

3.0 AFFECTED ENVIRONMENT

This chapter describes relevant existing environmental conditions in the Bautista Canyon Road Project area. Information presented in this chapter serves as baseline data to identify and evaluate any potential effects that could result from implementation of the alternatives under consideration.

In accordance with NEPA, FHWA Guidelines implementing NEPA, and CEQA regulations, an EIS/EIR should focus on those resource areas potentially subject to environmental effects within the geographic scope of potential effects referred to as the study area. As noted, potential effects were studied between logical termini, from the community of Valle Vista to the north to approximately 2.4 km (1.5 mi) west of the community of Anza to the south (see Figure 1.3-2). The scope of analysis ensures that the environmental impact study covers a broader geographic area rather than the strict limits of the transportation improvements. The affected environment is described for the following resources: land use, socioeconomic/environmental justice, traffic/transportation, air quality, noise, biological resources, hydrology/water resources, cultural resources, hazards and hazardous materials, visual resources, recreation, soils/geology, public services/utilities, and fire hazards and risk. This chapter is organized as follows for each environmental topic:

Definition of Resource. A brief discussion defines the resource or environmental topic and defines the project study area boundary for each resource or environmental topic.

Existing Setting. Information in the existing setting contains a discussion of the local and regional environment conditions (environmental and human-made) in existence at the time this EIS/EIR was prepared. Existing setting information provides the reader with the baseline from which future effects are analyzed and provides a standard against which to measure these effects.

Regulatory Setting. The regulatory setting identifies federal, state, and local plans, policies, and regulations applicable to the subject resource topic.

Thresholds of Significance. Determinations regarding the significance of potential effects resulting from implementation of the proposed action are provided. These thresholds represent the criteria used in this EIS/EIR to determine whether identified effects are significant as required by CEQA. Unless otherwise stated, the thresholds of significance listed under each issue area were taken from CEQA Guidelines, Appendix G. Adopted or established federal or state standards for issue areas such as air quality, traffic/transportation, biological and cultural resources, and noise also were used to determine level of significance.

Environmental Consequences. An analysis of potential effects of the four alternatives is provided in each section. This discussion focuses on the effects of implementation of the proposed action and includes potential short-term/long-term and direct/indirect project effects, cumulative effects, and unavoidable effects and consistency with applicable planning documents or regulations.

Mitigation Measures. The measures proposed to mitigate any potential effects of the proposed action are identified.

3.1 Land Use

Land use can be separated into two major categories: natural and human-modified. Natural land use includes open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, communications and utilities, agricultural, institutional, recreational, and other developed use areas. Land use is regulated by management plans, policies, regulations, and ordinances that determine the type and extent of land use allowable in specific areas and protect specially designated or environmentally sensitive areas. The project study area for land use encompasses the Bautista Management Unit (BMU) of the SBNF and adjacent Riverside County communities (Figure 3.1-1).

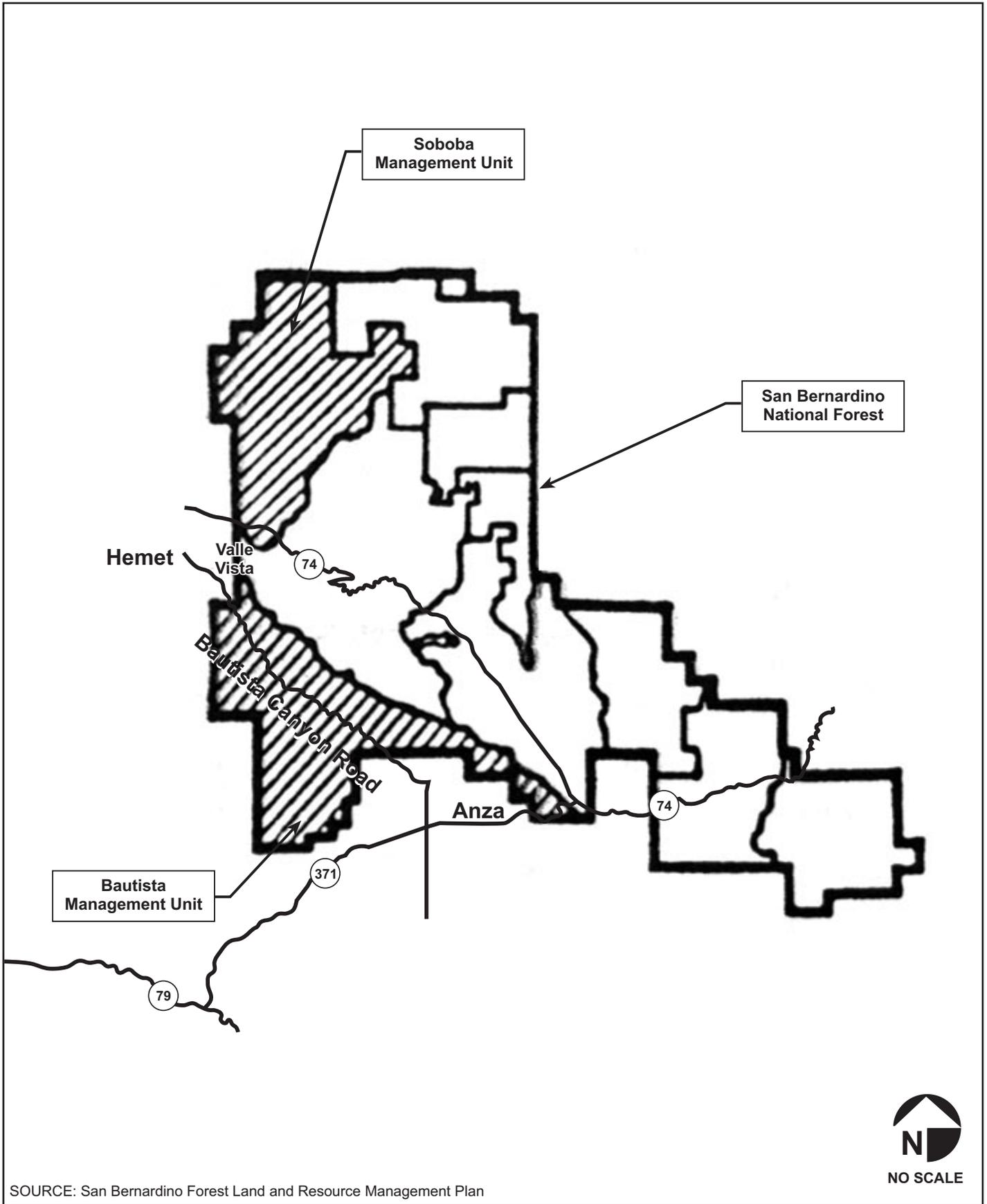
3.1.1 Existing Conditions

The 13.2 km (8.2 mi) segment of Bautista Canyon Road is located mostly within the SBNF in central Riverside County. Thus, the majority of the existing roadway is located on public lands (state and federal). The southernmost 2.3 km (1.4 mi) segment traverses through rural residential and undeveloped private lands. Surrounding land uses are characterized as undeveloped open space and passive recreational lands.

Valle Vista is a small, unincorporated community located adjacent to and east of the City of Hemet at the north project limits. The study area includes the first three blocks along Fairview Avenue within Valle Vista, just south of SH 74 (Florida Avenue). Land use is primarily single-family residential on the east side of the roadway and community facilities (library, community center, and elementary school) on the west side of the roadway. Farther south, land use is mostly undeveloped open space and orchards. Within the SBNF, land use is mainly open space throughout the corridor with exception of the CDC Conservation Camp, which is located at the northern terminus of project improvements. At the southern terminus just north of Anza, land use is primarily rural residential and undeveloped land.

Anza is a large-lot rural residential unincorporated community along SH 371 with commercial services along the highway serving area residents and the traveling public. The school and post office in Anza also serve the community. Basic utilities such as electricity, gas, and water are available in the community, as well as a library and a community center; however, there are no major commercial shopping centers and public facilities and services such as recreation facilities, hospitals/clinics, etc.

The County of Riverside is currently in the process of updating its General Plan. Development densities for unincorporated areas of the County may change with the adoption of a new General Plan. The updated General Plan Land Use Element shows planned land use to be very low-density residential and rural residential at the southern end of the proposed project adjacent to Anza, and the remainder of the area surrounding the project is designated for conservation-habitat use, consistent with current use. These planned land use designations



Soboba Management Area

FIGURE
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take into account the mountain arterial classification of Bautista Canyon Road in the REMAP. Because of land use designations and density restrictions, the County of Riverside anticipates minimal growth in the Anza area through the 2020 planning horizon (County of Riverside 2002a).

SBNF Land and Resource Management Plan (LRMP)

The SBNF Land and Resource Management Plan (LRMP) of 1989 was developed to guide management of the SBNF. The goal of the plan is to provide a management program that reflects a mix of activities that allow use and protection of forest resources; fulfills legislative requirements; and addresses local, regional, and national issues. The plan is reviewed and updated as necessary every 10 to 15 years. The plan divides the SBNF into 15 management areas. As noted, Bautista Canyon Road is located within the Soboba Management Area. As shown in Figure 3.1-1, the Soboba Management Area is divided into two separate units – the Soboba Management Unit to the north and the Bautista Management Unit (BMU) to the south. Bautista Canyon Road is located within the BMU, which totals approximately 11,736 ha (29,000 ac).

Within each management area, the USDAFS has defined Management Emphasis Zones (MEZs). MEZs are used to define areas that would receive particular management consideration when any treatments or activities are applied. Treatments are used mainly to improve wildlife habitat and for watershed protection (e.g., vegetation manipulation by mechanical removal [dozer, chain saw, etc.] or prescribed burning) (Florey 2003). Management considerations vary depending on the MEZ in which the proposed action is located. MEZs for the BMU are defined as custodial, range/wildlife, recreation, and watershed. As shown in Table 3.1-1, the majority of the BMU MEZs emphasize management of wildlife and watersheds. The greatest percentage of the project area is located within a watershed MEZ.

**Table 3.1-1
 Bautista Management Emphasis Zones**

Management Emphasis Zone	Percent of Area Receiving Treatment
Custodial	15%
Range/Wildlife	20%
Recreation	5%
Watershed	60%

Source: USDAFS (1989a)

3.1.2 Regulatory Setting

Federal

SBNF Land and Resource Management Plan

The SBNF LRMP establishes goals that provide a broad, overall direction for the management of resources within the forest. The following Plan goals would apply to the proposed action:

Air Quality

- *Emphasize protection of air quality in a manner consistent with state and federal air quality objectives.*

Diversity

- *Maintain natural diversity by emphasizing the use of native trees and shrubs for revegetation.*
- *Maintain the current distribution of plant and animal species.*

Facilities

- *Provide a Forest transportation system for administrative access and a variety of public uses.*

Historical and Cultural Resources

- *Inventory, protect, evaluate and enhance historical and cultural resources in accordance with legislative and administrative direction.*

Law Enforcement

- *Maintain cooperation with other law enforcement agencies.*

Recreation

- *Provide a wide range of developed and dispersed recreation opportunities with a shift toward day-use activities.*
- *Expand interpretive services program and activities.*

Riparian Areas

- *Protect and enhance riparian areas, giving emphasis to riparian dependent resources.*
- *Maintain water flow needed to support aquatic and riparian areas and dependent uses.*

Soils

- *Maintain long-term soil productivity and prevent permanent degradation of soils.*

Water

- *Maintain and enhance water quality to meet or exceed beneficial use requirements.*

Wildlife, Fish, and Sensitive Plants

- *Protect and improve habitats of threatened and endangered plants and animals to aid in the recovery of the species in cooperation with state and other federal agencies.*
- *Maintain and improve habitats of emphasis species.*

SBNF LRMP Lawsuit Settlement Agreement

On June 14, 1998, the Southwest Center for Biological Diversity filed a lawsuit against SBNF and three other National Forests in southern California on grounds of: (1) failure to consult with the USFWS under section 7 of the Endangered Species Act on the LRMPs for each forest; and (2) failure to consult on individual and ongoing actions that implement the LRMPs. As a result, consultation was initiated under a consultation agreement formalized between the USFS and USFWS on August 19, 1998. The August 19 agreement was superceded on January 15, 1999, by an updated agreement titled the "Southern California Conservation Strategy-Consultation Strategy." Pursuant to the new consultation strategy, the USFS initiated consultation on all four LRMPs on January 30, 1999. On March 1, 2000, the USFS reached a settlement agreement with the Southwest Center for Biological Diversity. Under the terms of the settlement agreement, the USFS is required to carry out specific actions to protect habitat, listed species, and species proposed for listing in the four southern California national forests. The protective measures required by the settlement agreement would apply to the proposed action. Protective measures relative to actions associated with the proposed project have been coordinated with SBNF. Project elements and mitigation measures would be consistent with applicable protective measures.

Local

County of Riverside General Plan/REMAP

Bautista Canyon Road is located within the General Plan REMAP area of Riverside County (see Figure 3.1-2). The REMAP defines the general study area as the Bautista Management Area (BMA). Land use within the northern and central portions of the BMA is defined as Open Space and Conservation Areas. Within the southeastern portion of the BMA, land use is defined as Rural Area. The Anza community is defined as a Village Area. Bautista Canyon Road is shown as a circulation facility, which transverses through the BMA.

The County Board of Supervisors establishes policy guidance for each of the planning areas of Riverside County including the REMAP area with the intent to enhance and/or preserve the identity, character, and features unique to REMAP. The following General Plan policies apply to the proposed action:

Area Plan-Wide

REMAP 3.20 Locate, operate and maintain public services and facilities in a manner that will not degrade environmental quality.

Noise

REMAP 6.1 Protect the environment in REMAP through adherence to the Noise Sensitive Land Uses section of the General Plan Noise Element.

Local Circulation

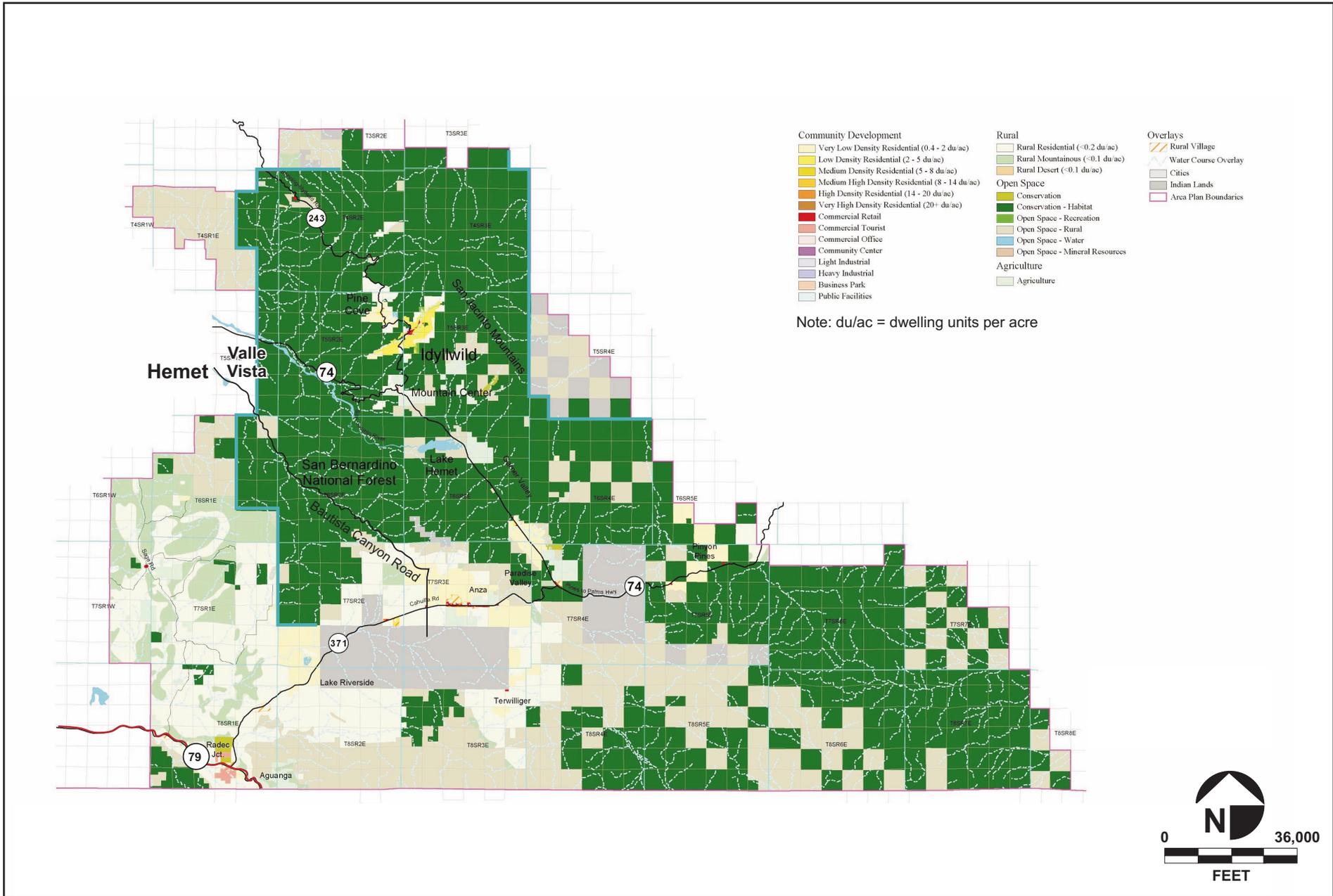
REMAP 8.1 Design and develop the vehicular roadway system per Figure 6 of the General Plan Circulation element, and in accordance with the Functional Classifications and Standards in the System Design, Construction and Maintenance section of the General Plan Circulation Element.

REMAP 8.2 Maintain the County's roadway Level of Service standards as described in the Level of Service section of the General Plan Circulation Element.

REMAP 8.3 Separate vehicular traffic from pedestrian and equestrian traffic, in order to avoid potential hazards, and where traffic volumes justify the costs.

REMAP 8.4 Preserve natural resources, including scenic values, and avoid the unnecessary destruction of trees and flora in all future plans for development or improvement of circulation-transportation facilities.

REMAP 8.7 Consider emergency access and circulation, paying special attention to seasonal traffic, in fire hazard areas.



Remap Land Use Plan

FIGURE

3.1-2

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Multiple Species Habitat Conservation Plans (MHCPs) – Key Biological Issues

REMAP 11.2 Conserve existing wetlands and wetlands functions and values in the REMAP portion of the upper San Jacinto River, Bautista Creek, Tule Creek, Temecula Creek, Cottonwood Creek, Wilson Creek, Cahuilla Creek, Tocalota Creek and Willow Canyon Creek with a focus on conserving existing habitats in the river and creeks.

REMAP 11.6 Conserve open stream courses and adjacent coastal sage scrub, grasslands and chaparral supporting southwestern arroyo toad, with a focus on suitable breeding, foraging, and/or aestivating habitats along Temecula Creek, upper San Jacinto River and Bautista Canyon.

REMAP 11.7 Conserve existing habitat values of the upper San Jacinto River and Bautista Creek for the benefit of San Bernardino kangaroo rat.

Local Hazard – Flooding and Dam Inundation

REMAP 13.1 Adhere to the flood proofing and flood protection requirements of the Flood Management Review Board.

REMAP 13.4 Protect life and property from the hazards of potential dam failures and flood events through adherence to the Flood and Inundation Section of the General Plan Safety Element.

Seismic

REMAP 15.1 Protect life and property from seismic related incidents through adherence to the Seismic Hazards section of the General Plan Safety Element.

State/Local

Farmland

No known prime farmland, unique farmland, statewide or locally important farmland is located within the project study area.

Other Landowners/Uses

The CDC Bautista Conservation Camp is located to the west of Bautista Canyon Road near the north end of the project study area at the Horse Creek and Bautista Creek junction. The Department of Corrections and the Department of Forestry and Fire Protection run the camp jointly.

The SBNF Tripp Flats Forest Service Station and a privately-owned landing strip is located west of Bautista Canyon Road toward the south end of the project area (see Figure 1.3-2). No public facilities, with the exception of utilities, are located within the project's southern terminus area.

3.1.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

3.1.4 Environmental Consequences

3.1.4.1 Alternative A

Direct Effects

Alternative A would not divide an established community. The existing roadway traverses primarily open space lands within the SBNF. No new roadway corridor would be established. There are no communities within the study area and no project improvements would occur in proximity to the logical termini located at Valle Vista and Anza.

Alternative A would not conflict with applicable land use or habitat conservation plans. As noted, the roadway is a planned mountain arterial route within the REMAP Circulation Plan; however, it would remain classified as a rural collector. The County of Riverside considers the functional classification of rural collector consistent with the mountain arterial standard. Thus, Alternative A would be consistent with local circulation REMAP policies described above (REMAP 8.1, 8.2, 8.3, 8.4, 8.7, 13.1, 13.4, and 15.1). It is anticipated that the proposed action would result in additional traffic being diverted onto Bautista Canyon Road as a result of the implementation of Alternative A. However, traffic volumes would not be great enough to require reclassification of the roadway. Section 3.3 of this document provides a more detailed discussion of traffic/transportation effects. No impact to prime, unique, or statewide or locally important farmland would occur as a result of the implementation of Alternative A.

Private property would need to be acquired from four landowners. The area acquired from private property owners would total 20.8 ha (51.4 ac). An additional 20.8 ha (51.4 ac) of state-owned land at the California Department of Corrections (CDC) Bautista Conservation Camp would also need to be acquired. Up to 20.8 ha (51.4 ac) of additional easement would be acquired from the SBNF. While these properties would be converted to paved roadway or otherwise modified during construction, the total area of disturbance (20.8 ha [51.4 ac]) would not represent a significant adverse land use impact. Segments of the existing unpaved roadway

that are not part of the Alternative A alignment would be revegetated and converted back to open space use.

Secondary Effects

The reconstruction of Bautista Canyon Road could contribute to growth in the Valle Vista and Anza communities. However, it is not anticipated that the growth would be significant based on the functional roadway design characteristics of the proposed action. The roadway would remain a two-lane rural collector with relatively low speed limits which is consistent with the Mountain arterial designation in the County Plan, based on County Standard No. 100C. In addition, the majority of the land fronting the roadway is SBNF land as opposed to private land that could be developed consistent with local plans and regulations. Land under USDAFS jurisdiction would not be developed as a result of access improvement. Regardless of roadway improvements, the development of private land within the Bautista Canyon Road corridor and in proximity to Valle Vista and Anza would be subject to goals and objectives contained in the Riverside County General Plan and current development restrictions. Thus, any growth-inducing effects associated with implementation of the proposed action would be managed consistent with the General Plan and related development regulations.

Thus, no significant adverse land use effects are anticipated as a result of the implementation of Alternative A.

3.1.4.2 Alternative B

Right of way requirements would be the same as those described for Alternative A, except disturbance to SBNF land would total approximately 19.4 ha (47.9 ac). Land use effects would be similar to those described for Alternative A.

3.1.4.3 Alternative C

Right of way requirements would be the same as described for Alternative A, except disturbance to SBNF land would total approximately 18.8 ha (46.5 ac). Land use effects would be similar to those described for Alternative A.

3.1.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as described above in Section 3.1.1. Per REMAP land use assumptions, large-lot residential development is anticipated to occur south of the project study area near Anza. No changes to land use are anticipated within the existing corridor. Thus, no land use impact would occur under implementation of Alternative D.

3.1.5 Mitigation

No mitigation would be required.

3.2 Socioeconomics/Environmental Justice

This section provides a description of the social and economic characteristics of the Hemet/Valle Vista and Anza communities, which are located at the project's northern and southern logical termini. The purpose of this section is to evaluate potential social and economic effects associated with the alternatives being considered. This discussion includes information on population, ethnicity, income, housing supply, employment and business activity, land use characteristics, and density. This information is based on projections formulated by the SCAG and the proposed Hearing Draft of the General Plan REMAP of Riverside County.

3.2.1 Existing Conditions

Socioeconomics

As noted, the first three blocks along Fairview Avenue, just south of SH 74 (Florida Avenue), consist of mainly single-family residential homes. There are also several community facilities (library, community center, and elementary school) on the west side of the roadway. Open space and orchards are located adjacent to the roadway from approximately 1.0 km (0.6 mi) south of SH 74 to the unpaved section. The unpaved portion of Bautista Canyon Road traverses south through the open space land in the SBNF until it reaches the southern terminus just north of Anza. The southern 1.6 km (1.0 mi) of the project study area consists of mainly rural residential and undeveloped land.

Valle Vista

Approximately 15 percent (1,539) of Valle Vista's 10,488 residents are Hispanic or Latino. Other ethnic populations in Valle Vista include approximately 1 percent Black, 1 percent Asian, and 1 percent American Indian or Alaskan Native populations. Approximately one-third (32 percent) of the population is over 65 years of age and one-third (32 percent) is between 35 and 64 years of age. Of the 2,434 students enrolled in school, 49 percent are in elementary school (grades 1-8). Of the population over 25 years of age, approximately 80 percent have graduated from high school and have received some form of higher education, although only 12 percent have earned a bachelor's degree or higher. Of the total families (2,931) in Valle Vista, approximately 9 percent have an income below the poverty level.

The community of Valle Vista has a total of 4,941 housing units. There are approximately 4,510 households in Valle Vista. Based on Census 2000 data, the average household size is 2.3 and the average family size is 2.9.

Approximately 29 percent of the labor force is in management, professional, and related occupations. The largest employer in Hemet/San Jacinto Valley is the public sector. The Hemet Valley Hospital District is the largest employer followed by the Hemet Unified School District. The five largest private employers are Deutsch Engineering, Verizon California, San Francisco Home Care, Target, and Home Depot. The median household income for the Valle Vista area is \$32,455 (Census 2000).

Anza

Anza is a large-lot, rural residential community in unincorporated Riverside County. Commercial services are located along SH 371. Anza has one school, Hamilton School (K through 12), and a post office that serves the community. Standard utilities and services are available. Anza has one food market, one gas station, a hardware store, and a convenience store (About Anza 2003). Data from the County of Riverside General Plan shows a 1997 total population of approximately 1,339 for the REMAP area that includes Anza (County of Riverside 2002a).

No Census or other related socioeconomic data are available for the Anza community; however, Census 2000 data for Riverside County as a whole is considered representative of the unincorporated areas. Approximately 36 percent (559,575) of Riverside County's 1,545,387 residents are Hispanic or Latino. Other ethnic populations in Riverside County include approximately 7 percent Black, 4 percent Asian, and 1 percent American Indian or Alaskan Native populations. Approximately 13 percent of the population County-wide is over 65 years of age, and about 35 percent is between the ages of 35 and 64. Approximately 48 percent of students enrolled in Riverside County schools are in elementary school (grades 1-8). Of the population over 25 years of age, approximately 75 percent have graduated from high school, though only about 17 percent have earned a bachelor's degree or higher. The median household income in Riverside County is \$42,887. Nearly 11 percent of the families in Riverside County have an income below the poverty level (Census 2000).

Growth Trends

Based on the latest Census 2000 data, Riverside County experienced a 32 percent increase in population between 1990 and 2000. This rate of growth is expected to continue for the next 25 years. The 1997 population within unincorporated areas in western Riverside County was estimated as 299,939 persons (County of Riverside 2002a). SCAG 2001 RTP baseline projections for western unincorporated Riverside County estimate a 2025 population of 771,595. This represents approximately 225 percent growth over 2001 conditions, which equates to approximately 9.4 percent annually (SCAG 2002).

Population trends from 1990 to 2000¹ show a 63 percent increase in population in Hemet, but only an 11 percent increase in the unincorporated area of Riverside County, which includes the community of Anza.

Community Services/Facilities

There are three public facilities located within the route's northern terminus area in the community of Valle Vista:

¹ At the time the General Plan update was prepared, only a small portion of the 2000 Census results was available. Therefore, data from the 1990 Census were also used.

- **Valle Vista Library** is located at 43975 East Florida Avenue on the southwest corner of Florida Avenue and Fairview Avenue.
- **Valle Vista Community Center** is located about three blocks south of the Valle Vista Library at 43935 East Acacia Avenue and on the northwest corner of Acacia Avenue and Fairview Avenue. The community center is a 1,370-square-meter (m²) (14,750-square-foot [ft²]) facility that includes a gymnasium, multipurpose activity rooms, a day care area, public restrooms, offices, conference rooms, and full kitchen facilities. Future expansion would include sports fields and an outdoor children's play area. A sheriff's substation and County office building is located adjacent to the community center.
- **Valle Vista Elementary School** is located to the south of the Valle Vista Community Center at 43900 Mayberry Avenue and on the northwest corner of Mayberry Avenue and Fairview Avenue. The school has an enrollment of approximately 824 students in grades K through 5 according to the Hemet Unified School District. Student ethnic distribution roughly matches the community distribution with a 10 percent higher representation of Hispanics. The student distribution consists of 69 percent White, 25 percent Hispanic, 4 percent Asian, 1 percent Black, and 1 percent American Indian or Alaskan Native.

Native American Populations

There are two reservations within the vicinity of the project area: the Cahuilla Indian Reservation and the Ramona Indian Reservation. Low-intensity land uses exist on these reservations with the exception of Cahuilla Creek Casino located along SH 371, southwest of Anza (County of Riverside 2002a).

Cahuilla Indian Reservation. The federal reservation of Cahuilla Indians is located approximately 3 km (2 mi) west of the community of Anza off of SH 371. The reservation totals 18,884 acres, with 2,000 acres belonging to the tribe in common and the remainder assigned to individual members of the Cahuilla band. The population on the reservation is approximately 175 (AIHF 1999). No project improvements would occur on reservation lands.

Ramona Indian Reservation. The federal reservation of Ramon Indians is located approximately 4 km (2.5 mi) north of the community of Anza within the SBNF. The reservation totals 560 acres with a population of seven tribal members. Four of the tribal members are under age 18, one is over age 21, and two are over age 40. No project improvements would occur on reservation lands.

3.2.2 Regulatory Setting

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, direct each federal agency to identify and assess disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and to identify and assess environmental health risks that may disproportionately affect children. This discussion addresses environmental justice issues between the logical termini as defined in Chapter 1 of this document.

3.2.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- physically divide an established community;
- result in disproportionately high and adverse health or environmental effects on minority or low-income populations including Native American tribes;
- result in disproportionately high and adverse environmental health risks to children;
- result in changes in the neighborhoods or community cohesion for various social groups;
- result in changes to travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian);
- result in effects on school districts, recreation areas, churches, businesses, and police and fire protection services; or
- result in the relocation or displacement of households.

3.2.4 Environmental Consequences

3.2.4.1 *Alternative A*

As discussed in Section 3.1 of this document, Alternative A would not divide an established community. All construction would occur in undeveloped areas and generally within an established corridor. No housing or commercial facilities would be displaced or otherwise affected by project implementation.

As described in Section 3.3, each of the build alternatives would cause a short-term increase in truck traffic during construction. An estimated average of 50 construction worker round trips and 120 truck round trips could occur daily during some phases of construction, such as aggregate placing and paving, though this elevated level of construction related traffic is only expected for a few weeks. Neighborhood children walking to the Valle Vista Elementary School use a crosswalk at Fairview Avenue and Mayberry Avenue in the morning and early afternoon. There is currently no crossing guard; however, there is a 4-way stop sign at this intersection and Children Crossing signs posted along Fairview Avenue. The nearest crosswalk with a crossing guard is located at the intersection of Florida Avenue (SH 74) and Fairview Avenue, four blocks north of the school (Normandin 2002).

The temporary increase in truck traffic poses a safety concern for children crossing at the Fairview Avenue and Mayberry Avenue crosswalk; however, the existing 4-way stop sign and advisory signs posted along Fairview Avenue would continue to minimize risks. Additionally, as noted in Section 2.4.3.8, the contractor retained by FHWA to construct the proposed project would be required, as part of the construction traffic management plan, to provide a crossing guard at the Fairview Avenue/Mayberry Avenue intersection during construction, and to coordinate with the Principal of Valle Vista Elementary School regarding construction activities that may affect the safety of school children at this intersection.

During operation, Alternative A is projected to result in higher overall traffic volumes along the roadway. As noted, there are a number of residences and public facilities (i.e., elementary school, library, Riverside County building) located along Fairview Avenue in the Valle Vista area. While traffic volumes here are projected to increase from the existing 346 ADT to 1,790 ADT after project implementation (year 2025), the proportionate increase is not anticipated to pose environmental health or safety risks to children or residents living in or visiting the area. Furthermore, the project is not anticipated to adversely affect safety, the provision or demand for public services, or otherwise impact socioeconomic resources. Implementation of Alternative A would not result in significant adverse change to travel patterns or accessibility to public services.

Alternative A would not disproportionately affect the health or environment of minority or low-income populations, or disproportionately increase health risk for children. Demographic data County-wide and for Valle Vista are similar. Ethnic populations make up a lesser percentage of the total population in Valle Vista than are found County-wide. Approximately 15 percent of Valle Vista residents are Hispanic or Latino, compared to approximately 36 percent of the total County population. As noted above, other ethnic populations in Valle Vista include approximately 1 percent Black, 1 percent Asian, and 1 percent American Indian or Alaskan Native populations. These groups make up approximately 7, 4, and 1 percent, respectively, of the total County population. Approximately 9 percent of families in Valle Vista have an income below the poverty level, compared to approximately 11 percent of the total families in Riverside County. Likewise, students enrolled in elementary school make up 11 percent of the Valle Vista population, compared to approximately 14 percent of the total County population. The similar distribution of minority, low-income, and elementary school-aged populations in the project area compared to County-wide populations demonstrates that the project would not disproportionately affect these groups.

3.2.4.2 Alternative B

Socioeconomic/environmental justice effects would be similar to those described for Alternative A.

3.2.4.3 Alternative C

Socioeconomic/environmental justice effects would be similar to those described for Alternative A.

3.2.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as those described above in Section 3.2.1. Therefore, socioeconomic/environmental justice effects would not occur as a result of implementation of Alternative D.

3.2.5 Mitigation

Project construction requirements would include placement of a crossing guard in the mornings and afternoons at the intersection of Fairview Avenue and Mayberry Street during project construction to minimize the safety risk to children who cross the street(s) on their way to and from school. There are no direct routes to the project area that avoid the intersections that are of most concern for child safety.

As noted, no impacts to socioeconomic resources are anticipated to occur during operation of the proposed project. Therefore, no mitigation measures are proposed.

3.3 Traffic/Transportation

3.3.1 Existing Conditions

As noted in Chapter 1, Bautista Canyon Road is functionally classified as a rural collector. The existing 13.2 km (8.2 mi) unpaved segment is in poor condition and, thus, does not carry the volume of traffic consistent with this designation. As shown in Table 3.3-1, traffic counts indicate that 61 to 346 vehicles use the roadway daily. Use is dependent on location, with higher volumes occurring near the north logical termini in Valle Vista, and volumes decreasing farther south.

Existing Traffic Volumes

Urban Crossroads, Inc., prepared a traffic volume analysis in April 2002 to accurately describe existing conditions and project traffic volumes on Bautista Canyon Road for year 2025 conditions (UCI 2002). Traffic counts were conducted during February 2001 at three locations between the logical termini: on Bautista Canyon Road just east of Fairview Avenue, at the CDC Bautista Conservation Camp, and just south of Tripp Flats Road (see Table 3.3-1).

**Table 3.3-1
 Existing Traffic Volumes**

Segment	(ADT)					Baseline
	Mon.	Wed.	Thurs.	Fri.	Sat.	
East of Fairview Avenue (north)	–	346	–	–	222	346
CDC Bautista Conservation Camp (central)	–	–	138	–	88	138
South of Tripp Flats Road (south)	61	–	–	29	–	61

Source: Counts Unlimited, Inc. 2002

ADT – average daily traffic

Projected ADT volumes on Bautista Canyon Road for opening year (2006) and design year (2025) are shown in Table 3.3-2. Also shown are 2025 ADT volumes predicted under the No Action alternative.

**Table 3.3-2
 Traffic Volume Projections**

Segment	Existing ADT	No Build Year 2025 ADT	Opening Year (2006) ADT	Design Year (2025) ADT	Design Year (2025) Nighttime ADT**
East of Fairview Avenue (north – currently paved)	346	779	600	1,790	340
Bautista Conservation Camp (central – northern end of unpaved segment)	138	311	400	1,320	250
South of Tripp Flats Road (south – currently unpaved)	61	137	300	1,150	220

Source: Urban Crossroads, Inc. 2002

* Opening year ADT volumes include the potential diversion of up to 450 vehicles per day from the SH 371/SH 74 to Bautista Canyon Road.

** Forty-four percent of nighttime activity occurs between 6:00 a.m. and 7:00 a.m.
 ADT – average daily traffic

Existing Travel Times

Bautista Canyon Road serves as one of three possible routes between the communities of Valle Vista and Anza. Travel distances and travel times have been determined for the alternate routes from downtown Hemet to the community center in Anza. The shortest distance is 43.5 km (27 mi) using Bautista Canyon Road as the primary route of travel. However, because travel times are reduced on the 13.2 km (8.2 mi) unpaved segment of Bautista Canyon Road, the total travel time along this route is approximately 49 minutes (see Table 1.4-1).

The next shortest route is 59 km (36.6 mi) along SH 74 to SH 371. This route has the shortest travel time (47 minutes) (see Table 1.4-1); however, this route requires traveling through the mountain communities of Garner Valley and Mountain Center where impediments to through traffic flow (e.g., stop signs, traffic signals, cross traffic) are encountered.

The third route evaluated involves travel along State Street and Sage Road for a total distance of 65.3 km (40.6 mi) (see Table 1.4-1). This route has longer travel time (56 minutes) and distance than the alternative routes discussed above.

Safety

As noted in Section 1.4.7, a review of collision history for the existing unpaved segment of Bautista Canyon Road shows a total of 19 reported accidents on this road segment from November 1, 1994, to October 31, 2003, including 8 collisions involving fatalities or injuries. The collision rate for the existing unpaved segment during that ten-year period is 10.4 accidents per million vehicle miles (MVM).

3.3.2 Regulatory Setting

County of Riverside General Plan

While the current functional classification is a rural collector, the County General Plan identifies Bautista Canyon Road as a future “mountain arterial” roadway (see Figure 3.3-1). The functional classification of the route is one of the parameters that determine what design criteria are appropriate to use for proposed improvements. A collector roadway has a lower Level of Service (LOS) standard than an arterial due to the differing roles of each in the transportation system. LOS is a qualitative measurement of a roadway operation, with designations ranging from A to F. LOS A is typically characteristic of free-flowing conditions while LOS F is characteristic of highly congested conditions. LOS C represents reasonably free-flowing conditions and is used as a criterion for planning purposes. Based on projected traffic volumes and LOS requirements, the functional classification as a rural collector is considered appropriate and would provide an adequate LOS for the foreseeable future. The projected design year 2025 ADT at Fairview Avenue would be only 17 percent of a two-lane rural collector operating at LOS C, and only 14 percent of LOS C ADT based on a mountain arterial design standard. Therefore, projected traffic levels do not warrant improving the route to an arterial classification.

County of Riverside General Plan/REMAP Local Circulation Policies

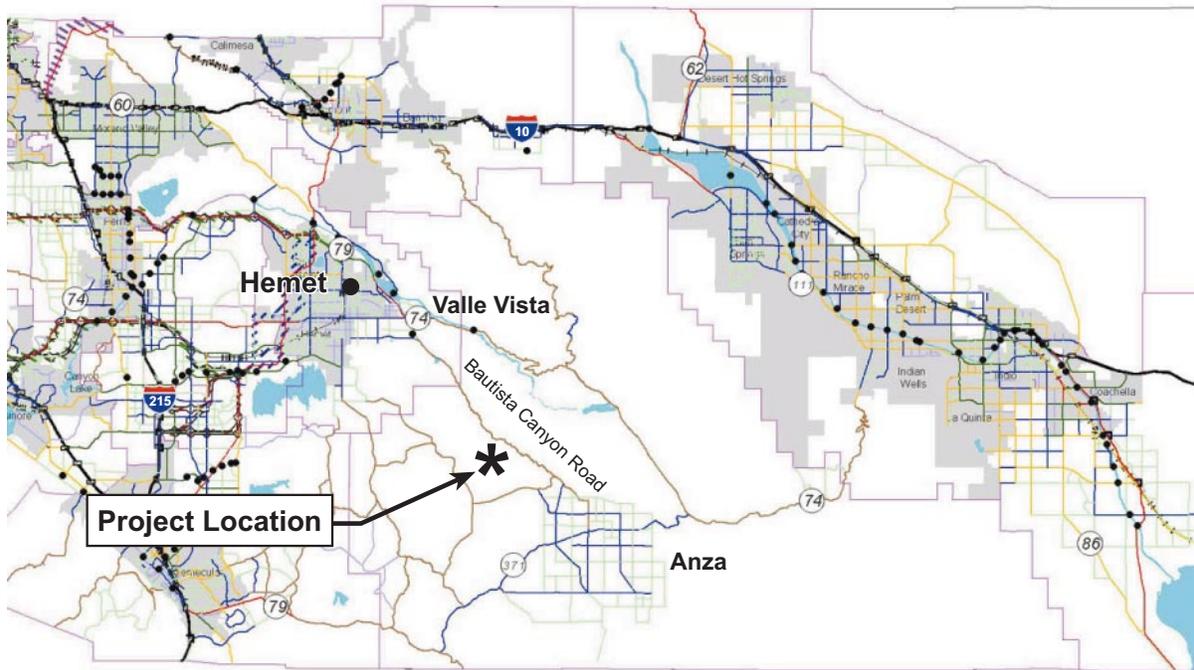
The purpose of the circulation system within REMAP is to provide for the movement of people and commodities efficiently, economically, and safely while not inducing growth beyond the intent of the General Plan or disrupting the unique environment within the planning area. REMAP policies relevant to the proposed project are provided in Section 3.1.1.

3.3.3 Thresholds of Significance

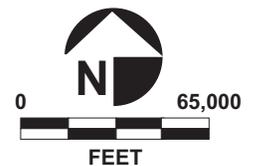
The proposed action would result in a significant impact to the human environment if it would:

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volumes to capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, an LOS standard established by the County of Riverside Congestion Management Agency for designated roads or highways;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with the adopted policies, plans, or programs supporting alternative transportation.

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- | | | | |
|--|------------------------------|--|---|
| | Expressway (184' ROW) | | Existing Interchanges |
| | Urban Arterial (152' ROW) | | Proposed Interchanges |
| | Arterial (128' ROW) | | Moreno Valley to San Bernardino Alternatives |
| | Major (118' ROW) | | SR-79 Re-alignment Alternatives |
| | Secondary (100' ROW) | | Beaumont/Banning to Temecula Corridor Alternatives |
| | Collector (74' ROW) | | Hemet to Corona/Lake Elsinore Corridor Alternatives |
| | Mountain Arterial (110' ROW) | | General Corridor Limits for Discussion with County |
| | Freeway | | Possible Corridor Interchange Locations |
| | Railroad | | Bridges |
| | | | Water |
| | | | City |
| | | | Area Plan Boundary |



SOURCE: County of Riverside

Circulation Plan

FIGURE
3.3-1

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3.3.4 Environmental Consequences

Short-Term Effects (Alternatives A, B, and C)

Project construction could temporarily add an additional 120 truck round trips per day on Bautista Canyon Road. Trucks needed to haul equipment and materials to the study area would likely enter the site from the north. As noted, the increase in truck traffic along Fairview Avenue would be temporary and accommodated without disruption to LOS.

Construction of Alternative A, B, or C would not affect travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian) to residences or public services in Valle Vista. However, during construction Bautista Canyon Road would be closed to through traffic between the CDC Bautista Conservation Camp and Tripp Flats Road for approximately 16 months as described in Section 2.4.1. The proposed road closure would not cause adverse conditions as the current traffic volumes on this segment of Bautista Canyon Road are low and alternative routes between Valle Vista and Anza are available. Signs would be posted near the logical termini notifying motorists of any closures, times, and detours. A short-term closure would not result in an adverse effect due to the low current traffic volumes and available alternate routes, as well as the improved efficiency and safety of travel along Bautista Canyon Road upon project completion.

Opening Year Volume Projections (Alternatives A, B, and C)

Upon completion of the proposed project, it is projected that between 300 and 600 vehicles would use some portion of Bautista Canyon Road daily. As discussed in the traffic volume analysis (Volume II, Appendix E), approximately 56 percent of the vehicles that travel between Valle Vista and Anza via SH 371/SH 74, rather than Bautista Canyon Road, would use this improved route between Valle Vista and Anza during its opening year, which is anticipated to be 2006. At opening year, the northern segment of Bautista Canyon Road is estimated to accommodate 600 vehicles per day. The central segment is projected to accommodate 400 vehicles per day, and the southern segment (south of Tripp Flats Road) is estimated to accommodate 300 vehicles per day (UCI 2002).

2025 Traffic Volume Projections (Alternatives A, B, and C)

Design year 2025 traffic projections for Bautista Canyon Road, east of Fairview Avenue, at the CDC Bautista Conservation Camp, and just south of Tripp Flats Road, have been determined by combining the existing baseline volumes with a traffic diversion volume of 450 vehicles from SH 371/SH 74 to Bautista Road and increasing the "with diversion" value by a factor of 2.25 at each location to adjust for 2025 population growth (UCI 2002). The northern segment of Bautista Canyon Road, east of Fairview Avenue is projected to accommodate approximately 1,790 vehicles per day in 2025. The central segment, north of the CDC Bautista Conservation Camp, is projected to accommodate a daily volume of 1,320 vehicles, and the southern segment (south of Tripp Flats Road) is estimated to accommodate 1,150 vehicles in 2025 (UCI 2002). For comparison, if the project is not built, the projected traffic for each of these segments in 2025 is 779 ADT along the northern segment of Bautista Canyon Road, east of

Fairview Avenue; 311 along the central segment, north of the CDC Bautista Conservation Camp; and 137 along the southern segment, south of Tripp Flats Road (see Table 3.3-2).

As noted, truck traffic on SH 371 west of Bautista Canyon Road is 2.3 percent of the total. Applying the existing percentage of truck traffic of 2.3 percent to the potential diversion of an additional 450 vehicles per day from SH 371/74 to Bautista Canyon Road would result in an additional 10 truck trips daily in 2006. Thus, the projected number of daily truck trips (0.023 x 1,150) would be 26 in year 2025.

Additional traffic is anticipated to be diverted onto Bautista Canyon Road (1 to 2 percent) from Florida Avenue (SH 74) to Fairview Avenue once the project is completed with the implementation of any of the build alternatives; however, the increase in traffic is not considered significant because anticipated traffic volumes would not exceed design capacity for a rural collector.

The majority of traffic on Bautista Canyon Road currently occurs during daylight hours. The project would not include lighting, call boxes, or other services that might encourage nighttime traffic. Thus, the majority of future traffic is projected to occur during daylight hours, with only approximately 19 percent of the projected design year traffic occurring between 8:00 p.m. and 7:00 a.m., as shown in Table 3.3-2.

County staff has estimated that the paving of Bautista Canyon Road would increase the average speed of the reconstructed segment to approximately 53 km/h (33 mph) based on the 55/40/55 km/h (35/25/35 mph) design speed. This would meet the Valle Vista/Anza system linkage objective, as Bautista Canyon Road would have the shortest travel distance (43.5 km [27 mi]) and shortest travel time (43 minutes) as compared to the other roadway alternatives identified in Table 1.4-1. Table 3.3-3 shows the projected travel time along the reconstructed segment under each of the build alternatives. The route would remain a rural collector with relatively low travel speeds and many curvilinear segments. It would not serve as a thoroughfare route to destinations other than Anza or Hemet/Valle Vista.

**Table 3.3-3
 Travel Time Comparison**

Alternative	Design Speed	Travel Time (minutes)	Difference
A	40 km/h (25 mph)	20	Baseline
B	55 km/h (35 mph)	14	6 minutes less
C	55/40/55 km/h (35/25/35 mph)	17	3 minutes less

km/h – kilometers per hour
 mph – miles per hour

3.3.4.1 Alternative A

Alternative A would not cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. As noted, for opening year (2006) conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 300 and 600 vehicles per day. For 2025 conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 1,150 and 1,790 vehicles per day depending upon location. Review of traffic turning movements at the SH 371/SH 74 and the SH 74 and SH 243 intersections indicates that there is a potential diversion of up to 450 vehicles per day from SH 371/SH 74 to Bautista Canyon Road in the year 2005 (UCI 2002). This represents approximately 15 percent of the current SH 371 volume of 3,000 vehicles per day east of Anza. Of the total increase in number of vehicles by 2025, truck traffic could increase by 26 trucks per day. These design year traffic volume projections, though, are well within the capacity of a two-lane rural collector (11 to 17 percent) and the existing roadway network.

Implementation of Alternative A would not individually or cumulatively exceed a LOS standard established by the County of Riverside for designated roads or highways. As noted, the projected traffic volumes for Bautista Canyon Road are well within the capacity (11 to 17 percent) of a two-lane rural collector designation; and therefore, would not significantly affect LOS as defined above.

Implementation of Alternative A would not substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). In fact, it would improve safety and sight distance for Bautista Canyon Road by reconstructing the unpaved segment to current design standards.

Implementation of the proposed action would not result in inadequate parking capacity because the proposed project is a transportation facility and does not generate the need for parking capacity. However, new parking lots are proposed at the interpretive overlook and Alessandro Trailhead to accommodate overlook and trail users. Each parking area would accommodate five vehicles and would be approximately 0.1 ha (0.3 ac) in size.

Finally, the Zegeer crash prediction model (FHWA 1987) for 2-lane highways predicted that improving the roadway as proposed would decrease the crash rate to 1.7 per MVM for the year 2025, using the projected ADT of 1150 (see Table 1.4-2 and Section 1.4.7).

County of Riverside General Plan/REMAP

Alternative A would not create inadequate emergency access or inadequate parking capacity because the proposed action is a roadway reconstruction project that would improve emergency access. Parking along Bautista Canyon Road is neither proposed nor would be required.

Alternative A is consistent with the County of Riverside General Plan and REMAP local circulation policies (see Section 3.1.2). The proposed 13.2 km (8.2 mi) segment of Bautista Canyon Road would be reconstructed in accordance with the Functional Classifications and Standards in the System Design, Construction and Maintenance section of the General Plan

Circulation Element (REMAP 8.1). Bautista Canyon Road will be constructed as a two-lane road which is consistent with the mountain arterial designation in the County Plan, based on County Standard No. 100C. Alternative A would maintain the County's LOS standards (REMAP 8.2), and would separate vehicular traffic from pedestrian and equestrian traffic where traffic volumes justify the costs (REMAP 8.3). The proposed alignment has been developed to avoid sensitive biological and cultural resources and would provide safer and improved access for motorists as well as for emergency vehicles (REMAP 8.4 and 8.7).

Operation of Alternative A would remain within capacity standards and would meet the project objectives to provide faster and safer access for emergency vehicles and a safe, year-round, all-weather route between Valle Vista and Anza. This would reduce mileage, time, and user costs for Anza area residents, and the Ramona, Cahuilla, and Santa Rosa Indian Reservations. No significant adverse traffic/transportation effects would occur as a result of the implementation of this alternative.

3.3.4.2 Alternative B

Projected traffic volumes and effects would be the same as those described for Alternative A. However, travel time would be approximately 14 minutes with the proposed 55 km/h (35 mph) speed along the 13.2 km (8.2 mi) segment compared to 20 minutes for Alternative A and 17 minutes for Alternative C. No significant traffic/transportation effects would occur as a result of the implementation of this alternative.

3.3.4.3 Alternative C

Projected traffic volumes and effects would be the same as those described for Alternative A. The proposed road improvements would decrease the travel time between Valle Vista and Anza to approximately 17 minutes with the proposed combined 55/40/55 km/h (35/25/35 mph) speeds along the 13.2 km (8.2 mi) segment compared to Alternative A and B travel times.

3.3.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. As stated in Section 1.4.4, total volumes on Bautista Canyon Road are expected to increase in response to population growth in Riverside County, even if the project is not built. Thus, existing safety and related concerns would remain and could be exacerbated by higher traffic volumes. Implementation of Alternative D would not be consistent with REMAP local circulation policies 8.1 and 8.7.

3.3.5 Mitigation

No mitigation would be required.

3.4 Air Quality

Air quality is defined by ambient air concentrations of specific pollutants determined by U.S. Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. This section addresses baseline air quality conditions for Riverside County and includes a description of air quality terminology, regulatory requirements

applicable to the proposed action, current air quality conditions, and potential effects associated with project construction and operation.

3.4.1 Existing Conditions

Climatic Conditions

The project is located in the South Coast Air Basin (SCAB) of California. The basin covers approximately 17,063 square kilometers (km²) (6,600 square miles [mi²]), encircling Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. Hot summers, mild winters, very little annual rainfall, and generally fair weather characterize the climate. Temperatures in the project area average 18 degrees Celsius (°C) (65 degrees Fahrenheit [°F]) year-round, with hot summer afternoons (35°C+ [95°F+]) and cool winter mornings (2°C [35°F]). Daily highs can reach 43°C (110°F) during July and August with minimum temperatures in the mid-70s. Rainfall varies considerably from November to early April, while the summers are often completely dry. Rainfall averages 317 millimeters (mm) (12.5 in) per year but varies from year to year (SCAQMD 1997).

Baseline Air Quality

This section describes existing conditions potentially affected by the proposed project and alternatives. In accordance with the South Coast Air Quality Management District (SCAQMD) CEQA guidelines, the description of the affected environment focuses on only those aspects potentially subject to project-related effects. In the case of the proposed action, the affected environment description is limited to the unpaved segment of Bautista Canyon Road.

Bautista Canyon Road is located within Riverside County and, therefore, is included in an ozone (O₃), carbon monoxide (CO), and particulate matter, less than 10 micrometers in diameter (PM₁₀) nonattainment area. There are no baseline air quality monitoring data available for the immediate study area. However, eight air quality monitoring stations are located within the surrounding area. The California Air Resources Board (CARB) and SCAQMD have historically maintained sites in nearby Temecula, Perris Valley, and Lake Elsinore as well as several sites in the city of Riverside. Air quality data most representative of the project area were obtained from the Lake Elsinore monitoring station approximately 45 km (28 mi) west of the project study area and the metropolitan Riverside monitoring station approximately 68 km (42 mi) northwest of the project study area. Table 3.4-1 presents a summary of the air quality data.

According to CARB data, 1-hour and 8-hour O₃ concentrations were measured at levels above the primary National Ambient Air Quality Standards (NAAQS) and state standards multiple times during years measured. PM₁₀ concentrations also exceeded state standards multiple times in metropolitan Riverside County between 2000 and 2002. PM₁₀ and particulate matter, less than 2.5 micrometers in diameter (PM_{2.5}) are sometimes high throughout Riverside County due to agricultural activities, dry soil conditions, and upwind industrial development. Particulate exposure, from both a health and a visibility perspective, is a serious air quality concern in Riverside County. All other criteria pollutants remained below the primary NAAQS (SCAQMD 1997).

**Table 3.4-1
Air Quality Summary for Study Area**

Pollutant	2000	2001	2002
Ozone – Lake Elsinore – West Flint Street			
1 st High (ppm)	0.128	0.151	0.139
2 nd High (ppm)	0.124	0.137	0.131
3 rd High (ppm)	0.124	0.137	0.129
4 th High (ppm)	0.122	0.135	0.128
Days Exceeding State Standard	45	62	52
Days Exceeding Federal Standard	1	12	6
Carbon Monoxide – Riverside/Rubidoux			
1 st High (ppm)	4.15	3.49	3.09
2 nd High (ppm)	3.81	3.30	2.97
3 rd High (ppm)	3.63	3.24	2.93
4 th High (ppm)	3.54	3.17	2.86
Days Exceeding State Standard	0	0	0
Days Exceeding Federal Standard	0	0	0
Nitrogen Dioxide – Lake Elsinore – West Flint Street			
1 st High (ppm)	0.078	0.091	0.074
2 nd High (ppm)	0.077	0.090	0.067
3 rd High (ppm)	0.077	0.084	0.066
4 th High (ppm)	0.075	0.079	0.066
Days Exceeding State Standard	0	0	0
Annual Average	0.017	0.018	0.017
Particulate Matter (PM₁₀)			
1 st High (µg/m ³)	87	86	100
2 nd High (µg/m ³)	75	79	79
3 rd High (µg/m ³)	75	78	72
4 th High (µg/m ³)	73	77	67
Days Exceeding State Standard	13	16	24
Days Exceeding Federal Standard	0	0	0

Source: California Air Resources Board, 2003

ppm = parts per million
µg/m³ = micrograms per cubic meter

Existing Fugitive Dust Emissions

As noted, the existing 13.2 km (8.2 mi) segment of Bautista Canyon Road is unpaved; thus, to establish accurate baseline air quality conditions, fugitive dust volumes generated from use of the unpaved segment of Bautista Canyon Road were estimated. As shown in Table 3.3-1, approximately 138 vehicles use the unpaved segment per day. Fugitive dust emissions associated with vehicle operation on the unpaved segment are based on vehicle miles traveled (VMT) multiplied by an emission factor. The emission factor was calculated using the following equation found in Table 9-9-D in the South Coast Air Quality Management District CEQA Air Quality Handbook (1993):

$$2.1 \times [G/12] \times [H/30] \times \{[I/3]^{0.7}\} \times \{[J/4]^{0.5}\} \times \{[365-K]/365\} = \text{pounds per vehicle mile traveled (lbs/VMT)}$$

Input variables used in the equation are as follows:

- G = surface silt loading (12.0 for mountain road provided in SCAQMD 1993, Table 9-9-D-1)
- H = mean vehicle speed (25-miles per hour from SCAQMD 1993, Table 9-9-D-2).
- I = mean vehicle weight (in tons) (3 tons or 6,000 pounds from SCAQMD 1993, Table 9-9-D-3)
- J = mean number of wheels on vehicles (4.5 wheels assuming automobiles, light duty trucks, 2-axle 6-tires and 18-wheel semitruck) (Note: average number of wheels per vehicle was calculated using traffic count and vehicle mix data recorded on 22 February 2002 at a location north of the CDC Bautista Conservation Camp at Tripp Flats Road)
- K = mean number of days per year with at least 0.01 in of precipitation (34 from SCAQMD 1993, Table 9-9-D-4)

Using this equation, an emission factor of 1.66 pounds per vehicle mile traveled (lbs/VMT) was calculated. As noted above, approximately 138 vehicles use the unpaved segment per day. The VMT is calculated by multiplying the number of vehicles by the distance traveled. Thus, the VMT for the unpaved segment is 1,132 (i.e., 138 vehicles x 8.2 mi). The total fugitive dust emissions calculated for existing conditions is 852 kg (1,879 lbs) (i.e., 1,132 VMT x 1.66 lbs). Converted to tons, existing traffic generates approximately 0.85 metric ton (0.94 ton) daily.

3.4.2 Regulatory Setting

Federal Requirements

Relevant Pollutants

Seven criteria air pollutants are regulated by USEPA because they have been identified as having potential health effects. Those associated with motor vehicle operation are carbon monoxide, ozone, nitrogen oxides, and particulate matter. Motor vehicle exhaust is the primary source of carbon monoxide and ozone precursor emissions (i.e., volatile organic compounds and nitrogen oxides). Particulate matter is a constituent of motor vehicle exhaust; however, more significant sources include windblown dust and dust generated from ground-disturbing activities occurring during construction. Pollutants are described as follows:

Carbon Monoxide (CO) (primary pollutant)². Carbon monoxide is a colorless, odorless gas resulting from the incomplete combustion of fossil fuels. It is a primary pollutant as carbon monoxide is emitted directly from the tailpipe as one emission constituent. Carbon monoxide levels are a public health concern because CO combines readily with hemoglobin in the blood, thus reducing the amount of oxygen transported in the bloodstream. Typical urban concentrations below national standards are not of concern. High levels, however, can aggravate cardiovascular disease or impair motor functions.

² A primary pollutant is released directly from a source.

Ozone (O₃) (secondary pollutant)³. Ozone is a pungent, colorless gas and is a common constituent of southern California smog. Close to the earth's surface, ozone is produced photochemically when volatile organic compounds (i.e., hydrocarbons) and oxides of nitrogen (NO_x) react in the presence of sunlight. Elevated ozone concentrations can result in reduced lung function, particularly during vigorous physical activity. Because the formation of ozone is dependent on sunlight, ozone concentrations peak during the summer and early fall months.

Hydrocarbons and nitrogen oxides come from on- and off-road vehicles and fuel-burning industrial equipment. Hydrocarbons come from motor vehicle exhaust, solvent evaporation, consumer products, and the petroleum industry. Motor vehicles are responsible for 60 percent of the ozone precursor emissions.

Nitrogen Dioxide (NO₂). Nitrogen dioxide (NO₂), a reddish brown gas, and nitric oxide (NO), a colorless odorless gas, are jointly referred to as nitrogen oxides, or NO_x. NO_x is a primary component of smog and also contributes to other pollution problems such as high concentrations of fine particulate matter, poor visibility, and acid deposition. Nitrogen dioxide decreases lung function and may reduce resistance to infection.

Particulate Matter (PM₁₀/PM_{2.5}). Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 but smaller than 10 micrometers, or PM₁₀) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers, or PM_{2.5}) often come from gasoline and diesel fuel combustion. Fine particles can also be formed in the atmosphere through chemical reactions.

State and National Ambient Air Quality Standards

The State of California and USEPA have established ambient air quality standards [California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS), respectively] for those criteria pollutants defined above (see Figure 3.4-1). These standards identify the maximum allowable concentrations of criteria pollutants that are considered safe, with an additional adequate margin of safety to protect human health and welfare. Depending on the type of pollutant, these maximum concentrations may not be exceeded at any time or may not be exceeded more than once per year. As shown in Figure 3.4-1, state standards are more stringent than federal standards.

Attainment Status of the Study Area

Riverside County is currently designated by USEPA as an *extreme nonattainment* area for O₃, a *serious nonattainment* area for CO and PM₁₀, a *maintenance* area for NO_x, and an *attainment* area for all other criteria pollutants. Nonattainment areas are defined as those areas in which the NAAQS have been exceeded for one or more criteria pollutants. The terms "extreme" and "serious," as noted above, refer to the degree and number of exceedances. The term "maintenance" means the area had a history of nonattainment, is now consistently meeting the

³ A secondary pollutant is modified to harmful form after entering the air (often by solar radiation).

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS ⁽¹⁾	NATIONAL STANDARDS ⁽²⁾	
			Primary	Secondary
Ozone (O ₃)	8-Hour	•	0.08 ppm (157 µg/m ³)	Same as Primary Standards
	1-Hour	0.09 ppm (180 µg/m ³)	0.12 ppm (235 µg/m ³)	
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	9.0 ppm (10 mg/m ³)	•
	1-Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	
Nitrogen Dioxide (NO ₂)	Annual Average	•	0.053 (100 mg/m ³)	Same as Primary Standards
	1-Hour	0.25 ppm (470 µg/m ³)	•	
Sulfur Dioxide (SO ₂)	Annual Average	•	0.030 ppm (80 µg/m ³)	•
	24-Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	•
	3-Hour	•	•	0.50 ppm (1300 µg/m ³)
	1-Hour	0.25 ppm (655 µg/m ³)	•	•
Respirable Particulate Matter Less than 10 Microns in Diameter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	50 µg/m ³	Same as Primary Standards
	24-Hour	50 µg/m ³	150 µg/m ³	
Respirable Particulate Matter Less than 2.5 Microns in Diameter (PM _{2.5}) ⁽³⁾	Annual Arithmetic Mean	12 µg/m ³	15 µg/m ³	Same as Primary Standards
	24-Hour	No Separate Standard	65 µg/m ³	
Sulfates	24-Hour	25 µg/m ³	•	•
Lead (Pb)	30-Day Average	1.5 µg/m ³	•	•
	Calendar Quarter	•	1.5 µg/m ³	Same as Primary Standards
Hydrogen Sulfide (HS)	1-Hour	0.03 ppm (42 µg/m ³)	•	•
Vinyl Chloride (chloroethene)	24-Hour	0.010 ppm (26 µg/m ³)	•	•
Visibility Reducing Particles	8-Hour (10:00 a.m. to 6:00 p.m. PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with CARB Method V.	•	•

ppm = parts per million

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

• = no standard established

(1) = CO, SO₂ (1- and 24-hour), NO₂, O₃, PM₁₀, PM_{2.5}, and visibility reducing particles standards are not to be exceeded. All other California standards are not to be equaled or exceeded.

(2) = Not to be exceeded more than once a year except for annual standards.

SOURCE: California Air Resources Board

California and National Ambient Air Quality Standards

F I G U R E

3.4-1

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NAAQS, and has been redesignated by USEPA. Section 176(c) of the Clean Air Act (CAA), as amended, requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable air quality management plans. A transportation conformity rule requires that transportation plans, programs, and projects conform to state air quality implementation plans (SIPs) and establishes the criteria and procedures for determining conformity. The USEPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year) vary from pollutant to pollutant and are also subject to the severity of the nonattainment status.

The USEPA conformity rule establishes a process intended to demonstrate that a proposed federal action would (1) not cause or contribute to new violations of federal air quality standards, (2) not increase the frequency or severity of existing violations of federal air quality standards, and (3) not delay the timely attainment of federal air quality standards. Conformity is determined based on the most recent emissions estimates, and these estimates are determined by SCAG using the most recent population, employment, travel, and congestion data. Compliance is presumed if the net increase in direct and indirect emissions from a federal action would be less than the relevant *de minimis* levels; otherwise, a formal conformity determination process must be implemented.

State Requirements

The CAA requires each state to develop, adopt, and implement a SIP to achieve, maintain, and enforce federal air quality standards. A SIP is developed on a pollutant-by-pollutant basis whenever one or more air quality standard is violated. Local governments and air pollution control districts have had the primary responsibility for developing and adopting the regional elements of the California SIP. In Riverside County, the SCAQMD is responsible for governing air quality and reports to the CARB. Amendments to the federal CAA in 1990 set new deadlines for attainment based on the severity of the pollution problem and began a comprehensive planning process for NAAQS. The new national 8-hour O₃ standard and the PM_{2.5} standards, declared in 1997, would result in additional statewide air quality planning efforts (CARB 2002).

Under the CAA, the SCAB was designated as an extreme O₃ nonattainment area and was required to submit a SIP that showed how the area would meet the federal O₃ standard by 2010. In 1994, the SCAQMD and CARB adopted this attainment plan, which was forwarded to USEPA as a SIP revision. In 1996, USEPA approved the 1994 SIP. In 1997, the SCAQMD adopted an updated Air Quality Management Plan (AQMP), which contained a revised O₃ attainment demonstration based on improved modeling, an updated emissions inventory, and a revised local control strategy. The AQMP was submitted to USEPA by the SCAQMD as a SIP revision on 4 February 2000 and was subsequently approved by USEPA in 2000. The 1997 PM₁₀ SIP was approved by the CARB and submitted to USEPA in February 1997. In order to expedite USEPA's action on the 1997 PM₁₀ SIP, the SCAQMD updated the AQMP in 2002 with respect

to the adoption and implementation schedule of various PM₁₀ related measures (White 2003). USEPA approved the SCAB PM₁₀ SIP on 18 April 2003 (effective 19 May 2003) (USEPA 2004).

Typically, projects listed in the SCAG's 2001 RTIP are consistent with the SIP and SCAQMD AQMP. Bautista Canyon Road is included in the RTIP and would be consistent with regional air quality goals and policies. This air quality analysis was conducted using CEQA Guidelines thresholds and methodologies that are consistent with the SCAQMD CEQA Air Quality Handbook (amended 1993).

Local

SBNF Land and Resource Management Plan Air Quality Goal

The SBNF Land and Resource Management Plan establishes a goal to emphasize protection of air quality in a manner consistent with state and federal air quality objectives. The following SBNF plan goal would apply to the proposed action:

Air Quality

- Emphasize protection of air quality in a manner consistent with state and federal air quality objectives.

SCAG 2001 Regional Transportation Plan Goals and Policies

The Regional Transportation Plan developed goals and policies to emphasize subregional and market-based approaches to improve mobility and air quality. The following General Transportation Plan policies would apply to the proposed action:

Goals:

1. *Improve transportation mobility for all people and enhance the movement of goods within the subregions and the Region.*
2. *Ensure that transportation investments are cost-effective, protect the environment (including improving air quality), promote energy efficiency and enhance the quality of life.*
3. *Serve the public's transportation needs in safe, reliable and economical ways that also meet the individual needs of those who depend on public transit, such as the elderly, handicapped and disadvantaged.*

Policies:

Policy #2: Transportation investments shall mitigate environmental effects to an acceptable level.

Policy #16: Maintaining and operating the existing transportation system will be a priority over expanding capacity.

3.4.3 Thresholds of Significance

A project can affect regional air quality both directly and indirectly. Vehicular emissions and dust from construction and motor vehicle use is an example of a direct effect. The formation of smog as a result of the interaction between reactive organic gases from vehicle emissions and sunlight is an example of an indirect effect. Table 3.4-2 summarizes the SCAQMD significance thresholds. If project construction or operation has the potential to exceed any of the adopted thresholds, project effects would be considered significant and require mitigation.

**Table 3.4-2
 Emission Thresholds of Significance**

Pollutant	Construction		Operations
	Kilograms/day (Pounds/day)	Metric tons/quarter (Tons/quarter)	Kilograms/day (Pounds/day)
Carbon monoxide (CO)	250 kg (550 lb)	22.5 metric tons (24.75 tons)	250 kg (550 lb)
Sulfur oxides (SO _x)	68 kg (150 lb)	6.1 metric tons (6.75 tons)	68 kg (150 lb)
Nitrogen oxides (NO _x)	45 kg (100 lb)	2.3 metric tons (2.5 tons)	25 kg (55 lb)
Particulate matter (PM ₁₀)	68 kg (150 lb)	6.1 metric tons (6.75 tons)	68 kg (150 lb)
Reactive organic gases (ROG)	34 kg (75 lb)	2.3 metric tons (2.5 tons)	25 kg (55 lb)

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993

Additional indicators can be used as screening criteria identifying the need for further analysis with respect to air quality. These indicators are defined as follows:

The proposed action would result in a significant impact to the environment if it would:

- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard,
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

3.4.4 Environmental Consequences

3.4.4.1 Alternative A

Construction

Construction-related air quality effects are based on both worker trips and emissions from the operation of heavy equipment. For the proposed action, a workforce of approximately 20 to 25 personnel would be employed on the project during construction, which is expected to last approximately 16 months. The average number of worker trips to and from the construction site is estimated to be approximately 50 per day. During initial construction phases, as many as 30 round truck trips are estimated for the delivery of construction materials to and from the construction site each day. It is anticipated that all construction materials would be delivered from the north via Fairview Avenue and SH 74.

Construction activities would also require the use of heavy equipment and support vehicles. Emissions have been estimated for construction activities using data and procedures described by the USEPA (SCAQMD 1993) and account for fugitive dust and emissions from construction equipment and vehicles. Estimated emissions are shown in Table 3.4-3. The equipment mix and associated emission factors are shown in Table 3.4-4. Emissions estimates are based on a conservative scenario and are intended to represent worst-case conditions, meaning all equipment operating at the same time, at 100 percent load, for the entire 8-hour construction day. Emissions associated with worker trips are shown in Table 3.4-5.

**Table 3.4-3
 Estimated Construction and Vehicular Emissions*
 (kilograms [pounds] per day)**

	ROG	NO_x	CO	SO_x	PM₁₀
Construction emissions	34 kg (76 lb)	643 kg (1418 lb)	267 kg (589 lb)	72 kg (159 lb)	45 kg (100 lb)
Vehicular emissions	0.60 kg (1.32 lb)	1.95 kg (4.30 lb)	9.30 kg (20.51 lb)	NA	0.02 kg (0.06 lb)
Total	34.6 kg (77.3 lb)	645.0 kg (1422.3 lb)	276.3 kg (609.5 lb)	72 kg (159 lb)	45.0 kg (100.1 lb)
<i>De minimis</i> threshold**	34 kg (75 lb)	45 kg (100 lb)	250 kg (550 lb)	68 kg (150 lb)	68 kg (150 lb)
Exceeds <i>de minimis</i> threshold?	Yes	Yes	Yes	Yes	No

CO – carbon monoxide

NO_x = nitrogen oxides

PM₁₀ = particulate matter

ROG = reactive organic gas

SO_x = sulfur oxides;

*Estimated construction equipment and work vehicle exhaust emissions

**SCAQMD Air Pollution Thresholds for Construction

**Table 3.4-4
Estimated Construction Equipment Pollutant Emissions**

Equipment	No. of Units	Hours/Day ³	CO EF ^{1,2} (lb/hr)	E (lb/day)	ROG EF (lb/hr)	E (lb/day)	NO _x EF (lb/hr)	E (lb/day)	SO _x EF (lb/hr)	E (lb/day)	PM ₁₀ EF (lb/hr)	E (lb/day)
Graders	3	8	0.151	3.624	0.039	0.936	0.054	1.296	0.086	2.064	0.061	1.464
Asphalt pavers	2	8	0.300	4.800	0.065	1.040	0.870	13.920	0.067	1.072	0.050	0.800
Generator sets-diesel (<50Hp)	4	8	0.180	5.760	0.053	1.696	0.441	14.112	0.076	2.432	0.031	0.992
Dump trucks	4	8	1.800	57.600	0.190	6.080	4.170	133.440	0.450	14.400	0.260	8.320
Backhoes	4	8	0.201	6.432	0.095	3.040	0.830	26.560	0.076	2.432	0.059	1.888
Rollers	4	8	0.300	9.600	0.065	2.080	0.870	27.840	0.067	2.144	0.050	1.600
Trucks (off-highway)	30	8	1.800	432.000	0.190	45.600	4.170	1000.800	0.450	108.000	0.260	62.400
Cranes	2	8	0.151	2.416	0.039	0.624	0.054	0.864	0.086	1.376	0.061	0.976
Scrapers	6	8	0.201	3.216	0.095	1.520	0.830	13.280	0.076	1.216	0.059	0.944
Front-end loaders	2	8	0.151	3.624	0.039	0.936	0.054	1.296	0.086	2.064	0.061	1.464
Dozers	3	8	1.250	60.000	0.270	12.960	3.840	184.320	0.460	22.080	0.410	19.680
Total^{4,5}	64			589 lb (267 kg)		76 lb (34 kg)		1418 lb (643 kg)		159 lb (72 kg)		100 lb (45 kg)

CO – carbon monoxide
E – emissions
EF – emission factor
hr – hour
kg – kilogram

lb – pound
NO_x – nitrogen oxides
PM₁₀ – particulate matter
ROG – reactive organic gas
SO_x – sulfur oxides

Notes:

1. Construction equipment emission factors derived from Table 9-8-A of the *CEQA Air Quality Handbook, SCAQMD, revised November 1993*.
2. Construction equipment emissions estimated for diesel fuel.
3. Construction emission estimates assume equipment operation at 100 percent load for an entire 8-hour construction day.
4. Total construction equipment emissions are considered unmitigated.
5. For purposes of calculating total air quality emissions, a worst-case scenario was assumed. Total construction equipment units will not be on-site at the same time. Total construction equipment will vary from day-to-day.

**Table 3.4-5
 Estimated Vehicular Work Trip Emissions
 (Pounds Per Day)**

Work Trips One Way	Km (Miles) Round Trip ³	CO		ROG		NO _x		SO _x		PM ₁₀ ^{Error!}	
		Grams (lb)/ Mile ^{1,2}	Kilograms (lb)/Day ⁴	Grams (lb)/Mile	Kilograms (lb)/Day	Grams (lb)/Mile	Kilograms (lb)/Day	Grams (lb)/Mile	Kilograms (lb)/Day	Grams (lb)/Mile	Kilograms (lb)/Day
25	161 km (100 miles)	3.72 g (0.008 lb)	9.302 kg (20.507 lb)	0.240 g (0.001 lb)	0.600 kg (1.323 lb)	0.780 g (0.002 lb)	1.950 kg (4.300 lb)	NA	NA	0.010 g (0.00002 lb)	0.025 kg (0.055 lb)

CO – Carbon Monoxide
 g – gram
 kg – kilogram
 km – kilometer
 lb – pound
 NA – not applicable
 NO_x – Nitrogen Oxides
 PM₁₀ – Particulate Matter
 ROG – Reactive Organic Gas
 SO_x – Sulfur Oxides

Notes:

1. Vehicular work trip emission factors derived from Table 9-5-J-7 of the *CEQA Air Quality Handbook, SCAQMD, revised November 1993*.
2. Average speed estimated at 55 mph.
3. Work trip one way estimated at 50 miles.
4. Total construction equipment emissions are considered unmitigated.

As shown in Table 3.4-3, total pollutant emissions from all construction sources under the proposed action in a worst-case scenario (see Tables 3.4-4 and 3.4-5) are projected to exceed *de minimis* thresholds for each pollutant, with the exception of PM₁₀. It is very unlikely, however, that all equipment would be operating at one time as indicated. The worst-case calculations are used to derive conservative emissions estimates. Emissions would be temporary and would occur only during the project construction cycle.

Earthwork Emissions

The majority of fugitive dust emitted during construction would result from grading and other earth-moving activities. To minimize fugitive dust emissions associated with ground disturbing activities, construction contractors would be required to comply with SCAQMD's Rule 403 for fugitive dust. The purpose of Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring measures be taken to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 stipulates best available control measures or Best Management Practices (BMPs), which are required to be implemented within the boundaries of the SCAB. PM₁₀ emissions would be moderated through use of BMPs that include watering exposed soils, soil stockpiling, and soil stabilization. This would further reduce the total quantity of fugitive dust emitted during construction.

Alternative A would result in an estimated total of 28.4 ha [70.1 ac] of grading. Total grading is greater than for Alternative B, but less than for Alternative C. The grading threshold of potential significance for air quality is 71.6 ha (177 ac) per day (SCAQMD 1993, Table 6-3). This threshold was used to determine whether the proposed project's grading would exceed this threshold. Based on an estimated 3-month grading schedule, a total average of 0.32 ha (0.8 ac) per day of grading would occur. Under the proposed action, the daily amount of grading would be below the *de minimis* threshold. Therefore, entrained dust associated with ground disturbing activities would not exceed the significance criteria noted above.

Operations – Opening Year and Design Year

Traffic projections along Bautista Canyon Road for 2025 range from 1,150 to 1,790 ADT (depending on the segment). Because the proposed action is an improvement to an existing unpaved roadway facility, it would not directly generate the additional future traffic volumes that a new road or regional commercial shopping center would. Projected traffic volumes, which have been factored into regional growth and transportation planning, would be diverted onto Bautista Canyon Road as discussed above. The proposed action would result in a positive benefit to air quality by providing faster travel time and an improved roadway linkage between Valle Vista and Anza. The proposed action also would divert some traffic from SH 371 and SH 74 (as discussed in Section 3.3.1.4) that could reduce traffic on these highways, thereby improving regional air quality.

As noted, the current use of the existing unpaved 13.2 km (8.2 mi) segment of Bautista Canyon Road results in a total of 852 kg (1,879 lbs)/0.85 metric tons (0.94 tons) per day of PM₁₀ (fugitive

dust) emissions. Operation of the proposed project would essentially eliminate fugitive dust emissions and, therefore, would create a long-term benefit to air quality.

Implementation of the AQMP is based on a series of control measures that vary by source type, such as stationary or mobile pollutant sources. Control methods for fugitive dust include road dust suppression, watering of disturbed surface areas, paving areas adjacent to roadways, chemical stabilization of unpaved areas, track-out prevention, and revegetation of disturbed surface areas (SCAQMD 1997). This project is in an area covered by an approved SIP and in the 1997 AQMP revision. The SCAG RTIP only includes projects that are fully funded. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

SBNF Land and Resource Management Plan (LRMP)

Alternative A is consistent with the air quality goal of the SBNF Land and Resource Management Plan. Paving the existing 13.2 km (8.2 mi) dirt segment of Bautista Canyon Road would reduce fugitive dust emissions to negligible levels.

SCAG 2001 Regional Transportation Plan (RTP)

Alternative A is consistent with the SCAG 2001 RTP regional goals and policies which in general terms, *improve transportation mobility, ensure that transportation investments are cost-effective, protect the environment (including improving air quality), promote energy efficiency and enhance the quality of life; and serve the public's transportation needs.* Alternative A would improve an existing dirt segment of Bautista Canyon Road to current rural collector design standards and complete the system connection between SH 74 to the north and SH 371 to the south. Alternative A also improves access efficiency and safety for all road uses, including emergency vehicles. Maintenance efficiency of the roadway is also achieved with the implementation of the proposed alternative.

3.4.4.2 Alternative B

Projected traffic volumes, temporary construction personnel and vehicle use, and grading (29.2 ha [72.1 ac]) are nearly the same as described in Alternative A. The total area disturbed by grading is greater than for both Alternatives A and C. Air quality effects would be the same as described in Alternative A because construction activities and traffic projections would be the same regardless of the proposed alignment. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

Alternative B is consistent with the SBNF LRMP and the SCAG RTP for the same reasons listed above for Alternative A.

3.4.4.3 Alternative C

Projected traffic volumes, temporary construction personnel and vehicle use, and grading are nearly the same as described in Alternative A. Alternative C would result in a total of 27.6 ha (68.3 ac) of grading, which is less than that required for Alternatives A and B. Air quality effects would be the same as described in Alternative A because construction activities and traffic projections would be the same regardless of the proposed alignment. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

Alternative C is consistent with the SBNF LRMP and the SCAG RTP for the same reasons listed above for Alternative A.

3.4.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Thus, reductions in fugitive dust emissions described above would not occur and could worsen as additional vehicles use Bautista Canyon Road. Implementation of this alternative would not be consistent with SBNF and SCAG regional air quality goals. Fugitive dust from the unpaved roadway segment would continue in the long term. Existing emissions exceed the 68 kg (150 pounds)/day threshold defined in Table 3.4-3. Therefore, the No Action alternative would result in an adverse long-term air quality impact.

3.4.5 Mitigation

As noted, short-term increases in air emissions would occur during the construction of Alternative A. To reduce vehicle exhaust emissions during construction:

- The construction contractor shall maintain construction equipment engines by keeping them tuned in accordance with manufacturers' specifications.
- The construction contractor shall use only California diesel fuel in heavy-duty vehicles.

To comply with SCAQMD's Rule 403 requirements for fugitive dust and to minimize fugitive dust generated during construction, the most appropriate measures can be implemented from the following list:

1. During high wind conditions (over 40 km/h[25 mph]), the following control measures should be used⁴:

Earth-Moving

- a. Cease all active operations; or
- b. Apply water to soil no more than 15 minutes prior to moving such soil, if feasible.

⁴ Requirements under Rule 403, as amended 11 December 1998 by the SCAQMD.

Disturbed Surface Areas

- a. On the last day of active operations prior to a weekend, holiday, or any other period when active operations would not occur for 4 consecutive days or more: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months; or
- b. Apply chemical stabilizers⁵ prior to wind event if feasible; or
- c. Apply water to all unstabilized disturbed areas three times per day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day.

Unpaved Roads

- a. Apply chemical stabilizers prior to wind event; or
- b. Apply water twice per hour during active operation, if feasible.
- c. Stop all vehicular traffic.

Open Storage Piles

- a. Apply water twice per day; or
- b. Install temporary coverings; or
- c. Establish a hydroseeded vegetative cover.

Paved Road Track-Out⁶

- a. Cover all haul vehicles; or
- b. Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.

2. During normal conditions, the following control measures would be used:

Earth-Moving – construction of cut and fill areas and mining operations

Conduct watering as necessary to prevent visible emissions from extending more than 100 ft beyond the active cut or fill area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.

⁵ Chemical stabilizers mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Board, the California Air Resources Board, the USEPA, or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface (SCAQMD, Rule 403, Definitions).

⁶ Track-out means the depositing or spilling of bulk material, such as sand, gravel, soil, or aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter, onto public paved roadways as a result of their operations (SCAQMD, Rule 403, Definitions).

Disturbed Surface Areas (except completed grading areas)

Apply dust suppression⁷ in sufficient quantity and frequency to maintain a stabilized surface. Any areas that cannot be stabilized, as evidenced by wind-driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.

Disturbed Surface Areas⁸ – completed grading areas

- a. Apply chemical stabilizers within 5 working days of grading completion; or
- b. Take actions specified for inactive disturbed surface areas below.

Inactive Disturbed Surface Areas⁹

- a. Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas that are inaccessible to watering vehicles due to excessive slope or other safety conditions; or
- b. Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; or
- c. Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; or
- d. Utilize any combination of control actions above such that, in total, these actions apply to all inactive disturbed surface areas.

Unpaved Roads

- a. Water all roads used for any vehicular traffic (including construction vehicles) at least once every 2 hours of active operations; or
- b. Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 mi per hour; or
- c. Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

Open Storage Piles

- a. Apply chemical stabilizers; or

⁷ Dust suppressants are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions (SCAQMD, Rule 403, Definitions).

⁸ Disturbed surface area means a portion of the earth's surface, which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have: (a) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions, (b) been paved or otherwise covered by a permanent structure; or (c) sustained a vegetative ground cover over at least 95 percent of an area for a period of at least 6 months (SCAQMD, Rule 403, Definitions).

⁹ Inactive disturbed surface area means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days (SCAQMD, Rule 403, Definitions).

- b. Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust; or
 - c. Install temporary coverings; or
 - d. Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; or
 - e. Install a three-sided enclosure with walls with no more than 50 percent porosity that extend, at a minimum, to the top of the pile.
3. Gravel pads shall be installed at all access points to prevent tracking of mud onto roadways and public streets.
 4. All waste materials transported off-site shall be covered or sufficiently wetted to limit dust emissions.

No other indirect, cumulative, or unavoidable air quality impact would occur as a result of the implementation of Alternative A because the proposed action is an improvement to an existing roadway.

3.5 Noise

Noise is defined as any unwanted sound. Unwanted sound can interfere with communications, damage hearing if it is intense enough, and be annoying. Human response to noise varies depending upon the type and characteristic of the noise source, the distance between the noise source and the receptor, the sensitivity of the receptor, and the time of day. Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.

For traffic-related noise, which is essentially continuous and moving, noise levels decrease by about 3 decibels (dB) for every doubling of distance from the source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can result in increased or decreased noise levels. Additionally, soft ground surfaces (i.e., dirt or grass), vegetation, and atmospheric conditions (e.g., wind speed and direction, humidity level, and temperature) can affect the degree to which sound is attenuated over distance.

The human ear does not respond equally to all sound frequencies. Therefore, when considering the effects of noise on people, it is necessary to consider the frequency response of the human ear. The frequency weighting most often used to evaluate environmental noise is A-weighting, which reduces the measured sound pressure level for low-frequency sounds while slightly increasing the measured pressure level for some high-frequency sounds. Measurements using this system are reported in "A-weighted decibels", or dBA. All sound levels in this section are provided in dBA. Table 3.5-1 lists noise sources as well as their corresponding sound levels.

**Table 3.5-1
 Sound Levels (dB) and Relative Loudness of Typical Noise**

dB(A)	Subjective Loudness (Relative to 70 dB)	Overall Level	Community Noise Levels (Outdoors)	Sound Level dB(A)
120	32 times as loud	Deafening	Military jet aircraft take-off from aircraft carrier with afterburner at 15 m (50 ft)	130
110	16 times as loud		Turbo-fan aircraft at takeoff power at 61 m (200 ft)	118
			DC-10 at 1,853 m (6,080 ft) on approach	110
100	8 times as loud	Very Loud		100
90	4 times as loud		Boeing 737 or DC-9 aircraft at 1 nautical mile (1,853 m [6,080 ft]) before landing	97
			Power mower	96
			Motorcycle at 7.6 m (25 ft)	90
80	2 times as loud	Loud	Car wash at 6.1 m (20 ft)	89
			Propeller plane flyover at 305 m (1,000 ft)	88
			Diesel truck 64 km/h (40 mph) at 15.2 m (50 ft)	84
			Diesel train 72 km/h (45 mph) at 30.1 m (100 ft)	83
70			High urban ambient sound	80
			Passenger car 105 km/h (65 mph) at 7.6 m (25 ft)	77
			Freeway at 15.2 m (50 ft) from pavement edge 10 a.m.	76
60	½ as loud	Moderate	Air conditioning unit at 30.5 m (100 ft)	60
50	¼ as loud		Large transformers at 30.5 m (100 ft)	50
40		Faint	Bird calls	44
20			Rustle of leaves	20
10		Very Faint	Just audible	
0			Threshold of hearing	

Sources: Federal Interagency Committee on Noise, August 1992 and County of Riverside General Plan – Hearing Draft - April 5, 2002, Noise Element.

db – decibel
 dBA – A-weighted sound level

km/h – kilometers per hour
 m – meter

mph – miles per hour
 ft – foot/feet

3.5.1 Existing Conditions

The study area is predominantly rural with limited urban development located at the northern terminus. This includes several single-family residences and the Valle Vista Library (43975 East Florida Avenue), Valle Vista Community Center (43935 East Acacia Avenue) and Valle Vista Elementary School (43900 Mayberry Avenue). All receptors near the northern terminus are located adjacent to Fairview Avenue. From the Valle Vista area south, development is sparse and located several hundred feet from the roadway. The CDC Bautista Conservation Camp is located approximately 152 m (500 ft) to the west of Bautista Canyon Road, approximately 16.6 km (10.3 mi) from the northern terminus. Near the southern terminus, one single-family residence is located just north of the Bautista Canyon Road/SH 371 intersection and is set back approximately 60 m (200 ft) from the roadway.

The primary existing noise source at receptors in the study area is traffic. Other audible sounds include those typical of residential areas (e.g., barking dogs, birds, and occasional aircraft over flights). Based on current traffic volumes, existing noise levels were estimated at three locations along the roadway corresponding to traffic count sites using data as shown in Figure 3.5-1. Using the FHWA method identified in publication RD-77-108, noise levels were estimated based on traffic volumes, speeds, and mix of vehicles (cars, medium and heavy trucks). For the purpose of this analysis, 10 percent of the ADT volumes on Bautista Canyon Road were assumed to occur within the peak hour of travel (see Table 3.5-2). Speeds were assumed to be 55 km/h (35 mph) for cars and light trucks and 48 km/h (30 mph) for medium (i.e., two-axle, six wheels) and heavy trucks (i.e., semitrucks). To conservatively estimate noise levels, cars and light trucks are assumed to constitute 93 percent of all vehicles, medium trucks 4 percent, and heavy trucks 3 percent. Table 3.5-2 shows peak hour noise levels at 50 and 200 feet from the Bautista Canyon Road centerline. Noise levels are shown as an average sound level (L_{eq} [h]) over a period of 1 hour.

**Table 3.5-2
Existing Peak Hour Traffic Volumes and Noise Levels**

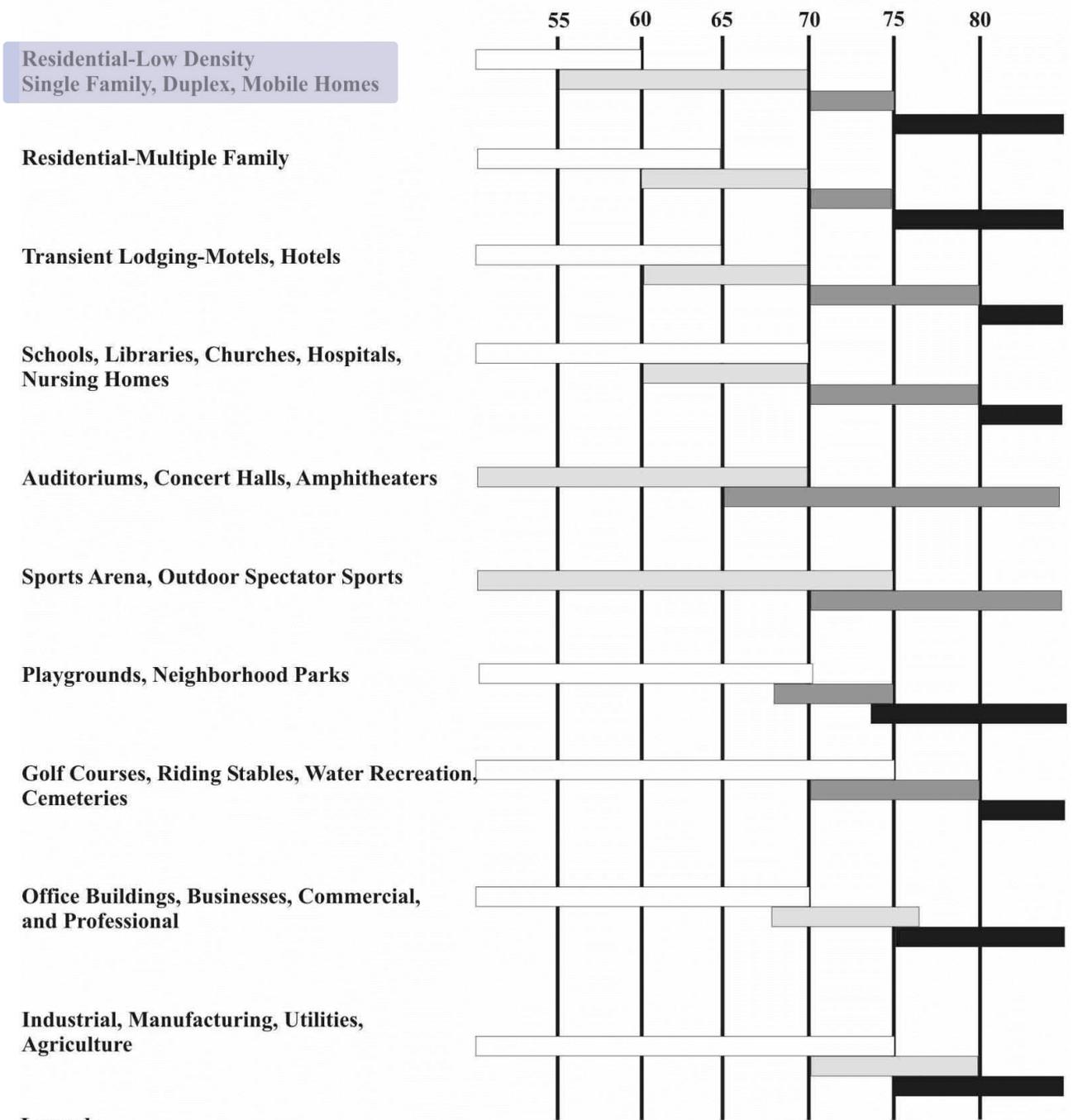
Location	Existing Traffic	50 Feet	200 Feet
East of Fairview Avenue (north)	35	52 dBA	42 dBA
CDC Bautista Conservation Camp (central)	14	46 dBA	36 dBA
South of Tripp Flats Road (south)	6	40 dBA	31 dBA

DBA – A-weighted sound level

As shown on Table 3.5-2, noise levels at 50 feet from the roadway range from a high of 52 dBA at the northern terminus to a low of 40 dBA at the southern terminus. These noise levels are considered moderate to faint. At 200 feet from the roadway, noise levels range from 42 dBA to 301 dBA. Assuming typical background noise conditions occur within the study area (i.e., wind blowing, rustling leaves, dogs barking), traffic noise is likely masked and nearly inaudible at distances of 200 feet or more from the roadway.

LAND USE CATEGORY

COMMUNITY NOISE EXPOSURE LEVEL Ldn or CNEL, dBA



Legend:

Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.

Clearly Unacceptable:
New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Source: California Office of Noise Control

SOURCE: County of Riverside

Land Use Compatibility for Community Noise Exposure

FIGURE

3.5-1

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3.5.2 Regulatory Setting

The following policies address the issues of roadway traffic noise and suggest methods to reduce the noise impact of roads on adjacent and nearby land uses:

County of Riverside General Plan

N 8.1 Enforce all noise sections of the State Motor Vehicle Code.

N 8.2 Ensure the inclusion of noise mitigation measures in the design of new roadway projects in the County.

N 8.6 Require that all future exterior noise forecasts use Level of Service C, and be based on designed road capacity or 20-year projection of development (whichever is less) for future noise forecasts.

County of Riverside General Plan/REMAP Noise Policy

REMAP 6.1 Protect the environment in REMAP through adherence to the Noise Sensitive Land Uses section of the General Plan Noise Element.

3.5.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- expose people to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- expose people to, or generate, excessive ground borne vibration or ground borne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Federal Highway Administration Noise Abatement Criteria

The proposed project is considered a Type 1 project as defined in 23 CFR § 772. As noted, noise sensitive properties adjacent to the Bautista Canyon Road corridor are located near the northern and southern termini and include single-family residences, an elementary school, and the CDC Bautista Conservation Camp. The single-family residences and elementary school are approximately 15.3 km (9.5 mi) from the project limits. These are considered Activity Category B properties and are subject to the federal noise abatement criteria listed in Table 3.5-3.

**Table 3.5-3
 FHWA Noise Abatement Criteria**

Activity Category	L _{eq} Noise Levels	Description of Activity Category
A	57 dBA exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 dBA exterior	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 dBA exterior	Developed lands, properties, or activities not included in above categories
D	---	Undeveloped lands, dispersed recreation activities
E	52 dBA interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Federal Highway Administration (FHWA), 1982.

L_{eq} – equivalent sound level
 dBA – A-weighted sound level

As stated in 23 CFR § 772, noise abatement must be considered when the predicted traffic noise level approaches or exceeds noise abatement criteria shown in Table 3.5-3 or when the predicted traffic noise level substantially exceeds the existing noise level. For the purpose of this analysis, an increase of 12 dBA L_{eq} (h) is considered substantial. Only Activity Category B land uses are discussed in this document.

Where noise abatement criteria are exceeded, it is necessary to determine whether mitigation is both feasible in engineering and safety considerations, and reasonable in function. Factors that determine reasonableness include a noise reduction of 5 dBA or greater, an acceptable barrier cost per benefited residence, local approval of noise walls, the significance of the noise impact, date of development, and types of existing land use. Determining whether mitigation is reasonable implies that common sense and good judgment has been applied in arriving at a decision.

The County of Riverside uses noise acceptability levels for different land uses as shown in Figure 3.5-1. Land use activities that emit noise above a certain level can be considered incompatible with neighboring activities. Thus, noise attenuation devices must be used to mitigate the noise to acceptable levels both indoors and outdoors. For the purpose of this analysis, FHWA noise abatement criteria will be used to determine impact levels where mitigation measures should be considered.

3.5.4 Environmental Consequences

3.5.4.1 Alternative A

The model assumptions used to determine existing noise levels were also used to estimate project-related noise levels. Table 3.5-4 shows traffic volumes used to estimate noise levels after project completion. Noise impact calculations were performed for distances at 50 and 200 feet to simulate receptor distances from the roadway. It is assumed that if noise levels do not exceed noise abatement criteria at these distances, then receptors located further from the roadway would not be exposed to noise levels that exceed the criteria.

**Table 3.5-4
 Peak Hour Traffic Volumes**

Location	Existing	Opening Year	Year 2025
East of Fairview Avenue (north)	35	60	179
CDC Bautista Conservation Camp (central)	14	40	132
South of Tripp Flats Road (south)	6	30	115

For comparative purposes, Table 3.5-5 shows the existing and projected noise levels associated with the proposed project. As noted above, this method estimates noise levels associated with vehicle volumes, speeds, and distances between the source and receptor.

**Table 3.5-5
 Predicted Noise Levels**

Location	Existing (dBA)		Opening Year		Year 2025	
	50 feet	200 feet	50 feet	200 feet	50 feet	200 feet
East of Fairview Avenue (north)	52	42	54	45	59	49
CDC Bautista Conservation Camp (central)	46	36	52	43	58	48
South of Tripp Flats Road (south)	40	31	51	42	57	47

As shown in Table 3.5-5, noise levels near the project’s northern terminus are projected to increase from 52 dBA under existing conditions to a maximum of 59 dBA during year 2025 (design year) conditions. The project would not cause noise levels to approach or exceed the 67-dBA criteria at the project’s northern terminus, nor would the project cause a 12 dBA or greater increase at 50 or 200 feet under either future scenario.

Modeling shows the project would not cause an exceedance of the 67-dBA criteria 200 feet from the roadway in the vicinity of the CDC Bautista Conservation Camp. As shown, noise levels

could increase from 36 dBA under existing conditions to 43 dBA during opening year conditions. Using a standard attenuation rate of 3 dBA per doubling of distance from the source, noise levels would be approximately 40 dBA 400 feet from the roadway and would further attenuate over the remaining 100 feet to the camp site. As described above, noise levels less than 40 dBA would likely be masked by other sources such as wind, rustling leaves, and other activities on-site. Year 2025 traffic volumes may cause noise levels to reach 48 dBA under year 2025 conditions 200 feet from the roadway. At 400 feet, noise levels would attenuate to 45 dBA. Under 2025 conditions, noise levels would not approach or exceed the 67-dBA criteria or increase by 12 or more dBA.

As shown in Table 3.5-5, the 67-dBA threshold would not be exceeded at receptors near the southern terminus; however, calculations show project-induced traffic noise could cause a 12 dBA or greater increase over existing noise levels. Noise levels are projected to increase from 31 dBA to 42 dBA during opening year and an additional 5 dBA (47 dBA) by the year 2025. Under year 2025 conditions, it is predicted that 109 additional vehicles would pass through the southern portion of the study area during the peak hour of travel than under current conditions (see Table 3.5-4). The projected future 47-dBA noise level would be below the 67-dBA threshold and remain faint to moderate and typical of the rural noise environment experienced in the northern portion of the study area.

3.5.4.2 Alternative B

Because traffic volumes and operating characteristics would be the same under this alternative as those described for Alternative A, projected noise levels would be the same as shown in Table 3.5-5.

3.5.4.3 Alternative C

Because traffic volumes and operating characteristics would be the same under this alternative as those described for Alternative A, projected noise levels would be the same as shown in Table 3.5-5.

3.5.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Conditions would remain the same as described above in Section 3.5.1. Future increases in traffic volumes may occur within the corridor as a result of growth within Riverside County; however, as discussed in Section 3.3 of this document, volumes are anticipated to be negligible. Thus, noise conditions would remain faint to moderate and typical of rural residential areas.

3.5.5 Mitigation

Alternatives A, B, and C

As discussed, noise levels are anticipated to exceed the abatement criteria in the southern portion of the study area. The southern segment of Bautista Canyon Road is currently the least

traveled portion of the study area and, as noted, the impact is a result of increased sound energy from additional vehicle passby events during the peak travel hour.

The most common measures considered to reduce noise levels are noise barriers. Noise barriers are most effective in urban areas where development densities make them feasible from an engineering and cost perspective. They are often considered reasonable mitigation assuming variables such as right-of-way cost, noise attenuation, aesthetics, and construction cost are favorable. The FHWA-RD-77-108 noise model shows that a 5 dBA reduction could be achieved with a barrier 3.3 m (10 feet) high having 20 degrees of opening on each end, and placed 6 m (20 feet) from the equivalent lane. Such a wall, 54.5 m (180 feet) from the receptor, would be about 300 m (990 feet) in length. The cost at an estimated \$60 per square foot would be close to \$600,000; this is not a reasonable expenditure to obtain a small noise reduction at a single property for a noise level already 20 dBA below the noise abatement criteria.

Therefore, noise impacts in the southern portion of the study area would remain adverse and unmitigable.

3.6 Biological Resources

Biological resources include plant and animal species and the vegetation communities within which they occur. This analysis focuses on species or vegetation communities that are important to the function of biological systems, that are of special public importance, or that are protected under federal or state law. For purposes of the EIS/EIR, these resources are divided into six major categories: botanical resources; zoological resources; regulated waterways, wetlands, and riparian areas; sensitive species; habitat connectivity and wildlife movement; and regional resource management programs.

Botanical Resources include all existing terrestrial plant communities as well as individual component species. The affected environment for botanical resources includes only those areas potentially subject to ground disturbance. The vegetation communities within the survey area include some of the predominant communities in the region.

Zoological Resources include all animals with the exception of those identified as special status species or species of regional special concern, which are discussed under Sensitive Species below.

Regulated Waterways, Wetlands, and Riparian Areas are resources subject to federal authority under Section 401 and 404 of the Clean Water Act (CWA) and subject to state authority under Section 1600 of the California Fish and Game Code. The term "waters of the U.S." is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands. Areas meeting the definition of "waters of the U.S." are under the jurisdiction of the USACE. They are considered important to public interest because they perform significant biological functions, such as providing nesting, breeding, foraging, and spawning environments for a wide variety of resident and migratory animal species. In addition, wetlands help improve water quality and provide flood protection and

erosion control. The CDFG regulates all unvegetated waterways and wetland and riparian habitats.

Sensitive Species include special status species and species of regional special concern. Special status species are those plant and animal species listed as threatened, endangered, or proposed as such by USFWS under the Endangered Species Act. The federal Endangered Species Act protects federally listed threatened and endangered plant and animal species and their critical habitat. Species of regional special concern include those species formerly considered as candidates for federal listing; species listed as sensitive by the USDAFS; species of concern to the state of California including those species listed as threatened and endangered by the state of California under the California Endangered Species Act; species listed as sensitive by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); and species that are regionally rare or of limited distribution.

Habitat Connectivity and Wildlife Movement are regional, landscape-level issues that can influence the health of ecological communities and species populations.

Regional Resource Management Programs have been developed for the region in which this project occurs. The Western Riverside County MSHCP is a comprehensive Habitat Conservation Plan (HCP) designed to manage the biological resources in the region. The SBNF Land and Resource Management Plan (LRMP) is a regional forest plan that provides guidelines for the management of biological resources on SBNF lands.

General plant and wildlife surveys for the project were conducted to identify on-site biological resources and to assess potential effects to sensitive biological resources (AMEC, 2002a). Surveys were conducted during the appropriate time of year and time of day to detect species occurrence. Rare plant surveys were timed to correspond with the blooming periods of the identified target species known from the area, based on existing database records. Focused surveys were conducted during the 2001 season for Quino checkerspot butterfly (*Euphydryas editha Quino*), arroyo toad (*Bufo californicus*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and San Bernardino kangaroo rat (*Dipodomys merriami parvus*). All focused surveys were conducted according to USFWS protocol. Plant and animal species lists were compiled from observations during all surveys. The project study area for biological resources covered a minimum of 46 m (150 ft) on both sides of the proposed roadway alignment centerlines to total 92 m (300 ft). The project study area corridor was extended to greater than 92 m (300 ft) in some locations to capture certain biological resources (Figures 3.6-1 through 3.6-3). A Draft Jurisdictional Waters and Wetland Delineation Report was prepared in June 2002 (AMEC 2002b) and was verified in the field by USACE staff in January 2003. The results of these studies were used as a basis for assessing the potential effects to biological resources.

Coordination with the regulatory agencies has occurred throughout the planning process for this project. An initial site visit was conducted on 12 December 2000 with the County of Riverside, FHWA, USDAFS, USFWS, USACE, CDFG, and the Regional Water Quality Control Board

(RWQCB). Species lists were requested from the USFWS in February 2001. The USFWS and CDFG responded to the NOP on in early March 2001. An interagency meeting to discuss biological resource issues and conduct a field review of the Informal Section 7 Consultation Document was conducted on 28 January 2003. Subsequent meetings to discuss these issues were held on 13 January and 2 March 2004. A draft Biological Assessment-Biological Evaluation was prepared and submitted to USFWS in November 2003 to initiate formal consultation.

3.6.1 Existing Conditions

Botanical Resources

Vegetation Communities

Thirteen vegetation communities were mapped within the project study area and are described below (Table 3.6-1; Figures 3.6-1 through 3.6-3). Each vegetation community has been arranged into habitat groups. These groups include Upland Scrub consisting of coastal sage-chaparral scrub and big sagebrush scrub; Chaparral consisting of bigberry manzanita chaparral, chamise chaparral, red shank chaparral, scrub oak chaparral, and southern mixed chaparral; Upland Woodland consisting of southern coast live oak woodland; and Riparian consisting of white alder-live oak riparian forest, southern cottonwood-willow riparian forest, open cottonwood-willow riparian forest, and southern willow scrub. The study area is a mosaic of these vegetation communities in primarily undisturbed condition. A small acreage of Ruderal/Disturbed area was also mapped within the project study area.

Upland Scrub. The upland scrub habitat group includes coastal sage-chaparral scrub and big sagebrush scrub. The coastal sage-chaparral scrub community includes both drought-deciduous sage scrub species and woody chaparral species, and is often a post-fire successional community. Total vegetative cover includes roughly equal amounts of both scrub and chaparral species. Characteristic species include California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and black sage (*Salvia mellifera*). This plant community covers 3.8 ha (9.4 ac) and occurs primarily at the lower elevations of the project study area near the CDC Bautista Conservation Camp. Coastal sage scrub is not designated a sensitive plant community in the California Natural Diversity Database (CNDDDB), but it does provide habitat for a number of sensitive wildlife species.

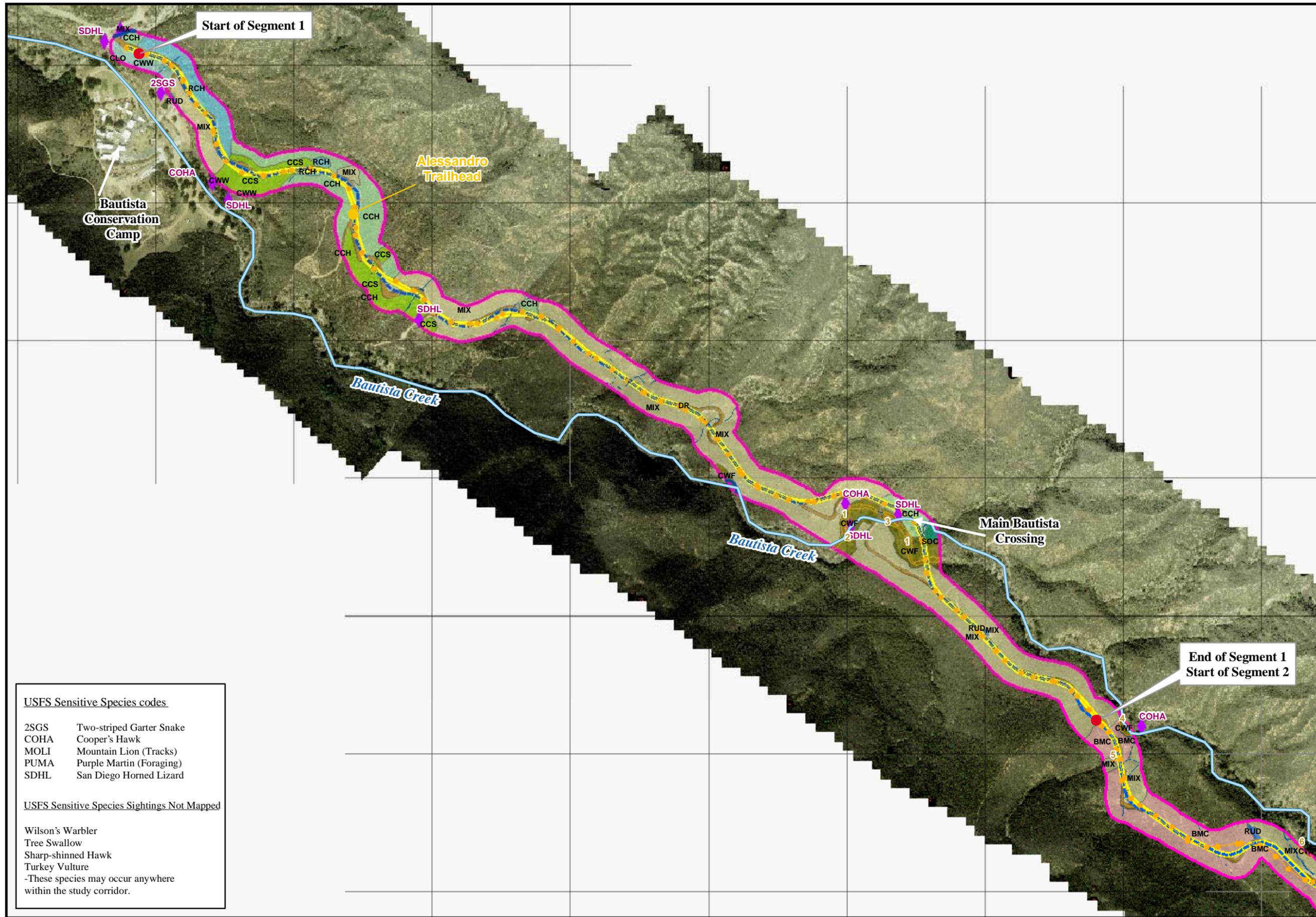
Big sagebrush scrub is a common scrub community typically composed of soft, woody shrubs separated by bare ground or herbaceous cover. Dominant species are big sagebrush (*Artemisia tridentata*) and brittlebush (*Encelia farinosa*). Herbaceous cover is dominated by cheat grass (*Bromus tectorum*). This community occurs exclusively at the higher elevation of the study area south of Tripp Flats and occupies approximately 12.6 ha (31.1 ac).

**Table 3.6-1
Vegetation Communities within the Study Corridor for the
Bautista Canyon Road Project**

Vegetation Community	Hectares	Acres	% of Study Corridor
Upland Scrub	16.4	40.5	11.7
Big sagebrush scrub	12.6	31.1	9.0
Coastal sage-chaparral scrub	3.8	9.4	2.7
Chaparral	98.7	244.0	70.7
Southern mixed chaparral	71.5	176.6	51.2
Red shank chaparral	14.8	36.5	10.6
Bigberry manzanita chaparral	7.5	18.4	5.3
Chamise chaparral	4.9	12.1	3.5
Scrub oak chaparral	0.1	0.3	< 0.1
Upland Woodland	0.1	0.3	< 0.1
Southern coast live oak woodland	0.1	0.3	< 0.1
Riparian	9.8	24.2	7.1
Southern willow scrub	7.8	19.2	5.6
Southern cottonwood-willow riparian forest	1.9	4.7	1.4
White alder-live oak riparian forest	<0.1	0.2	< 0.1
Open cottonwood-willow riparian forest	<0.1	0.1	< 0.1
Ruderal/Disturbed	1.7	4.2	1.2
Plant Community Subtotal	126.7	313.2	90.7
Existing dirt road-no vegetation	13.0	32.1	9.3
Study Corridor Total*	139.7	345.3	100

* Totals may not sum due to rounding

Chaparral. Several forms of chaparral occur within the study corridor including bigberry manzanita chaparral, chamise chaparral, red shank chaparral, scrub oak chaparral, and southern mixed chaparral. Chaparral is widely distributed throughout California on dry slopes and ridges at lower elevations where it occupies thin, rocky, or heavy soils. It typically consists of shrubs with resilient broad leaves; however, species composition varies considerably. The chaparral types that occur within the study area are differentiated and named based on the dominant species in the community. Bigberry manzanita chaparral covers 7.5 ha (18.4 ac) and occurs primarily south of the main Bautista Creek crossing near the switchback section of the roadway. Chamise chaparral covers 4.9 ha (12.1 ac) and occurs in patches with other chaparral types at lower elevations. Red shank chaparral covers 14.8 ha (36.5 ac) and occurs in patches throughout the study corridor. Although relatively common within the study area, red shank chaparral is listed as a sensitive plant community by the CNDDB. Scrub oak chaparral covers 0.1 ha (0.3 ac) and occurs in a single patch in the southern section of the study corridor. Southern mixed chaparral covers 71.5 ha (176.6 ac) and occurs throughout the study corridor. Overall, chaparral plant communities combined cover 98.7 ha (243.9 ac) (nearly 78 percent of the total plant community coverage).

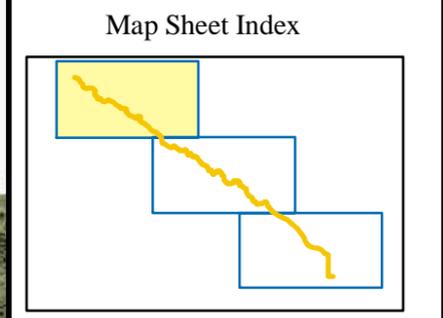


Legend

- Alternate A (40km/h)
- Alternate B (55km/h)
- Alternate C (Combo)
- Study Corridor
- Wetlands
- Non-wetland Waters of the U.S.
- Sensitive Species

Plant Communities

- AOF White Alder-live Oak Riparian Forest
- BMC Bigberry Manzanita Chaparral
- BSS Big Sagebrush Scrub
- CCH Chamise Chaparral
- CCS Coastal Sage-Chaparral Scrub
- CLO Southern Coast Live Oak Woodland
- CWF Southern Cottonwood-Willow Riparian Forest
- CWW Open Cottonwood-Willow Riparian Forest
- DR Dirt Road
- MIX Southern Mixed Chaparral
- RCH Red Shank Chaparral
- RUD Ruderal/Disturbed
- SOC Scrub Oak Chaparral
- SWS Southern Willow Scrub



MAP NOTES:
 Projection- UTM, nad83, zone 11, meters

DATA SOURCES:
 FHWA- Road alignments, 2001 aerial imagery
 AMEC- Species points, Study corridor
 Vegetation communities, Water and Wetlands
 USFWS- Critical habitats

0 500 Meters

USFS Sensitive Species codes

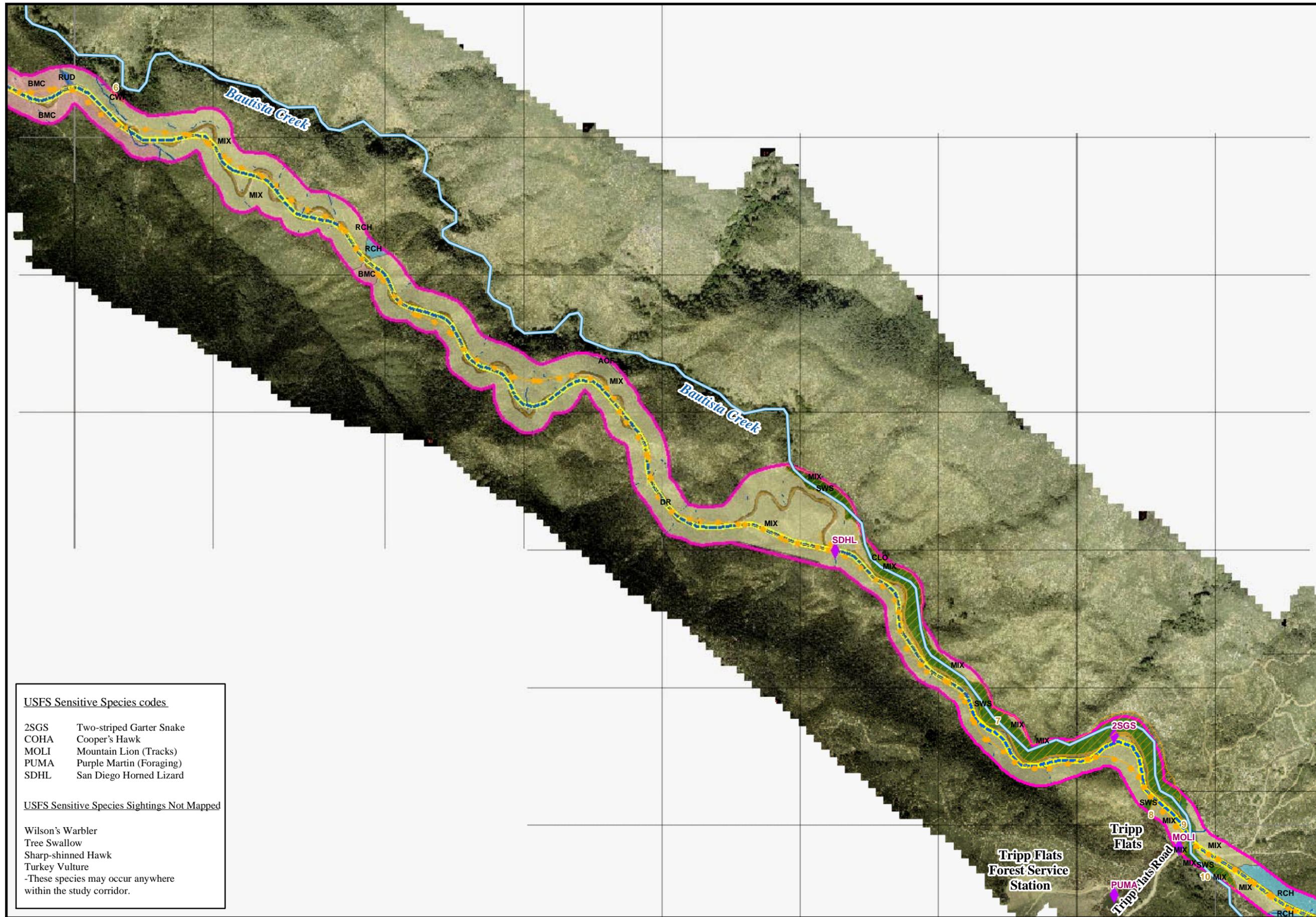
2SGS	Two-striped Garter Snake
COHA	Cooper's Hawk
MOLI	Mountain Lion (Tracks)
PUMA	Purple Martin (Foraging)
SDHL	San Diego Horned Lizard

USFS Sensitive Species Sightings Not Mapped

- Wilson's Warbler
- Tree Swallow
- Sharp-shinned Hawk
- Turkey Vulture

-These species may occur anywhere within the study corridor.

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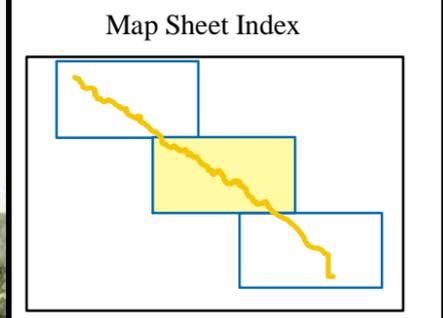


Legend

- Alternate A (40km/h)
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- ▨ Wetlands
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- ◆ Sensitive Species

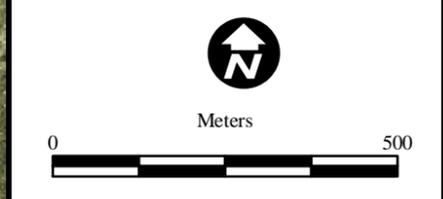
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DATA SOURCES:
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 Vegetation communities, Water and Wetlands
 USFWS- Critical habitats



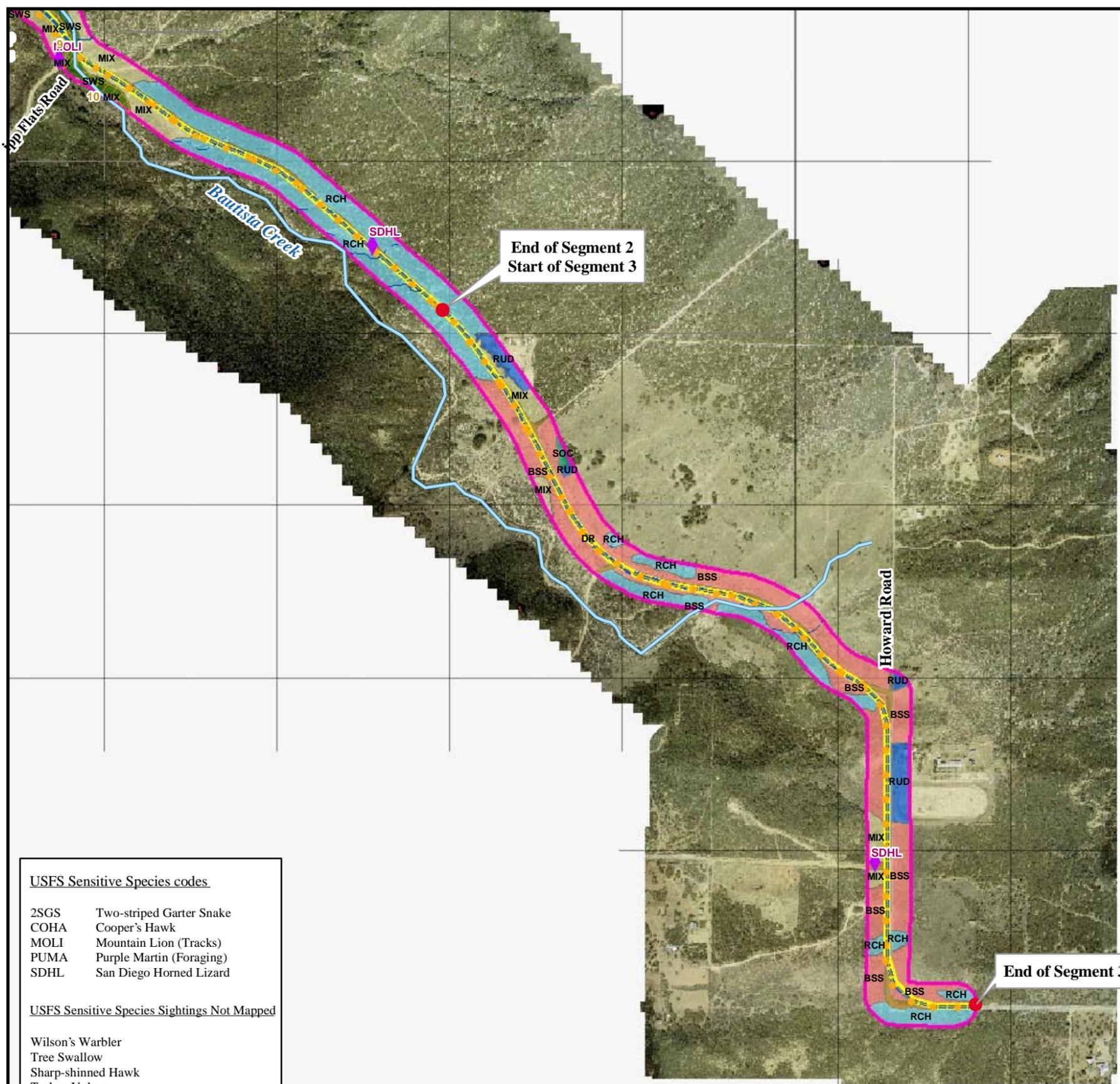
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USFS Sensitive Species Sightings Not Mapped

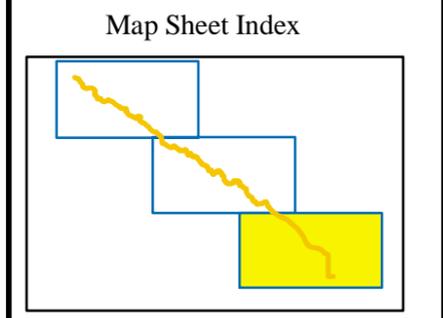
Wilson's Warbler
 Tree Swallow
 Sharp-shinned Hawk
 Turkey Vulture
 -These species may occur anywhere within the study corridor.

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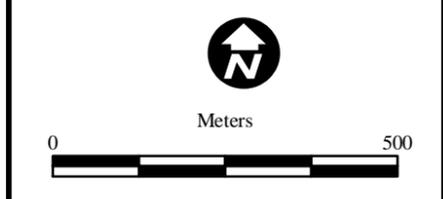
- Legend**
- - - Alternate A (40km/h)
 - - - Alternate B (55km/h)
 - Alternate C (Combo)
 - Study Corridor
 - Wetlands
 - ~ Non-wetland Waters of the U.S.
 - ◆ Sensitive Species

- Plant Communities**
- AOF White Alder-live Oak Riparian Forest
 - BMC Bigberry Manzanita Chaparral
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MAP NOTES:
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DATA SOURCES:
 FHWA- Road alignments, 2001 aerial imagery
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 Vegetation communities, Water and Wetlands
 USFWS- Critical habitats



- USFS Sensitive Species codes**
- | | |
|------|--------------------------|
| 2SGS | Two-striped Garter Snake |
| COHA | Cooper's Hawk |
| MOLI | Mountain Lion (Tracks) |
| PUMA | Purple Martin (Foraging) |
| SDHL | San Diego Horned Lizard |
- USFS Sensitive Species Sightings Not Mapped**
- Wilson's Warbler
 - Tree Swallow
 - Sharp-shinned Hawk
 - Turkey Vulture
 - These species may occur anywhere within the study corridor.

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Upland Woodland. Southern coast live oak woodland in the study corridor is characterized as an open, savanna-like woodland dominated by the evergreen coast live oak (*Quercus agrifolia*). A nonnative grass herbaceous layer forms the understory of this community. Southern coast live oak woodland covers 0.1 ha (0.3 ac) of the study corridor and is located in one location at the northernmost end of the study corridor.

Riparian. Riparian forest is an open or closed canopy forest that is generally greater than 6 m (20 ft) high and occupies relatively broad drainages and floodplains supporting perennially wet streams. Several forms of riparian forest occur within the study corridor including white alder-live oak riparian forest, southern cottonwood-willow riparian forest, and open cottonwood-willow riparian forest. This community is dominated by mature individuals of winter deciduous trees, including Fremont cottonwood (*Populus fremontii*) and several species of willows (*Salix exigua*, *S. laevigata*, *S. lasiolepis*) and often has a dense understory of shrubby willows, mulefat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasiana*). The dominant species require moist, bare mineral soil for germination and establishment. This is provided after floodwaters recede, leading to uniform-aged stands. Riparian forest differs from riparian woodland in that western sycamore (*Platanus racemosa*) is generally lacking or at least is not dominant. Coast live oaks are also mostly absent from this community. Within the study corridor, the riparian forest communities occur in association with Bautista Creek and cover approximately 2.0 ha (5.0 ac). Open cottonwood-willow riparian forest and southern cottonwood-willow riparian forest are listed as sensitive plant communities by the CNDDDB. In addition, these riparian communities may qualify as jurisdictional wetlands that are regulated by the USACE, and as jurisdictional riparian areas that are regulated by the CDFG (see Section 3.6.2).

Southern willow scrub is a dense, broad-leaved, winter-deciduous association dominated by several species of willow (*S. exigua*, *S. laevigata*, *S. lasiolepis*). This association is found on loose, sandy, or fine gravelly alluvium deposited near stream channels during floods, and most stands are too dense to allow much understory to develop. Within the study corridor, southern willow scrub covers 7.8 ha (19.2 ac) and occurs in association with Bautista Creek and its tributaries. Southern willow scrub is listed as a sensitive plant community by the CNDDDB. In addition, southern willow scrub areas may qualify as jurisdictional wetlands that are regulated by the USACE, and as jurisdictional riparian areas that are regulated by the CDFG (see Section 3.6.2).

Ruderal/Disturbed. Ruderal and/or disturbed habitats are not distinguished as separate habitat types in this document. Ruderal habitat develops on sites that have been significantly disturbed, graded and/or heavily compacted. Ruderal habitat can include large areas of bare ground or may be vegetated with invasive, broad-leaved, non-native plant species. These areas have often been significantly altered by agriculture, construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of one of the plant associations within the study region. Such habitat is typically found in vacant lots, roadsides, construction staging areas, or abandoned fields and is dominated by nonnative annual species and perennial broadleaved species. This plant community differs from areas mapped as dirt roads by the presence of vegetative cover. Ruderal or disturbed habitat occurs on 1.7 ha (4.2 ac) of the study area.

Plants

Over 180 species of plants were identified within the study corridor. Of these, 53 species were native annuals, 109 species were native perennials, and 21 species were nonnatives. One California Native Plant Society (CNPS)-listed sensitive plant species, chaparral sand verbena (*Abronia villosa aurita*), was located within the study corridor and 15 other sensitive plant species are known to occur in the surrounding region. A complete list of the sensitive plant species observed in the study corridor is provided in the Informal Section 7 Consultation Document (AMEC 2002a). Sensitive plant species are discussed in further detail under Sensitive Species in this section.

Zoological Resources

General Wildlife Habitat

There are two primary wildlife habitat types present within the project study area: upland (chaparral, upland scrub, upland woodland) and riparian (forest and willow scrub). Chaparral, upland scrub, and upland woodland habitats comprise a majority of the study corridor for Bautista Canyon. Within the project study corridor, these plant communities cover approximately 115.1 ha (284.4 ac). Bautista Creek and its tributaries provide high-quality riparian habitat for a diverse mix of species. Within the study corridor, the riparian forest and willow scrub communities cover approximately 9.8 ha (24.2 ac). Bautista Creek is an intermittent waterway that is dry approximately half the year and no natural ponds or deep pools hold water throughout the entire year. As a result, Bautista Creek is not anticipated to support significant fish populations. Aquatic habitats are addressed collectively with riparian habitats. The vegetation communities in the project study area support or have the potential to support sensitive species (see Sensitive Species in this section). The high-quality upland and riparian habitats in Bautista Canyon are part of a larger, contiguous tract of relatively undisturbed natural area within the SBNF. This larger natural area, which includes Bautista Canyon, is a regionally important wildlife area.

Wildlife

During surveys of the study corridor, 139 species of vertebrate animals were found in the study corridor. These included 4 amphibian species, 14 reptile species, 100 bird species, and 21 mammal species. No fish species were detected during general biological surveys of the project study area. In addition to the vertebrates, 70 species of butterflies were recorded during surveys. A complete list of the vertebrate and butterfly species detected in the study corridor during surveys is provided in the Informal Section 7 Consultation Document (AMEC 2002a). Sensitive animal species that occur or have the potential to occur within the study corridor are addressed under Sensitive Species in this section.

Regulated Waterways, Wetlands, and Riparian Areas

A CWA, Section 404, jurisdictional waters and wetland delineation of the project study corridor (AMEC 2002b) was conducted using USACE criteria and methods defined in the 1987 *Corps of Engineers Wetland Delineation Manual*. Preliminary surveys of the jurisdictional areas were conducted during Spring and Fall 2001 and drainage specific investigations were conducted in February and March 2002. A verification of the delineation was conducted in the field on 27 January 2003 with the USACE, AMEC, the County of Riverside, and the FHWA. The information provided in this document is based on the April 2003 Delineation Report, which includes the minor revisions made during the field verification. The wetland delineation defined all non-wetland waters of the U.S. and wetland areas subject to the jurisdiction of the USACE.

Areas subject to the jurisdiction of the CDFG under Section 1600 include all non-wetland waters of the U.S. described in the April 2003 Delineation Report and all wetland and riparian areas mapped during the vegetation mapping of the study corridor. The jurisdiction of the CDFG is often more inclusive regarding wetland and riparian habitats and includes the entire extent of the riparian and wetland vegetation communities. In general, the USACE jurisdictional wetlands are a subset of the CDFG jurisdictional wetland and riparian areas.

A total of 44 (Table 3.6-2 lists 42 drainages plus 2 subdrainages [2a and 38a]) drainages exhibiting bed and bank and 15 USACE jurisdictional wetland areas were identified with the study corridor (see Figures 3.6-1 through 3.6-3). Bed and bank refers to the formation of channel morphology. Channels and waterways, both large and small, generally exhibit a “bed,” which is the channel bottom, and “banks,” which are the channel sides. Of these drainages and jurisdictional wetland areas, a total of 9.4 ha (23.3 ac) of USACE jurisdictional waters of the U.S. were identified, which includes 8.6 ha (21.3 ac) of wetlands and 0.8 ha (1.9 ac) of non-wetland waters of the U.S. as listed in Table 3.6-2. Under the jurisdiction of the CDFG, 0.8 ha (1.9 ac) of jurisdictional waterways and 9.9 ha (24.5 ac) of riparian habitat have been identified.

The wetland and riparian habitats on Bautista Creek are generally of high quality and function. These wetland and riparian areas provide high value habitat for sensitive amphibian and reptile. Several sensitive bird species are known to use these habitats for nesting and foraging. These riparian habitats provide value to mammal species for movement and cover.

USACE Wetlands

The jurisdictional wetland areas within the survey corridor occur in association with Bautista Creek or with intermittent tributaries to Bautista Creek. A total of 15 jurisdictional wetland areas were delineated within the study corridor. These wetlands were associated with Drainages 9, 10, 11, 13, and 33, as shown in Table 3.6-2. Bautista Creek is generally characterized as mature riparian woodland with intermittently flowing water. The upstream forks and intermittent tributaries to Bautista Creek are generally less developed riparian wetlands dominated by willow and mulefat scrub. Near the southern portion of the study corridor, several jurisdictional freshwater seep areas were delineated in the hillsides adjacent to Bautista Creek.

**Table 3.6-2
 USACE Jurisdictional Determination for the Bautista Canyon Road Project¹**

Feature	Non-wetland Waters of the U.S. in acres (hectares)	Wetland Type² (Polygon Number)	Wetlands in acres (hectares)
Drainage 1	0.18 (0.07)	--	0
Drainage 2	0.04 (0.02)	--	0
Drainage 2a	0.01 (0.004)		
Drainage 3	0.04 (0.02)	--	0
Drainage 4	0.09 (0.04)	--	0
Drainage 5	0.06 (0.02)	--	0
Drainage 6	0.17 (0.07)	--	0
Drainage 7	0.07 (0.03)	--	0
Drainage 8 ³	0.12 (0.05)	--	0
Drainage 9 ³	0.015 (0.006)	CWR/SWS (1)	1.16 (0.47)
		CWR (2, 3)	0.28 (0.11)
Drainage 10	0.03 (0.01)	SWS (5)	0.02 (0.008)
Drainage 11	0.024 (0.01)	CWR/SWS (4)	0.29 (0.12)
Drainage 12	0.03 (0.01)	--	0
Drainage 13	0.25 (0.1)	CWR/SWS (6)	0.11 (0.04)
Drainage 14	0.08 (0.03)	--	0
Drainage 15	0.02 (0.008)	--	0
Drainage 16	0.02 (0.008)	--	0
Drainage 17	0.02 (0.008)	--	0
Drainage 18	0.01 (0.004)	--	0
Drainage 19	0.02 (0.008)	--	0
Drainage 20	0.03 (0.01)	--	0
Drainage 21	0.02 (0.008)	--	0
Drainage 22	0.02 (0.008)	--	0
Drainage 23	0.03 (0.01)	--	0
Drainage 24	0.02 (0.008)	--	0
Drainage 25	0.01 (0.004)	--	0
Drainage 26	0.02 (0.008)	--	0
Drainage 27	0.03 (0.01)	--	0
Drainage 28	0.03 (0.01)	--	0
Drainage 29	0.01 (0.004)	--	0
Drainage 30	0.01 (0.004)	--	0
Drainage 31	0.02 (0.008)	--	0
Drainage 32	0.02 (0.008)	--	0

Table 3.6-2 (continued)
USACE Jurisdictional Determination for the Bautista Canyon Road Project¹

Feature	Non-wetland Waters of the U.S.	Wetland Type ²	Wetlands in acres
		(Polygon Number)	(hectares)
Drainage 33 ³	0.09 (0.04)	CWR (7)	18.02 (7.29)
		SWS (8, 9, 10)	0.91 (0.37)
		FWS (S1, S2, S3, S4, S5)	0.41 (0.17)
Drainage 34	0.07 (0.03)	--	0
Drainage 35	0.01 (0.004)	--	0
Drainage 36	0.03 (0.01)	--	0
Drainage 37	0.02 (0.008)	--	0
Drainage 38	0.06 (0.02)	--	0
Drainage 38a	0.06 (0.02)	--	0
Drainage 39	0.01 (0.004)	--	0
Drainage 40	0.003 (0.001)	--	0
Drainage 41	0.02 (0.008)	--	0
Drainage 42	0.08 (0.03)	--	0
Total⁴	2.02 ac (0.82 ha)		21.19 ac (8.58 ha)

¹ Acreages reflect the jurisdictional areas shown on Figures 3.6-1 - 3.6-3 and have been verified by the U.S. Army Corps of Engineers during a site visit on 27 January 2003.

² SWS=Southern Willow Scrub, CWR=Cottonwood Willow Riparian, FWS=Freshwater Seep

³ Bautista Creek

⁴ Totals may not sum due to rounding

CDFG Wetland and Riparian Areas

Riparian areas subject to the jurisdiction of the CDFG include all vegetation communities grouped in Table 3.6-1 as riparian. These communities include southern willow scrub, southern cottonwood-willow riparian forest, southern coast live oak woodland, white alder-live oak riparian forest, and open cottonwood-willow riparian forest. A total of 9.9 ha (24.5 ac) of CDFG jurisdictional wetland and riparian areas have been mapped within the study corridor. The USACE jurisdictional wetland areas described above are a subset of the CDFG wetland and riparian areas. The wetland and riparian habitat on Bautista Creek are generally of high quality and function. These wetland and riparian habitats provide high value as habitat for sensitive amphibian and reptile species. Several sensitive bird species are known to use these habitats for nesting and foraging. These riparian habitats provide value to mammal species for movement and cover.

Non-wetland Resources

The remaining Drainages 1 to 8, 12, 14 to 32, and 34 to 42 were identified as mainly ephemeral non-wetland waters of the U.S. characterized by upland vegetation species and sandy substrate, with the exception of Drainage 8. Drainage 8 was identified as intermittent non-wetland waters of the U.S. Non-wetland waters of the U.S. in the study area were all tributaries

to Bautista Creek and were identified by the presence of bed and bank. A total of 0.82 ha (2.02 ac) of non-wetland waters of the U.S. occur within the Bautista Canyon Road study area (Table 3.6-2). These non-wetland resources are subject to the jurisdiction of both the USACE and CDFG.

Sensitive Species

Sensitive Plants

Sensitive plants include those listed as federal or state threatened or endangered, those proposed for federal or state listing, or candidates for federal or state listing by the USFWS and CDFG, or considered regionally sensitive by the CDFG, USDAFS, or CNPS.

One CNPS-listed sensitive plant species, chaparral sand verbena (*Abronia villosa aurita*), was detected within the study corridor, and 15 other sensitive plant species are known to occur in the region and have the potential to occur. Of the 16 sensitive plant species, 2 are federal and state listed as endangered and are described below. Refer to Table 3.6-3 for detailed status listings of sensitive plants and Figures 3.6-1 through 3.6-3 for locations and habitat mapping.

**Table 3.6-3
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road**

Species	Protection Status ¹	Habitat	Occurrence Probability ²
Plants			
<i>Abronia villosa</i> var. <i>aurita</i> Chaparral Sand Verbena	F: No designation FS: Proposed Sensitive C: No designation CNPS: List 1B/2-3-3 MSHCP: No	Chaparral and coastal sage scrub. Flowering: Jan – Aug.	Occurs
<i>Berberis nevini</i> Nevin’s Barberry	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, riparian scrub. Flowering: , Mar – Apr	Moderate, suitable habitat exists for the species and modeled habitat exists in the vicinity of the study corridor
<i>Brodiaea filifolia</i> Thread-leaved Brodiaea	F: Threatened FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, playas, and valley and foothill grasslands. Flowering: Mar – Jun.	Low, no suitable habitat (clay soils) occur in the study corridor
<i>Calochortus palmeri</i> var. <i>munzii</i> Munz’s Mariposa Lily	F: No designation FS: Sensitive C: No designation CNPS: 1B/3-2-3 MSHCP: Yes	Vernally moist areas in chaparral and lower montane coniferous forests. Flowering: Jun – Jul.	Low, suitable habitat exists, but the study corridor is barely in the suitable elevation range for the species
<i>Calochortus plummerae</i> Plummer’s Mariposa Lily	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-2-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forests, and valley and foothill grasslands. Flowering: May – Jul.	Moderate, suitable habitat exists for this species and populations exist in the vicinity of the study corridor

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status¹	Habitat	Occurrence Probability²
Plants (continued)			
<i>Caulanthus simulans</i> Payson's Jewel-flower	F: No designation FS: Sensitive C: No designation CNPS: List 4/1-2-3 MSHCP: Yes	Chaparral, coastal sage scrub. Flowering: Mar – Jun.	Moderate, found by AMEC biologist 1 mile NW of corridor
<i>Chaenactis parishii</i> Parish's Chaenactis	F: No designation FS: Watch List C: No designation CNPS: List 1B/2-1-2 MSHCP: No	Chaparral. Flowering: May – Jul.	Low, although this species was located in the vicinity of the study corridor, the study corridor is outside of the suitable elevation range for this species
<i>Deinandra mohavensis</i> Mojave Tarplant	F: No designation FS: Sensitive C: Endangered CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral and riparian scrub. Flowering: Jul – Oct	Moderate, suitable habitat exists for the species and known populations occur in the vicinity of the study corridor
<i>Dodecahema leptoceras</i> Slender-horned Spineflower	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal sage scrub (alluvial fan)/sandy. Flowering: Apr – Jun	Moderate, known 1 mile NW of corridor, though the project is above the known elevational range and outside of any modeled habitat for this species
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River Woolly-star	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Shrubland, alluvial fans and plains; endemic to Santa Ana River watershed, primarily in San Bernardino County; below 2,000 ft.	Very low, known in Riverside County from one fragmented population in City of Riverside
<i>Galium californicum</i> ssp. <i>primum</i> California Bedstraw	F: No designation FS: Sensitive C: No designation CNPS: List 1B/3-2-3 MSHCP: Yes	Chaparral and lower montane coniferous forests. Flowering: May – Jul	Very low, known occurrences in Reche Canyon and the San Jacinto Mountains
<i>Monardella macrantha</i> ssp. <i>hallii</i> Hall's Monardella	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral, broadleaved upland forests, coniferous forests, cismontane woodlands, grasslands. Flowering: Jun – Aug	Low, known from higher elevation 3 miles SW of study corridor, but within similar elevations to the project area in other locations
<i>Penstemon californicus</i> California Beardtongue	F: No designation FS: Sensitive C: No designation CNPS: List 1B/3-2-3 MSHCP: Yes	Chaparral, lower montane coniferous forests, and pinyon/juniper woodlands. Flowering: May – Aug	Low, suitable habitat exists for the species, known occurrence on Rouse Ridge

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status¹	Habitat	Occurrence Probability²
Plants (continued)			
<i>Poa atropurpurea</i> Bear Valley Blue-grass	F: Endangered FS: Sensitive C: No designation CNPS: List 1B/2-2-3 MSHCP: No	Montane meadows and seeps. Flowering: Apr – May	Very Low, within the suitable elevation range for the species however suitable habitat does not exist for this species in the study corridor
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> Southern Skullcap	F: No designation FS: Sensitive C: No designation CNPS: List 1B/1-2-3 MSHCP: No	Chaparral, cismontane woodlands, lower montane coniferous forests in moist areas sometimes with facultative wetland species. Flowering: Jun – Aug	Very low, known at higher elevations 6 miles north
<i>Streptanthus campestris</i> Southern Jewel-flower	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-1-2 MSHCP: No	Chaparral, lower montane coniferous forests, and pinyon/juniper woodlands. Flowering: May – Jul	Moderate, known populations for this species occur within the vicinity of the study corridor
Invertebrates			
Quino Checkerspot Butterfly <i>Euphydryas editha quino</i>	F: Endangered FS: No designation C: No designation MSHCP: Yes	Chaparral, coastal sage scrub with open patches of annual host plants.	Occurs
Amphibians and Reptiles			
Silvery Legless Lizard <i>Anniella pulchra pulchra</i>	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Most habitats, sandy substrate.	High
Arroyo Toad <i>Bufo californicus</i>	F: Endangered FS: No designation C: Special concern MSHCP: Yes	Pools near permanent or intermittent streams.	Occurs
Rosy Boa <i>Charina [Lichanura] trivirgata</i>	F: Special concern FS: Sensitive C: No designation MSHCP: No	Shrublands, especially in areas with rocky outcrops.	High, seen NW of corridor by AMEC biologists
Ring-neck Snake <i>Diadophis punctatus</i>	F: Special concern FS: Sensitive C: No designation MSHCP: No	Grasslands, chaparral.	Moderate
Large-blotched Ensatina <i>Ensatina eschscholtzii klauberi</i>	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Woody debris in shrublands and woodlands from 1,500 to 5,400 ft	High
San Bernardino Mountain Kingsnake <i>Lampropeltis zonata parvirubra</i>	F: Special concern FS: Sensitive C: Special concern MSHCP: Yes	Well illuminated chaparral canyons with rocky outcroppings.	High
San Diego Horned Lizard <i>Phrynosoma coronatum blainvillii</i>	F: Special concern FS: Sensitive C: Special concern MSHCP: Yes	Many scrub and woodland habitats, grasslands.	Occurs

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status¹	Habitat	Occurrence Probability²
Amphibians and Reptiles (continued)			
Two-striped Garter Snake <i>Thamnophis hammondi</i>	F: No designation FS: Sensitive C: Special concern MSHCP: No	Perennial or intermittent streams	Occurs
Birds			
Cooper's Hawk <i>Accipiter cooperii</i>	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Riparian forest and woodlands.	Occurs
Northern Goshawk <i>Accipiter gentiles</i>	F: Special Concern FS: Sensitive C: Special Concern MSHCP: Yes	Moderate to high elevation woodlands and forests.	High
Sharp-shinned Hawk <i>Accipiter striatus</i>	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Woodlands and shrublands near water.	Occurs
Golden Eagle <i>Aquila chrysaetos</i>	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Open woodlands and grasslands with cliffs.	Moderate
Cactus Wren <i>Campylorhynchus brunneicapillus cousei</i>	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Coastal sage scrub, shrublands (with cactus).	Low
Turkey Vulture <i>Cathartes aura</i>	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Open woodlands, shrublands, and grasslands.	Occurs
Swainson's Thrush <i>Catharus ustulatus</i>	F: No designation FS: Sensitive C: No designation MSHCP: No	Riparian forest and woodland with dense understory.	Moderate
Black Swift <i>Cypseloides niger</i>	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Riparian woodland and forest cliffs.	Moderate
Yellow Warbler <i>Dendroica petechia brewsteri</i>	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Riparian scrubs, woodlands, and forests.	Occurs
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	F: Endangered FS: No designation C: Endangered MSHCP: Yes	Riparian woodlands with willows, cottonwoods, or alders.	Occurs
Prairie Falcon <i>Falco mexicanus</i>	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Grasslands and open shrublands.	Moderate
American Peregrine Falcon <i>Falco peregrinus anatum</i>	F: No designation (delisted) FS: Sensitive C: Endangered MSHCP: Yes	Cliffs near open water bodies.	Low

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status¹	Habitat	Occurrence Probability²
Birds (continued)			
Mountain Yellow-legged Frog <i>Rana mucosa</i>	F: Endangered FS: Sensitive C: Special Concern MSHCP: Yes	Small, very rocky streams at moderate to high elevations.	Low
Purple Martin <i>Progne subis</i>	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Open forest and woodland, near water.	Occurs
Coastal California Gnatcatcher <i>Poliottila californica californica</i>	F: Threatened FS: No designation C: Special concern MSHCP: Yes	Coastal sage scrub.	Absent during 2001 focused surveys; reports 5 miles NW of corridor
Least Bell's Vireo <i>Vireo bellii pusillus</i>	F: Endangered FS: No designation C: Endangered MSHCP: Yes	Nests in riparian habitats, may forage in adjoining areas.	Absent during 2001 focused surveys
Gray Vireo <i>Vireo vicinior</i>	F: No designation FS: Sensitive C: Special concern MSHCP: No	Chaparral, dry shrubby areas, sparse woodland, 2,000-6,500 ft.	Moderate
Wilson's Warbler <i>Wilsonia pusilla</i>	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Willow and alder thickets near wet, moist woodlands.	Occurs
Mammals			
Pallid Bat <i>Antrozous pallidus</i>	F: No designation FS: Sensitive C: Special concern MSHCP: No	Caves, mines, cliffs, abandoned dwellings. Forages in most habitats.	Moderate
Western Big-eared Bat <i>Corynorhinus townsendii townsendii</i>	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Caves, mines, cliffs, abandoned dwellings. Forages in most habitats.	Moderate
San Bernardino Kangaroo Rat <i>Dipodomys merriami parvus</i>	F: Endangered FS: No designation C: Special concern MSHCP: Yes	Alluvial fans, floodplains, washes.	Absent during 2001 focused surveys; known 5 miles NW
Mountain Lion <i>Felis concolor</i>	F: No designation FS: Sensitive C: No designation MSHCP: Yes	All habitat types.	Occurs
American Badger <i>Taxidea taxus</i>	F: No designation FS: Sensitive C: No designation MSHCP: No	Open areas in grasslands and shrublands.	Low

¹ PROTECTIVE STATUS DEFINITIONS:

(F): Federal designations (Federal Endangered Species Act [ESA], USFWS):
Endangered - Federally listed, Endangered.
Threatened - Federally listed, Threatened.
Special concern - Federal Special Concern species.
No Designation - Not designated.

(FS): Forest Service designations (Forest Service Manual 2600, U.S. Forest Service):
Sensitive - Forest Service Sensitive.
No Designation - Not designated.

(C): State designations (California ESA, CDFG):
Endangered - State listed, Endangered.
Threatened - State listed, Threatened.
Special concern - CA Special Concern species.
No Designation: Not designated.

MSHCP: Western Riverside County Multiple Species Habitat Conservation Program:
Yes - Addressed by the plan
No - Not addressed by the plan

California Native Plant Society (CNPS) designations:
List 1B - Plants rare and endangered in California and throughout their range.
List 2 - Plants rare, threatened or endangered in California but more common elsewhere.
List 3 - Plants for which more information is needed.
List 4 - Plants of limited distribution; a "watch list."

CNPS R-E-D Code:
Rarity:
 1 - Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
 2 - Occurrence confined to several populations or one extended population.
 3 - Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment:
 1 - Not endangered.
 2 - Endangered in a portion of its range.
 3 - Endangered throughout its range.

Distribution:
 1 - More or less widespread outside California.
 2 - Rare outside California.
 3 - Endemic to California (does not occur outside CA).

² OCCURRENCE PROBABILITY DEFINITIONS:

Occurs - Observed on the site by AMEC biologists, or recorded on-site by other qualified biologists.
High - Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate - Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low - Site is within the known range of the species, but habitat on the site is rarely used by the species.
Absent - A focused study failed to detect the species, or, no suitable habitat is present.

Slender-horned Spineflower. The spineflower is on both federal and state lists as endangered. An annual, herbaceous spring-blooming species (April through June) that produces white to pink flowers, this species is considered dependent on mature alluvial scrub habitat. The study corridor is above the known range of the species. Small areas of appropriate habitat exist in the study corridor in the downstream section below the CDC Bautista Conservation Camp, but the species was not detected in the study corridor by AMEC biologists in 2001. However, USDAFS biologists and botanists observed this species in 2001 at the known location in Bautista Canyon, approximately 3 km (2 mi) downstream of the study corridor near Hixon Trail.

Santa Ana River Woolly-star. The woolly-star is on both federal and state lists as endangered. This species is a perennial herb that occurs along the Santa Ana River and Lytle and Cajon Creek floodplains from the base of the San Bernardino Mountains in San Bernardino County southwest along the Santa Ana River through Riverside County into the Santa Ana

Canyon. A summer-blooming species (June through September), this species is found within open washes and early-successional alluvial fan scrub at elevations between 150 to 610 m (492 to 2,007 ft). This species was not observed in the study corridor during focused searches of appropriate habitat and has a very low probability of occurrence. Because of its restricted range and the negative survey results, it is presumed absent (AMEC 2002a).

Other Sensitive Plants. With the exception of chaparral sand verbena, no sensitive plant species were detected in the study corridor. Sensitive plant species that are known from the region and have a low probability of occurring within the study area include Nevin's barberry (*Berberis nevinii*), thread-leaved brodiaea (*Brodiaea filifolia*), Munz's mariposa lily (*Calochortus palmeri* var. *munzii*), Plummer's mariposa lily (*Calochortus plummerae*), Payson's jewel-flower (*Caulanthus simulans*), Parish's chaenactis (*Chaenactis parishii*), Mojave tarplant (*Deinandra mohavensis*), California bedstraw (*Galium californicum* ssp. *primum*), Hall's monardella (*Monardella macrantha* ssp. *hallii*), California beardtongue (*Penstemon californicus*), Bear Valley blue-grass (*Poa atropurpurea*), southern skullcap (*Scutellaria bolanderi* ssp. *austromontana*), and southern jewel-flower (*Streptanthus campestris*).

Sensitive Animals

Sensitive animal species include those listed as federal or state threatened or endangered, those proposed for federal or state listing, or candidates for federal or state listing by the USFWS and CDFG, or those species considered regionally sensitive by the CDFG, USDAFS, or other regional organizations.

Invertebrates

Quino Checkerspot Butterfly. The Quino checkerspot butterfly (*Euphydryas editha quino*) is a federally listed endangered species, that historically occurred widely in Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties, as well as in Baja California, Mexico. This is the only sensitive invertebrate known to occur within the project study corridor. The range has been reduced drastically in recent years; existing (and probably isolated) colonies are now known only from western Riverside County, southern San Diego County, and northern Baja California. While habitat loss and fragmentation are probably the main reasons for the decline, grazing, drought, fire management practices, over-collecting, and the displacement of larval host plants by invasive grasses and weeds have likely contributed to it. The Quino checkerspot butterfly was listed as endangered by the USFWS on 16 January 1997. During 2001 protocol surveys, this species was observed around a hilltop in the southern section of the study area approximately 234 m (900 ft) west of the roadway. This population appears to be a small isolated colony located in an open, previously disturbed area south of the hilltop approximately 0.5 km (0.3 mi) northwest of the southern end of the study corridor.

Amphibians and Reptiles

A total of nine sensitive amphibian and reptile species have been detected or have the potential to occur within the project study corridor. Of these nine species, two are on the federal list as