agency:** Solid Waste Management Department and JPA
**Schedule:** 2009 and Ongoing

**Policy 1.J**
The Town shall promote the use of solar and alternative energies and give priority to projects that include the use of solar cells and other alternative energy sources in their designs.

**Program 1.J.1**
The Town shall encourage the use of solar and alternative energy and the sharing of excess electricity.
**Responsible Agency:** Public Works Department, Utility Providers, and Planning Division.
**Schedule:** 2009 and Ongoing

**Policy 1.K**
The Town shall participate in regional greenhouse gas reduction planning efforts.

**Program 1.K.1**
The Town shall participate in the San Bernardino Associated Governments' Climate Action Plan, including assisting in providing data and background information, and implementing greenhouse gas reduction strategies established in the Plan, when complete.
**Responsible Agency:** Planning Division
**Schedule:** 2010-2011 and Ongoing

# ENERGY AND MINERAL RESOURCES ELEMENT

## PURPOSE

Energy and mineral resources are an integral part of the community and local economy, with their existence and availability having a fundamental influence on patterns of land use and growth. Most conventional energy resources are finite and non-renewable, as are mineral resources. It is becoming increasingly evident that supplies are limited and costs exraction and production costs are increasing. Resulting shortages and rising utility rates have become an issue of serious concern throughout the United States, including Southern California.

The Energy and Mineral Resources Element of the General Plan is intended to guide the Town in the long-term management and well-considered use of its energy and mineral resources. The element addresses the community's dependence on limited resources and the need for local and regional energy policies. The Element also focuses on the increasing need for effective new policies concerning conservation, greater energy efficiency and renewable energy resources. Included in the Element are descriptions of conventional and renewable energy resources, as well as an outline of the location and identity of mineral resources in the area.

The Energy and Mineral Resources Element sets forth goals, policies and programs that assist the Town of Apple Valley to insure the availability, conservation and management of its resources. The goals, policies and programs also encourage the development of balanced, innovative and long-term strategies to improve energy efficiency, expand the use of renewable resources and create opportunities for more local control of energy production, distribution and consumption.

## BACKGROUND

California Government Code Section 65560(b) requires cities and counties to provide for the preservation of resources including energy and mineral resource areas. The Section is one among many state and federal legislations and regulations that apply to energy and mineral resource issues. The various requirements directly apply to the planning area, where important mineral and energy resources have already been identified and developed.

General Plans are required by Government Code Section 65302(d) to include elements that address resource conservation and other appropriate matters, such as reclamation, prevention of resource degradation and preservation for long-term use. Local jurisdictions are authorized in Government Code Section 65303 to add other resource conservation or management subjects that where such topics relate to the physical development of the City or Town. Sections 2762, 2763 and 2764 of the Public Resources Code also address the regulation of mineral resources.

Among State regulations affecting mineral and energy resources are the State Solar Rights Act and Solar Shade Control Act. These acts facilitate the use of solar energy. Further, Title 24

building standards were promulgated to reduce unnecessary energy use in new or substantially remodeled construction.

The Energy and Mineral Resources Element is directly and indirectly related to other Elements in the Town of Apple Valley General Plan, including Land Use and Open Space and Conservation, Circulation, and Air Quality. It also relates to the Economic Development Element.

## MINERAL RESOURCES

Mineral resources, which include sand and gravel, limestone, iron and coal, are differentiated from such resources as natural gas and petroleum, which are generally classified as energy resources rather than mineral resources. This Element defines a mineral resource as an economically valuable commodity that occurs naturally and is composed of solid crystalline substances, and which consist of chemical elements or compounds formed from inorganic processes and organic substances. As nonrenewable resources, mineral resources must be carefully managed and efficiently utilized to ensure they are neither wasted nor over exploited.

A variety of factors are used to determine the importance of mineral deposits, such as how abundant and accessible they are, and the level of business and industry demand for them. Utilization of mineral resources may conflict with other land uses; therefore planning agencies must carefully weigh all considerations when proposed urban development may effectively preclude or limit accessibility to rare or valuable mineral deposits.

The effects of surface mining, especially in desert areas, can remain evident for hundreds of years. To avoid such impacts, adequate reclamation must be implemented and may include redistribution of unmarketable (waste) materials, re-contouring, fine grading and re-vegetation. Even with such measures, surface mining reclamation plans may not entirely mitigate the significant environmental impacts associated with excavation of mineral resources. As discussed in the Open Space and Conservation Element, the Surface Mining and Reclamation Act of 1975 (SMARA) was developed to ensure that utilization of mineral resources is carried out in a sustainable manner, while at the same time addressing the need for environmental protection.

In the planning area, a variety of geological processes, including weathering and erosion have resulted in the accumulation of alluvial deposits with significant mineral resources in the vicinity of the Mojave River. These resources include sand, gravel and stone deposits that are suitable as sources of concrete aggregate, which is an important component in building and construction materials. Aggregate provides between 80% to 100% of material volume for asphalt, concrete, road base, stucco and plaster. Concrete, asphalt, and road base, as well as other aggregate materials, can be recycled to provide new base, concrete and asphalt products. According to the Conservation and Open Space Technical Report prepared for the adopted General Plan, the planning area and Sphere of Influence are thought to contain quantities of oil and gas, as well as geothermal resources.

## Locally Important Mineral Resources

The State of California Division of Geology, as required by SMARA, has identified significant concrete aggregate deposits in Apple Valley. Mineral resources located in the planning area are found primarily along or near the Mojave River. These resources include sand, gravel and stone deposits that provide useful sources of concrete aggregate. Utilization of aggregate and limestone for cement manufacture will significantly impact and be impacted by urbanization and development of nearby properties. However, these are considered potentially important mineral resources. Aggregate Resource Areas (ARA), or areas with current land uses that may be compatible with resource exploitation, are identified on two Exhibits: III-8, Mineral Resource Zones-North/Mines and Prospects and III-9, Mineral Resource Zones-South/Mines and Prospects. The State Department of Conservation, Division of Mines and Geology has classified mineral resources according to the presence or absence of significant concrete-grade aggregate deposits. These classifications are presented in the form of Mineral Resource Zones (MRZ).

## Mineral Resource Zone Designations

The following are State-established definitions for mineral resources, which are used uniformly to identify the potential for their occurrence in any area. These definitions are:

**MRZ-1:** Areas where available geologic information indicates that there is little likelihood that significant mineral resources exist.

**MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. MRZ-2 is divided on the basis of both degree of knowledge and economic factors. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.

**MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. For this report, areas classified MRZ-2b contain discovered mineral deposits that are significant inferred resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration work could result in upgrading areas classified MRZ-2b to MRZ-2a.

**MRZ-3a:** Areas containing known mineral occurrences of undetermined mineral resource significance. Further exploration work within these areas could result in the reclassification of specific localities into MRZ-2a or MRZ-2b categories. MRZ-3 is divided on the basis of knowledge of economic characteristics of the resources.

**MRZ-3b:** Areas containing inferred mineral occurrences of undetermined mineral resource significance. Land classified MRZ-3b represents areas in geologic settings that appear to be favorable environments for the occurrence of specific mineral

deposits. Further exploration work could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

**MRZ-4:** Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

**Aggregate Resource Areas In Apple Valley**

The following areas include highly significant deposits of aggregate resources:

**ARA-8:** That part of the Mojave River MRZ-2b area between the Rock Springs Road crossing and the Bear Valley Road bridge. The size of this ARA is 2,758 acres. The aggregate resources in this area are about 71 feet thick, based on well logs in the area. ARA-8 is rated as Highly Significant and the highest probable use of material from this deposit is concrete aggregate.

**ARA-9:** That part of the Mojave River MRZ-2b area between the Bear Valley Road bridge and the Upper Narrows. The size of this ARA is 691 acres. The aggregate resources in this area are at least 100 feet thick, based on well logs in the area. ARA-9 is rated as Highly Significant and the highest probable use of material from this deposit is concrete aggregate.

# Legend

| Map No. | Name | Commodity | Mineral Resource Zone |
|---|---|---|---|
| 267 | Scheerer Quarry | Limestone | MRZ 2a |
| 268 | Unknown | Limestone | MRZ 4 |
| 269 | Unknown | Limestone | MRZ 4 |
| 270 | Piercy | Limestone | MRZ 2a |
| 271 | Unknown | Limestone | MRZ 3a |
| 272 | Unknown | Gold | MRZ 3a |
| 273 | Unknown | Gold | MRZ 3a |
| 279 | Unknown | Gold | MRZ 4 |
| 280 | Unknown | Gold | MRZ 4 |
| 300 | Unknown | Unknown | MRZ 4 |
| 301 | Unknown | Unknown | MRZ 4 |

**MRZ-1:** Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.

**MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. MRZ-2 is divided on the basis of both degree of knowledge and economic factors. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.

**MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. For this report, areas classified MRZ-2b contain discovered mineral deposits that are significant inferred resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration work could result in upgrading areas classified MRZ-2b to MRZ-2a.

**MRZ-3a:** Areas containing known mineral deposits of undetermined significance. Further exploration work within these areas could result in the reclassification of specific localities into MRZ-2a or MRZ-2b categories. MRZ-3 is divided on the basis of knowledge of economic characteristics of the resources.

**ARA-10:** That part of the Mojave River MRZ-2b between the Upper Narrows and Highway 15 bridge. The size of this ARA is 119 acres. The aggregate resources in this area are about 40 feet thick, based on well logs in the area. ARA-10 is rated as Significant. The highest probable use of material from this deposit is concrete aggregate.

**ARA-11:** That part of the Mojave River MRZ-2b between the Highway 15 bridge and a pipeline crossing near the Lowers Narrows. The size of this ARA is 290 acres. The aggregate resources in this area are about 42 feet thick, based on well logs in the area. ARA-10 is rated as Highly Significant. The highest probable use of material from this deposit is concrete aggregate.

**Source: USGS 7.45 Minute Maps;**

Apple Valley North, CA 1970, revised 1993
Fairview Valley, CA 1993
Helendale, CA 1956 revised 1993
Turtle Valley, CA 1970, revised 1993
Victorville, CA 1956, revised 1993

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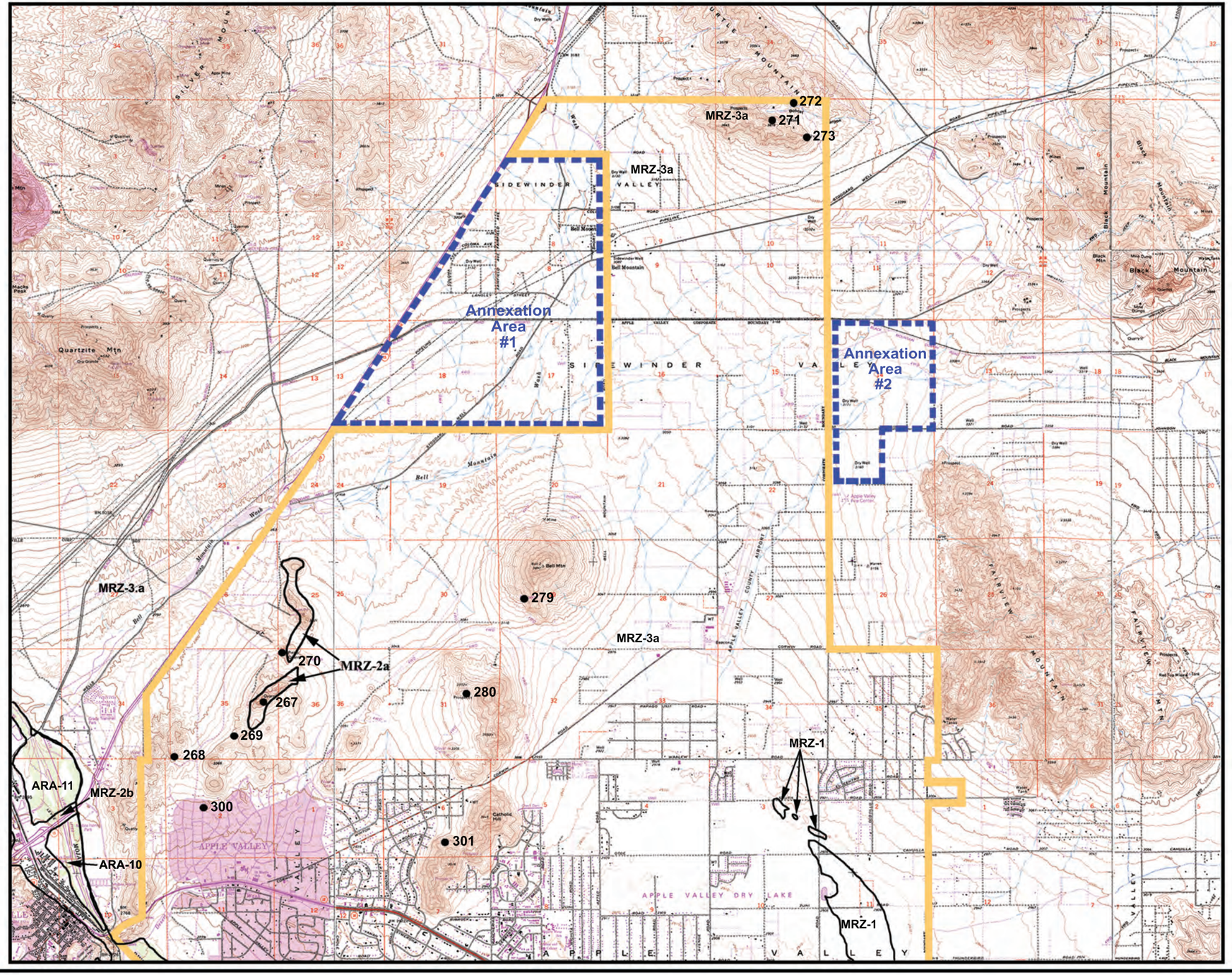


# Legend

**MRZ-1:** Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.

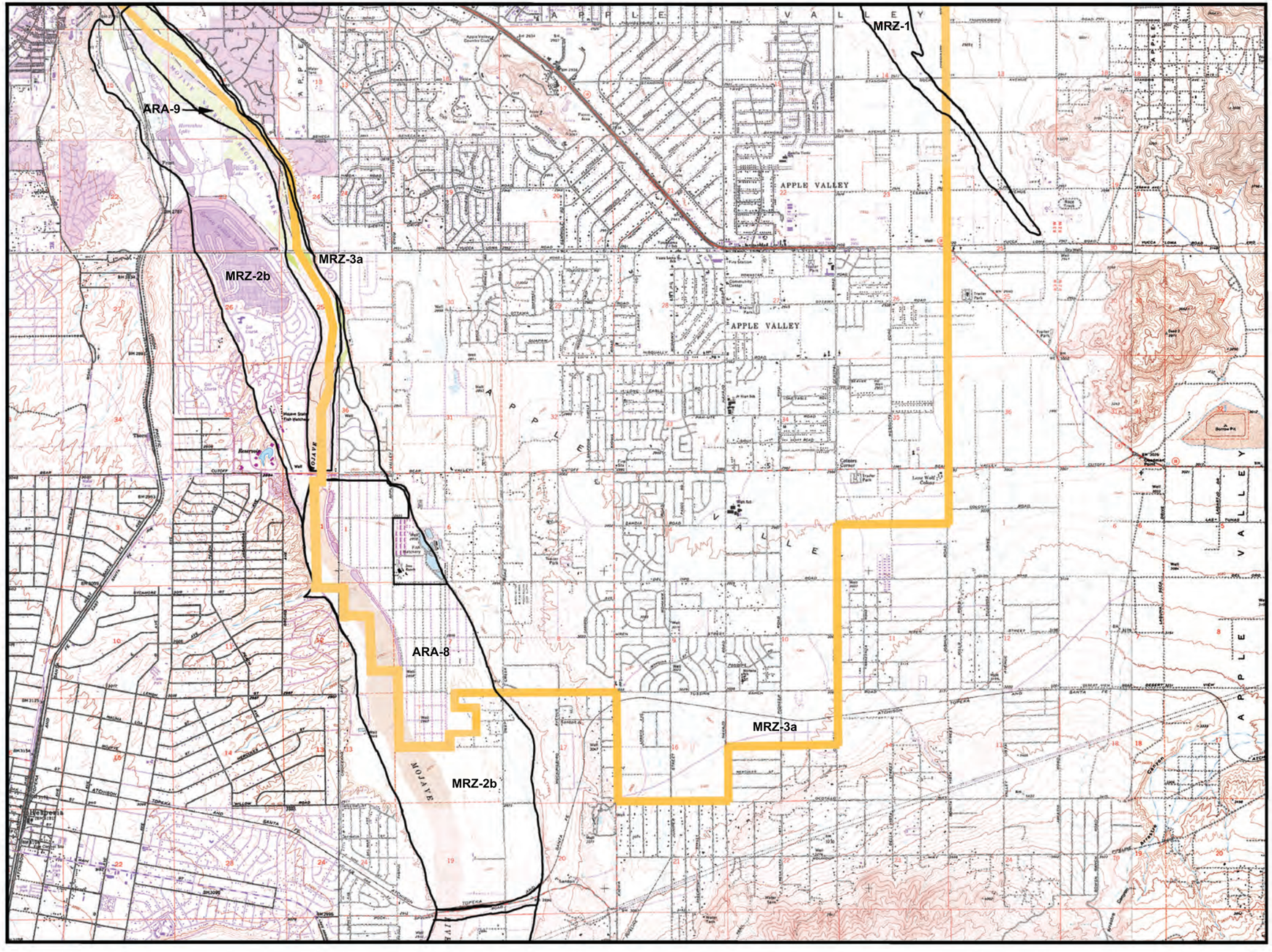
**MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. MRZ-2 is divided on the basis of both degree of knowledge and economic factors. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves as determined by such evidence as drilling records, sample analysis, surface exposure, and mine information. Land included in the MRZ-2a category is of prime importance because it contains known economic mineral deposits.

**MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. For this report, areas classified MRZ-2b contain discovered mineral deposits that are significant inferred resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration work could result in upgrading areas classified MRZ-2b to MRZ-2a.

**MRZ-3a:** Areas containing known mineral deposits of undetermined significance. Further exploration work within these areas could result in the reclassification of specific localities into MRZ-2a or MRZ-2b categories. MRZ-3 is divided on the basis of knowledge of economic characteristics of the resources.

**ARA-8:** That part of the Mojave River MRZ-2b area between the Rock Springs Road crossing and the Bear Valley Road bridge. The aggregate resources in this area occupy 2,758 acres, and are about 71 feet thick, based on well logs in the area. ARA-8 is rated as Highly Significant and the highest probable use of material from this deposit is concrete aggregate.

**ARA-9:** That part of the Mojave River MRZ-2b area between the Bear Valley Road bridge and the Upper Narrows. The size of this ARA is 691 acres. The aggregate resources in this area are at least 100 feet thick, based on well logs in the area. ARA-9 is rated as Highly Significant and the highest probable use of material from this deposit is concrete aggregate.




**Source: USGS 7.45 Minute Maps;**

**Apple Valley North, CA 1970, revised 1993**
**Apple Valley South, CA 1971, revised 1980**
**Fairview Valley, CA 1993**
**Fifteenmile Valley, CA 1971**
**Hesperia, CA 1956, revised 1980**
**Victorville, CA 1956, revised 1993**

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TERRA NOVA®
Planning & Research, Inc.

**Apple Valley General Plan**
**Mineral Resource Zones South / Mines and Prospects**
**Apple Valley, California**

Within the Town's Sphere of Influence are the CEMEX, and TXI Riverside Cement quarries. Other such facilities in the vicinity include the Alvic and Scheerer limestone quarries. These are further discussed in the Conservation and Open Space Element.

## ENERGY RESOURCES

Most energy comes from non-renewable resources, which include oil, coal and natural gas; the generation and use of energy is typically harmful to the environment. Limited resources, increasing generation costs and the need for measures to offset the negative effects of energy consumption all result in escalating economic costs. However, energy sources are essential for transportation and for the operation of most land uses.

In general, local agencies do not have control or management of energy resources, or of the often-unpredictable supplies and high costs have created important issues around energy production and consumption. The community and environment both benefit from increased energy efficiency, the development and use of alternative and renewable energy resources, and a better understanding of conservation methods. Other benefits include reducing energy shortages, preventing future crises, generating increased options and greater flexibility, and contribute to a stable local economy.

A variety of sources, including utility providers, have been used to estimate per capita or per household electricity and natural gas consumption in the Town of Apple Valley. Factors affecting energy use rates include, among others, cost to generate and deliver these resources. The South Coast Air Quality Management District (SCAQMD) has collaborated with utility providers to develop a set of assumptions that generally define energy consumption by type of land use. The average residential user consumes approximately 79,000 cubic feet of natural gas and 6,000-kilowatt hours (kwh) per unit annually. For commercial users, these figures are based on square footage of development, and have been estimated at approximately 35 cubic feet of natural gas per square foot per year and between 9.95 to 53.3-Kwh per square foot per year, based on the type of commercial use.

### Electric Power Services

Non-renewable fossil fuels continue to carry most of the base-load demand in the generation of electricity, with natural gas technology helping to meet peak power demand, and have supported the current automobile dependent society. As discussed in the Air Quality Element, air pollutants, hazardous waste products and climate change/vulnerability have all been linked to the burning of fossil fuels.

The use of nuclear power as an alternative to non-renewable resources was at its highest in the 1970s, but has since declined in popularity. Renewable resources, including wind and solar power, have heretofore been developed and utilized to a lesser extent than fossil fuels or nuclear power as a means of generating electric power. However, interest in and support for development of a variety of renewable resources is increasing and is expected to continue to do so over the next decades.

Rather than one dominant technology emerging, the future may see a variety of technologies finding a place in the mix of power generators. New systems would be based upon locally available resources and provide a more flexible capacity that is less susceptible to interruption. The use of small-scale systems that provide local on-site power, while also being connected to the larger regional power grid, may allow for a more decentralized system of power generation in the future.

Electric Power Deregulation

The electricity industry in California was deregulated in 1998, when Assembly Bill 1890 (AB 1890) came into effect. In addition to allowing California consumers to choose the type of energy they wished to support, AB 1890 resulted in a new statewide Renewable Energy Program to fund existing, new and emerging renewable technologies. Assembly Bill 99536 and Senate Bill 119437 were enacted in September 2000 to extend collection of the Public Goods Charge monies established under AB 1890. Under the joint direction of the two bills, the Renewable Energy Program is to receive $135 million annually through 2011 from California's Investor Owned Utilities. From 1998 to 2005, Southern California Edison, Pacific Gas and Electric Company and San Diego Gas and Electric contributed $1.09 billion to the Renewable Energy Program[1].

With the intention of increasing competition among generators and lowering the cost of electric power, the state's major utilities sold off generating facilities under deregulation. However, a number of factors in the early 1990s resulted in expensive and unreliable sources of electricity. The factors included greater than expected demand, lower rainfall and less available hydroelectric power, increased cost of natural gas for power generation, and the uncoordinated shutdown of power plants for maintenance. The new owners of power generation capacity after deregulation may also have taken the opportunity to reap significantly greater profits than was typical of integrated utility-owned generators. Finally, the economic viability of the restructured utilities was compromised after deregulation, as the charges of wholesale power generators were unregulated, while the rates that the retail power distributors could charge their customers were capped. The gap between wholesale prices and retail caps generated billions of dollars in debt for the restructured utilities.

As the effects of electric power deregulation continue to unfold, the Town will have important opportunities to influence energy policy on a regional and state level. It will also be able to shape the local electricity market through conservation initiatives, and the development and regulation of local power generation.

Southern California Edison

Southern California Edison Company (SCE) provides electricity to the Town of Apple Valley. SCE has four main transmission corridors across the area, each with 115kV lines. Within the SCE system, high voltage transmission lines deliver power to substations where power is stepped down and distributed through lower voltage lines. Individual homes and businesses then receive power through a final transformer, which brings voltages down to safer and more useful levels.

[1] "Following California's Public Goods Charge", California Energy Commission, Energy Policy Initiatives Center, September 2006.

In Apple Valley, distribution facilities include circuits ranging from 33kV to 6.9kV. There are three SCE substations in the Town, with voltages ranging from 33kV to 115kV, and one new substation is planned to serve newly developing areas by year 2013.

SCE administers several energy conservation programs for their customers. Financial incentives are offered to encourage energy conservation and the use of high efficiency equipment, with a variety of conservation services available to special needs groups.

New development with the Town of Apple Valley will increase the consumption of energy. However, the expected increase in local demand will form a small proportion of regional growth and it will not represent a significantly different energy consumption pattern from that of other comparable communities in the region.

The Town of Apple Valley is in a position to initiate development, promotion and implementation of innovative energy strategies and technologies that address electricity generation and use. Enhanced efficiency and conservation is one of the most cost-effective approaches, since energy conservation is significantly easier than production, and also directly addresses environmental issues associated with electric energy. Town initiatives in the areas of alternative fuels, advanced technologies and energy conservation will be fundamental to identifying effective strategies for a more secure, affordable and environmentally responsible energy future.

**Natural Gas Services**

Natural gas is found in association with petroleum crude oil deposits. High-pressure transmission lines are used to transport natural gas throughout the United States. While still in relatively abundant supply, natural gas is non-renewable and therefore warrants conservation. Natural gas is an important and widely utilized energy source that has historically been relatively inexpensive, clean burning and convenient. However, rapidly growing demand for use in utility-scale, base-load power generation is affecting its availability and cost.

Natural gas supplies to the Town are provided by the Southwest Gas Company; a 34-inch, high-pressure pipeline crosses the southern part of Town. A system of high- and medium-pressure pipelines is connected to the major pipeline, with pressure being gradually reduced at various limiting stations and regulator stations, which provide for delivery of natural gas to homes and businesses at safer and more useable pressure. Most development in the central core of Apple Valley is connected to the natural gas distribution system, although some rural, outlying areas may not be connected, given the prohibitive costs associated with extending the necessary infrastructure. Consumers in these remote areas rely on propane as an alternative fuel source.

**Local Renewable Energy Resources**

It is widely recognized that the true costs of energy from fossil or nuclear fuels are not yet fully factored into their market price. The development and utilization of local renewable energy resources could significantly reduce dependence on environmentally damaging and increasingly costly energy sources, with the exploitation and long-term use of renewable resources potentially

offering significant economic development opportunities for the Town. Renewable energy resources available in the region include sunshine, high temperatures and wind.

Wind Energy

Winds across the region are intermittent and therefore the generation of electricity from wind turbines would be as well. However, wind energy is providing an increasingly important alternative to conventional power systems, with the cost of wind-generated electricity now equal to or lower than electricity generated by coal or natural gas.

Solar Energy

Photovoltaic systems involve the direct conversion of sunshine to electricity, and over the past decade, photovoltaic technologies have made significant progress both as stand-alone power systems and when integrated into building design and construction. In recent years, the costs of manufacturing and installing such systems have been significantly reduced. While photovoltaic systems are still primarily used for special applications, such as providing power in remote locations, passive solar designs can also be used to provide lighting and space heating and have been used world-wide as a source of domestic hot water. .

The Town is ideally located to maximize the continued emergence and refinement of solar technologies and thereby reduce dependence on non-renewable energy resources. Photovoltaic technologies may also become integral to the emergence of a hydrogen fuel cycle, which could result in virtually pollution-free electric power and combustion fuel.

Hydrogen Fuel Cells

Fuel cell systems use hydrogen to generate electricity and the technology has the potential to become a major renewable energy source. Hydrogen is produced when water molecules are split, and the process generates no wastes other than heat and water vapor. Fuel cells efficiently convert chemical energy directly into electricity, and in conjunction with solar or wind technologies, hydrogen power can be effectively utilized on a large scale.

## FUTURE DIRECTIONS

Energy and mineral resource production and use are fundamental components of infrastructure and technological development, and have greatly enhanced quality of life since the industrial revolution. However, the exploitation of non-renewable energy resources has increased exponentially and has resulted in major environmental degradation, impacting wildlife habitat, affecting water and air quality, and direct and indirect association with a wide range of adverse public health effects.

The increasingly evident economic and environmental costs associated with conventional and often indiscriminate mineral and energy production and use are driving the development of new policies and programs. Requirements for materials recycling, together with a reduction or change in energy consumption patterns, will encourage mineral and energy providers to achieve both greater production efficiency and cost effectiveness, while identifying new economic and environmental opportunities.

Economic opportunity can also be expanded through promoting conservation and stimulating the development and use of alternative and renewable energy, while the development and implementation of enlightened energy policies will assist in addressing issues of local and national economic security.

Developing energy policies that emphasize conservation, local control, greater use of renewable resources and community-scale technologies, are essential to and will help secure an environmentally friendly energy future.

## GOAL, POLICIES AND PROGRAMS

### Goal

Assure the long-term availability and affordability of energy and mineral resources through conservative consumption, efficient use and environmentally sensitive management practices.

**Policy 1.A**
The community and all economic sectors shall be urged to conserve energy, with particular focus on the inclusion of energy saving measures in transport systems, and in the planning and construction of urban uses.

**Program 1.A.1**
While considering the future development of more stringent local energy performance standards, the Town shall continue to rigorously enforce all state mandated energy-conserving development and building codes/regulations.
**Responsible Agencies:** Planning Division, Building and Safety Division.
**Schedule:** Ongoing

**Program 1.A.2**
The Town shall make available information to developers on energy efficient building design and conservation technologies addressing enhanced wall and ceiling insulation, efficient heating and cooling equipment, thermally efficient glazing, and efficient household appliances.
**Responsible Agencies:** Planning Division, Building and Safety Division
**Schedule:** Ongoing

**Program 1.A.3**
The Town shall periodically assess the local transportation system with a view to gaining greater efficiency in the movement of people and goods through the community. Opportunities to expand the public transport system, using buses equipped with bicycle racks and fueled by compressed natural gas or hydrogen, will be maximized. Widespread use of pedestrian pathways and alternative means of transport, such as bicycles and electric or hybrid vehicles, will be facilitated and encouraged.
**Responsible Agencies:** Town Engineer, Planning Division, Municipal Services Department
**Schedule:** Annually

**Program 1.A.4**
The Town shall strive for efficient community land use and transportation planning and design, and shall assure the provision of convenient neighborhood shopping, medical and other professional services appropriately located to minimize travel and facilitate the use of alternative means of transportation.
**Responsible Agency:** Planning Division.
**Schedule:** Ongoing

**Policy 1.B**
Promote building design and construction that integrates alternative energy systems, including but not limited to solar, thermal, photovoltaics and other clean energy systems.

**Program 1.B.1**
Building regulations and guidelines will facilitate the safe and efficient installation of alternative energy systems in new and existing buildings. The Town will promote the use of such systems to residents, businesses, and the building industry by disseminating information on commercially available conservation technologies, solar, thermal and photovoltaic energy systems, fuel cell and other alternative energy resources.
**Responsible Agency:** Planning Division.
**Schedule:** Ongoing

**Program 1.B.2**
The Town shall proactively promote alternative energy workshops and the local development of associated industries.
**Responsible Agency:** Economic Development Division
**Schedule:** 2010-2011, Ongoing

**Policy 1.B.3**
The Town shall encourage building design that takes advantage of shade, prevailing winds and sun screens. Energy efficient lighting and installation of colored "cool roofs", cool pavement and strategically planted shade trees should also be encouraged. The Town shall support the installation of solar panels on carports and over parking areas where appropriate.
**Responsible Agency:** Planning Division, Building and Safety Division.
**Schedule:** Ongoing

**Policy 1.C**
Proactively support state and federal legislation and regulations and long-term strategies that assure affordable and reliable production and delivery of electrical power to the community.

**Program 1.C.1**
In coordination with state and federal legislators and regulators, the Town shall draw up a mutually agreed legislative and regulatory agenda to address its near and long-term energy and associated economic needs.
**Responsible Agency:** Town Manager's Office, Town Council
**Schedule:** Annually

**Policy 1.D**
The Town will encourage and facilitate the exploitation of local renewable resources by supporting public and private initiatives to develop and operate alternative systems of electricity generation, using wind, solar and other renewable energies.

**Policy 1.E**
Assure the long-term availability of local mineral resources to provide a reliable and affordable supply of materials for the construction of buildings, roads, flood control facilities and other necessary improvements.

**Program 1.E.1**
To the extent practical, the Town shall monitor and regulate the safe and environmentally responsible extraction and recycling of significant local mineral resources.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.E.2**
The Town shall maintain a formal relationship with the County Geologist or other qualified agency to monitor mineral resource operations under SMARA.
**Responsible Agency:** Planning Division
**Schedule:** Ongoing

**Program 1.E.3**
The Town shall require the recycling of mineral-based construction materials, including asphalt, concrete, gypsum and similar materials, and the use of recycled materials in new construction.
**Responsible Agency:** Building and Safety Division, Municipal Services Department
**Schedule:** Ongoing