3. Human Environment

This section discusses the existing environmental conditions related to the following human environment topics:

- Land Use (includes recreation)
- Social and Economic Conditions
- Cultural Resources
- Transportation and Travel Management
- Visual Resources, and
- Utilities and Public Services.

Unless otherwise specified, the "study area" encompasses the general area from Pisgah Crater west along the I-40/old Route 66 corridor to the Daggett area, and south through Stoddard Valley, North Lucerne Valley, western Lucerne Valley, and Apple Valley to Hesperia (see Figure 1-1).

3.1 Land Use

The following discussion addresses existing environmental conditions that pertain to the regional and local uses of the land within the study area. This section also identifies the federal, State, and local jurisdictions within the study area, and the existing land uses that are managed by those jurisdictions. This section also describes the special designations that apply to the management of federal lands within the study area.

3.1.1 Regional Setting

The regional setting for the study area can be described as the Western Mojave Desert Geographic Region. More specifically, the study area is located in the Victor Valley Region of San Bernardino County, which is a broad valley lying north of the San Bernardino Mountains, east of the Antelope Valley, and west of Lucerne Valley. Victor Valley extends northward along the Mojave River to approximately the community of Helendale. Lucerne Valley is east of the Victor Valley, west of and generally including Johnson Valley, and north of the San Bernardino Mountain Range. Elevations in the study area range from a low of less than 2,000 feet in the northeastern portion to a high of over 3,300 feet in the southwestern portion.

The study area includes lands under local, regional, and federal jurisdictions. This includes land under the jurisdiction of the Bureau of Land Management (BLM), Department of Defense (DoD), California State Lands Commission (CSLC), County of San Bernardino, City of Barstow, City of Hesperia, and the Town of Apple Valley. The study area is bounded to the north by I-40, the unincorporated community of Daggett, and military land. To the south, the study area is bounded by existing natural features such as the San Bernardino Mountains, as well as the California State Route (SR) 138/173 corridor. To the east, the boundary includes BLM-administered lands that are managed for multiple uses, and to the west the boundary extends to the I-15 corridor and the cities of Barstow, Victorville, and Hesperia. Figure 3.1-1 shows the location of applicable jurisdictions within the study area.

Table 3.1-1 identifies notable land uses within the study area that are associated with the relevant jurisdictions. Following the table is a detailed summary of these jurisdictions and their existing land uses.

Table 3.1-1. Study Area Jurisdictions and Existing Land Uses

Geographic Place	Jurisdictions	Existing Land Use(s)
Barstow-Daggett area	BLM	Open space, mostly undeveloped desert land; Stoddard Mountain Grazing Allotment;
	DoD	Marine Corps Logistics Base
	County of San Bernardino	Utility infrastructure (i.e., Coolwater Substation); BNSF railroad; Route 66; Calico Ghost Town; Daggett Airport; Daggett Stone Hotel; Agricultural land; Rural residential development
	City of Barstow	Robert Sessions Memorial Sports Park; Industrial and Commercial uses; Residential development
Stoddard Valley	BLM	Open space, mostly undeveloped desert land; Stoddard Mountain Grazing Allotment; Valley Well Grazing Allotment; Stoddard Valley OHV Area;
	CSLC	Undeveloped school lands
	County of San Bernardino	Rural residential development
North Lucerne Valley	BLM	Ord Mountain Route Network
	CSLC	Undeveloped school lands
	County of San Bernardino	Open space; Rural residential development
West Lucerne Valley	BLM	Johnson Valley OHV Area; Lucerne Dry Lake
	County of San Bernardino	Agricultural land; Rural residential development
Southern Apple Valley	BLM	Open space
	County of San Bernardino	Rural residential development
Hesperia	County of San Bernardino	Rural residential development
	City of Hesperia	Hesperia Lake; Hesperia Airport
	Town of Apple Valley	Apple Valley Inn; Sunset Hills Memorial Park; Apple Valley Airport
	Department of Water Resources	California Aqueduct
Ord Mountains and Summit Valley	BLM	Round Mountain Grazing Allotment
	CSLC	Undeveloped school lands
	County of San Bernardino	Mojave River Forks Regional Park; Rural residential development
	Department of Water Resources	California Aqueduct

3.1.2 Jurisdictions and Existing Land Uses

3.1.2.1 Bureau of Land Management

The study area includes federal land that is managed by the BLM. This land can be characterized by open desert as well as mountainous areas that are under BLM designation for conservation, recreation, grazing, and mining. The following summary describes the existing land uses and designations of these federal lands within the study area.

Conservation

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the BLM to consider and evaluate public lands managed by the BLM for a number of special designations based on the presence

of particular values and qualities (BLM, 2001). Lands found to possess these qualities are characterized as Special Management Areas (SMAs), which are then subject to special management requirements or considerations. SMAs that are applicable to the study area include Areas of Critical Environmental Concern, Research Natural Areas, Wilderness Areas, and Wilderness Study Areas, which are described in greater detail below.

Area of Critical Environmental Concern (ACEC)

An Area of Critical Environmental Concern (ACEC) is defined in FLPMA, Public Law 94-579, Section 103(a) as an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards. Restrictions that arise from an ACEC designation are determined at the time the designation is made, and are designed to protect the values or serve the purposes for which the designation was made. The BLM has prepared regulations for implementing the ACEC provisions of FLPMA, which are found at 43 CFR 1610.7-2(b). BLM Manual 1613 (Areas of Critical Environmental Concern) provides policy and procedural guidance on the identification, evaluation, and designation of ACECs (BLM, 1988). The following seven ACECs have been identified within the study area:

- **Jawbone/Butterbredt ACEC.** Consists of 187,486 acres. This ACEC was established to manage and protect significant cultural and wildlife values of this transition zone between the mountains and the northern portion of the West Mojave Desert. Wildlife habitats include Butterbredt Springs, an important migratory bird stopover site; habitat for the yellow-eared pocket mouse in Kelso Valley; and the raptor and vulture migratory corridor between the Kern River Valley and the Mojave River. The ACEC also protects the Bendire's thrasher, Mohave ground squirrel, yellow-eared pocket mouse, and Kelso Creek monkeyflower (BLM, 2005a).
- **Juniper Flats ACEC.** Consists of 2,528 acres. The foothill area south of the Town of Apple Valley, which contains springs and riparian habitat in a dense stand of junipers, was an important Native American habitation and special use site. Juniper Flats provides important habitat for the San Diego horned lizard and the gray vireo, two unlisted species covered under the West Mojave (WEMO) Plan (BLM, 2005a).
- **Mojave Fishhook Cactus ACEC.** Consists of 628 acres, which includes two separate parcels in the Brisbane Valley (BLM, 2005a). This ACEC was established to protect the yellow-spined form of the Mojave fishhook cactus.
- **Mojave Fringe-toed Lizard ACEC.** Consists of 28,193 acres, and is located along the Mojave River east of Barstow (BLM, 2005a). The ACEC was established to protect the Mojave fringe-toed lizard.
- **Mojave Monkeyflower ACEC.** Consists of 47,057 acres. This ACEC includes two separate parcels (i.e., Brisbane Valley and Daggett Ridge) that contain the majority of the known Mojave monkeyflower population (BLM, 2005a). The ACEC is entirely within the boundaries of the Ord-Rodman Desert Wildlife Management Area (DWMA).
- **Rodman Mountains Cultural Area ACEC.** Consists of 6,204 acres, and most of this area is within the Rodman Mountains Wilderness. The ACEC contains raptor nests and limited desert tortoise habitat (BLM, 2005a).
- **Soggy Dry Lake Creosote Rings ACEC**. Consists of 186 acres. The ACEC protects ancient vegetation in the Fry Valley, where creosote bushes have developed as clonal rings, attaining an age of up to 11,700 years (BLM, 2005a).
- **Upper Johnson Valley Yucca Rings ACEC.** Consists of 353 acres. The ACEC was established for the unique clonal yucca rings found near the Fry Mountains within the Johnson Valley Open Area. The

yucca plants are believed to have grown in a manner similar to the ancient creosote rings near Soggy Dry Lake and represent a stable, old plant community (BLM, 2005a).

National Conservation Area

These areas are typically established by an Act of Congress. Once designated, the BLM is charged with conserving, protecting, and restoring the special features, as identified in the legislation or proclamation (BLM, 2015a). One such conservation area has been identified in the study area, as follows:

- **Kelso Valley Conservation Area.** Consists of 7,678 acres. This conservation area was established for the Bendire's Thrasher within the existing Jawbone/Butterbredt ACEC (BLM, 2005a).

Research Natural Area

A Research Natural Area (RNA) is a BLM designation that establishes and maintains lands for the primary purpose of research and education. These areas have one or more of the following characteristics: (1) typical representation of a common plant or animal association; (2) unusual plant or animal association; (3) threatened or endangered plant or animal species; (4) typical representation of common geologic, soil, or water features; or (5) outstanding or unusual geologic, soil, or water features. According to the BLM's Land Use Planning Handbook, RNAs are considered a type of ACEC. The criteria that apply to evaluating existing or proposed ACECs would also apply to RNAs (BLM, 2005b). One RNA has been identified in the study area, as follows:

- **Carbonate Endemic Plants Research Natural Area.** Consists of 5,155 acres, and is located east of Highway 18 in the foothills of the San Bernardino Mountains. This RNA protects four federally listed plant species (Parish's daisy, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca), as well as the San Diego horned lizard, gray vireo, and bighorn sheep (BLM, 2005a).

Desert Wildlife Management Areas

Desert Wildlife Management Areas (DWMA) are areas designated as essential to the long-term recovery, viability, and genetic diversity of desert tortoise populations and the ecosystems upon which they depend (BLM, 2008). Two DWMs have been identified in the study area, including:

- **Ord-Rodman DWMA.** This DWMA is located to the southeast of the City of Barstow and covers approximately 247,080 acres (USFWS, 2010).
- **Fremont-Kramer and Superior-Cronese DWMAs.** These two DWMAs are contiguous and cover approximately 511,901 acres. The Superior-Cronese DWMA is located north of the Ord-Rodman DWMA, and the Fremont-Kramer DWMA is west of and adjacent to the Superior-Cronese DWMA (USFWS, 2010).

Wilderness and Wilderness Study Areas

In 1964, Congress passed the Wilderness Act that established a national system of lands for the purpose of preserving a representative sample of ecosystems in a natural condition for the benefit of future generations. Wilderness Study Areas (WSAs) contain wilderness characteristics such as naturalness, solitude, and opportunities for primitive and/or unconfined recreation and are managed to preserve those values until Congress either designates them as wilderness or releases them for other uses. Until 1976, most land considered for, and designated as, wilderness was managed by the National Park Service and the USDA Forest Service. With the passage of FLPMA in 1976, Congress directed the BLM to inventory, study, and recommend which public lands under its administration

should be designated wilderness. The BLM published its California Statewide Wilderness Study Report in 1991 (BLM, 1991). Areas identified as WSAs are to be managed according to the BLM Manual 6330 (Management of BLM Wilderness Study Areas), until they are designated wilderness or released by Congress (BLM, 2012).

Areas that are designated as wilderness are managed under the provisions of the Wilderness Act of 1964 and their establishing legislation. The following activities are prohibited in Wilderness Areas: commercial enterprises; construction of temporary or permanent roads; use of motorized vehicles and other mechanical transport; aircraft landings; and construction of structures and other installations. Three categories of exceptions to prohibited activities in Wilderness Areas include:

- Valid existing rights - Prior existing rights may continue. Discretionary uses that create new rights are not permitted;
- Administrative actions - New roads or commercial roads are not authorized. However, the BLM may re-evaluate and authorize any of the other prohibitions listed above by invoking the "minimum requirements exception" in order to meet the minimum requirements to administer and protect the lands, and the health and safety of people in the area; and
- General allowances - These are subject to limitations set by the BLM State Director. These allowances may include actions to control fire and insects and diseases and facilitate federal mineral surveys, livestock grazing, access to landholdings, and commercial services compatible with wilderness values and necessary to realize the recreation or other wilderness character purposes of the land.

The following Wilderness Areas and WSAs are within the study area:

- **Newberry Mountains Wilderness Area.** Consists of 26,012 acres. Recreation opportunities consist of hiking, camping, horseback riding, wildlife viewing, sightseeing, and bird watching. Hunting, fishing, and non-commercial trapping are allowed under State and local laws. Mechanized or motorized vehicles are not permitted. Access to this area is by Camp Rock Road from either I-40 or SR-247 (BLM, 2014a).
- **Rodman Mountains Wilderness Area.** Consists of 34,264 acres. Recreation opportunities consist of hiking, camping, horseback riding, wildlife viewing, sightseeing, and bird watching. Rodman Mountains Wilderness possesses one of seven core raptor breeding areas in the desert where prairie falcons and golden eagles live. Hunting, fishing, and non-commercial trapping are also allowed under State and local laws. Mechanized or motorized vehicles are not permitted within the area. Visitors access this wilderness via Camp Rock Road, from either I-40 or SR-247 (BLM, 2014b).
- **Cady Mountains Wilderness Study Area.** Consists of 84,400 acres. Allowed recreation activities include hiking, camping, backpacking, fishing, hunting, rock hounding, horseback riding, and the use of pack animals (BLM, 1990a).
- **Soda Mountains Wilderness Study Area.** Consists of 118,537 acres of public land under the jurisdiction of the BLM; 5,211 acres owned by the State of California; and 8,417 acres of private land. Recreation activities allowed include hiking, camping, backpacking, fishing, hunting, rock hounding, horseback riding, and the use of pack animals (BLM, 1990b).

Recreation

BLM manages public lands for multiple uses, which includes a range of recreational activities such as target shooting and hunting, off-highway vehicle (OHV) use, rockhounding, and camping. The following BLM-designated recreation areas are located within the study area:

- **Stoddard Valley OHV Area.** This 53,000-acre OHV area accommodates recreationists ranging from motocross racers to beginning OHV riders. The area is used extensively for competitive racing events by permit (BLM, 2010a). Stoddard Valley's diverse landscape attracts substantial OHV recreation. Other recreation activities across the area include hiking; camping; rock scrambling; rock hounding; hunting; plant, bird, and wildlife watching.
- **Ord Mountain Route Network.** The Ord Mountain Route Network is located south of Barstow and links the Stoddard Valley and Johnson Valley OHV Areas. Both of these OHV areas allow open travel within their respective boundaries. By contrast, travel within the Ord Mountain Route Network is limited to posted open routes; cross-country travel is not permitted (BLM, 2007). Other recreation activities within the Ord Mountain Route Network include hunting, hiking, camping, wildlife viewing and sightseeing.
- **Johnson Valley OHV Area.** Johnson Valley is an 188,000-acre OHV area. Most recreation visitors tour the area on motorcycles, ATVs or four-wheel drive vehicles. Other activities in the area include hiking, rock hounding, and wildlife watching. This area can be reached from SR-247 at Old Woman Springs Road or Camp Rock Road. There are two courses for racing in the north central and western portions of the valley, with four events typically scheduled every year. The eastern boundary is shared with the Twenty-nine Palms Marine Air-Ground Combat Center (BLM, 2014c).
- **Lucerne Dry Lake.** Lucerne Dry Lake is currently used as a permitted launch site for monthly events hosted by the Rocketry Organization of California. Camping is allowed on the lakebed, but OHV activities are not permitted at the site (ROC, 2015).

Grazing

Currently and historically, livestock grazing has been and continues to be a significant use of renewable resources on public land in the California desert. The BLM administers grazing on public lands as guided by the Taylor Grazing Act of 1934, Public Rangelands Improvement Act of 1978, and the FLPMA. Permits and leases are issued by the BLM, which establish terms and conditions for each allotment. Allotment Management Plans (AMPs) are developed for each allotment in order to determine habitat protection and management goals, as well as actions for specific resources and species within the allotment area. Within the California Desert District, BLM currently manages livestock grazing on 4.5 million acres of public land, which include 54 allotments grazed for at least part of the year (BLM, 1999). The following is a list of specific grazing allotments in the study area:

- **Stoddard Mountain Allotment.** This allotment consists of 190,186 acres of land and is managed by the BLM Barstow Field Office. The allotment has been assigned the management status category of "maintain," meaning the allotment is in satisfactory condition, is producing near its potential under existing management strategies, and little or no known resource use conflicts or controversies exist (BLM, 2014d). An Allotment Management Plan (AMP) was created and implemented for the area, which includes specific desert tortoise objectives to minimize and avoid impacts to this species. Livestock include an approximate population of 800 sheep, which are present seasonally (ephemeral usage) from March 1 to June 1 of each year (BLM, 2014e). According to the BLM Rangeland Specialist from the Barstow Field Office, the active ephemeral sheep grazing is only authorized on 17,000 acres located west of I-15 (BLM, 2014f).
- **Valley Well Allotment.** This allotment consists of 480 acres of land and is managed by the BLM Barstow Field Office, and has been assigned the management status category of "custodial", meaning the allotment is relatively small, intermingled with larger amounts of non-federal lands, there should be no known resource conflicts involving use or resource conditions, and opportunities for positive economic returns from public investments are limited (BLM, 2014g). An AMP was created and implemented for the area, which includes specific desert tortoise objectives to

minimize and avoid impacts to this species. Livestock includes two horses present year-round (BLM, 2014h).

- **Round Mountain.** This allotment consists of 15,253 acres of land that is managed by the BLM Barstow Field Office, and has been assigned the management status category of "maintain," meaning the allotment is in satisfactory condition, is producing near its potential under existing management strategies, and little or no known resource use conflicts or controversies exist (BLM, 2014i). Livestock include an approximate population of 221 cattle, which are present seasonally in the winter (BLM, 2014j).

Mining

The General Mining Law of 1872, as amended, opened public lands to mineral acquisition by the location and maintenance of mining claims (BLM, 2011). Local BLM field offices are responsible for the selling or leasing of mineral materials on public lands (BLM, 2010b). Within the study area, the Barstow Field Office is the local BLM office. The BLM defines minerals on federal lands by three distinct categories:

1. Locatable Minerals - hardrock resources that are typically metals with a unique or special use, such as gold and silver;
2. Leasable Minerals - typically found in bedded deposits, such as oil, gas, and geothermal resources; and
3. Salable Minerals - a common variety of materials such as sand, stone, and gravel (BLM, 2010c).

There are several mining claims for locatable and salable minerals within the study area. While none of the locatable mining claims are currently active, one of the salable mining claims (i.e., Newberry Borrow Pit) is in operation (USGS, 2014). This sand and gravel extraction site is owned by the California Department of Transportation, and it is assumed the material produced at this site is used for road construction (USGS, 2014).

There are no records of oil, gas, or geothermal resources or claims (i.e., leasable minerals) in the study area (USGS, 2014).

3.1.2.2 Department of Defense

The study area includes the Marine Corps Logistics Base (MCLB) in Barstow, which is an approximately 6,170-acre site that is used to provide support for Marine forces west of the Mississippi and for overseas operations in Asia (USMC, 2015). MCLB houses the Fleet Support Division, the Defense Logistics Agency Disposition Services, and the Maintenance Center Barstow (USMC, 2014).

3.1.2.3 California States Land Commission

The CSLC manages the State's sovereign or public trust lands, which include tidelands and submerged lands (e.g., rivers, streams, lakes, bays), as well as lands granted by Congress to support the State's public schools. The CSLC also monitors sovereign lands granted in trust to local jurisdictions and administers the mineral rights on lands under the jurisdiction of other agencies (CSLC, 2015). Through this land management role, the CSLC protects public access to waterways and the coastline as well as natural habitat for wildlife, vegetation, and biological communities.

The study corridor includes parcels of school lands under the management of CSLC that are scattered in a checkerboard pattern across the region. The CSLC and the BLN have signed an agreement to pursue an exchange of state school lands with federal lands to protect conservation lands and facilitate

renewable energy development. The proposed land exchange would include approximately 61,000 acres of non-revenue generating school lands in federal wilderness and other conservation areas for approximately 5,600 acres of federal lands, which would be located in San Bernardino, Inyo and Riverside counties (BLM, 2015b).

3.1.2.4 San Bernardino County

The County is commonly divided into three distinct regions: Valley Region, Mountain Region, and Desert Region. The majority of the County's incorporated areas and population is within the Valley Region, while the Desert Region contains approximately 93 percent of the County's land area, and the Mountain Region consists primarily of public lands owned and managed by federal and state agencies (SBCDA, 2015). The study area is entirely within the Desert Region.

The County is mostly undeveloped, with more than 80 percent of the County's land area currently vacant. Established land uses within the County include the following: military (15 percent of County land); residential housing (2.3 percent of County land); industrial uses (0.8 percent of County land); agriculture (0.5 percent of County land), utilities (0.5 percent of County land); transportation (0.4 percent of County land); parks (0.2 percent of County land); and commercial uses, schools, office, government buildings (0.1 percent or less of County land, each) (The Community Foundation, 2014).

The following is a summary of notable land uses that are included in the County's jurisdictional boundaries and are within the study area:

- **Daggett.** This unincorporated community is rural in character, and existing development within the area is primarily single-family residences, and commercial lots. The Burlington Northern Santa Fe (BNSF) railroad bisects the community. Located on Route 66, Daggett includes historical sites such as the Daggett Stone Hotel that was constructed in the 1880s and served as a hotel for railroad men, miners, and other travelers in the central Mojave Desert (San Bernardino County Museum, 2015).
- **Calico Ghost Town.** This historic town is located approximately 14 miles northeast of Barstow and is part of the San Bernardino County Regional Parks system. The town is a popular tourist destination site and includes shops, restaurants, and campgrounds (San Bernardino County, 2015a).
- **Mojave River Forks Regional Park.** This park is located in the Summit Valley area adjacent to the City of Hesperia's southeastern boundary and the San Bernardino National Forest, and is an access point for the Pacific Crest Trail. Recreation facilities include campsites and equestrian trails (San Bernardino County, 2015b).

3.1.2.5 City of Barstow

The City of Barstow is located midway between Los Angeles and Las Vegas and serves as a major transportation corridor. The majority of development within the City of Barstow includes residential uses, followed by industrial development along I-40 and Main Street with commercial development along I-15 (City of Barstow, 2014). The following is a summary of notable land uses in the City of Barstow that are within the study area:

- **Factory Outlet Complexes.** The Tanger Outlet and Barstow Outlet are located in Barstow along I-15, and are a popular stop for tourists traveling through Barstow.
- **Robert A. Sessions Memorial Sports Park.** This facility is managed by the City of Barstow Parks and Recreation Division and includes six lighted ball fields, three soccer fields, volleyball courts, batting cages, and basketball courts.

3.1.2.6 City of Victorville

The City of Victorville is located at the edge of the Mojave Desert, immediately west of the Town of Apple Valley, and north of the City of Hesperia. Much of the development within Victorville and the surrounding area was initially associated with mining activities due to the discovery of large deposits of limestone and granite. Currently, cement manufacturing continues as the most prominent industrial use in the Victor Valley (City of Victorville, 2015).

Approximately 38 percent of the City's designated land use is residential, with public and open space accounting for 25 percent and commercial and industrial uses accounting for a combined total of 14 percent (City of Victorville, 2008). The City's 14 specific plans account for the remaining percentage of designated land uses, which includes residential communities, commercial development, industrial areas, and special uses (i.e., Southern California Logistics Airport). Specific land uses within the City include 24 schools (grades K-12), bike paths, and 198 acres of City parkland.

The following is a summary of notable land uses in the City of Victorville that are within the study area:

- **Mojave Narrows Regional Park.** This 840-acre regional park is located within the City's planning area, and contains two lakes. Camping and fishing are permitted within the park (San Bernardino County, 2015c).
- **Southern California Logistics Airport.** This airport is publicly owned by the Southern California Logistics Airport Authority. The airport has a control tower and four runways. The average number of aircraft operations is approximately 50 per day (AirNav, 2015a).

3.1.2.7 Town of Apple Valley

The Town of Apple Valley is located in Victor Valley in an area known as the "High Desert." The City's planning area includes approximately 192 square miles of incorporated land and unincorporated areas within the City's sphere of influence (Town of Apple Valley, 2009). The primary characteristic of this City is its rural quality of life, which has been preserved through planning and development decisions that include residential neighborhoods having large lots to permit boarding horses, an extensive multi-use trail system, and landscaping consistent with the desert environment (Town of Apple Valley, 2009). In addition to residential development, which is the predominant land use in the City, existing development includes 16 schools (grades K-12), 15 community parks, and a trail system for walking, biking, and horseback riding (Town of Apple Valley, 2015a)

The following is a summary of notable land uses in the Town of Apple Valley that are within the study area:

- **Apple Valley Inn.** This former hotel was a historic vacation destination for celebrities during the 1940s through 1960s. It is currently under renovation and is available for leasing by small businesses or for hosting private events (Apple Valley Inn, 2015).
- **Sunset Hills Memorial Park.** This cemetery includes the burial sites for Roy Rogers and Dale Evans and has become a tourist site (Town of Apple Valley, 2015b).
- **Apple Valley Airport.** This airport is publicly owned by the County of San Bernardino. The airport has two runways, but no control tower. The average number of aircraft operations is approximately 103 per day (AirNav, 2015b).

3.1.2.8 City of Hesperia

The City of Hesperia is located south of the City of Victorville and west of the City of Apple Valley, and is divided by I-15. The City's planning area includes approximately 118 square miles of incorporated land and unincorporated areas within the City's sphere of influence (City of Hesperia, 2010). Approximately 39 percent of this planning area is undeveloped. Existing development within the City is predominately single-family residential uses. The City also includes 32 schools (grades K-12), 14 community parks, and a network of bike paths (HUSD, 2015; HRPD, 2015)

The following is a summary of notable land uses in the City of Hesperia that are within the study area:

- **Hesperia Lake.** This 100-acre site is the only regional park within the City. The park offers campground sites, an equestrian area, soccer fields, fishing, picnic areas and a playground.
- **Hesperia Airport.** This airport is privately-owned, but is open to the public. The airport has two runways, but no control tower. The average number of aircraft operations is approximately 115 per week (AirNav, 2015c).

3.2 Social and Economic Conditions

The following discussion addresses existing social and economic conditions and environmental justice populations (i.e., populations of concern) within the study area. For the purpose of this document, social and economic conditions includes population, housing, property values, government revenues (including taxation), and employment. The environmental justice section describes the minority and low-income populations in the study area, as compared to the broader regional population.

3.2.1 Regional Setting

The study area includes the following jurisdictions:

- BLM lands;
- Unincorporated lands within San Bernardino County, including the communities of Daggett and Lucerne Valley; and
- The Town of Apple Valley and Cities of Barstow and Hesperia.

These areas comprise the geographic region for which the following discussion of social and economic effects has been developed.

Socioeconomic data (i.e., population, employment, housing, property values, and County expenditures) and environmental justice data (i.e., minority, low-income, and below poverty level populations) have been collected from publicly available sources for San Bernardino County, local municipalities, and California. The primary sources for data are San Bernardino County, the California Employment Development Department, the California Department of Finance and Year 2010 U.S. Census, with more recent U.S. Census data as available. The U.S. Census tracts within the study area include the following:

- **San Bernardino County:** Census Tract 97.08, Census Tract 100.17, Census Tract 103, Census Tract 117, Census Tract 118, Census Tract 121.04;
- **Hesperia:** Census Tract 100.19, Census Tract 100.20, Census Tract 100.21, Census Tract 100.22, Census Tract 100.23, Census Tract 100.24; and
- **Apple Valley:** Census Tract 97.07

The location of these census tracts relative to the study area are illustrated in Figure 3.2-1.

3.2.2 Socioeconomics

The social and economic information presented below describes data on population, employment, housing, and property values within the study area.

3.2.2.1 Population

Table 3.2-1 provides population projections for San Bernardino County. San Bernardino County is forecast to have significant population growth (i.e., nearly 66 percent) through 2060. Despite the significant growth forecast for San Bernardino County, the Town of Apple Valley and Cities of Barstow and Hesperia account for only a small percentage of the total County population and projections.

Table 3.2-1. 2014 Population and Projections

Location	2014	2020	2030	2040	2050	2060
San Bernardino Co.	2,068,610	2,273,017	2,626,945	2,988,648	3,248,440	3,433,047
Hesperia	91,057	132,500	N/A			
Apple Valley	70,173	109,000	N/A			
Barstow	23,082	27,300	N/A			

Source: DOF, 2014; SCAG, 2012

Note: N/A – Population projections not available

3.2.2.2 Housing

Table 3.2-2 provides data on housing availability in San Bernardino County, and for the incorporated communities within the study area. While communities central to the study area only contain a small number of the County's total housing units, current vacancy rates indicate that substantial housing is available.

Table 3.2-2 shows owner- and renter-occupied housing units. In addition to these types of housing, short-term temporary housing (e.g., hotels, motels, and recreational vehicle parks) are also available within the study area. This type of temporary housing is not included in U.S. Census and other readily published housing data. Therefore, accurate data regarding the total number of hotel/motel rooms and RV spaces within these local communities are not available.

Table 3.2-2. 2014 Housing Availability

Location	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate
San Bernardino Co.	706,314	617,749	88,565	12.5%
Hesperia	29,013	26,440	2,573	8.9%
Apple Valley	26,352	23,811	2,541	9.6%
Barstow	9,656	8,189	1,467	15.2%

Source: DOF, 2014

3.2.2.3 Employment

Table 3.2-3 provides overall employment data for San Bernardino County and communities within the study area. As shown, from a regional perspective, the County has a lower unemployment rate when compared to the incorporated communities within the study area.

Table 3.2-3. 2014 Overall Employment			
Location	**Labor Force**	**Employed**	**Unemployed (%)**
San Bernardino Co.	861,600	795,300	66,400 (7.7%)
Hesperia	30,200	27,200	3,000 (10.0%)
Apple Valley	26,000	23,800	2,200 (8.5%)
Barstow	10,500	9,500	1,000 (9.7%)

Source: CAEDD, 2014

Table 3.2-4 shows the number of construction and utility trade employees within San Bernardino County. Based on the most recently published data, construction accounts for 3.5 percent of total employment within the County. In addition, the trade and utility sectors account for a larger percentage of the total employment.

Table 3.2-4. 2013 (December) San Bernardino County Employment by Sector		
Industry	**Employed**	**Percent of Total County Employment**
Total, All Industries	793,300	-
Construction	27,500	3.5%
Trade, Transportation & Utilities	181,000	22.8%

Source: CAEDD, 2014

3.2.2.4 Property Values

Property value is typically determined through the process of real estate appraisal. There are several types and definitions of value sought by a real estate appraisal. One of the most common definitions is fair market value. Fair market value is typically defined as an estimate of the value of a property, based on what a knowledgeable, willing, and unpressured buyer would likely pay to a knowledgeable, willing, and unpressured seller. This estimate of fair market value may be based either on precedent or extrapolation. Fair market value differs from intrinsic value because individuals may place different value on the same asset based on their own preferences and circumstances.

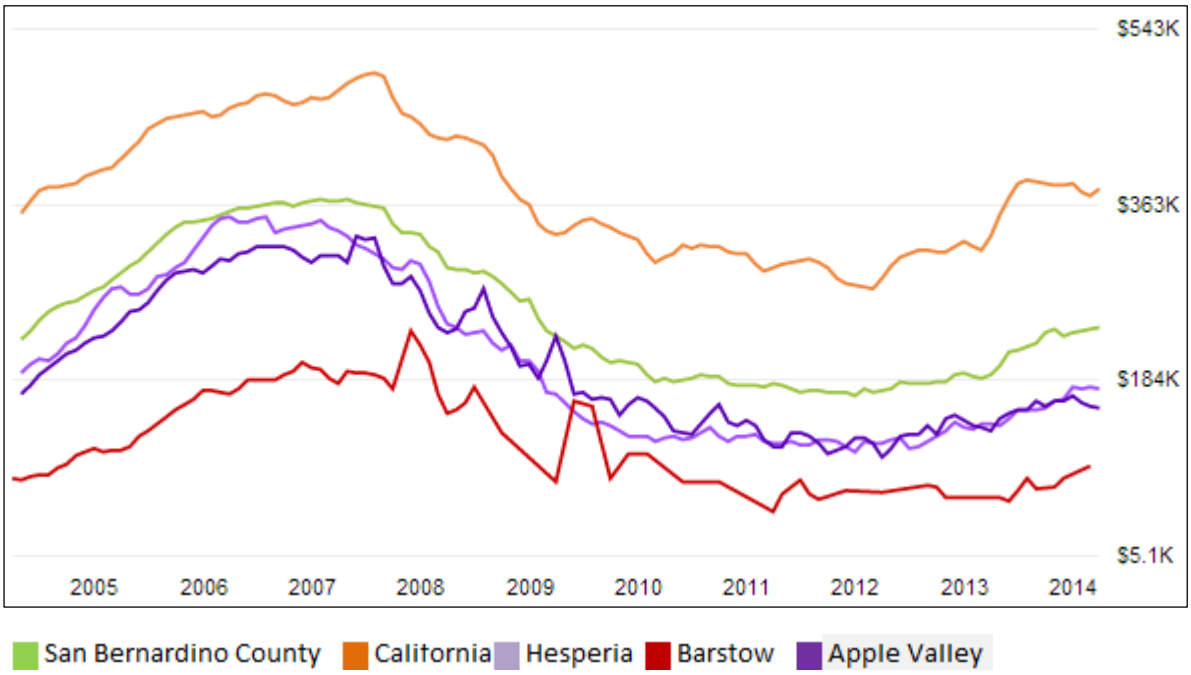
Home prices in southern California have been trending upward in recent years. The median home price in San Bernardino increased 23 percent, from $195,000 to $240,000 between April 2013 and April 2014. In comparison, the median price in Los Angeles County increased by 12 percent and the median price in California by 13 percent over the same period. Though increasing, growth in prices has slowed in recent months. April 2014 marks the first time since September 2012 that more than one southern California county experienced annual price increases of less than 10 percent[1]. While over 10 percent, the median price increase in Southern California between April 2013 and April 2014 is the lowest since the 12-month period ending in September 2012 (Los Angeles Daily News, 2014).

Figure 3.2-2 shows the median sale price for homes in California, San Bernardino, and several jurisdictions in the study area during the 2005 to 2014 period. In March 2014, the median sale price in California was $380,000, compared to $239,000, $175,000, $155,000, and $97,000 for San Bernardino County, Hesperia, Apple Valley, and Barstow, respectively (Zillow, 2014). Median prices for each location generally followed the same pattern throughout the period. Home prices peaked between 2006 and 2007, declined through 2011, and increased through 2013 in all areas examined. Median

[1] Southland refers to the Combined Statistical Area that includes Los Angeles, Orange, San Bernardino, Riverside, and Ventura counties.

home prices in San Bernardino County are significantly lower than the statewide median in each month. Median prices in Hesperia, Barstow, and Apple Valley are less than the countywide median.

Figure 3.2-2. Median Sale Price – All Homes



Source: Zillow, 2014

Property values are very location specific. As such, information (presented in Table 3.2-5) on the number of current housing units, median home value, and median rent provides a snapshot of housing values for the U.S. Census tracts within the study area. A general description of the study area's land use patterns and community character is provided in Section 3.1 (Land Use).

Table 3.2-5. 2012 Housing Value and Median Rent

Location	Owner Occupied		Renter Occupied	
	Total Units	Median Value	Total Units	Median Rent
San Bernardino Co.	377,759	$241,500	221,939	$1,099
Census Tract 97.07	2,154	$205,200	750	$1,163
Census Tract 97.08	1,302	$208,200	325	$811
Census Tract 100.17	3,106	$229,700	876	$1,665
Census Tract 100.19	755	$170,600	710	$938
Census Tract 100.20	1,026	$108,800	1,418	$887
Census Tract 100.21	1,454	$177,700	380	$1,332
Census Tract 100.22	1,120	$165,900	280	$1,098
Census Tract 100.23	1,377	$165,300	376	$1,240
Census Tract 100.24	1,381	$210,400	216	$1,321
Census Tract 103	915	$151,900	442	$492
Census Tract 117	387	$116,100	150	$703
Census Tract 118	1,462	$137,500	990	$794
Census Tract 121.04	1,388	$126,300	384	$769

Source: U.S. Census Bureau, 2014

3.2.2.5 Government Revenues

Bureau of Land Management

For Fiscal Year (FY) 2015, the BLM's national budget was $1.1 billion (BLM, 2014). The majority of the BLM budget supports the management of lands and resources. Major funding sources come from oil and gas permit processing funds, recreation fees, and miscellaneous permanent payments. The BLM is one of a handful of agencies that raises more than five times its operating budget in outside fees. With a budget of $1.1 billion, BLM-administered public lands are expected to generate nearly $5.7 billion for FY 2015. Part of the FY 2015 budget is funding to position the BLM to strategically plan for the long-term increased demand and updates to the electric grid throughout the West with an improved and updated assessment process for the development and siting of energy corridors and rights-of-way (ROWs).

The abundance of natural resources on BLM-administered public lands throughout California supports families, local communities, and economies. Traditional uses of these public lands, including mining, grazing, and timber harvesting, now blend with activities such as outdoor recreation and energy production. In FY 2012, activities on BLM-administered public lands contributed more than $2.5 billion to local and State economies and supported more than 9,600 California jobs (BLM, 2013). Specific highlights of economic contributions from energy and transmission on BLM lands within California include (BLM, 2013):

- **Right of Way (ROW):** Authorized approximately 12,000 linear miles of ROW, including 2,227 miles of road and 2,054 miles for power and communication lines.
- **Payments in Lieu of Taxes:** The BLM distributed $40.3 million of "payments in lieu of taxes" to compensate California counties and local governments for nontaxable federal lands in their jurisdictions.
- **Solar Energy:** Processed 22 applications in 2012 encompassing 309,000 acres; 3 authorized solar facilities in construction, totaling 1,170 megawatts (MW) of production; potential to collect $23 million in annual rent during production of these 3 facilities alone.
- **Wind Energy:** 1,373 turbines authorized in 2012, producing 828 MW in 27 rights-of-way on 28,800 acres (capable of producing more than $1.8 million in annual rent).
- **Geothermal:** 420 MW approved in 2012; 3.1 billion kilowatt/hours of electricity; 6 producing fields; 99 leases; 31 power plants; $8.4 million in royalties.

San Bernardino County

Table 3.2-6 identifies the primary financing sources and expenditures for San Bernardino County within the Adopted FY 2014-2015 Budget. As shown, the County had a balanced budget, with government aid and fees/taxes being the largest funding sources and operating/staff expenses being the largest financial requirements.

Table 3.2-6. San Bernardino County Budget, FY 2014-2015		
	Amount	**Percent**
Financing Sources		
State, Federal or Government Aid	$1,573,072,710	32.2%
Fee/Rate	$893,328,166	18.3%
Taxes	$733,643,627	15.0%
Use of Unrestricted Net Assets and Reserves	$730,719,989	14.8%
2011 Realignment	$304,905,462	6.2%
1991 Realignment	$209,149,972	4.3%
Operating Transfers In	$213,179,591	4.4%
Other Revenue	$122,895,072	2.5%
General Fund Balance	$110,316,025	2.3%
Total Revenue	*$4,891,210,614*	*100.0%*
Fiscal Requirements		
Operating Expenses	$2,350,550,339	45.2%
Staffing Expenses	$1,839,470,445	35.4%
Contingencies	$405,431,629	7.8%
Capital Expenditures	$324,348,910	6.2%
Operating Transfers Out	$233,341,714	4.5%
Contributions to Reserves	$48,227,450	0.9%
Total Requirements	*$4,891,210,614*	*100.0%*

Source: County of San Bernardino, 2014

3.2.3 Environmental Justice

3.2.3.1 Defining Environmental Justice Populations

In 1994, Executive Order 12898 directed federal agencies to identify and address the disproportionate effects of their actions on minority and low-income populations. Environmental justice is a mandatory element to be considered in all BLM land use planning and environmental review documents.

Minority populations are defined as:

> …individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic (without double-counting non-white Hispanics falling into the Black/African-American, Asian/Pacific Islander, and Native American categories)" (CEQ, 1997).

For purposes of this document, a minority population consists of those identifying themselves as being a member of a non-white race (or races) plus those indicating that their ethnicity is Hispanic or Latino, regardless of how they indicated race. The 2010 Census asked individuals to indicate if they were ethnically Hispanic or Latino, and also asked people to indicate their race or races. These separate questions resulted in some people indicating that ethnically they considered themselves Hispanic or Latino and racially they considered themselves white, while others indicating a Hispanic or Latino ethnicity indicated different races from white, including "Other." To be conservative, all persons indicating a Hispanic or Latino ethnicity are included in the minority population race count, regardless of whether they indicated their race as white or another classification.

Low-income populations are defined as "Populations with a mean annual income below the annual statistical poverty level" (CEQ, 1997).

Council on Environmental Quality (CEQ) guidance does not provide a discrete monetary threshold for determining when a low-income population should be identified for environmental justice. For this analysis, low-income population was determined by utilizing the U.S. Census data for persons "below poverty level."

Utilizing the methods presented by the CEQ and U.S. Environmental Protection Agency (EPA) *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses,* an environmental justice population of concern has been identified when the percentage of minority or low-income population of the potentially affected area is greater than that of the larger respective geographic area (i.e., incorporated cities or unincorporated San Bernardino County). For example, any U.S. Census tract within the study area that contains a minority or low-income population greater than that of the city (or San Bernardino County) in which it is located has been identified as an environmental justice area of concern.

3.2.3.2 Minority Population

To provide regional context, Table 3.2-7 provides data on total population, minority population, and minority percentage for San Bernardino County and local communities within the study area. Based on Table 3.2-7, the local communities do not have minority populations greater than San Bernardino County as a whole.

Table 3.2-7. 2012 Minority Population by Jurisdiction

Jurisdiction	Total Population	Minority Population	Percent Minority
San Bernardino County	**2,041,029**	**1,363,925**	**66.8%**
Hesperia	89,703	52,097	58.1%
Apple Valley	69,155	29,203	42.2%
Barstow	22,836	15,020	65.8%

Source: U.S. Census Bureau, 2014

Table 3.2-8 presents the minority population for each U.S. Census tract within the study area. Census tracts are presented below for the larger geography within which the majority of their boundary is located. While Census tract 103 contains a portion of the City of Barstow, the majority of this tract boundary is located within unincorporated San Bernardino County. Therefore, the minority population of this tract is compared against that of the County. As shown, no Census tracts contain a minority population greater than the larger geography in which they are located.

Table 3.2-8. 2012 Minority Population by Census Tract

Census Tract Number	Total Population	Minority Population	Percent Minority
San Bernardino County	**2,041,029**	**1,363,925**	**66.8%**
Census Tract 97.08	4,498	1,405	31.2%
Census Tract 100.17	14,479	8,718	60.2%
Census Tract 103	3,692	1,496	40.5%
Census Tract 117	1,720	979	56.9%
Census Tract 118	7,391	4,077	55.1%
Census Tract 121.04	5,853	2,713	46.4%

Table 3.2-8. 2012 Minority Population by Census Tract			
Census Tract Number	**Total Population**	**Minority Population**	**Percent Minority**
Hesperia	**89,703**	**52,097**	**58.1%**
Census Tract 100.19	5,507	3,154	57.3%
Census Tract 100.20	6,969	3,730	53.5%
Census Tract 100.21	6,539	3,289	50.3%
Census Tract 100.22	3,958	1,249	31.6%
Census Tract 100.23	5,836	2,649	45.4%
Census Tract 100.24	5,062	1,849	36.5%
Apple Valley	**69,155**	**29,203**	**42.2%**
Census Tract 97.07	6,303	2,063	32.7%

Source: U.S. Census Bureau, 2014

3.2.3.3 Low-Income Population

To provide regional context, Table 3.2-9 shows the population below poverty level for San Bernardino County and local communities within the study area. All local affected communities have persons identified as living below poverty levels that are greater than San Bernardino County's poverty level as a whole. Note that cells in the table below are shaded to highlight where the poverty level percentage is greater than the larger comparative geography.

Table 3.2-9. 2012 Population with Income Below Poverty Level by Jurisdiction			
Jurisdiction	**Population [1]**	**Population Below Poverty Level**	**Percent Below Poverty Level**
San Bernardino County	1,995,666	350,982	17.6%
Hesperia	88,846	20,498	23.1%
Apple Valley	68,637	14,259	20.8%
Barstow	22,530	5,481	24.3%

Source: U.S. Census Bureau, 2014

Note(s):

1. When calculating the number of persons living below the poverty line, the Census omits persons in group living situations such as group homes, institutions, jails, etc. This results in a slightly smaller total population.
2. Cells are shaded to highlight where the poverty level percentage is greater than the larger comparative geography.

Table 3.2-10 presents the low-income population for each U.S. Census tract within the study area. Census tracts are presented below for the larger geography within which the majority of their boundary is located. A number of Census tracts contain a low-income population percentage greater than the larger geography in which they are located. These highlighted (in gray) Census tracts represent the environmental justice areas of concern. The location of these tracts relative to the study area is shown in Figure 3.2-1.

Table 3.2-10. 2012 Population with Income Below Poverty Level by Census Tract			
Census Tract	**Population[1]**	**Population Below Poverty Level**	**Percent Below Poverty Level**
San Bernardino County	**1,995,666**	**350,982**	**17.6%**
Census Tract 97.08	4,498	772	17.2%
Census Tract 100.17	14,286	2,066	14.5%
Census Tract 103	3,520	802	22.8%
Census Tract 117	1,681	358	21.3%
Census Tract 118	7,391	1,212	16.4%
Census Tract 121.04	5,744	1,371	23.9%

Table 3.2-10. 2012 Population with Income Below Poverty Level by Census Tract			
Census Tract	**Population[1]**	**Population Below Poverty Level**	**Percent Below Poverty Level**
Hesperia	**88,846**	**20,498**	**23.1%**
Census Tract 100.19	5,408	1,561	28.9%
Census Tract 100.20	6,969	1,716	24.6%
Census Tract 100.21	6,465	1,915	29.6%
Census Tract 100.22	3,945	587	14.9%
Census Tract 100.23	5,806	693	11.9%
Census Tract 100.24	5,041	1,168	23.2%
Apple Valley	**68,637**	**14,259**	**20.8%**
Census Tract 97.07	6,154	918	14.9%

Source: U.S. Census Bureau, 2014

1. When calculating the number of persons living below the poverty line, the Census omits persons in group living situations such as group homes, institutions, jails, etc. This results in a slightly smaller total population.
2. Cells are shaded to highlight where the poverly level percentage is greater than the larger comparative geography.

3.3 Cultural Resources

3.3.1 Introduction

Cultural resources are places or objects that are important for historical, scientific, and religious reasons and are of concern to cultures, communities, groups, or individuals. These resources may include archaeological sites and other artifacts that provide evidence of past human activity, buildings and architectural remains, human remains, or Traditional Cultural Properties (TCPs). This section describes cultural resources that occur in the study area. The "study area" encompasses the general area from Pisgah Crater west along the I-40/old Route 66 corridor to the Daggett area, and south through the Stoddard, North Lucerne, Lucerne, and Apple valleys to Hesperia. This section also provides the results of background research and field surveys along the previously proposed Coolwater-Lugo Transmission Project (CLTP) corridors (see Section 1, Introduction, for more information regarding the former CLTP). Although this project proposal was withdrawn in 2015, several years' worth of data collection had already occurred; these data provide important information about the resources in the region. The types of resources that are found within the Area of Potential Effects (APE) of the former CLTP are similar to those found within the broader geographic region. The term "survey area" is used in this section to refer to the area surveyed for the former CLTP; details are provided below under "Inventory Methods".

The information and analysis that is presented in this section has been derived from the *Proponent's Environmental Assessment* (SCE, 2013), along with the *Class III Cultural Resources Inventory for Southern California Edison's Coolwater-Lugo Transmission Project, San Bernardino County, California: Prehistoric and Historic Period Archaeological Resources Survey Report (Jackson et al., 2015) and – Class III Cultural Resources Inventory for Southern California Edison's Coolwater-Lugo Transmission Project, San Bernardino County, California: Historic Built Environment Survey Report* (Tinsley-Becker et al., 2015). While this section compiles data about individual cultural resources, the sensitive nature of these resources requires that detailed information about the locations of these resources not be disclosed to the public. Therefore, location data are not provided in this MEA to ensure the protection of culturally sensitive sites.

3.3.2 Approach to Data Collection

3.3.2.1 Records Search

An archival and records search was conducted for the study area at the San Bernardino Archaeological Information Center (SBAIC). Geographic information system (GIS) data was obtained regarding the locations of known cultural resources documented in the California Historical Resources Information System (CHRIS). Pacific Legacy, Inc. conducted the archival and records search encompassing a one-mile radius surrounding the previously proposed CLTP components. Sources consulted also included lists of national, state, and local registered sites, historical landmarks, and points of historical interest. A records search also was conducted on May 6, 2013 at the Marine Corp Logistics Base Barstow (MCLBB) for areas within the base.

The records search involved checking the thoroughness and accuracy of the previous 2011 records search conducted for the CLTP Siting Study Area, and collecting and digitizing all available documentation of all recorded resources within the more restricted one-mile radius records search area. The records search spatial data were digitized from the site record location and sketch maps into ESRI's shapefile format for use in ArcGIS software.

The results of the records search at the SBAIC and MCLBB identified 1,214 previously recorded resources that fall within the one-mile search area around the former CLTP. A total of 345 previously conducted projects were identified within the records search area.

3.3.2.2 Inventory Methods

Cultural resource investigations are defined along a gradient according to the intensity of research performed (i.e., BLM Class I Inventory – literature search, BLM Class II Inventory – reconnaissance inventory, BLM Class III Inventory – intensive cultural resources inventory [BLM 8100 Manual]). Accordingly, the geographic scope of the investigation reflects the level of research performed as the target area is narrowed; a broad literature search warrants a larger search area than an intensive field inventory. For the former CLTP, prior to initiation of fieldwork, Pacific Legacy, Inc. completed a BLM Class I background study for a one-mile-wide radius surrounding the proposed ROW. The purpose of the BLM Class I study was to identify known cultural resources that could be impacted by that proposed project. A BLM Class III archaeological inventory (field survey) was conducted in 2012-2014, with the goal of identifying previously unrecorded cultural resources, and updating records for previously recorded resources. Generally, the Class III inventory was conducted along corridors no less than 500 feet wide along the proposed and alternative T/L segments of the former CLTP, and within a 1,000-foot radius of inflection points identified by SCE. A total of 18,373 acres were surveyed as part of the Class III inventory. The survey area was a subset of the greater study area described in this MEA.

The protocols of the Class I Existing Information Survey and the Class III Intensive Field Survey were designed to meet or exceed the standards established by the BLM Manual 8100, *The Foundations for Managing Cultural Resources* (BLM, 2004a) and the BLM Manual 8110, *Identifying and Evaluating Cultural Resources* (BLM, 2004b). The specific inventory methods were established in consultation with Jim Shearer, Archaeologist, BLM Barstow Field Office; representatives of San Manuel Band of Mission Indians; and SCE Project Archaeologists. These methods were modified during ongoing consultation with the BLM, SCE, and interested Native American groups. Although these surveys were conducted for a specific project, the results are representative of the resources found throughout the study area.

The primary objectives of the archaeological survey were to (1) identify the locations of previously recorded archaeological resources and describe their current condition; (2) identify archaeological resources not previously documented within the survey area; and (3) collect information useful for making recommendations regarding CRHR or NRHP eligibility of each resource. No artifacts were collected during the Class III survey efforts.

For the most part, recommendations regarding CRHR or NRHP eligibility were made on the basis of surface examination, and, in the case of the historic-era archaeological sites, through additional archival research. However, twelve sites were subject to archaeological testing to acquire data to assist in making assessments regarding their historical significance. The sites selected for excavation and the methods employed were approved by the BLM, the CPUC, and the San Manuel Band of Mission Indians prior to fieldwork. Pacific Legacy, Inc. used a variety of excavation techniques depending on the nature of the site. Unit types included 2 x 2 meter surface scrapes (dug to 10 centimeters), 50 x 50 centimeter square shovel test probes excavated in 20 centimeter levels, 1 x 1 or 1 x 2 meter units dug in 10 centimeter levels, and backhoe exploratory trenches ranging from 1.5 to 4.2 meters long and 0.6 to 4.2 meters deep.

All recovered archaeological materials were transported to Pacific Legacy's laboratory for processing. Artifacts were cleaned, sorted, identified, and accessioned in a computer-generated catalog that included pertinent fields for provenience, function, chronological information, and qualitative and quantitative descriptions. Following analysis, items were prepared for curation according to San Bernardino County Museum guidelines.

Finally, a geoarchaeological study was conducted to identify the primary geological deposits and landforms in the study area. A sensitivity model for the potential for buried archaeological deposits was also prepared as an appendix to Pacific Legacy's inventory report.

Resource Definitions. Thresholds were established for the documentation of prehistoric (defined as prior to European contact) and historic period archaeological resources. A prehistoric isolate was defined as three or fewer artifacts of the same type or two artifacts of different types in a 25-square-meter area. Any resource that has prehistoric cultural materials greater than this threshold was designated a prehistoric site. A historic period isolate was defined as fewer than 10 historic cans of a single type or fewer than 10 bottles of three different types in a 25-square-meter area. Automobile, machinery, or unidentifiable metal scraps were recorded as isolates, as were pits, holes, and other excavations with no temporally diagnostic artifacts. Any resource that has historic cultural material greater than this threshold was recorded as a historic site. For the purposes of this MEA, historic built environment resources included buildings, structures, bridges, dams, canals, aqueducts, railroads, ditches and irrigation systems, electric power conveyance facilities, and paved or unpaved roads and highways.

Pedestrian Inventory. The pedestrian survey was conducted by walking transects of the survey area at a spacing of no more than 15 meters between crew members. Each survey crew utilized a handheld Global Positioning System (GPS) unit, topographic maps, and aerial imagery to ensure they provided 100 percent coverage of the survey area, except for inaccessible areas which, with BLM approval, were excluded from survey coverage.

When a resource was encountered, the survey crew conducted a careful inspection of the vicinity, took a GPS plot of the location, and recorded information on the nature and extent of the resource. Isolated resources were fully recorded at the time of discovery, while sites were documented at a later date.

Resource Documentation. All cultural resources encountered during the pedestrian inventory were fully documented on the relevant California Department of Parks and Recreation (DPR) site record forms in keeping with procedures identified in the Instructions for Recording Historical Resources (California Office of Historic Preservation, 1995). Sketch maps were prepared for all prehistoric and historic sites, showing the extent of the resource, its constituent elements, and the relationship of the resource to other cultural and natural features in the vicinity. A submeter accuracy Trimble GPS was used to record spatial data in digital format for use in GIS software. All sites had their landscape, setting, features, and diagnostic artifacts photographed.

Results of Identification Efforts

A variety of cultural resources were identified during the records search and field surveys including prehistoric and historic-era archaeological sites (i.e., historic period homesteads and debris scatters, mine tailings and prospect pits, prehistoric lithic scatters, lithic quarry sites, heated rock features, cairns, trails, and petroglyphs/pictographs) as well as historic built environment resources (i.e., National Old Trails Road/US Route 66 among other historic roads, electric power conveyance systems, and water conveyance systems). In the context of a federally permitted undertaking, the responsible lead federal agency official must also take into account the effects of the undertaking on historic properties (i.e., properties eligible for the NRHP). To be eligible for the NRHP, a resource must meet one or more of the criteria of significance (36 CFR 60.4) and retain integrity; such resources must be managed in compliance with the Advisory Council's regulations implementing Section 106 of the NHPA, found at 36 CFR 800.

Within the State of California there are also provisions in the CEQA statutes, State CEQA Guidelines, and California Public Resources Code for the protection and preservation of significant cultural resources (i.e., "historical resources" and "unique archaeological resources"). California guidelines for assessing significant cultural resources parallel the federal criteria (Section 15064.5(a)(3) of the State CEQA Guidelines (as amended)). The State CEQA Guidelines also require consideration of unique archaeological sites (Section 15064.5) (see also Public Resources Code Section 21083.2[h]).

Resources included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified as significant in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code), also are considered "historical resources" for the purposes of CEQA. A resource must also retain the integrity of its physical identity that existed during its period of significance. Integrity is evaluated with regard to retention of location, design, setting, materials, workmanship, feeling, and association. Finally, under both federal and California State law, Native American human remains and associated grave goods are granted special significance.

Archaeological Resources

A total of 607 archaeological sites were identified in the inventory. These include 523 archaeological sites (28 of which also include a historic built environment component) and 84 isolates. The archaeological sites include 228 prehistoric sites, 233 historic period sites, 23 sites with both prehistoric and historic components, and 39 resources of indeterminate age (since the nature of the resource [rock cairns, clusters, or rock rings] provides no chronological information). The Isolate inventory includes 48 prehistoric isolates, 35 historic period isolates, and one of indeterminate age. Seventy-five of the archaeological sites and three isolates were previously recorded. The remainder of the archaeological resources were identified during field surveys for the previously proposed CLTP. Of the 523

archaeological sites, including those previously recorded, fifty-one resources (8 historic, 34 prehistoric, 9 multi-component) have been determined or are recommended eligible for the NRHP and/or CRHR.

Prehistoric cultural resources encompass a variety of site types including habitation sites, lithic scatters, milling sites, stone features, and trails. These resources are dominated by flaked stone lithic scatters reflecting different reduction and tool-manufacturing stages, particularly in cobble quarry areas and especially on desert pavement. A number of these sites also contain ground stone artifacts with a few occurrences of hearths, bedrock milling features, and various patterns of landscape rock features. Obsidian is found infrequently at prehistoric archaeological sites in the study area. This finding suggests that the resident lithic technicians had developed appropriate techniques for utilizing local lithic sources that made the acquisition of non-local obsidian materials unnecessary.

Historical archaeological resources include relic structural remains, mines and mining related features, refuse dumps, and artifact scatters. The historic-era archaeological resources found during investigations for the former CLTP consist primarily of debris scatters. Additional resource types include cairns and rock piles, benchmarks and survey markers, prospecting pits, and homestead sites consisting of building foundations and associated debris. Of particular note is the historical archaeological site CA-SBR-321, which is located in the vicinity of the skirmish between Native Americans and American settlers near Chimney Rock in 1867. Chimney Rock itself is California Historical Landmark 737 (P-36-015508). Chimney Rock is located in Lucerne Valley.

Historical Built Environment Resources

A total of 105 historic period built environment resources were identified through the Class III inventory process. Of these, 41 were previously documented while 64 were newly identified during the Class III survey. All 105 resources were documented and evaluated for historical significance and potential listing on the NRHP and CRHR. Of these, 7 have already been determined eligible for listing in the NRHP and are listed on the CRHR, 9 have been recommended eligible for listing in the NRHP and CRHR, and 88 have been recommended not eligible for listing in the NRHP and CRHR. One additional resource, the Mojave Road/Mojave Trail, has been designated as a California Historic Landmark and as such, is automatically listed on the CRHR.

The National Old Trails Road/US Route 66 (P-36-002910/CA-SBR-2910H) is an individual property that has been determined eligible for listing in the NRHP/CRHR by consensus through the Section 106 process (code 2S2). The road segments in the northern study area represent the original alignment of the road (1914- ca. 1930) and the highway's development through the Mojave Desert region as part of the ca. 1930-1932 realignment campaign when the original National Old Trails Road was being transformed into a portion of US Route 66. The National Old Trails Road is significant as an early automobile transportation route across the Mojave Desert, and as an early route for the historically significant US Route 66. It is a main transportation corridor through the region associated with transportation, exploration, and settlement. In 2007, the World Monuments Fund listed Route 66 as one of 100 most endangered historically significant sites in the world. Route 66 is variously known as the "Mother Road," and, although sections of Route 66 diverge from the alignment of the National Old Trails Road, these resources have been recorded under the same resource designation (CA-SBR-2910H).

A second roadway, State Route (SR) 247 (P-36-028005/CA-SBR-17465H), also known as the Barstow Road, has been recommended as eligible for listing in the NRHP as an individual property through survey evaluation (code 3S) for its use as the primary transportation corridor through the region prior

to being outmoded by US Route 66. This in-use roadway is historically known as Old Woman Springs Road. Constructed in 1910, the road historically served as a main artery providing access and connection to the communities between the Yucca Valley and the Lucerne Valley. The two recorded segments of Barstow Road were built between c. 1911 and 1921 and 1944 and 1952, and represent the early part of, and the end of the road's period of significance, respectively.

Stoddard Wells Road in Stoddard Valley (P-36-009360/CA-SBR-9360H) is an early wagon road built in 1867 that served as the main road between Victorville and Daggett until 1930's when US Route 66 became the main route. It is recommended eligible for listing in the NRHP for its use as a significant bypass route. Another wagon road, Sidewinder Road Sidewinder Road (P-36-009361/CA-SBR-9361H), is recommended eligible for listing in the NRHP/CRHR for its association with the early history of transportation in California. This road in the northern study area was in place prior to 1883 and served as an early wagon route from Barstow to Victorville via the Sidewinder Mine. Camp Rock Road /Terry Road (P-36-028051) is a 40-mile span of road that crosses through the northern study area. The resource is recommended eligible for listing in the NRHP for its association with transportation in the Mojave Desert region with a period of significance of 1930-ca. 1956.

The East Branch of the California Aqueduct (P-36-021351) crosses the western portion of the study area in the Hesperia area. The East Branch was constructed between 1966 and 1973 and is a 98-mile long segment of the 444-mile long California Aqueduct system. This resource has been formally determined eligible for the NRHP and CRHR under Criterion 1/A for its association with the history of water systems development in California and under Criterion C/3 for its engineering and design (Anderson, 2009). Although the resource was not 50 years old at the time it was recommended eligible for listing in the NRHP/CRHR, it was evaluated under Criterion G of the NRHP because it may have achieved significance in the past 50 years in the context of California water conveyance systems.

Four segments of the historic Atchison Topeka and Santa Fe (AT&SF) Railroad line and a trestle bridge (P-36-006693/CA-SBR-6693H) were recorded in the Barstow-Daggett area. The railroad line was originally built in 1883 for the Atlantic and Pacific Railroad Company by the Southern Pacific Railroad Company, established in 1865. The AT&SF Railroad, which operated between 1890 and 1996, subsequently purchased the line in 1890. Recently, it was purchased by the Burlington Northern & Santa Fe Railroad (BNSF).. Throughout the development history of the AT&SF, Native Americans from the southwest were recruited to lay track for the expansion of the railroad. Their involvement made a substantial and important contribution to the railroad's construction. The AT&SF Railroad has been determined eligible for listing in the NRHP by consensus through the Section 106 process (code 2S2) for its association with the history of transportation in California.

The Daggett Ditch (P-36-007883/CA-SBR-7883H) was a large-scale water conveyance system that was instrumental in the development of agriculture, mining, and domestic land uses in the region, and it is credited with helping the Daggett Ranch to become the first large area of the Mojave Desert to be irrigated for agriculture. This resource was listed on the CRHR in 2002 and determined eligible for listing on the NRHP in 2010 under Criteria A/1 and C/3. During the CLTP inventory, a 10-foot portion of the original Daggett Ditch was recorded along with a 1,600-foot long lateral ditch that had not been previously documented. The lateral ditch was found to be a contributing element to the overall eligibility of the resource.

Several electrical transmission lines and substations in the study area are more than 45 years old and are either listed in the NRHP or may qualify for listing in the NRHP or CRHR (see Table 23-1, Tinsley-Becker et al., 2015*)*. Three transmission lines (Victor-Aqueduct-Phelan, Gale-PS 512, and Coolwater-

Gale) represent modern-day segments of the historic SCE Boulder Dam-San Bernardino Transmission Line (P-36-010315/CA-SBR-10315H); these resources are listed on the NRHP and CRHR. Built by the Southern Sierras Power Company, the transmission line initially conveyed power to Boulder Dam for construction purposes, and then was later reversed to carry electricity to San Bernardino once Boulder Dam was completed and operational. The line helped to industrialize southern California.

Two additional transmission lines (Victor-Apple Valley-Hesperia and Calectric-Victor No. 2) are part of the Bishop Creek Control-San Bernardino Transmission Line (P-36-010316/CA-SBR-10316H). This historic line was installed ca. 1912 to convey electricity from the Southern Sierras Power Company Bishop Creek Hydroelectric System to the San Bernardino region. Commonly referred to as the Tower Line, this transmission line has been determined eligible for listing in the NRHP and is listed in the CRHR.

The LADWP Boulder Dam-Los Angeles Transmission Lines (P-36-007694/CA-SBR-7694H) were constructed in 1936 and are known today as the Mead-Victorville No. 1, the McCullough-Victorville No. 2, and the McCullough-Victorville No. 3 Transmission Lines. The Mead-Victorville No. 1 and the McCullough-Victorville No. 2 Transmission Lines were determined eligible for listing in the NRHP for their unique engineering and structural characteristics within the context of high power transmission development in California between 1890 and 1936, as well as their association with the construction of Boulder Dam. The McCullough-Victorville No. 3 Transmission Line was recognized as non-contributing element to the resource. An associated access road, Powerline Road/Stoddard Valley Road (P-36-023423/CA-SBR-14798H), has been defined as a contributing element to or character defining feature of the transmission line.

Lastly, the Lugo-Pisgah No. 1 and No. 2 Transmission Lines, which are commonly referred to as the SCE Boulder Dam – Chino North and South Transmission lines, and the historical Chino-Hayfield 220 kV Transmission Line (P-36-014876/CA-SBR-13115H), all are recommended eligible for listing on the NRHP/CRHR for a direct association with the Boulder Dam/Hoover Dam construction and hydroelectric generation project, and for serving as the first two SCE lines to transmit high voltage electricity to the Los Angeles region (Criterion A/1).

3.3.3 Environmental Setting

The following discussion is excerpted from the *Class III Cultural Resources Inventory for Southern California Edison's Coolwater-Lugo Transmission Project, San Bernardino County, California: Prehistoric and Historic Period Archaeological Resources Survey Report,* prepared by Pacific Legacy, Inc. (2015) and the *Proponent's Environmental Assessment* (SCE, 2013); it has been independently reviewed and verified as accurate by the MEA consultants.

3.3.3.1 Natural Setting

The study area is in the Mojave Desert, which itself is part of the Basin and Range physiographic province, a region composed of isolated mountain ranges rising abruptly from the broad alluvial valleys of the desert. Much of the province is bounded to the north by the left-lateral Garlock Fault and to the south by the right-lateral San Andreas Fault. The Mojave Desert borders the Transverse Ranges and the Colorado Desert provinces, located to the northwest and southwest, respectively. The Sierra Nevada and the Basin and Range provinces create the northern boundary, and the Colorado River and Nevada state line establish the eastern boundary (Norris and Webb, 1990).

The central Mojave Desert is characterized by valleys and scattered, isolated mountain blocks that are mostly lower than 2,000 meters (6,560 feet) in elevation. The central Mojave Desert roughly coincides with the Mojave River Valley, including the region between Victorville and Barstow and extends east to Soda dry lake and Baker and south to Joshua Tree National Park. Valley floor elevations range from approximately 300 meters (984 feet) to more than 1,000 meters (3,281 feet). Surface drainage tends to be internal, with most of the runoff flowing inward from all directions into dry playas.

Drainage is generally in the form of rapid runoff following occasional cloudbursts. Playas may be covered by water from this runoff for as long as two months per year. The Mojave Desert typically receives trace levels of precipitation and is characterized by low humidity, wide diurnal temperature ranges, average high July temperature (40.6 degrees Centigrade [°C]; 105 degrees Fahrenheit [°F]) and average low December temperature (2.2°C; 36°F), and strong seasonal winds. Cool season precipitation (October through April) averages 10 centimeters (4 inches) per year. Warm season precipitation (July through October) averages about 3 centimeters (1.3 inches) per year, but can be characterized by violent convectional downpours causing flash floods and deep landform incisions.

Common landforms of the piedmont slope in the Mojave Desert include active washes, alluvial fans, pediments, and fan piedmonts (bajadas), while those on valley floors generally include playas, playa margins, axial washes, and sand dunes. Aridisols and Entisols are the dominant soil orders in the Mojave Desert (USDA-NRCS, 2012). Mollisols are also found in the southern portion of the study area, especially in uplands of the San Bernardino Mountains. Soils in the Mojave Desert generally have a thermic soil temperature regime, an aridic soil moisture regime, and mixed or carbonatic mineralogy. Desert pavement is often most developed on intact Pleistocene surfaces, and less developed on Holocene ones. The surfaces of eroded Pleistocene landforms often have a patchy mix of well-developed and destroyed desert pavements.

The flora of the Mojave Desert is fairly homogeneous, with four primary plant associations: Mojave creosote scrub, desert saltbush scrub, Mojave wash scrub, and blackbrush scrub. These generalized floristic groups include complexes of shrubs, grasses, herbs, succulents, and semi-succulents that supplied aboriginal populations with a range of food, raw materials, medicinal plants, and ritual products. The most characteristic plant is creosote bush (*Larrea tridentata*), a hardy, long-lived shrub that thrives in coarse, well-drained, non-saline soils on basin floors, alluvial fans, and upland slopes at elevations up to 1,200 meters (3,937 feet) in some interior areas. Mojave Desert fauna are diverse and include many animals that were likely exploited by prehistoric populations. The most prevalent are reptiles, rodents, small carnivores, and birds.

Reptiles like the desert tortoise (*Gopherus agassizii*), western banded gecko (*Coleonyx variegatus*), common chuckwalla (*Sauromalus obesus*), desert iguana (*Diposaurus dorsalis*), coach whip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), and sidewinder (*C. cerasters*); lagomorphs such as the black-tailed jackrabbit (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*); rodents such as the antelope ground squirrel (*Ammospermophilus leucurus*), desert kangaroo rat (*Dipodomys deserti*), and desert woodrat (*Neotoma lepida*); and carnivores like the coyote (*Canis latrans*) and kit fox (*Vulpes macrotis*) are by far the most common. Migratory waterfowl (e.g., *Anas* spp.) are occasional visitors to episodic playa lakes as well.

3.3.3.2 Prehistoric Cultural Context

Over the past decades, a number of cultural sequences covering the Mojave Desert have been developed by various researchers and subsequently modified. Warren and Crabtree's sequence (1986)

provides one of the more enduring schemes and is the one used here. The sequence consists of five periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Protohistoric (SCE, 2013).

Lake Mojave Period (Paleo-Indian and Early Archaic; ca. 12,000 – 7000 B.P.)

The Lake Mojave complex represents the earliest known human occupation in the Mojave Desert region, beginning about 12,000 years before present (B.P.). Considered a Paleo-Indian assemblage, it is thought to be ancestral to Early Archaic cultures of the subsequent Pinto period (Warren and Crabtree 1986). This era, at the close of the Pleistocene, was a time of extreme environmental change as the relatively cool and moist conditions of the terminal Wisconsin glacial age were gradually replaced by the warmer and drier conditions of the Holocene (SCE, 2013).

Pinto Period (Middle Archaic; ca. 7000 – 4000 B.P.)

The transition from pluvial to arid conditions at the end of the early Holocene appears to have been one of the most extreme environmental changes in the southern Great Basin during post-Pleistocene times. Warren (1984) sees the cultural manifestations of this period as indicative of adaptation to increasing aridity. As the Pleistocene lakes and rivers dried up and plant and animal life changed, human populations adapted or withdrew to more desirable areas. The appearance of flat milling stones and handstones is thought to relate to the exploitation of hard seeds, which is seen as part of a process of subsistence diversification brought on by increased aridity and reduced ecosystem carrying capacity (SCE, 2013).

Gypsum Period (Late Archaic; ca. 4000 – 1500 B.P.)

Gradual amelioration of the climate began by around 5000 B.P., culminating in the Neoglacial at about 3600 B.P. The Gypsum period was a time of population increase and broadening economic activities, likely a result of continued technological adaptation to the desert environment. Hunting continued to be an important subsistence activity, but the increase in the occurrence and diversity of ground stone artifacts indicates that plant foods were becoming a more important subsistence item (SCE, 2013).

Saratoga Springs Period (ca. 1500 – 750 B.P.)

Sometime after 2000 B.P., smaller projectile points began to dominate assemblages in parts of the Mojave Desert and southern Great Basin. This corresponds with the introduction of the bow and arrow by at least 1350 B.P., likely increasing the efficiency of hunting and perhaps indicating a shift from larger to smaller game. The Saratoga Springs period was a time of marked regional diversification. Evidence for Ancestral Puebloan influence or occupation is present in the occurrence of pottery, which has been found as far west as the Halloran Spring site and the Cronese Basin in California; but in the remainder of the Mojave Desert region, sites of this period seem to exhibit general continuity with the Gypsum pattern (SCE, 2013).

Protohistoric Period (750 B.P. to Contact)

The Protohistoric era, a transitional period between the prehistoric and the historic, began ca. 700 B.P. and lasted until first contact with European people. Cultural developments established earlier during the Saratoga Springs period continued with some modifications. Diagnostic artifacts for this period are Desert Side-notched points and various poorly defined types of brown ware pottery (SCE, 2013).

3.3.3.3 Ethnographic Context

Desert Serrano Occupation of the Mojave River Region

Both the upper and lower reaches of the Mojave River were occupied by Serrano-speaking groups that formed a desert division of the Serrano, also referred to in the ethnographic literature as the Vanyumé. Several authors have discussed this division and its relation to Serrano clans located farther south in the San Bernardino Valley and Mountains. Spanish expeditions as early as 1776 and continuing through the early 1800s, as well as work by Alfred Kroeber and others in the early 20th century, document numerous ethnographic Serrano villages in the region, as well as trails, place names, quarries, and an exploited salt deposit. These places are often associated with sources of water, including named springs and the Mojave River itself (SCE, 2013).

The Serrano communities of the Mojave River region appear to have shared a common social organization with other Serrano communities to which they were linked by intermarriage. The Serrano occupied permanent winter village sites that featured the chief's house, a fiesta enclosure or dance house, a sweat lodge, and a cemetery. Serrano winter villages were the centers or “capitals” of clan, or kinship-based, territories. Individual clans were politically independent and territorial. During the spring, summer, and fall, family groups would spend considerable time away from the winter village in temporary gathering camps.

Desert Serrano settlements along the Mojave River took advantage of several important local food resources, including juniper berries (wa'at) in juniper woodland areas south of Hesperia and north of Cajon Pass, edible yucca in the foothills of the transverse ranges and in mountain slope areas farther to the north, blossoms and fruit of Joshua trees, Mojave River islay (*Prunus ilicifolia*) fruits, carrizo grass sugar (*Phragmites*), cattail root, and chia sage seeds. The key, however, to maintaining relatively large populations in the river villages appears to have been the importation of acorns and pinyon pine nuts down river from the Transverse Ranges. The Serrano also hunted cottontail rabbits and jackrabbits, desert bighorn, and pronghorn.

The occupation of territory and a string of village sites along the Mojave River by the Serrano are assumed to have been at least facilitated by the use of the Mojave River Trail as a major exchange corridor between the Pacific coast and the Southwest. The existence of reciprocal ties of food and other gift exchange with trading parties appears likely for Serrano communities on the river trail (SCE, 2013).

Chemehuevi Associations with the Study Area

Other native groups aside from the Desert Serrano can also be associated with the study area in protohistoric and historic times. The Chemehuevi, a branch of the Southern Paiutes, sometimes traveled through the area prior to the departure of Serrano-speakers from the Mojave River settlements by the 1830s. By the decade of the 1830s, Chemehuevi groups moved into the lower and upper Mojave River regions on a more permanent basis. In the later 19th century, Chemehuevi chiefs claimed the lower Mojave River, and a largely Chemehuevi community developed in Victorville before 1900, persisting into the 1950s. They were also settled at the oasis of Mara at Twentynine Palms. Chemehuevi following a traditional hunting lifestyle were still living in the Newberry Springs area as late as 1904. This regional presence of Chemehuevis was part of a larger movement of Chemehuevis out of their desert territory in eastern California and southwestern Nevada after 1830. They settled on the Colorado River and took up flood farming, and also moved southwesterly across the Mojave Desert

toward the coast. In the late 19th and early 20th centuries, the Chemehuevi in Victorville and in the Antelope Valley were also intermarried and intermingled with Kawaiisu, some of whom had previously lived in the Tehachapi Valley. These two groups were linguistically and culturally closely related. Several mixed groups lived in the San Gabriel Mountains foothills west of Cajon Pass in the 1880s (SCE, 2013).

Mojave Associations with the Study Area

The Mojaves and related Yuman-speakers of the lower Colorado River were associated with the study area in several ways. Groups of young male Mojaves frequently traveled the Mojave River Trail en route to and from the southern California coastal region to obtain shell beads in exchange for items carried westward. The Mojaves' visits to places far distant from their Colorado River homeland are reflected in their sacred stories and religious beliefs. Sacred sites located hundreds of miles from Mojave Valley were important elements in Mojave religious belief. In addition to their direct association with the Mojave River, the Mojaves also referred to the former occupation of the lower Mojave River area (including Newberry Springs) by a historically unidentified group that they called the "Land Mojaves," "Lake-Mojaves," or "Desert Mojaves." Both Mojave and Chemehuevi accounts refer to this group, and do so in such a way as to suggest that this occupation was historically relatively recent, though likely predating the first Spanish expedition to the area in the 1770s (SCE, 2013).

3.3.3.4 Historical Context

Spanish Missionization and the Mojave Desert Frontier

Although the exploration of Father Garcés in the 1770s crossed through the Mojave Desert, more focused expeditions began in 1806, and again in 1808, with the goal of rounding up natives who had fled from Mission San Gabriel. After an 1810 revolt attempt, Spanish military forces launched what appears to have been a roundup campaign in the upper Mojave River region, bringing many Serranos into Mission San Gabriel by force in the spring of 1811. In 1816, another Spanish expedition descended the river and appears to have rounded up more people. In 1819, a Mojave attack was attempted, in revenge for Mojave shell bead traders having been attacked at Mission San Buenaventura. In the 1810s, upper Mojave River native villages were partially depopulated by voluntary or forced movement of Serrano to Missions San Fernando and San Gabriel. The Chemehuevis and Mojaves remained beyond the reach of the Spanish missionaries and do not show up in the mission baptismal registers (SCE, 2013).

Settlement of the Mojave River After 1820

As late as the late 1820s, Desert or Vanyumé Serrano were still living on the upper Mojave River, near modern Victorville and Hesperia. Jedediah Smith visited a settlement of Desert Serranos in November of 1826. This was probably near Victorville Narrows. It appears that at least one other group of Vanyumé or Desert Serrano could also be found in the Daggett-Barstow area at this time.

New Mexican trader Antonio Armijo had laid out a caravan route from Los Angeles to Santa Fe in 1829–1830. The yearly caravans bearing California saddle stock to Santa Fe passed down the upper Mojave River and crossed the Mojave Desert in the spring. At the same time, the Mojave River route was used by native stock raiders who used Cajon Pass as a point of entry to the stock ranchos on the coastal side of the Transverse Ranges. During the 1830s and 1840s, Chemehuevi/Southern Paiutes occupied campsites in the Mojave River region and across the Antelope Valley to the west.

With American conquest of California and then the onset of the California Gold Rush in 1848–1849, use of the Mojave River Trail increased dramatically. A variant of the original Armijo Trail passing across Fort Irwin en route to southern Nevada and Utah became known as the Salt Lake Road. Some Gold Rush-era emigrants passed through Salt Lake on their trek to California, and some used the Salt Lake-Las Vegas-Mojave River-Los Angeles route. With the founding of San Bernardino in 1851 by Mormons sent from Salt Lake to establish a Pacific coast supply base, this trail was even more frequently used. Nevertheless, at the time of the Williamson Railroad Survey in 1853–1854, the upper and lower Mojave River had not yet been settled.

In 1857, Edward Beale laid out a wagon road route from the east that crossed western Arizona and the Colorado River and then passed through the Mojave villages (Needles) and the Providence Mountains before ascending the Mojave River. This became known as the Government Road. Beginning in 1858, pioneer settlers began to establish desert ranches along the Mojave River that provided fodder, water, and supplies to travelers.

Aaron Lane was established at the original Lane's Crossing (Victorville) as early as the end of 1858. Other settlers followed by the early 1860s, establishing additional freighting stations along the river. These included Grapevine (Barstow) and, by the beginning of the 1870s, Fish Ponds (Daggett).

By this time, the native-White tension and conflict along the Mojave River Trail and the Government Road was also related to a Chemehuevi-Mojave war. The Colorado River-dwelling Chemehuevi and their one-time Mojave allies became embroiled in a major armed conflict during 1865-1867. As the Chemehuevi were better armed but vastly outnumbered, this war triggered a new diaspora of Chemehuevis westward across the Mojave Desert and northern Colorado Desert (SCE, 2013).

Mojave River Region Development, 1870-1900

By 1867–1868, the Mojave-Chemehuevi conflict had subsided and incidents on the Mojave River Trail and the Government Road had ceased by the end of the decade, and the Army's Camp Cady was closed by 1871. Mining ventures east of the Sinks of the Mojave, along with the Army's Camp Mojave and the Eldorado Mining District north of it on the Colorado River, and camps in western Arizona, brought constant wagon traffic along the upper and lower Mojave River.

The Southern Pacific Railroad had completed a southern route from San Francisco to Mojave, Los Angeles, and Yuma, Arizona by 1877. The Atlantic and Pacific Railroad, a partial subsidiary of the Atchison, Topeka, and Santa Fe, planned to build from the Midwest and New Mexico to Needles and Mojave in California, but were headed off by the Southern Pacific. The latter company built a "pre-emptive" line from Mojave to Needles in 1882–1883, establishing a major maintenance station at Daggett. Thus, the lower Mojave River now had a rail link, leading to a local surge in prospecting and mining. The Calico silver camp just north of Daggett boomed in 1882 as the rails reached the area from the west. Calico would be the largest community in the region in the 1880s, with its population peaking at around 1,000 people. The Atlantic and Pacific Railroad then established Barstow as a junction point between the Needles-Mojave line and a new line built from Barstow up the Mojave River and south through Cajon Pass to San Bernardino. In 1888, Barstow had a population of 300 people.

Cattle grazing continued, and graziers would typically homestead or otherwise acquire a spring to set up a small home ranch with enough water for gardening and perhaps production of fodder for saddle horses. Aside from stock grazing, the early agricultural development of the study area was limited to the production of hay and grain in a few river-bottom localities along the upper reaches of the Mojave River. Any further development would have been dependent on the availability of rail transportation

and the building of gravity flow irrigation systems, a process that was hindered by litigation, lack of financing, and drought.

In the early 1870s, the Ord Mountain area became a focus of prospecting. A mining district was established at Silver Mountain, northeast of Oro Grande. A new strike there in 1881 led to the establishment of the new mining town of Oro Grande. This was followed by the development of silver mining at Calico in 1882. Over $10,000,000 in silver was mined in the Calico District and Grapevine District north of Daggett and Barstow. In addition to precious metals mining, the 1880s saw the establishment of a pioneering cement works at Oro Grande. When California petroleum became available in the 1890s to fuel kilns, cement production rapidly increased in California. Plants were developed at Oro Grande and Victorville that were large producers by the 1920s (SCE, 2013).

Settlement and Development in the Twentieth Century

The 1896–1903 Southern California drought had virtually paralyzed the cattle industry in the Mojave Desert, with graziers forced to sell off their herds. It caused an exodus of farming population from more heavily settled Mojave Desert agricultural areas such as the Antelope Valley, but also affected the Mojave River area. Hesperia Township declined in population from 170 people in 1900 to 92 people a decade later, while the population of Victor Township decreased from 645 to 580. Beginning late in the first decade of the 20th century, however, the Mojave Desert and the Mojave River region experienced a major influx of would-be desert settlers.

For the Mojave River region, both abundance of subterranean water and the lift required to access it determined whether well-based irrigation would work for the new settlers. Agricultural development of some areas both to the east and west of the Mojave River was hindered by the depth to water. By contrast, just to the north in the Apple Valley region many wells were sunk before 1920 due to the shallower depth of water there. In the regions traversed by CLTP, the northern and western Lucerne Valley areas were most suitable for irrigation development, on account of a water lift of less than 80 feet.

The construction of Boulder Dam (later Hoover Dam) on the Colorado River in the 1930s involved the building of high-tension electrical T/Ls to carry electricity from the dam to Southern California. A portion of the ROW of these lines, between the Camp Rock Road vicinity and Stoddard Wells Road, is within the study area. The initial construction activity of this line dates from December of 1930.

The Depression years of the 1930s brought economic dislocation to farmers in Lucerne Valley and elsewhere, with a severe decline in agricultural commodity prices. One of the results of the hard times was a revival in gold and silver prospecting, which became a major weekend activity for Mojave Desert residents in the mid-1930s. There were also commercial efforts to develop mine prospects in the region. By the late 1930s and the 1940s, the blacktopped highway reaching Lucerne Valley from Victorville also brought tourists and hunters, and eventually led to the operation of Dude Ranches in the area after World War II.

This period of economic distress was followed in the early 1940s by a regional economic revival driven by military and war-related activities in the desert. This was to usher in a new military-industrial economy for the Mojave River area in the postwar period. The arrival of the military in the desert was to change the regional economic focus in the postwar years from dependence on railroading, mining, and agriculture to greater dependence on urban employment, including at local military installations (SCE, 2013).

3.4 Transportation and Travel Management

This section describes the environmental conditions related to transportation and travel management in the study area. Transportation facilities include the regional and local roadways, rail lines, public transit, and non-motorized transportation modes.

The approach for collecting data relative to the transportation network was to analyze Google maps, maps published by Rand McNally/Thomas Guide and the American Automobile Association, and maps from various reports and websites from the affected State and local agencies; i.e., the California Department of Transportation (Caltrans), County of San Bernardino, the City of Hesperia, and the Town of Apple Valley. Traffic volume data were obtained from agency websites and reports, and lane information was obtained from aerial photographs and field reconnaissance. For the roadways where traffic volume data are not available, the average daily traffic (ADT) volumes were estimated based on traffic counts from similar nearby roadways where counts have been taken.

The environmental setting includes roadways, rail lines, and other transportation facilities and operations in the study area. The following sections and tables present the streets and highways that are crossed by the study corridor, or run parallel and adjacent to the study corridor. The environmental setting data are presented sequentially from north to south.

3.4.1 Roadways and Rail Lines

3.4.1.1 Barstow-Daggett Area

Roadways and rail lines in the Barstow-Daggett Area are presented in Table 3.4-1. This list is not intended to be comprehensive but is representative of the area. Table 3.4-1 shows the applicable roadway/rail line characteristics and data. Regional roadways in this area include Interstate 40 (I-40) and State Route 247 (SR-247), which are under the jurisdiction of Caltrans. The other roadways are under the jurisdiction of San Bernardino County.

Table 3.4-1. Roadways and Rail Lines – Barstow-Daggett Area

Roadway	Jurisdiction	# of Lanes	ADT
Santa Fe Street	San Bernardino County	2	650
BNSF Railroad Tracks	Burlington Northern Santa Fe Railroad	2 tracks	N/A
National Trails Highway / Historic Route 66	San Bernardino County	2	1,050
Needles Freeway / I-40	Caltrans	4	14,000
Powerline Road	San Bernardino County	2 Unpaved	10 (est.)
Camp Rock Road	San Bernardino County	2 Unpaved	30
Ord Mountain Road	San Bernardino County	2 Unpaved	10
Barstow Road / SR-247	Caltrans	2	1,750
Pendleton Road	San Bernardino County	2	30
Cape Glouster Avenue	San Bernardino County	2 Unpaved	10 (est.)

Source: Caltrans, 2013; San Bernardino County, 2014

3.4.1.2 Stoddard Valley

Roadways in the Stoddard Valley are presented in Table 3.4-2. This list is not intended to be comprehensive but is representative of the area. Table 3.4-2 shows the applicable roadway

characteristics and data. The regional route in this area is SR-247, which is under the jurisdiction of Caltrans. The other roadways are under the jurisdiction of San Bernardino County.

Table 3.4-2. Roadways – Stoddard Valley

Roadway	Jurisdiction	# of Lanes	ADT
Barstow Road / SR-247 (N)	Caltrans	2	1,750
Barstow Road / SR-247 (S)	Caltrans	2	1,950
Townsend Street	San Bernardino County	2 Unpaved	10 (est.)
Stoddard Wells Road	San Bernardino County	2 Unpaved	20
Stoddard Valley Road (N)	San Bernardino County	2 Unpaved	20 (est.)
Stoddard Valley Road (S)	San Bernardino County	2 Unpaved	10 (est.)
Brack Road	San Bernardino County	2 Unpaved	10 (est.)
Meander Road	San Bernardino County	2 Unpaved	10 (est.)

Source: Caltrans, 2013; San Bernardino County, 2014

3.4.1.3 North Lucerne Valley

The roadways along the study corridor in North Lucerne Valley are presented in Table 3.4-3. This list is not intended to be comprehensive but is representative of the area. Table 3.4-3 shows the applicable roadway characteristics and data. The regional route in this area is SR-247, which is under the jurisdiction of Caltrans. The other roadways are under the jurisdiction of San Bernardino County.

Table 3.4-3. Roadways – North Lucerne Valley

Roadway	Jurisdiction	# of Lanes	ADT
Stoddard Wells Road	San Bernardino County	2 Unpaved	20
Lucerne Valley Cutoff	San Bernardino County	2 Unpaved	60
Barstow Road / SR-247	Caltrans	2	1,750
Duncan Road	San Bernardino County	2 Unpaved	10 (est.)
Selmadolph Street	San Bernardino County	2 Unpaved	10 (est.)
Lorraine Avenue	San Bernardino County	2 Unpaved	10 (est.)
Algoman Avenue	San Bernardino County	2 Unpaved	10
Brucite Street	San Bernardino County	2 Unpaved	10
Barstow Outer Highway W	San Bernardino County	2 Unpaved	50 (est.)
Spinel Street	San Bernardino County	2 Unpaved	10 (est.)
Waalew Road	San Bernardino County	2 Unpaved	30
Duncan Road	San Bernardino County	2 Unpaved	10 (est.)
Jasper Avenue	San Bernardino County	2 Unpaved	20
Spinel Street / Johnson Road	San Bernardino County	2 Unpaved	20 (est.)

Source: Caltrans, 2013; San Bernardino County, 2014.

3.4.1.4 West Lucerne Valley

Roadways along the study corridor in West Lucerne Valley are presented in Table 3.4-4. This list is not intended to be comprehensive but is representative of the area. Table 3.4-4 shows the applicable roadway/rail line characteristics and data. The regional route in this area is SR-247, which is under the jurisdiction of Caltrans. Other roadways are under the jurisdiction of San Bernardino County.

Table 3.4-4. Roadways – West Lucerne Valley			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Banta Road	San Bernardino County	2 Unpaved	20
Chuckawalla Road	San Bernardino County	2 Unpaved	20 (est.)
Venada Road	San Bernardino County	2 Unpaved	20 (est.)
Wachoota Road	San Bernardino County	2 Unpaved	20 (est.)
Cove Road	San Bernardino County	2 Unpaved	50 (est.)
Exeter Street	San Bernardino County	2 Unpaved	150

Source: San Bernardino County, 2014

3.4.1.5 Southern Apple Valley

Roadways and rail lines along the study corridor in the area of Southern Apple Valley (Granite Mountains to east of the Mojave River) are presented in Table 3.4-5. This list is not intended to be comprehensive but is representative of the area. Table 3.4-5 shows the applicable roadway/rail line characteristics and data. The regional route in this area is SR-18, which is under the jurisdiction of Caltrans. Other roadways are under the jurisdiction of San Bernardino County.

Table 3.4-5. Roadways – Southern Apple Valley			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Del Oro Road	San Bernardino County	2 Unpaved	50 (est.)
High Road	San Bernardino County	2 Unpaved	50
Joshua Road	San Bernardino County	2 Unpaved	60
Phantom Lane	San Bernardino County	2 Unpaved	20 (est.)
SR-18	Caltrans	2	9,500
Canyon View Road	San Bernardino County	2 Unpaved	20 (est.)
Bernard Road	San Bernardino County	2 Unpaved	50 (est.)
Pioneer Road	San Bernardino County	2 Unpaved	50 (est.)
Wren Street	San Bernardino County	2 Unpaved	150
Corto Road	San Bernardino County	2 Unpaved	50 (est.)
Loma Vista Road	San Bernardino County	2 Unpaved	50
Powerline Road	San Bernardino County	2 Unpaved	20 (est.)
Milpas Drive	San Bernardino County	2	870
Desert View Road	San Bernardino County	2 Unpaved	220
Laguna Seca Drive	San Bernardino County	2 Unpaved	100
BNSF Railroad Tracks	Burlington Northern Santa Fe Railroad	1 track	N/A
Barker Road	San Bernardino County	2 Unpaved	20
Bellview Avenue	San Bernardino County	2 Unpaved	20 (est.)
Bowen Ranch Road	San Bernardino County	2 Unpaved	200
Japatul Road	San Bernardino County	2 Unpaved	110
Valley Vista Avenue	San Bernardino County	2 Unpaved	190
Bonita Vista Street / Joshua Road	San Bernardino County	2 Unpaved	150 (est.)
Ocotillo Way	San Bernardino County	2	900
Cerra Vista Street	San Bernardino County	2 Unpaved	100 (est.)
Bella Vista Street	San Bernardino County	2 Unpaved	100 (est.)
Flora Vista Street	San Bernardino County	2 Unpaved	100 (est.)
Central Road	San Bernardino County	2	3,400
Buena Vista Street	San Bernardino County	2 Unpaved	100 (est.)
Mesa Vista Street	San Bernardino County	2 Unpaved	100 (est.)
Allegre Vista	San Bernardino County	2 Unpaved	100 (est.)
Roundup Way	San Bernardino County	2	2,450

Table 3.4-5. Roadways – Southern Apple Valley			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Wickup Way	San Bernardino County	2 Unpaved	20 (est.)
Cholla Road	San Bernardino County	2 Unpaved	20 (est.)
Yucca Street	San Bernardino County	2	50 (est.)
Sagebrush Street	San Bernardino County	2	100 (est.)
Joshua Street	San Bernardino County	2	100 (est.)
Juniper Street	San Bernardino County	2	100 (est.)
Mesquite Street	San Bernardino County	2 Unpaved	20 (est.)
Candlelight Street	San Bernardino County	2 Unpaved	20 (est.)
Kiowa Road	San Bernardino County	2	5,000
Van Dusen Road / Alimos Road	San Bernardino County	2	90
Shawnee Lane	San Bernardino County	2 Unpaved	50 (est.)
Windy Road	San Bernardino County	2 Unpaved	50 (est.)
Cherokee Trail	San Bernardino County	2 Unpaved	20 (est.)
Deep Creek Road	San Bernardino County	2	1,320
Castle Rock Road	San Bernardino County	2 Unpaved	40
Hinton Drive	San Bernardino County	2 Unpaved	20 (est.)

Source: San Bernardino County, 2014

In addition to the roadway segments presented above that are located in the Southern Apple Valley area, there are several roadways and intersections in the vicinity of Desert View Road/Milpas Drive where traffic data has been obtained. Table 3.4-6 lists these roadways and shows the responsible jurisdiction, the number of lanes, and the ADT for each roadway segment.

Table 3.4-6. Access Roads near Desert View Road/Milpas Drive, Lucerne Valley			
Roadway/Segment	**Jurisdiction**	**# of Lanes**	**ADT**
SR-18 / Happy Trails Highway			
Northwest of Navajo Road	Caltrans	4	18,600
Navajo Road to Central Road	Caltrans	4	11,700
Central Road to Bear Valley Road	Caltrans	2	4,900
SR-18			
Bear Valley Road to Rabbit Springs Road	Caltrans	2	9,500
East of Rabbit Springs Road	Caltrans	2	8,000
Bear Valley Road			
West of SR-18	Town of Apple Valley / San Bernardino County	2	6,510
Milpas Drive			
South of SR-18	San Bernardino County	2	1,180
Japatul Road			
South of Bear Valley Road	San Bernardino County	2 Unpaved	10
Pioneer Road			
South of SR-18	San Bernardino County	2 Unpaved	10 (est.)

Source: Caltrans, 2013; San Bernardino County, 2014

Table 3.4-7 lists intersections in the vicinity of Desert View Road/Milpas Drive and shows the responsible jurisdiction and the existing type of traffic control for each intersection.

Table 3.4-7. Intersections in Vicinity of Desert View Substations		
Intersection	**Jurisdiction**	**Type of Traffic Control**
SR-18 (Happy Trails Highway / Navajo Road	Caltrans	Traffic Signal
SR-18 (Happy Trails Highway / Central Road	Caltrans	Traffic Signal
SR-18 / Bear Valley Road	Caltrans	Stop Sign on Bear Valley Road
SR-18 / Milpas Drive	Caltrans	Stop Signs on Milpas Drive
SR-18 / Pioneer Road	Caltrans	No Traffic Control
SR-18 / Rabbit Springs Road	Caltrans	Stop Sign on Rabbit Springs Road

Source: Google Maps; Field Reconnaissance

3.4.1.6 Hesperia

The roadways and rail lines in Hesperia (west of the Mojave River) are presented in Table 3.4-8. This list is not intended to be comprehensive but is representative of the area. Table 3.4-8 shows the applicable roadway/rail line characteristics and data. There are no regional roadways in this area. The roadways are under the jurisdiction of San Bernardino County or the City of Hesperia.

Table 3.4-8. Roadways and Rail Lines – Hesperia			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Glendale Avenue	City of Hesperia	2	20 (est.)
Arrowhead Lake Road	City of Hesperia	3	1,700
Lassen Avenue	City of Hesperia	2	1,000 (est.)
Arcadia Avenue	City of Hesperia	2	1,000 (est.)
Peach Avenue	City of Hesperia	2	2,950
El Cerrito Avenue	City of Hesperia	2	1,000 (est.)
Windsor Avenue	City of Hesperia	2	1,000 (est.)
I Avenue	City of Hesperia	2	4,170
Newhall Avenue	City of Hesperia	2	1,000 (est.)
Jenkins Avenue	City of Hesperia	2	1,000 (est.)
Danbury Avenue	City of Hesperia	2	3,380
Chase Avenue	City of Hesperia	2	500 (est.)
Bangor Avenue	City of Hesperia	2	500 (est.)
Alston Avenue	City of Hesperia	2	500 (est.)
E Avenue	City of Hesperia	2	5,520
C Avenue	City of Hesperia	2	2,000 (est.)
Santa Fe Avenue E	City of Hesperia	2	3,160
Union Pacific & BNSF Shared Railroad Tracks	UPRR & BNSF	2 tracks	
Ranchero Road	City of Hesperia	2	7,130
Ranchero Road east of Santa Fe	City of Hesperia	2	7,800
Ranchero Road east of Cottonwood	City of Hesperia	2	8,720
7th Street	City of Hesperia	2	7,340
Via Cartagena Street	City of Hesperia	2	20 (est.)
Via Quintana Street	City of Hesperia	2	200 (est.)
Kimball Street	City of Hesperia	2	500 (est.)
Cottonwood Avenue	City of Hesperia	2	1,840
Redwood Avenue	City of Hesperia	2	500 (est.)
Maple Avenue	City of Hesperia	2	2,210

Table 3.4-8. Roadways and Rail Lines – Hesperia			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Greenwood Street	City of Hesperia	2 Unpaved	30 (est.)
Tamarisk Avenue	City of Hesperia	2 Unpaved	300 (est.)
Opal Avenue	City of Hesperia	2 Unpaved	300 (est.)
Jenny Street	City of Hesperia	2 Unpaved	30
Topaz Avenue	San Bernardino County	2 Unpaved	40
Bandicoot Trail	City of Hesperia	2 Unpaved	10 (est.)
Whitehaven Street	City of Hesperia	2 Unpaved	10
Fuente Avenue	City of Hesperia	2 Unpaved	90

Source: San Bernardino County, 2014; City of Hesperia, 2009; Parsons, 2012

3.4.1.7 Ord Mountains and Summit Valley

The roadways and rail lines in the area of the Ord Mountains and Summit Valley, generally along the existing El Dorado-Lugo 500-kV transmission corridor are presented in Table 3.4-9. This list is not intended to be comprehensive but is representative of the area. Table 3.4-9 shows the applicable roadway/rail line characteristics and data. There are no regional roadways in this area. The roadways are under the jurisdiction of San Bernardino County or the City of Hesperia.

Table 3.4-9. Roadways and Rail Lines – East of Ord Mountains			
Roadway	**Jurisdiction**	**# of Lanes**	**ADT**
Japatul Road	San Bernardino County	2 Unpaved	10
Desert View Road	San Bernardino County	2 Unpaved	220
BNSF Railroad Tracks	Burlington Northern Santa Fe Railroad	1 track	N/A
Portland Road	San Bernardino County	2 Unpaved	20 (est.)
Lisbon Road	San Bernardino County	2 Unpaved	20 (est.)
Ashland Avenue	San Bernardino County	2 Unpaved	20 (est.)
Poppy Road	San Bernardino County	2 Unpaved	20 (est.)
Japatul Road	San Bernardino County	2 Unpaved	110
Laguna Seca Drive	San Bernardino County	2 Unpaved	100
Laramie Street / Horizon Street	San Bernardino County	2 Unpaved	20
Roundup Way	San Bernardino County	2 Unpaved	60
Bowen Ranch Road	San Bernardino County	2 Unpaved	200
Juniper Flats Road	San Bernardino County	2 Unpaved	10 (est.)
Deep Creek Road	San Bernardino County	2	1,320
Arrowhead Lake Road	San Bernardino County	2	820
Los Flores Road	San Bernardino County	2 Unpaved	20 (est.)
Telephone Canyon Road	San Bernardino County	2 Unpaved	20 (est.)
Summit Valley Road	City of Hesperia	2	3,880
Union Pacific & BNSF Shared Railroad Tracks	UPRR & BNSF	2 tracks	N/A
Fuente Avenue	City of Hesperia	2 Unpaved	90

Source: San Bernardino County, 2014; City of Hesperia, 2009

3.4.2 Public Transportation

Public transportation in the study area is provided by the Victor Valley Transit Authority (VVTA), which is a bus transit operator that serves Adelanto, Apple Valley, Hesperia, and Victorville in western San

Bernardino County. VVTA has 20 fixed bus routes that circulate through these areas as well as the B-V Link that runs between Victorville and Barstow and the NTC Commuter route that serves the Fort Irwin National Training Center (NTC). In the immediate vicinity of the Study corridor, VVTA operates Route 23, the Lucerne Valley line, which runs along Central Road, Bear Valley Road, SR-18, and Old Woman Springs Road (SR-247) between Apple Valley and Lucerne Valley (VVTA, 2014).

The Barstow Area Transit System (BATS) operates three bus routes in the City of Barstow near the north end of the study area (BATS, 2014). Amtrak operates the Southwest Chief passenger train on railroad tracks that run through the study area on the Burlington Northern and Santa Fe railroad line. This train travels between Los Angeles and Chicago, and the Amtrak station nearest the study corridor is in Victorville (SCE, 2013).

3.4.3 Non-Motorized Transportation

According to the San Bernardino County Non-Motorized Transportation Plan (SANBAG, 2014), painted bike lanes are currently in place on several roadways in the southeastern area of the City of Hesperia in the vicinity of the study corridor. Included among these roadways are Arrowhead Lake Road, Ranchero Road, Danbury Avenue, Main Street, and Rocksprings Road. Future bike lanes are proposed on other streets in this area according to the plan. Similarly, the Town of Apple Valley has existing bike lanes on several streets and plans to install numerous additional bike lanes in the future. Outside of these two communities, the roadways along the remainder of the study corridor do not have painted bike lanes. Similarly, sidewalks are in place along the majority of the streets in the incorporated areas of Hesperia and Apple Valley. The other roadways along the study corridor do not generally have sidewalks. Pedestrians on these roadways typically walk along the shoulder or the edge of the roadway.

3.4.4 Aviation

3.4.4.1 Civil Aviation

Three airports are located within the study area:

- Hesperia Airport (public) located at 7070 Summit Valley Road in Hesperia, California contains one runway and averaged 115 aircraft operations per week (2.2 per day) for the 12-month period ending December 31, 2014 (AirNav, 2014a). All operations were general aviation aircraft.
- Barstow-Daggett Airport (public) located in Daggett, California contains two runways and averaged 100 aircraft operations per day for the 12-month period ending December 31, 2014 (AirNav, 2014b). During this period, 49 percent of air traffic was military aircraft.
- Rabbit Ranch Airport (private) is located in Lucerne Valley, California just north of SR 18, west of SR-247.

3.4.4.2 Military Aviation

The Marine Corps Logistics Base Barstow (MCLB) is located in the Barstow-Daggett area. Its mission is to rebuild and repair ground-combat and combat-support equipment and to support installations on the West Coast of the United States. While MCLB does not contain any runways, military aircraft

associated with MCLB account for nearly half of the daily operations at the nearby Barstow-Daggett Airport.

Projects in the vicinity of the MCLB must review the military flight paths and airspace designations of the California Military Land Use Compatibility Analysis (CMLUCA) database to determine whether they are located within 1,000 feet of a military installation, are located within military special-use airspace, or are located beneath a military designated low-level flight path (CMLUCA, 2014).

3.5 Visual Resources

This section describes the environmental conditions related to Visual Resources in the study area. As noted above, the "study area" encompasses the general area from Pisgah Crater west along the I-40/old Route 66 corridor to the Daggett area, and south through Stoddard Valley, North Lucerne Valley, western Lucerne Valley, and Apple Valley to Hesperia (see Figure 1-1).

Visual resources refer to visual considerations in the physical environment. Landforms, water, and vegetation patterns are among the natural landscape features that define an area's visual character, whereas buildings, roads, and other structures reflect human modifications to the landscape. These natural and built landscape features are considered visual resources that contribute to the public's experience and appreciation of the environment.

This visual resources section describes the existing landscape character and visual quality of the study area and provides existing views from various on-the-ground vantage points, which were established generally along the former CLTP corridor (study corridor).

3.5.1 Key Observation Points (KOPs)

KOPs are representative, stationary viewing locations selected for the purpose of analyzing and describing existing visual resources in the study area. KOPs were generally selected to be representative of the most critical public viewing locations from which the former CLTP study corridor would be seen. KOPs were located based on their usefulness in evaluating existing landscapes and potential effects on visual resources with various levels of sensitivity, in different landscape types and terrain, and from various vantage points. Typical KOP locations include: (1) along major or significant travel corridors or points of visual access; (2) at vista points; (3) at significant recreation areas; (4) in residential areas; and (5) at locations that provide good examples of the existing landscape context and viewing conditions. At each KOP, the existing landscape was photographed. Photographs are presented as 11" x 17" color images at "life-size scale" when viewed at a standard reading/viewing distance of 18 inches (i.e., when the image is held at a distance of 18 inches from the eye, all landscape features in the images would appear to be the same scale and size as they would appear in the field at the viewpoint location). Twenty-six KOPs were selected to characterize the local setting. KOP locations are shown on Figure 3.5-1.

3.5.1.1 Visual Sensitivity-Visual Change (VS-VC) Approach

Under this method, the study area was viewed from various public roads and vantage points to develop an overall assessment of the existing landscape character, visual quality, and viewing conditions. Then, at representative KOPs, the existing landscape was characterized (for visual quality, viewer concern, and viewer exposure) and photographed. Each of the factors considered in the evaluation of the existing landscape under the VS-VC method is discussed below.

Visual Quality is a measure of the overall impression or appeal of an area as determined by particular landscape characteristics such as landforms, rock forms, water features, and vegetation patterns, as well as associated public values. The attributes of variety, vividness, coherence, uniqueness, harmony, and pattern contribute to visual quality classifications of indistinctive (Low), common (Moderate), and distinctive (High). Visual quality is studied as a point of reference to assess whether a given project would appear compatible with the established features of the setting or would contrast noticeably and unfavorably with them.

Viewer Concern addresses the level of interest or concern of viewers regarding an area's visual resources (rated from Low to High) and is closely associated with viewers' expectations for the area. Viewer concern reflects the importance placed on a given landscape based on the human perceptions of the intrinsic beauty of the existing landforms, rock forms, water features, vegetation patterns, and even cultural features.

Viewer Exposure describes the degree to which viewers are exposed to views of the landscape (rated from Low to High). Viewer exposure considers landscape visibility (the ability to see the landscape), distance zones (proximity of viewers to the subject landscape), number of viewers (Low to High), and the duration of view (Brief to Extended). Landscape visibility can be a function of several interconnected considerations including proximity to viewing point, degree of discernible detail, seasonal variations (snow, fog, and haze can obscure landscapes), time of day, and/or presence or absence of screening features such as landforms, vegetation, and/or built structures. Even though a landscape may have highly scenic qualities, it may be remote, receiving relatively few visitors and thus, have a lower degree of viewer exposure. Conversely, a subject landscape or project may be situated in relatively close proximity to a major road or highway utilized by a substantial number of motorists and yet still result in relatively low viewer exposure if the rate of travel speed on the roadway is high and viewing times are brief, or if the landscape is partially screened by vegetation or other features. Often, it is the subject area's proximity to viewers or distance zone that is of particular importance in determining viewer exposure. Landscapes are generally subdivided into three or four distance zones based on relative visibility from travel routes or observation points. Distance zones typically include Foreground, Middleground, and Background. The actual number of zones and distance assigned to each zone is dependent on the existing terrain characteristics and public policy and is often determined on a project-by-project basis.

Overall Visual Sensitivity is a concluding assessment as to an existing landscape's susceptibility to an adverse visual outcome (rated from Low to High). A landscape with a high degree of visual sensitivity is able to accommodate only a lower degree of adverse visual change without resulting in a substantial visual effect. A landscape with a low degree of visual sensitivity is able to accommodate a higher degree of adverse visual change before exhibiting a substantial visual effect. Overall visual sensitivity is derived from a comparison of existing visual quality, viewer concern, and viewer exposure.

3.5.1.2 BLM Visual Resource Management (VRM) Approach

Public lands that are managed by the Bureau of Land Management (BLM) have a variety of visual values. These lands are subject to visual resource management objectives as developed using the BLM VRM System (BLM, 1984; BLM, 1986a and 1986b) and presented in the Resource Management Plan for a given unit. The VRM System identifies four classes (I through IV) with specific management prescriptions for each class. The system is based on an assessment of scenic quality, viewer sensitivity, and viewing distance zones arrived at during a Visual Resources Inventory (VRI).

Scenic Quality is a measure of the overall impression or appeal of an area created by the physical features of the landscape such as natural features (e.g., landforms, vegetation, water, color, adjacent scenery, and scarcity) and built features (e.g., roads, buildings, railroads, agricultural patterns, and utility lines). These features create the distinguishable form, line, color, and texture of the landscape composition that can be judged for scenic quality using criteria such as distinctiveness, contrast, variety, harmony, and balance. Table 3.5-1 presents the VRI scenic quality rating components that are evaluated to arrive at one of three scenic quality ratings (A, B, or C) for a given landscape. Each landscape component is scored, and a score of 19 or higher results in a Class A scenic quality rating. A score of 12 to 18 results in a Class B scenic quality rating, while a score of 11 or less results in a Class C scenic quality rating. The three scenic quality classes are described as follows:

- **Scenic Quality Class A** – Landscapes that combine the most outstanding characteristics of the region.
- **Scenic Quality Class B** – Landscapes that exhibit a combination of outstanding and common features.
- **Scenic Quality Class C** – Landscapes that have features that are common to the region.

Viewer Sensitivity is a factor used to represent the value of the visual landscape to the viewing public, including the extent to which the landscape is viewed. For example, a landscape may have high scenic qualities but be remotely located and, therefore, seldom viewed. Sensitivity considers such factors as visual access (including duration and frequency of view), type and amount of use (see Table 3.5-2), public interest, adjacent land uses, and whether the landscape is part of a special area (e.g., Area of Critical Environmental Concern [ACEC]; a BLM designation). The three levels of viewer sensitivity can generally be defined as follows.

- **High Sensitivity**. Areas that are either designated for scenic resources protection or receive a high degree of use (includes areas visible from roads/highways receiving more than 45,000 visits [vehicles] per year). Typically within the foreground/middleground viewing distance (see Table 3.5-3).
- **Medium Sensitivity**. Areas lacking specific, or designated, scenic resources protection but are located in sufficiently close proximity to be within the viewshed of the protected area. Includes areas that are visible from roads and highways receiving 5,000 to 45,000 visits (vehicles) per year. Typically within the background viewing distance (see Table 3.5-3).
- **Low Sensitivity**. Areas that are remote from populated areas, major roadways, and protected areas or are severely degraded visually. Includes areas that are visible from roads and highways receiving less than 5,000 visits (vehicles) per year.

Table 3.5-1. Visual Resource Inventory (VRI) Scenic Quality Rating

Component	Scenic Quality Rating		
Landform	High vertical relief (prominent cliffs, spires, or massive rock outcrops); severe surface variation; highly eroded formations (major badlands or dune systems); detail features dominant and exceptionally striking/intriguing. **5**	Steep canyons, mesas, buttes, cinder cones, and drumlins; interesting erosional patterns or variety in size and shape of landforms; or detail features, which are interesting though not dominant or exceptional. **3**	Low rolling hills, foothills, or flat valley bottoms or few or no interesting landscape features. **1**
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns. **5**	Some variety of vegetation, but only one or two major types. **3**	Little or no variety or contrast in vegetation. **1**

Table 3.5-1. Visual Resource Inventory (VRI) Scenic Quality Rating			
Component	**Scenic Quality Rating**		
Water	Clear and clean-appearing, still, or cascading whitewater, any of which are a dominant factor in the landscape. **5**	Flowing, or still, but not dominant in the landscape. **3**	Absent or present but not noticeable. **0**
Color	Rich color combinations; variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields. **5**	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element. **3**	Subtle color variations, contrast, or interest; generally muted tones. **1**
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality. **5**	Adjacent scenery moderately enhances overall visual quality. **3**	Adjacent scenery has little or no influence on overall visual quality. **0**
Scarcity	One-of-a-kind, unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc. **5+***	Distinctive, though somewhat similar to others within the region. **3**	Interesting within its setting but fairly common within the region. **1**
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony. **2**	Modifications add little or no visual variety to the area and introduce no discordant elements. **0**	Modifications add variety but are very discordant and promote strong disharmony. **- 4**
Scenic Quality Rating: A = 19 or more B = 12 to 18 C = 11 or less			

* A rating of greater than 5 can be given but must be supported by written justification.

Table 3.5-2. Amount of Use Classifications			
Type Area	**High**	**Moderate**	**Low**
Roads & Highways	More than 45,000 visits/year (yr.)	5,000 to 45,000 visits/yr.	Less than 5,000 visits/yr.
Rivers & Trails	More than 20,000 visits/yr.	2,000-20,000 visits/yr.	Less than 2,000 visits/yr.
Recreation Sites	More than 10,000 visitor-days/yr.	2,000-10,000 visitor-days/yr.	Less than 2,000 visitor-days/yr.

***Viewing Distance Zones*.** Landscapes are generally subdivided into three distance zones based on relative visibility from travel routes or observation points (see Table 3.5-3). The foreground/middleground (f/m) zone includes areas that are less than three to five miles from the viewing location. The f/m zone defines the area in which landscape details transition from readily perceived to outlines and patterns.

The background (b) zone is generally greater than five, but less than fifteen, miles from the viewing location. The b zone includes areas where landforms are the most dominant element in the landscape, and color and texture become subordinate. In order to be included within this distance zone, vegetation should be visible at least as patterns of light and dark. The seldom-seen (s/s) zone includes areas that are usually hidden from view as a result of topographic or vegetative screening or atmospheric conditions. In some cases, atmospheric and lighting conditions can reduce visibility and shorten the distances normally covered by each zone (BLM, 1986b).

Table 3.5-3. Distance Zones	
f/m (foreground/middleground)	0 to 3-5 miles
b (background)	5-15 miles
s/s	seldom-seen areas

Visual Resource Inventory (VRI) Classes. VRI classes represent the relative value of the visual resources and provide the basis for considering visual values in the resource management planning process. The VRI class for a given area is typically arrived at through the use of a classification matrix similar to that presented in Table 3.5-4. By comparing the scenic quality, visual sensitivity, and distance zone, the specific VRI class can be determined. The exception to this process is the Class I designation, which is placed on special areas where management activities are restricted (e.g., wilderness areas). VRI classes are informational in nature and provide a baseline for existing conditions. They do not establish management direction.

Table 3.5-4. Visual Resource Inventory (VRI) Classification Matrix

Visual Sensitivity Levels		High			Medium			Low
Special Areas		I	I	I	I	I	I	I
Scenic Quality	A	II	II	II	II	II	II	II
	B	II	III	III*	III	IV	IV	IV
				IV*				
	C	III	IV	IV	IV	IV	IV	IV
Distance Zones		f/m	b	s/s	f/m	b	s/s	s/s

* If adjacent areas are Class III or lower, assign Class III; if higher, assign Class IV.

The objectives of each VRI/VRM classification as stated in the BLM VRM *Visual Resource Inventory Manual* are as follows (BLM, 1984).

- **VRI/VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- **VRI/VRM Class II**. The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- **VRI/VRM Class III**. The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **VRI/VRM Class IV**. The objective is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the effect of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

Visual Resource Management (VRM) Classes. VRM classes are determined through careful consideration of VRI class designations (visual values), land use and demands, and the resource allocations and/or management decisions made in the applicable land use plan for a given area. VRM class

designations set the level of visual change to the landscape that may be permitted for any surface-disturbing activity. In the case of the CLTP, although the 2010 BLM Barstow Field Office VRI provided the visual resource information base (VRI classes) for designation of VRM classes, VRM class designations have not yet been incorporated in the Resource Management Plan preparation process, and neither Interim nor Final VRM classifications have been assigned to these BLM-managed lands. Therefore, visual resources are currently managed (by the Barstow Field Office) based on the applicable Multiple Use Class (MUC) designation.

Multiple Use Classifications (MUC). BLM MUCs are designated under the California Desert Conservation Area Plan (CDCA Plan; BLM, 1999). Public lands in the CDCA under BLM management have been designated geographically into four MUCs. The MUC designation is based on the sensitivity of resources and kinds of uses for each geographic area.

MUC designations are based on inventories (VRI) and management decisions that consider the value of resources. Table 3.5-5 provides the MUC definitions as presented in the CDCA Plan. The Project study area includes MUC Limited Use (L), MUC Moderate Use (M), and MUC Intensive Use (I) areas. It does not include MUC Controlled Use (C) areas. Similar to VRM and VRI classes, MUCs do not apply to private lands, State lands, and other federal lands where MUCs are preempted by other ownership or management.

Table 3.5-5. BLM CDCA Multiple Use Classes (MUCs)

Class C	Class C (Controlled Use) has two purposes. First, it shows those areas, which are being "preliminarily recommended" as suitable for wilderness designation by Congress, such as Wilderness Study Areas (WSAs). This process is fully explained in the Wilderness Element of the CDC Plan. Second, it will be used in the future to show those areas formally designated as wilderness by Congress. The Class C guidelines are different from the guidelines for other classes. They summarize the kinds of management likely to be used in these areas in the CDCA when and if they are formally designated wilderness by Congress. These guidelines will be considered in the public process of preparing the final Wilderness Study Reports. But the final management decisions depend on Congressional direction in the legislation, which makes the formal designation.
Class L	Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple uses of resources, while ensuring that sensitive values are not significantly diminished.
Class M	Class M (Moderate Use) is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause.
Class I	Class I (Intensive Use) provides for concentrated use of lands and resources to meet human needs. Reasonable protection will be provided for sensitive natural and cultural values. Mitigation of impacts on resources and rehabilitation of impacted areas will occur insofar as possible.

Because VRM classes have not been formally established for BLM-managed lands crossed by the Project, the existing conditions descriptions refer to both the 2010 VRI Classification (for informational purposes only) and the applicable MUCs.

3.5.2 Regional Setting

The study area is located generally within the Western Mojave Desert Geographic Region and, specifically, in the Victor Valley area of San Bernardino County. Victor Valley is a broad valley located in the Mojave Desert north of the San Bernardino Mountains, east of Antelope Valley and west of Lucerne Valley. Victor Valley extends northward along the Mojave River to approximately the

Community of Helendale. Silver Valley (Barstow) is an extension of Victor Valley along the Mojave River from Helendale fault eastward to Afton Canyon. Lucerne Valley is east of Victor Valley, west of and generally including, Johnson Valley and the area north of the San Bernardino Mountains.

Elevations in the study area range from a low of approximately 1,700 feet near the Community of Newberry Springs to a high of approximately 3,800 feet along the base of Stoddard Mountain. The region is visually dominated by vast, open, high desert basins bordered by rough, rocky mountain ranges with rolling to jagged ridgelines. The most prevalent vegetation communities include creosote bush scrub, creosote bush scrub with white bursage, and California juniper woodland. Much of the region can be characterized as open space public lands, rural residential developments, isolated rural residential enclaves and homesteads, suburban residential developments, and public utility infrastructure.

The study area includes portions of San Bernardino County, the cities of Hesperia, Barstow, and Town of Apple Valley, and the communities of Daggett, Lucerne Valley, and Newberry Springs. Much of the study corridor is located within or adjacent to existing utility corridors containing multiple transmission lines. While there are no State or County designated scenic routes in the study area, designated Eligible State Scenic Highways include I-40 and SR-247 (Caltrans, 2014). SR-247 is also a County Designated Scenic Highway, as is Route 66 (San Bernardino County, 2007, amended 2014, p. VI-13 and VI-15).

3.5.3 Existing Visual Conditions

The visual resources setting is described below in a north to south sequence. The existing visual conditions from 14 representative KOPs covering the study area are discussed below. All KOP figures are provided at the end of this section.

3.5.3.1 Barstow-Daggett Area

The landscape in this portion of the study area is primarily natural in appearance with rugged ridgelines and broad, desert basins with minimal development aside from an existing transmission corridor, a few scattered rural residences, and the linear form of Route 66, I-40, and SR-247. Views would be primarily limited to travelers on Route 66, I-40, SR-247, travelers on the back country access roads (e.g., Camp Rock Road, Pendleton Road-south frontage road to I-40), and the few scattered rural residences.

KOP 1 – Route 66 West (National Trails Highway)

Figure 3.5-2 presents the existing view to the west from KOP 1 on Route 66, approximately 1.8 miles east of the Community of Daggett. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape is of a tan, flat, desert valley floor backdropped by a tan, horizontal to angular ridgeline, each exhibiting smooth to granular and coarse textures. Vegetation is composed of tan and pale to yellow golden grasses and muted to medium green shrubs with an overall matte-textured appearance. Existing built structures in the view that detract from the natural landscape integrity include the linear Route 66; vertical, wood transmission and utility poles; and partially obscured geometric forms (e.g., buildings) associated with distant urban development.

Viewer Concern. High. Although energy transmission facilities are visible at various points along this highway, travelers on Route 66 (County Designated Scenic Highway), or adjacent I-40 (Eligible State

Scenic Highway), would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (valley floor, ridges, or background sky) an adverse visual change.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on Route 66 or adjacent I-40. The number of viewers would be Moderate (Route 66) to High (I-40), and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 1, combining the equally weighted Low to Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 2 – Westbound Camp Rock Road

Figure 3.5-3 presents the existing view to the northwest from KOP 2 on westbound Camp Rock Road, approximately 2.5 miles southeast of the Community of Daggett on BLM-managed land. This view encompasses a portion of the existing Los Angeles Department of Water and Power (LADWP) transmission line corridor in the northern portion of the Mojave Monkeyflower Area of Critical Environmental Concern (ACEC). The Elephant Mountains (left in the image) and Calico Mountains (right in the image) are present in the background and contribute to visual variety.

This unobstructed, panoramic view includes a foreground/middleground, flat, desert valley landscape that is backdropped by the rounded to angular forms of the Elephant and Calico Mountains. The smooth to granular and coarse landforms exhibit coloration that transitions from light tans and gray to lavender and bluish hues at distance. Vegetation is relatively sparse with a patchy distribution of short grasses and shrubs of subdued tans, grays, and greens that become more uniform with distance and exhibit an overall matte-textured appearance. Although the natural landscape features are relatively common and non-descript, the background mountains provide features of visual interest. Also present in the image are the visually dominant and complex structures of multiple transmission lines within the foreground LADWP transmission line corridor. The complex geometric forms and smooth, steel surface-texture of the multiple transmission structures impart substantial industrial character to the existing landscape character.

The Scenic Quality Classification for KOP 2 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 2, the viewer sensitivity level is classified as Low (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 2 is Class IV (Otak, Inc., 2010). The applicable VRI Class IV Management Objective is as follows.

> ***VRI Class IV Management Objective***. *To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.*

The applicable MUC for this area is Moderate Use, which provides for a wide variety of present and future uses including energy and utility development as follows.

> ***Multiple-Use Class M (Moderate Use)****. MUC M is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause.*

KOP 3 – Camp Rock Road

Figure 3.5-4 presents the existing view to the southwest from KOP 3 on Camp Rock Road adjacent to, and to the south of, I-40, near MP S11-0.9. This view encompasses a portion of Segment 11. The most prominent feature in this view is the existing wood-pole, H-frame subtransmission line that Segment 11 would generally parallel to the west toward SR-247. This viewpoint is located on BLM-managed land.

This unobstructed, panoramic view is to the southwest, across a portion of Mojave Valley; the foreground/middleground landscape encompasses predominantly flat desert terrain backdropped by a horizontal to angular distant ridgeline. The smooth- to matte-, granular- and coarse-textured landforms are of tan color with some grays. Vegetation appears as patchy discontinuous clumps but at a distance appears fairly even in distribution. Vegetation consists of grasses that are tan or pale to golden yellow and shrubs that are gray or muted to medium greens exhibiting an overall matte-textured appearance. Overall, the natural landscape appears relatively common and non-descript. Within the foreground/middleground views, however, are visually prominent H-frame wood poles of an existing subtransmission line. The brown, H-frame wood poles are vertical structures connected by horizontal and diagonal components, and the poles support medium to dark gray, curvilinear conductors and white markers. The texture of the poles is smooth to matte and rough-hewn.

The Scenic Quality Classification for KOP 3 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 3, the viewer sensitivity level is classified as Low (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 3 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented above, under KOP 2.

The applicable MUC for this area is Moderate Use, which provides for a wide variety of present and future uses including energy and utility development, as presented above, under KOP 2.

KOP 4 – Westbound I-40, One Mile West of Daggett

Figure 3.5-5 presents the existing view to the southwest from KOP 4 on I-40, an Eligible State Scenic Highway, approximately one mile west of the A Street (Daggett) off-ramp/overpass and just north of MP S9-1.5. This viewpoint is located on BLM-managed land.

This unobstructed, panoramic view is to the southwest across a portion of the Mojave Valley; the foreground/middleground landscape encompasses predominantly flat, desert terrain backdropped by a horizontal to slightly curvilinear ridgeline. The smooth- to granular- and coarse-textured landforms are tan in color. Vegetation distribution appears fairly even with some patchy clumps. Vegetation consists of grasses that are tan or pale to golden yellow and shrubs that are muted to medium greens exhibiting an overall matte-textured appearance. Overall, the natural landscape appears relatively common and non-descript. Within the foreground/middleground views, however, are built structures

including a linear roadway (westbound I-40) and visually prominent, vertical, H-frame wood poles of an existing subtransmission line (that supports horizontal and diagonal components). A wind turbine is also noticeable in the background (in the right-central portion of the image). The existing sub-transmission structures are smooth- to matte-textured and rough-hewn. Also present are partially obscured geometric forms (e.g., roadside signs). The predominant coloration of I-40 is light to medium gray. The H-frame poles and associated structural components (e.g., curvilinear conductors) are brown, medium gray, and white. The partially obscured roadside signs are of various colors including blue and white.

The Scenic Quality Classification for KOP 4 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 4, the viewer sensitivity level is classified as Low (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 4 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented above, under KOP 2.

The applicable MUC for this area is Moderate Use, which provides for a wide variety of present and future uses including energy and utility development as presented above, under KOP 2.

KOP 5 – SR-247, Barstow

Figure 3.5-6 presents the existing view to the southeast from KOP 5 on SR-247. The flat, desert landscape of low-growing muted green shrubs and yellow grasses is natural in appearance and absent noticeable built structures beyond the linear form of SR-247. Daggett Ridge is a notable landform in the background. This viewpoint is located on BLM-managed land.

This unobstructed, panoramic view is across a portion of the Mojave Valley. The foreground/middle-ground landscape encompasses a flat valley floor backdropped by the angular to curvilinear, horizontal, rolling ridgeline of Daggett Ridge. The tan landforms are smooth- to granular- and coarse-textured transitioning to lavender and bluish hues at distance. Vegetation is fairly evenly distributed with some patchy clumps and consists of tan and pale to golden yellow grasses and muted to medium green shrubs with an overall matte-textured appearance. Although the natural landscape features are relatively common and non-descript, the background ridgeline provides visual interest. The view is absent any built structures except for the linear form of SR-247, which is medium to dark gray with yellow and white striping and is smooth- to matte- and coarse-textured in appearance.

This Scenic Quality Classification for KOP 5 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 5, the viewer sensitivity level is classified as Low (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 5 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented above, under KOP 2.

The applicable MUC for this area is Moderate Use, which provides for a wide variety of present and future uses including energy and utility development as presented above, under KOP 2.

General Night Lighting. The concentrated lighting associated with the City of Barstow's urban and suburban areas is a prominent source of night lighting toward the western portion of the Barstow-Daggett area, though at a distance of approximately one mile to the north. The most notable light source at the west end is the extensive field lighting at the athletic complex on Mayor Katy Parkway. Night lighting is also clustered at the Coolwater Generating Station facilities associated with the power plant and Coolwater Switchyard. There is also a linear ribbon of transient vehicle lights along the I-40 corridor. South of I-40 is a dark night landscape generally absent noticeable sources of night lighting.

FAA Hazard Lighting. There are several static FAA lights on the stacks of the Coolwater Generating Station adjacent to Coolwater Switchyard. There is also one flashing FAA light on a tank just east of the Marine Corps Logistics Base, Barstow, south of I-40.

3.5.3.2 I-40/Old Route 66 Corridor

Between the Gale Substation (near the Community of Daggett) and Pisgah Substation (near Ludlow), north of Route 66, the study area passes through predominantly undeveloped and natural-appearing eastern portion of Mojave Valley. Viewing populations would generally be limited to eastbound and westbound travelers on Route 66 (a County Designated Scenic Highway).

KOP 6 – Route 66 East (National Trails Highway)

Figure 3.5-7 presents the existing view to the east from KOP 6 on Route 66, approximately 5.75 miles east of the Community of Newberry Springs. This panoramic view encompasses an expansive portion of the Mojave Desert. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The panoramic foreground to middleground view encompasses a relatively non-descript portion of flat, valley Mojave Desert floor backdropped by rounded to angular hills and horizontal ridges of the Cady Mountains that provide visual interest. The colors of these landforms are light tan to brown with lavender and bluish hues at distance. Landform textures are smooth to granular and coarse. Vegetation, consisting of tan and pale to golden yellow grasses and tan and muted green shrubs is overall matte-textured in appearance. Vegetation occurs in patchy clumps but appears to be fairly evenly distributed at distance. Prominent built features in the landscape include the linear forms of Route 66 and the roadside, wood-pole utility line with its repetitive vertical forms. Truck traffic is also visible on I-40 in the left side of the image.

Viewer Concern. High. Any perceived increase in industrial character, facility prominence, or view blockage would be experienced as an adverse visual effect.

Viewer Exposure. Moderate to High. A project in the vicinity of KOP 6 would be highly visible in the foreground views for travelers on this stretch of Route 66. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 6, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

General Night Lighting. The greatest concentration of night lighting along the I-40/Old Route 66 corridor is at the industrial, commercial, and energy facilities to the north of Route 66. The presence of night lighting diminishes while traveling east from the more developed areas around Daggett and Barstow, with minimal lighting occurring north of Route 66. Fixed night lighting is generally associated with scattered but clustered rural residences and the very occasional commercial source, often set back from Route 66. An exception is the cluster of lights in Newberry Springs at the intersection of I-40 and Route 66. East of Newberry Springs, the night landscape is generally that of darkness punctuated by the occasional fixed light. The exception is the linear ribbon of light within the I-40 corridor, with the most notable night lighting attributable to the numerous transient vehicle lights.

From Daggett heading to the west, there is minimal night lighting until the eastern outskirts of Barstow where the considerable night lighting associated with the typical urban and suburban land uses begins. However, south of I-40 there is essentially no night lighting.

FAA Hazard Lighting. There is a telecommunications tower immediately east of Newberry Springs with two solid red FAA hazard lights. There are also FAA lights at the Barstow-Daggett Airport. There are several static FAA lights on the stacks of the Coolwater Generating Station power plant facilities adjacent to Coolwater Switchyard. There is also one flashing FAA light on a tank just east of the Marine Corps Logistics Base, Barstow, south of I-40.

3.5.3.3 Stoddard Valley

Stoddard Valley includes predominantly undeveloped, natural-appearing desert landscapes dominated by rugged, jagged ridgelines and a broad, desert valley. Views would be primarily attributable to travelers on northbound and southbound SR-247, local access roads, backcountry travelers on Stoddard Wells Road, recreationists in the Stoddard Valley Off-Highway Vehicle Recreation Area, and the relatively few scattered rural residents in the vicinity of SR-247.

KOP 7 – SR-247, Stoddard Valley

Figure 3.5-8 presents the existing view to the south-southwest from KOP 7 on SR-247. Stoddard Wells Road (unpaved) is visible in the center of the image. This viewpoint is located on BLM-managed land.

This unobstructed, panoramic view encompasses a foreground/middleground landscape of flat valley floor backdropped by an angular to curvilinear, rolling, horizontal ridgeline. The smooth- to granular- and coarse-textured landforms are tan and light gray and transition to lavender and bluish hues at distance. Vegetation, consisting of tans and pale to golden yellow grasses and muted to medium green shrubs, is fairly evenly distributed but with some patchiness. Although the natural landscape features are relatively common and non-descript, the background ridgeline provides visual interest. The view is absent any built structures except for the linear form of SR-247, which is smooth- to matte- and coarse-textured and medium to dark gray with yellow and white striping. The roadway shoulders are unpaved and tan in color.

The Scenic Quality Classification for KOP 7 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 7, the viewer sensitivity level is classified as Moderate (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 7 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented above, under KOP 2.

The applicable MUC for this area is Intensive Use, which provides for a concentrated use of lands and resources to meet human needs as follows.

> ***Multiple-Use Class I (Intensive Use)****. MUC I provides for concentrated use of lands and resources to meet human needs. Reasonable protection will be provided for sensitive natural and cultural values. Mitigation of impacts on resources and rehabilitation of impacted areas will occur insofar as possible.*

KOP 8 – Southbound SR-247 at the Slash X Café

Figure 3.5-9 presents the existing view to the southeast from KOP 8 on SR-247 at the Slash X Café. This viewpoint is approximately 0.2 mile northwest of the existing LADWP transmission line corridor as it spans SR-247 and passes through Stoddard Valley. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. This view encompasses a foreground to middleground, flat, desert valley floor backdropped by rounded to angular hills and ridges of Stoddard Ridge and the West Ord Mountains. The smooth- to granular- and coarse-textured landforms exhibit coloration that transforms from light tan and gray to lavender and bluish hues at distance. Vegetation consists of ornamental shrubs and trees that occur in clumps or irregular groupings and are colored medium to bright green. Grass cover is continuous and is tan and pale yellow in color. All of the vegetation exhibits an overall matte-textured appearance. Although these landscape features are relatively common and non-descript, Stoddard Ridge and a portion of the West Ord Mountains provide a natural background of visual interest. Prominently present in the image are built structures including chain link fencing in the immediate foreground and the adjacent, visually dominant and complex structures of the transmission lines within the LADWP corridor. The complex geometric forms and smooth, steel surface-texture of the lattice towers impart substantial industrial character to the existing landscape character.

Viewer Concern. High. Although energy transmission infrastructure features prominently in views from SR-247, the vicinity of the Slash X Café, and adjacent residences, viewers would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background sky, ridgelines, or valley floor) an adverse visual change.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on SR-247, visitors to the Slash X Café, and adjacent residents. The number of viewers would be High, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 8, combining the equally weighted Low to Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 9 – Northbound SR-247 Stoddard Valley

Figure 3.5-10 presents the existing view to the northwest from KOP 9 on SR-247, an Eligible State and County Designated Scenic Highway, approximately six miles southwest of the LADWP transmission line corridor (near the grouping of trees, residences, and Slash X Café in the center of the image). This view encompasses a substantial portion of Stoddard Valley. This viewpoint is located on BLM-managed land.

This unobstructed, panoramic view encompasses a foreground/middleground landscape of a predominantly undeveloped and natural-appearing, flat valley floor with low, rounded hills backdropped by an angular to curvilinear, horizontal ridgeline. The landforms are smooth- to granular- and coarse-textured in tan and light gray colors that transition to lavender and bluish hues at distance. Vegetation consists of tans and pale to golden yellow grasses and muted to medium green shrubs with an overall matte-textured appearance. Although the natural landscape features are relatively common and non-descript, the background ridgeline provides visual interest. The view is absent any built structures except for the linear form of SR-247, which is smooth- to matte- and coarse-textured and medium to dark gray with yellow and white striping. The roadway shoulders are unpaved and tan in color.

The Scenic Quality Classification for KOP 9 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 9, the viewer sensitivity level is classified as Moderate (Otak, Inc., 2010). The resulting VRI class assigned to the area of KOP 9 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented above, under KOP 2.

The applicable MUC for this area is Limited Use, which generally provides for a lower-intensity, carefully controlled use of resources, while ensuring that sensitive values are not significantly diminished, as presented above for KOP 4.

General Night Lighting. Although there is prominent though intermittent night lighting associated with the linear ribbon of transient vehicle lights along the SR247 corridor, the Stoddard Valley is a dark night landscape with minimal night lighting. There are a very few dispersed residential sources of night lighting, including small cluster of night lights associated with a residential enclave and Slash X Café. Viewing west up Stoddard Valley, vehicle lights on I-15 are faintly visible at a distance of approximately three miles.

FAA Hazard Lighting. There are no perceptible FAA hazard lights in the Stoddard Valley.

3.5.3.4 North Lucerne Valley

This portion of the study area passes through predominantly undeveloped, natural-appearing desert landscapes dominated by rugged, jagged ridgelines and broad, desert valleys. Views of the study area would be primarily attributable to backcountry travelers on Stoddard Wells Road, Lucerne Valley Cutoff, and several four-wheel drive recreation roads in the vicinity of Lucerne Valley Cutoff; travelers on SR-247 and local access roads; and a very few scattered rural residences in North Lucerne Valley.

KOP 10 – Lucerne Valley Cutoff North

Figure 3.5-11 presents the existing view to the southeast from KOP 10 at the rock outcrop adjacent to Lucerne Valley Cutoff. KOP 10 is located approximately 6.1 miles northwest of the intersection with SR-247 on BLM-managed land. This slightly elevated perspective encompasses much of the wide-open bowl comprising North Lucerne Valley. As is apparent in the image, there are few developed features in the valley.

This unobstructed, panoramic view down North Lucerne Valley encompasses a foreground/middle-ground of a relatively natural-appearing and picturesque desert valley that is backdropped by rounded to horizontal to angular hills and ridges that add visual interest. The smooth- to granular- and coarse-textured landforms exhibit coloration that transitions from tans and browns to lavender and bluish hues at distance. Vegetation consists of grasses and shrubs, and its distribution is fairly even with some patchiness. Vegetation coloration includes tans and pale to golden yellow for grasses, and tans to muted greens for shrubs, exhibiting an overall matte-textured appearance. Although the natural landscape features are relatively common and non-descript, Sidewinder Mountain is a prominent feature of visual interest that occurs along the southern boundary of the valley.

The Scenic Quality Classification for KOP 10 is Class C (landscapes that have features that are common to the region), and for viewers in the vicinity of KOP 10, the viewer sensitivity level is classified as Moderate (OTAK, Inc. 2010). The resulting VRI class assigned to the area of KOP 10 is Class IV (Otak, Inc., 2010). The VRI Class IV Management Objective is presented under KOP 2.

The applicable MUC for this area is Limited Use, which generally provides for a lower-intensity, carefully controlled use of resources, while ensuring that sensitive values are not significantly diminished as follows.

> ***Multiple-Use Class L (Limited Use)****. MUC L protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for*

generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.

KOP 11 – Lucerne Valley Cutoff South

Figure 3.5-12 presents the existing view to the northwest from KOP 11 on Lucerne Valley Cutoff in the vicinity of scattered rural residences in the southern end of North Lucerne Valley. KOP 11 is located approximately 2.75 miles northwest of the intersection with SR-247. This view up the valley encompasses wide-open valley landscape. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. The majority of the foreground to middleground landscape is comprised of the relatively non-descript, flat, valley floor, bisected by the unpaved Lucerne Valley Cutoff. Portions of the rounded to horizontal to angular hills and ridges of Stoddard Ridge and the Rodman Mountains are background features of visual interest. The landforms are smooth to granular and coarse in texture with coloration that includes tans and browns that transition to lavender hues at distance. Vegetation consists of tans and pale to golden yellow grasses and tans to muted green for shrubs and is fairly evenly distributed but with some patchiness. The overall vegetation texture exhibits a matte appearance. There are no apparent built structures in the view. What is notable about this landscape is the openness of the terrain, the relatively undisturbed natural character, and the juxtaposition of the surrounding rugged, angular ridges and flat valley floor.

Viewer Concern. High. Recreational travelers and nearby rural residents anticipate the relatively unspoiled panoramic views of North Lucerne Valley and surrounding mountains. Any addition of industrial character to the predominantly natural-appearing landscape or blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of recreational travelers and nearby rural residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 11, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 12 – Southbound SR-247 Lucerne Valley

Figure 3.5-13 presents the existing view to the southwest from KOP 12 on SR-247 in North Lucerne Valley, approximately 1.5 miles north of the intersection with Lucerne Valley Cutoff. This view encompasses a central portion of North Lucerne Valley. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. This panoramic view is of a western portion of the predominantly natural-appearing, relatively flat landscape of North Lucerne Valley. The rounded to angular hills and ridges of the smooth- to granular- and coarse-textured Granite Mountains and Sidewinder Mountain provide a backdrop of visual interest. Coloration of these landforms includes light tan and gray transitioning to lavender hues at distance. The valley floor is relatively non-descript with vegetation consisting of tan

and pale to golden yellow grasses and muted to medium green shrubs. There are a few apparent built structures in this view including the linear SR-247, a distant monastery, and a very few rural residences.

Viewer Concern. High. Travelers on SR-247 (an Eligible State and County Designated Scenic Highway) anticipate the relatively unspoiled panoramic views across Lucerne Valley to the surrounding mountains and ridgelines. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on SR-247. The number of viewers would be High, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 12, combining the equally weighted Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 13 – Spinel Street and Algoman Avenue in Lucerne Valley

Figure 3.5-14 presents the existing view to the east across Lucerne Valley from KOP 13 at the intersection of Spinel Street and Algoman Avenue, just west of SR-247. It encompasses a portion of a sparsely populated rural residential enclave along Spinel Street. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. The foreground to middleground landscape is of a flat, desert valley floor backdropped by the rounded to angular hills and ridges of the southern extent of the Ord Mountains and more distant Fry Mountains, which provide landscape features of visual interest. These smooth-, granular-, and coarse-textured landforms are light tan, gray, and brown and transition to lavender and bluish hues at distance. Vegetation consists of tan and pale to golden yellow grasses and tan and muted green shrubs with an overall matte-textured appearance. Vegetation distribution is fairly even but with some patchiness. Built structures include a few prominent, vertical, wood utility poles, along with less prominent wood poles in the distance. The foreground views of SR-247 are otherwise open and unobstructed from this residential enclave.

Viewer Concern. High. Residents of the rural residential enclave anticipate the relatively unspoiled panoramic views of Lucerne Valley and surrounding mountains. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of the nearby residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 13, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 14 – Spinel Street Lucerne Valley

Figure 3.5-15 presents the existing view to the southwest from KOP 14 at the intersection of Spinel Street and Algoman Avenue, just west of SR-247. Since this viewpoint is located on private land, this analysis from KOP 14 uses the VS-VC System method.

This unobstructed, panoramic view is across a portion of Lucerne Valley, and the foreground/middle-ground landscape encompasses predominantly flat desert terrain backdropped by the rounded to angular forms of the Granite Mountains. An existing wood-pole utility line with prominent, vertical, linear forms is noticeable in the foreground of views from this rural residential street. Aside from the few scattered rural residences and a single, wood-pole utility line, the landscape is predominantly natural in appearance, consisting of primarily low-growing shrubs and grasses and backdropped by the rugged Granite Mountains, a feature that enhances visual interest.

Visual Quality. Moderate. The landscape is predominantly natural in appearance, though the foreground also encompasses a portion of a sparsely populated rural residential enclave along Spinel Street and includes a few rough-hewn, wood utility poles. Vegetation, consisting of low-growing grasses and shrubs of muted colors, is relatively non-descript.

Viewer Concern. High. Residents of this rural residential enclave anticipate the relatively unspoiled panoramic views of the Granite Mountains. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 14, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 15 – Northbound SR-247, Lucerne Valley

Figure 3.5-16 presents the existing view to the northwest from KOP 15 on SR-247 in Lucerne Valley. This viewpoint is located approximately 0.46 mile north of the intersection with Haynes Road. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. The foreground to middleground landscape is of the predominantly natural-appearing, relatively flat Lucerne Valley. Views across this western portion of the Lucerne Valley are open and unobstructed. The rounded to angular hills and ridges of the Granite Mountains provide a backdrop of visual interest. The valley and mountain landforms are light tan to gray in color and transition to lavender hues at distance. Their textures are smooth to granular and coarse. Vegetation, consisting of tan and pale to golden yellow grasses and tan and muted green shrubs that exhibit an overall matte-textured appearance, occurs in patchy clumps but appears evenly distributed at distance. The only apparent built structure in the image is the prominent, linear SR-247.

Viewer Concern. High. Travelers on SR-247 (an Eligible State Scenic Highway) anticipate the relatively unspoiled panoramic views across Lucerne Valley to the surrounding mountains and ridgelines. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on SR-247. The number of viewers would be High, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 15, combining the equally weighted Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 16 – SR-247, Lucerne Valley

Figure 3.5-17 presents the existing view to the northwest from KOP 16 on SR-247. This viewpoint is located approximately 0.46 mile north of the SR-247/Haynes Road intersection. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. The panoramic view is of the western portion of the predominantly natural-appearing, relatively flat North Lucerne Valley. Views across this portion of the valley are open and unobstructed. The rounded, angular hills and ridges of the Granite Mountains provide a backdrop of visual interest. Landform colors include light tans and grays and browns transitioning to lavender hues at distance. Landform textures are smooth to granular and coarse. Vegetation, consisting of tan and pale to golden yellow grasses and tan and muted green shrubs exhibits an overall matte-textured appearance. Vegetation occurs as patchy clumps but appears fairly continuously distributed at distance. The only apparent built structures in this view, other than the linear SR-247, are a very few rural residences (center of image near the base of the mountains).

Viewer Concern. High. Travelers on SR-247 (an Eligible State and County Designated Scenic Highway) anticipate the relatively unspoiled panoramic views across North Lucerne Valley to the surrounding mountains and ridgelines. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, background mountains, sky) would be seen as an adverse visual change.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on SR-247. The number of viewers would be High, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 16, combining the equally weighted Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

General Night Lighting. There are no notable sources of night lighting in the North Lucerne Valley other than the occasional vehicle on SR-247, a very few dispersed residences, and the monastery at the southern end of the valley . As a result, the existing night landscape is very dark and very conducive to

dark sky viewing. Near Lucerne Valley Cutoff, views to the southeast encompass the distant lights and sky glow from the Community of Lucerne Valley and nearby rural residences. Viewing to the northwest, up Stoddard Valley, there are a very few dispersed residential sources of night lighting.

FAA Hazard Lighting. There are no apparent FAA hazard lights in North Lucerne Valley.

3.5.3.5 West Lucerne Valley

This portion of the study area includes predominantly undeveloped and natural-appearing desert basin just west of Lucerne Valley Dry Lake and the Sunset Cover rural residential enclave. Viewing populations would primarily consist of travelers on SR-247 and local roads, residents of the Sunset Cove residential enclave, and other scattered rural residences in the western portion of Lucerne Valley.

KOP 17 – Cove Road in the Sunset Cove Residential Enclave

Figure 3.5-18 presents the existing view to the northeast from KOP 17 on Cove Road in the Sunset Cove residential enclave. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground natural landscape is of a flat, desert valley floor and Lucerne Dry Lake backdropped by the rounded to angular hills and horizontal ridges of the distant Ord Mountains. The colors of these natural landforms are light tan to lavender transitioning to bluish hues at distance. The textures of these landforms are smooth to granular and coarse. Vegetation, consisting of tan, gray, and pale yellow grasses and tan and muted green shrubs, is fairly evenly distributed but with some patchiness and exhibits an overall matte-textured appearance. Overall, the natural landscape appears relatively common and non-descript. Within the foreground to middleground views, however, are the visually prominent and industrial-appearing energy infrastructure within the existing SCE transmission line corridor. The geometric and structurally complex forms and smooth, steel surface-texture of the lattice towers impart substantial industrial character to the existing landscape character. Less prominent in the view are the geometric (mostly white) structures that make up a portion of the Sunset Cove residential area.

Viewer Concern. High. Although energy transmission infrastructure is visually dominant in the landscape visible from this community, residential viewers would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background mountains, valley floor, or sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of Sunset Cove residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 17, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

3.5.3.6 Southern Apple Valley

This portion of the study area is located west of Lucerne Valley, east of the Mojave River, and south of the Town of Apple Valley and the Granite Mountains. The study area includes predominantly rural

residential areas. Viewing populations along this portion of the study area would primarily consist of travelers on local roads and residents.

KOP 18 – Westbound SR-18

Figure 3.5-19 presents the existing view to the southwest from KOP 18 near where SCE's Lugo-Pisgah transmission line corridor crosses SR-18, approximately 7.5 miles southeast of the Town of Apple Valley. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground landscape (beyond the wide road turnout) is flat, desert valley floor except for the rounded to angular rocky ridge of the southernmost extent of the Granite Mountains (right side of the image). The natural landscape features are light tan and light to dark grays and exhibit textures that are matte to granular and coarse. The vegetation is tan (grasses) and muted green (shrubs), is fairly evenly distributed, and is overall matte-textured in appearance. Overall, the natural landscape appears relatively common and non-descript. Within the foreground views, however, are the structurally complex, geometric forms of the industrial-appearing energy infrastructure within the existing SCE transmission line corridor. The lattice towers appear visibly prominent due to the absence of any visually absorbing landscape features (i.e., the structures extend above the horizon). SR-18 is also visible in the image.

Viewer Concern. High. Although repeat travelers on this stretch of SR-18 anticipate the prominent presence of SCE's existing transmission line corridor, any perceived increase in industrial character, structure prominence, or view blockage of higher value landscape features (ridgeline and sky) would be experienced as an adverse visual effect.

Viewer Exposure. High. A project in this vicinity would be highly visible in the foreground views of travelers on SR-18. The number of viewers would be High, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 18, combining the equally weighted Low to Moderate visual quality, High viewer concern, and High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 19 – Milpas Drive

Figure 3.5-20 presents the existing view to the west from KOP 19 on Milpas Drive, approximately 6.12 miles southeast of the Town of Apple Valley. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape is of a flat, desert valley floor backdropped by partially obscured (by shrubby vegetation) rounded mountains. These natural landforms are light tan to gray and brown transitioning to bluish hues at distance and present textures that are smooth to granular and coarse. Vegetation, consisting of tan, gray, and pale to golden yellow grasses and tan, brown, and muted green shrubs, has an overall matte texture and exists in patchy clumps that become visually continuous at distance. The only apparent built structures in the image are Milpas Drive and a single transmission line structure in the background (far left side of the image in front of the mountains).

Viewer Concern. High. Nearby residents along Milpas Drive anticipate the relatively unobstructed panoramic views across this eastern portion of the valley. Any addition of industrial character to the

predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, distant mountains, and sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views from Milpas Drive and adjacent residences. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 19, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 20 – Westbound Desert View Road

Figure 3.5-21 presents the existing view to the west from KOP 20 on Desert View Road. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape is flat, desert valley floor, which is light tan with smooth to granular and coarse textures. The unpaved Desert View Road is visually prominent in the image. Vegetation consists of tan, gray, and pale to golden yellow grasses and tan, brown, and muted green shrubs with an overall matte-textured appearance. The vegetation occurs in patchy clumps but appears fairly continuous in distribution at distance. The only apparent built structures include those of a roadside, wood-pole utility line. While the landscape is relatively natural in appearance, Desert View Road and the rough-hewn, wood-pole utility line do not appear inconsistent with the rural character of the existing landscape.

Viewer Concern. High. Though the roadside wood utility poles are noticeable foreground features, travelers on Desert View Road anticipate a relatively undeveloped landscape. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor and sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views from Desert View Road. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 20, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 21 – Eastbound Desert View Road

Figure 3.5-22 presents the existing view to the east from KOP 21 on Desert View Road. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape is of a flat, desert valley floor and partially obscured (by vegetation) rounded mountains. Landform colors are tan to lavender

and of bluish hues at distance. Landform textures are smooth to granular and coarse. Vegetation, consisting of tan, gray, and pale to golden yellow grasses and tan, brown, and muted green shrubs exhibit an overall matte-textured appearance. Vegetation occurs in patchy clumps but appears fairly continuously distributed at distance. Built structures existing in the view include the prominently visible, unpaved Desert View Road and roadside, wood-pole utility and H-frame transmission structures. While the landscape is relatively natural in appearance, the unpaved Desert View Road and wood-pole lines do not appear inconsistent with the rural character of the existing landscape.

Viewer Concern. High. Though the roadside, wood utility poles are noticeable foreground features, travelers on Desert View Road anticipate a relatively undeveloped, rural landscape. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (valley floor, distant mountains, and sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of travelers on Desert View Road. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 21, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 22 – Westbound Ocotillo Way

Figure 3.5-23 presents the existing view to the southwest from KOP 22 on westbound Ocotillo Way, south of the Town of Apple Valley. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape consists of a flat, desert valley floor and rounded, northern foothills of the San Bernardino Mountains (left side of image) backdropped by the distant San Gabriel Mountains. The foothills and mountains contribute visual interest to the landscape. The colors of these landforms are light tan transitioning to bluish hues at distance. Their textures are smooth to matte. Vegetation, consisting of tan and pale to golden yellow grasses, tan and muted green shrubs, and dark green trees exhibit an overall matte-textured appearance. The vegetation is fairly evenly distributed but with some patchiness. The landscape includes dispersed rural residences and is dominated by the structurally complex, geometric forms and industrial appearance of the existing lattice-steel transmission line towers. Wood-pole fencing is also visibly prominent in the image.

Viewer Concern. High. Although energy transmission infrastructure features prominently in the landscape visible from this community, residential viewers and travelers on Ocotillo Way would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background mountains, valley floor, or sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of residential viewers and travelers on Ocotillo Way. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 22, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

General Night Lighting. In general, the majority of the Southern Apple Valley Area experiences a very dark night environment, with the exception of lights from scattered rural residences.

FAA Hazard Lighting. There are no apparent FAA hazard lights in the Southern Apple Valley.

3.5.3.7 Hesperia

The study area includes predominantly rural and suburban residential areas of Hesperia. Viewing populations would primarily consist of travelers on local roads and residents.

KOP 23 – Glendale Avenue

Figure 3.5-24 presents the existing view to the southeast across the Mojave River to the Ord Mountains beyond, from KOP 23 on Glendale Avenue at the intersection with Danbury Avenue in the Hesperia Mobile Home Estates in Hesperia. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground to middleground landscape consists of a flat, desert valley and floor and dry wash and angular forms of the background Ord Mountains, which contribute visual interest to the landscape. The colors of these landforms are light tan transitioning to bluish hues at distance. Their textures are smooth to matte. Vegetation, consisting of tan and pale to golden yellow grasses, and tan and muted green shrubs and trees, exhibits an overall matte-textured appearance. The vegetation is fairly evenly distributed but with some patchiness. The landscape includes dispersed rural residences and is dominated by the structurally complex, geometric forms and industrial appearance of the 220-kV transmission lines (though only the conductors are visible in the frame of view presented in Figure 3.5-24). A portion of a wood-pole utility line is also visible in the image.

Viewer Concern. High. Although energy transmission infrastructure features prominently in the landscape visible from residences located immediately north and south of the ROW, residents would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background mountains, valley floor, or sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of residential viewers and travelers on Glendale Avenue. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 23, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 24 – Kimball Street

Figure 3.5-25 presents the existing view to the southwest from KOP 24 on Kimball Street in the City of Hesperia. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground is of a flat, desert valley floor with suburban residences of one- and two-story single-family homes dominated by an adjacent energy transmission corridor. While generally lacking distinctive landscape features or characteristics, the rounded to angular, distant San Gabriel Mountains provide a backdrop of visual interest. The natural desert valley floor is light tan and transitions to bluish hues at distance. Its textures are smooth to matte and granular. Vegetation, consisting primarily of muted green shrubs in the ROW and dark green trees associated with the residential developments, exhibits an overall matte-textured appearance and is fairly evenly distributed but with some patchiness. Light gray chain link fencing is also present in the immediate foreground. Visually prominent in the landscape, however, is the structurally complex, geometric forms, and industrial-appearing lattice-steel transmission line towers and linear conductors.

Viewer Concern. High. Although energy transmission infrastructure features prominently in the foreground of views from the adjacent neighborhoods, residents would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background mountains and sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of residents. The number of viewers would be Low to Moderate, and the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 24, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

General Night Lighting. This portion of the study area includes the suburban neighborhoods of the City of Hesperia; night lighting would be typical of suburban residential areas.

FAA Hazard Lighting. There are numerous FAA hazard lights in the southwest portion of the City of Hesperia. Specifically, on a hill south of Lugo Substation is a communication tower with four FAA hazard lights in a stacked formation of two upper, flashing, red lights and two lower, static, red lights. There are also two existing transmission line structures at a span of Interstate 15 (I-15) with two hazard lights each. The upper light flashes, and the lower light is static. Also, nearby to the Lugo Substation is a collection of four communication/radio towers with the four upper FAA hazard lights flashing and the lower four lights static. More distantly to the north, there is another set of flashing hazard lights.

3.5.3.8 Ord Mountain and Summit Valley

This portion of the study area passes south through Arrastre Canyon, southwest through the Juniper Flats ACEC, and west towards the City of Hesperia. Aside from the prominent 500-kV transmission corridor, this portion of the study area passes through predominantly natural-appearing landscapes and dispersed, rural residential areas south of the Town of Apple Valley and east of the City of Hesperia. Viewing populations primarily consist of travelers on local roads and the relatively few local residents.

KOP 25 – Summit Valley Road

Figure 3.5-26 presents the existing view to the southwest from KOP 25 on Summit Valley Road.

Visual Quality. Low to Moderate. While predominantly natural in appearance, the landscape does exhibit a complex of modifications associated with rural residential development, ornamental

plantings, existing utility infrastructure, a roadway, and a railway. The foreground landscape is of dispersed rural residences with noticeable, geometric, structurally-complex, and industrial-appearing lattice-steel transmission line structures. Foreground to middleground vegetation consists of a complex of tan and pale yellow to golden grasses, muted green shrubs, and green trees. A landform context of the flat, horizontal foreground backdropped by rolling hills and the more distant, angular San Gabriel Mountains, contributes visual interest.

Viewer Concern. High. Although energy transmission infrastructure features prominently in the landscape visible from this stretch of Summit Valley Road and the adjacent residences, viewers would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (background hills, mountains, or sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of travelers on Summit Valley Road and nearby residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 25, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 26 – Bowen Ranch Road in Arrastre Canyon

Figure 3.5-27 presents the existing view to the east from KOP 26 on Bowen Ranch Road in Arrastre Canyon near the intersection with Valley View Road. This viewpoint is not located on BLM-managed land.

Visual Quality. Moderate. The landscape consists of panoramic views of portions of the predominantly natural-appearing and undeveloped Arrastre Canyon with its flat canyon floor and angular canyon wall. The angular ridge of the northern foothills of the San Bernardino Mountains occurs in the background in the right one-half of the image. The coloration of these landforms includes light tan and gray with lavender and bluish hues at distance. Landform textures are smooth to granular and coarse. Vegetation includes tan and pale to golden yellow grasses and tan and muted green shrubs with an overall matte-textured appearance. Vegetation occurs as patchy clumps that appear more evenly distributed at distance. The only apparent built structures in this view are two barely discernible, distant transmission line structures (far right side of the image partially showing above the ridgeline).

Viewer Concern. High. Travelers on Bowen Ranch Road and nearby residents anticipate the relatively unspoiled panoramic views of the foothills and Arrastre Canyon landscape. Any addition of industrial character to the predominantly natural-appearing landscape or structural elements causing blockage of views to more valued landscape features (canyon features, background mountains, hills, and sky) would be seen as an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of travelers on Bowen Ranch Road and nearby residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 26, combining the equally weighted Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

KOP 27 – Arrowhead Lake Road

Figure 3.5-28 presents the existing view to the northwest from KOP 27 on Arrowhead Lake Road. This viewpoint is not located on BLM-managed land.

Visual Quality. Low to Moderate. The foreground landscape is of rounded to low rolling hills and ridges that are light tan in color and smooth- to granular- and coarse-textured. Vegetation, consisting of tan and pale yellow grasses and tan, gray, and muted green shrubs exhibits an overall matte-textured appearance. Vegetation is fairly evenly distributed and in distinct clumps for larger shrubs. Built structures in the landscape include dispersed rural residences, but the landscape is dominated by the geometric, structurally complex, and industrial-appearing transmission line towers (that skyline), the linear forms of Arrowhead Lake Road, and white roadside fences. With the exception of the roadside residences, their associated fencing, and the existing lattice-steel transmission line structures, the surrounding landscape is predominantly natural in appearance as the corridor traverses the northern foothills of the San Bernardino Mountains.

Viewer Concern. High. Although energy transmission infrastructure features prominently in the landscape visible within this residential area, residential viewers and travelers on Arrowhead Lake Road would consider any increase in industrial character, structure prominence, or view blockage of higher value landscape features (hills or sky) an adverse visual change.

Viewer Exposure. Moderate to High. A project in this vicinity would be highly visible in the foreground views of travelers on Arrowhead Lake Road and nearby residents. The number of viewers would be Low, but the duration of view would be Extended. Combining the four equally weighted factors (i.e., visibility, distance zone, number of viewers, and duration of view) results in an overall rating of Moderate to High for viewer exposure.

Overall Visual Sensitivity. Moderate to High. For viewers in the vicinity of KOP 27, combining the equally weighted Low to Moderate visual quality, High viewer concern, and Moderate to High viewer exposure results in an overall rating of Moderate to High for visual sensitivity of the visual setting and viewing characteristics.

General Night Lighting. The majority of the Ord Mountain and Summit Valley area east of the City of Hesperia is located in a dark night environment with no noticeable night light sources. The limited night lighting occurs at the crossings of Arrowhead Lake Road and Summit Valley Road and is associated with the few scattered residences located along these two roads.

FAA Hazard Lighting. There is no FAA hazard lighting in the Ord Mountain and Summit Valley area to the east of the City of Hesperia. More distant hazard lighting is found: (1) on the hillside to the south, (2) near Lugo Substation, (3) near I-15, and (4) farther to the north as described above for the Hesperia area.

3.6 Utilities and Public Services

This section describes the environmental conditions related to utilities and public services in the study area. Government agencies have categorized data pertaining to utility systems as sensitive critical infrastructure information (including location, capacity, and type). As a result, public access to these data is generally restricted for security reasons; therefore, only information that is readily accessible to the public is presented in this section.

The study area is served by public service and utility systems in unincorporated San Bernardino County, the Town of Apple Valley, and the cities of Barstow and Hesperia. A variety of regional and local purveyors in these areas provide and maintain public services and utility systems associated with fire and police protection, schools, hospitals, natural gas, electricity, water, solid waste collectors and facilities, and public works facilities. The following section discusses the size and extent of the public services that serve the study area.

3.6.1 Public Services

3.6.1.1 Fire Protection Services

Fire protection throughout the study area is provided by the San Bernardino County Fire Department, and the local jurisdictional fire departments of the cities of Hesperia, Barstow, and the Town of Apple Valley. The San Bernardino County Fire Department operates 70 fire stations that service the unincorporated areas of San Bernardino County and maintains service contracts with five of the 24 cities in the County: Adelanto, Barstow, Hesperia, Twentynine Palms, and Victorville. The San Bernardino County Fire Department also provides hazardous materials response, household hazardous waste collection, emergency planning, and swift water rescue. (SBCFD, 2014)

The Apple Valley Fire Protection District services the Town of Apple Valley with fire prevention activities, hazardous materials and technical rescue response capabilities, and disaster preparedness programs. The Apple Valley Fire Protection District operates seven fire stations (AVFPD, 2013).

In the event of a fire emergency, all fire stations in San Bernardino County would respond as needed in accordance with the California Master Mutual Aid Agreement, Section 8561 of the California Government Code. Table 3.6-1 details the fire protection services available to the San Bernardino County Fire Department, and the incorporated cities in San Bernardino County.

Table 3.6-1. Fire Protection Services by Jurisdiction

Fire Station	Jurisdiction/Areas Served
Apple Valley Fire Protection District	
Station 331, 22400 Headquarters Dr., Apple Valley	Apple Valley
Station 332, 18857 Highway 18, Apple Valley	Apple Valley
Station 333, 20604 Highway 18, Apple Valley	Apple Valley
Station 334, 12143 Kiowa Rd., Apple Valley	Apple Valley
Station 335, 21860 Tussing Ranch Rd., Apple Valley	Apple Valley
Station 336, 19235 Yucca Loma Rd., Apple Valley	Apple Valley
Station 337, 19305 Jess Ranch Pkwy., Apple Valley	Apple Valley
Barstow Fire Protection District	
861 Barstow Rd., Barstow	Barstow
Daggett Fire Department	

Table 3.6-1. Fire Protection Services by Jurisdiction	
Fire Station	**Jurisdiction/Areas Served**
33702 2nd St., Daggett	Daggett
City of Hesperia Fire Department	
17288 Olive St., Hesperia	Hesperia
San Bernardino County Fire Department[1]	
Station 11, 2925 El Mirage Rd., El Mirage	Hesperia, Victorville, Apple Valley
Station 321, 11741 Hardy Ave., Adelanto	Hesperia, Victorville, Apple Valley
Station 322, 10370 Rancho Rd., Adelanto	Hesperia, Victorville, Apple Valley
Station 13, 10370 Rancho Rd., Adelanto	Hesperia, Victorville, Apple Valley
Station 10, 9625 Beekley Rd., Phelan	Hesperia, Victorville, Apple Valley
Station 14, 5980 Elm St., Wrightwood	Hesperia, Victorville, Apple Valley
Station 16, 11855 E St., Victorville	Hesperia, Victorville, Apple Valley
Station 305, 8331 Caliente Rd., Hesperia	Hesperia, Victorville, Apple Valley
Station 48, 4691 Summit Valley Rd., Hesperia	Hesperia, Victorville, Apple Valley
Station 304, 15660 Eucalyptus St., Hesperia	Hesperia, Victorville, Apple Valley
Station 303, 17443 Lemon St., Hesperia	Hesperia, Victorville, Apple Valley
Station 302, 17288 Olive St., Hesperia	Hesperia, Victorville, Apple Valley
Station 8, 33269 Old Woman Springs Rd., Lucerne Valley	Lucerne Valley, Apple Valley
Station 7, 10575 Dido Ave., Lucerne Valley	Lucerne Valley, Apple Valley
Station 301, 9430 11th Ave., Hesperia	Hesperia, Victorville, Apple Valley
Station 4, 27089 Helendale Rd., Helendale	Victorville, Barstow
Station 319, 18550 Readiness St., Victorville	Hesperia, Victorville, Apple Valley
Station 312, 18550 Readiness St., Victorville	Hesperia, Victorville, Apple Valley
Station 37, 13782 El Evado Rd., Victorville	Hesperia, Victorville, Apple Valley
Station 313, 13086 Amethyst Rd., Victorville	Hesperia, Victorville, Apple Valley
Station 315, 12820 Eucalyptus St., Victorville	Hesperia, Victorville, Apple Valley
Station 311, 16200 Desert Knoll Dr., Victorville	Hesperia, Victorville, Apple Valley
Station 314, 17008 Silica Rd., Victorville	Hesperia, Victorville, Apple Valley
Station 22, 17008 Silica Rd., Victorville	Hesperia, Victorville, Apple Valley
Station 52, 39050 Kathy Ln., Newberry Springs	Barstow
Station 56, 37284 Flower St., Hinkley	Barstow
Victorville Fire Department	
14343 Civic Dr., Victorville, CA 92392	Victorville

Source: AVFPD, 2013; SBCFD, 2014

Note(s):

1. Stations listed are part of Division 2 (North Desert) and Division 3 (High Desert) of the San Bernardino County Fire Department. These stations would most likely respond to emergencies in the study area.

3.6.1.2 Police Protection Services

California Highway Patrol (CHP)

The CHP provides traffic regulation enforcement; oversees response to emergency incidents on California's highways, or assists other public agencies responding to emergency incidents; and promotes the safe and efficient movement of people and goods on California highways to minimize loss of life, injuries, and property damage. The CHP officers patrol State highways and implement the CHP's other law enforcement activities (e.g., drug interception, vehicle theft investigation and

prevention, vehicle inspections, accident investigations, and public awareness campaigns), with the support of the non-uniformed personnel assigned to area and division offices.

The CHP has eight divisions that provide services throughout California. The study area is located within the jurisdiction of the Inland Division, which includes 11 area offices, 9 resident posts, and 1 transportation management center, as well as 602 uniformed officers and 196 non-uniformed personnel (CHP, 2014). The Mojave-area office within the Inland Division would be the primary CHP responders in the event of an emergency in the study area.

San Bernardino County Sheriff's Department

The San Bernardino County Sheriff's Department is the primary law enforcement agency for San Bernardino County and provides both community policing and operations and maintenance for correctional facilities. The San Bernardino County Sheriff's Department has approximately 3,400 employees.

Five sheriff substations are located throughout the County to provide area-level community service, including sheriff substations in the Town of Apple Valley, Barstow, Hesperia, and Victorville, and the unincorporated community of Lucerne Valley. The closest sheriff's substation to the study area is the Lucerne Valley Substation, located at 32818 Verdugo Road, Lucerne Valley.

The Town of Apple Valley contracts with the San Bernardino County Sheriff's Department for all public safety-related services. As part of the Town of Apple Valley Police Department, it provides general patrol in addition to special teams for traffic enforcement, retail theft, and gang-related crimes (Town of Apple Valley, 2012).

The City of Hesperia also contracts with the San Bernardino County Sheriff's Department to provide primary police protection services. This department consists of 57 sworn law enforcement personnel supporting marked-unit patrols, traffic enforcement, gang enforcement, graffiti/vandalism investigation and abatement, and advanced investigations (SBCSD, 2014a).

The City of Barstow Police Department, located at 220 East Mountain View Street, has jurisdiction across northern portions of the study area. The Barstow Police Department provides the primary police protection services for the City of Barstow and consists of a patrol division, traffic division, and multiple enforcement teams.

Table 3.6-2 provides the police agencies and areas served within the study area.

Table 3.6-2. Police Services by Jurisdiction

Police Protection Agency	Jurisdiction/Areas Served
Barstow Police Department	
220 East Mountain View St, Suite B, Barstow	Barstow
San Bernardino County Sheriff's Department	
32818 Verdugo Rd, Lucerne Valley	Lucerne Valley, East Apple Valley
14200 Amargosa Rd, Victorville	Victorville
15840 Smoketree St, Hesperia	Hesperia
225 East Mountain View St, Barstow	Barstow, Daggett
14931 Dale Evans Pkwy, Apple Valley	Apple Valley

Source: City of Barstow, 2014; SBCSD, 2014b

3.6.1.3 Schools

Table 3.6-3 provides the location, number of schools, grade levels, and the number of enrolled students in public school districts serving the study area.

Table 3.6-3. Public Schools by District

School District	Areas Served	No. of Schools	Grade Level	Number Enrolled
Hesperia Unified School District	City of Hesperia and adjacent areas in the High Desert of San Bernardino County	32	K-12	22,836
Silver Valley Unified School District	Communities of Daggett, Fort Irwin, Ludlow, Newberry Springs, and Yermo	7	K-12 (including adult educ.)	2,600
Apple Valley Unified School District	Apple Valley	13	K-12	13,500
Lucerne Valley Unified School District	Lucerne Valley	6	K-12	900
Barstow Unified School District	Barstow	13	K-12 (including adult education)	7,200
Victor Elementary School District	Victorville	19	K-6	11,633
Victor Valley Union High School District	Victorville and adjacent areas in the High Desert of San Bernardino County	8	6-12	10,000

Source: AVUSD, 2014; BUSD, 2014; education.com, 2014; HUSD, 2014; LVUSD, 2014; SVUSD, 2014; VVUHSD, 2014

3.6.1.4 Emergency Healthcare Facilities

Table 3.6-4 provides the location and current capacity of emergency healthcare facilities serving the study area.

Table 3.6-4. Healthcare Facilities

Name/Location	Areas Served	Capacity
Barstow Community Hospital	Barstow	30 beds
Desert Valley Hospital	Apple Valley, Daggett, Hesperia, Lucerne Valley, Victorville	148 beds
St. Joseph Health, St. Mary Medical Center	Apple Valley, Daggett, Hesperia, Lucerne Valley, Victorville	206 beds
Victor Valley Global Medical Center	Apple Valley, Daggett, Hesperia, Lucerne Valley, Victorville	101 beds

Source: BCH, 2014; DVH, 2014; SJH, 2014; VVGMC, 2014

3.6.2 Utility Systems

Utility networks and facilities associated with natural gas, electricity, wastewater, domestic (potable) water, solid waste, and disposal facilities are typically provided and maintained by a variety of local purveyors, including cities, counties, special districts, water agencies, and private companies. Utilities such as domestic water, wastewater and stormwater sewers, and natural gas are usually transmitted via underground pipelines or conduits. Electricity services can also be installed underground or overhead on utility poles. The vast majority of the urban utility and public service infrastructure exists within public rights-of way. As a national security measure, the exact locations of underground lines are not publicized, and therefore, are not available.

3.6.2.1 Natural Gas

Natural gas utility systems throughout the study area are provided by the following companies:

- Southern California Gas Company (San Bernardino County)
- Southwest Gas Corporation (Barstow, Hesperia)

3.6.2.2 Electricity

Southern California Edison (SCE) is the principal provider of electricity in the study area and serves the cities of Hesperia and Barstow as well as the neighboring unincorporated County communities. Other electrical utility systems in the study area include the Los Angeles Department of Water and Power's transmission corridor (i.e., Victorville-to-LA Basin System), which transmits power into the Los Angeles Basin from distant resources in Utah and the Desert Southwest (LADWP, 2013).

3.6.2.3 Telecommunications

Telecommunication (cellular) sites are located throughout the study area, with some of these sites situated adjacent to or attached to existing transmission structures.

3.6.2.4 Wastewater

The following agencies provide wastewater services for the cities and communities in the study area:

- The City of Barstow Public Works Department
- The Town of Apple Valley Public Services Department
- The Hesperia Water District

3.6.2.5 Water Supply and Wastewater

The Department of Water Resources administers the State Water Project, which brings water to Southern California. The Mojave Water Agency maintains the water supply for the High Desert Region of San Bernardino County. The boundaries of the Mojave Water Agency encompass approximately 4,900 square miles of the High Desert in San Bernardino County. As a State water contractor, the Mojave Water Agency is entitled to receive an annual allotment of up to 82,800 acre feet of water from the State Water Project via the California Aqueduct (MWA, 2014).

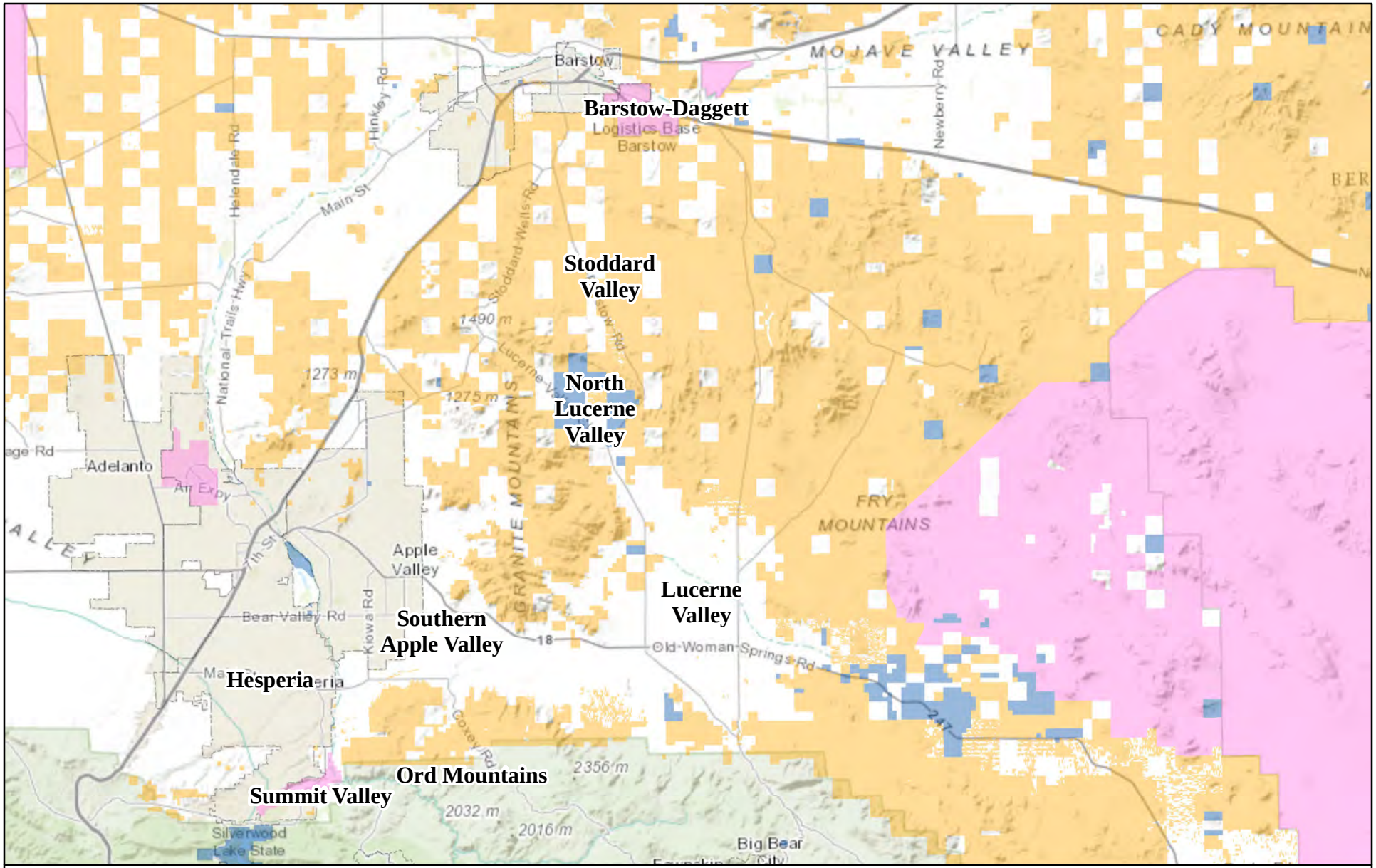
The primary providers for drinking water and sewage collection, treatment, and disposal services in the study area are the local jurisdictions, which include, but are not limited to, the following:

- Hesperia Water District
- Mariana Ranchos County Water District
- Apple Valley Ranchos Water Company
- Daggett Community Services District
- County Service Area 70 J (water district within the Special Districts Department serving Oak Hills)
- Golden State Water Company Apple Valley South System
- Golden State Water Company Desert View System
- Apple Valley Heights County Water District
- Southern California Water Company

3.6.2.6 Solid Waste

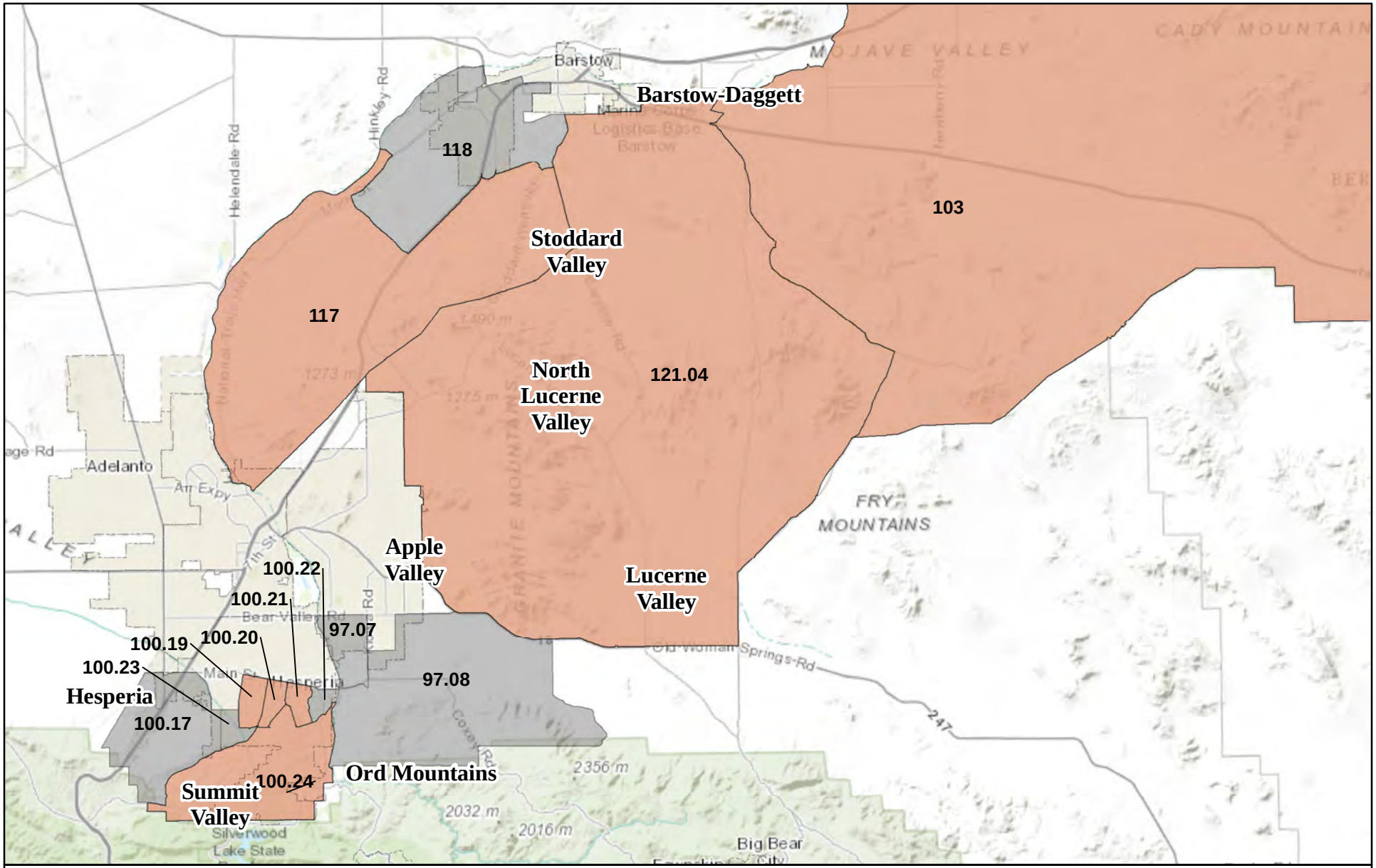
The County of San Bernardino Solid Waste Management Division provides waste and recycling services to San Bernardino County, and operates five regional landfills and nine transfer stations (SBCDPW, 2013). Trash collection in the unincorporated areas of San Bernardino County is provided by private haulers. The following facilities are located in the High Desert region of San Bernardino County and in the vicinity of the study area.

- **The Barstow Sanitary Landfill** is located at 32553 Barstow Road (also referred to as SR-247) in unincorporated San Bernardino County. The landfill property consists of approximately 645 acres, of which approximately 331 acres are currently used for waste disposal activities. The landfill has a maximum capacity of approximately 80,354,500 cubic yards and is expected to reach capacity in 2071. (CalRecycle, 2014a).
- **The Victorville Sanitary Landfill** is located at 18600 Stoddard Wells Road in the City of Victorville, west of I-15, and services the Town of Apple Valley in addition to the City of Victorville. The landfill property consists of approximately 491 acres, of which approximately 341 acres are currently used for waste disposal activities. The landfill has a maximum capacity of approximately 83,200,000 cubic yards and is expected to reach capacity in 2047. (CalRecycle, 2014b).



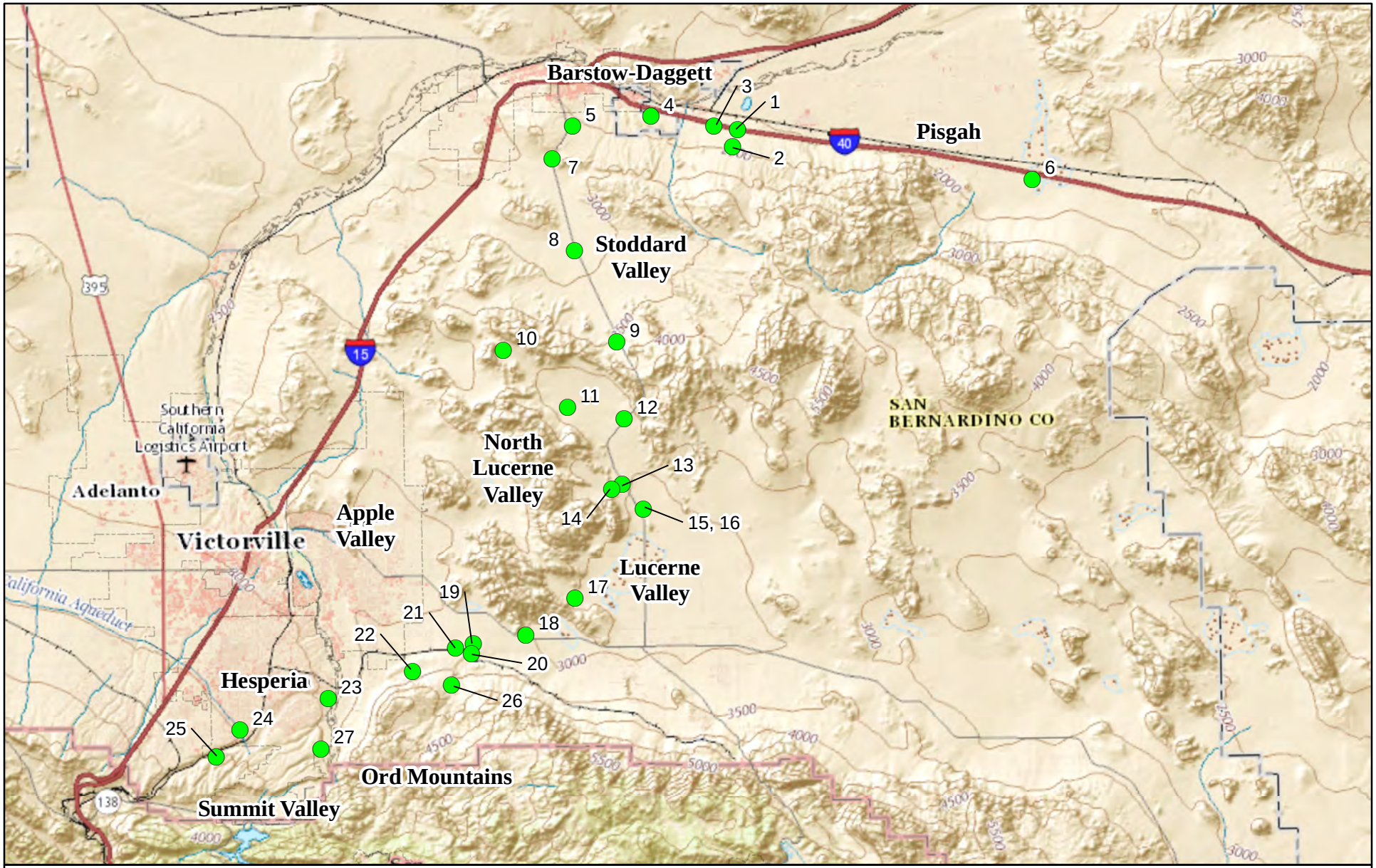
Land Ownership

Figure 3.1-1



U.S. Census Tracts Containing Identified Low-Income Population

Figure 3.2-1



KOP Locations

Figure 3.5-1

KOP 1
Route 66 West
Existing View

Figure 3.5-2

KOP 2
Westbound Camp Rock Road
Existing View

Figure 3.5-3

KOP 3
Camp Rock Road
Existing View

Figure 3.5-4

KOP 4
Westbound I-40
Existing View

Figure 3.5-5

KOP 5
SR-247, Barstow
Existing View

Figure 3.5-6

KOP 6
Route 66 East
Existing View

Figure 3.5-7

KOP 7
SR-247 - Stoddard Valley
Existing View

Figure 3.5-8

KOP 8
Southbound SR-247 at the Slash X Café
Existing View

Figure 3.5-9

KOP 9
Northbound SR-247, Stoddard Valley
Existing View

Figure 3.5-10

KOP 10
Lucerne Valley Cutoff - North
Existing View

Figure 3.5-11

KOP 11
Lucerne Valley Cutoff - South
Existing View

Figure 3.5-12

KOP 12
Southbound SR-247, Lucerne Valley
Existing View

Figure 3.5-13

KOP 13
Spinel Street and Algoman Avenue in Lucerne Valley
Existing View

Figure 3.5-14

KOP 14
Spinel Street - Lucerne Valley
Existing View

Figure 3.5-15

KOP 15
Northbound SR-247, Lucerne Valley
Existing View

Figure 3.5-16

KOP 16
SR 247 - Lucerne Valley
Existing View

Figure 3.5-17

KOP 17
Cove Road in the Sunset Cove Residential Enclave
Existing View

Figure 3.5-18

KOP 18
Westbound SR-18
Existing View

Figure 3.5-19

KOP 19
Milpas Drive
Existing View

Figure 3.5-20

KOP 20
Westbound Desert View Road
Existing View

Figure 3.5-21

KOP 21
Eastbound Desert View Road
Existing View

Figure 3.5-22

KOP 22
Westbound Ocotillo Way
Existing View

Figure 3.5-23

KOP 23
Glendale Avenue
Existing View

Figure 3.5-24

KOP 24
Kimball Street
Existing View

Figure 3.5-25

KOP 25
Summit Valley Road
Existing View

Figure 3.5-26

KOP 26
Bowen Ranch Road in Arrastre Canyon
Existing View

Figure 3.5-27

KOP 27
Arrowhead Lake Road
Existing View

Figure 3.5-28