

ABSTRACT

The proposed action is the reconstruction of a 13.2-kilometer (km) (8.2 mile [mi]) segment of Bautista Canyon Road, including the construction of a new bridge over Bautista Canyon Creek. Three alternative alignments with varying design speeds are evaluated for the Bautista Canyon Road segment in this Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), along with the No Action alternative. Alternative C is considered the preferred alternative because it best meets the project objectives of safety and access, with the least number of effects to biological and cultural resources. Alternative C balances higher design with environmental impacts. Alternative C, although second highest in the estimated amount of required earthwork (235,000 cubic meters [307,400 cubic yards]) and second highest in estimated cost (\$11.7 million) of the alternatives, is considered the preferred alternative because it best meets the project objectives of safety and access, and requires the second least amount of total area of new disturbance (16.6 hectares [ha] [40.0 acres] [ac]) of the alternatives. Alternative C would result in the second least amount of preliminary total upland habitat compensation required of the alternatives (13.0 ha [32.1 ac]) as well as the lowest preliminary total wetland habitat compensation (0.3 ha [0.92 ac]). Potential beneficial effects of the proposed action include, improved access efficiency for all users including fire/emergency vehicles, increased safety, reduced fugitive dust and engineering upgrades to the regional circulation system in accordance with the County of Riverside General Plan. Adverse effects include noise, biological resources, cultural resources, and visual quality. Written comments on the Draft EIS/EIR must be submitted to Stephen Hallisy or Mary Zambon at the address above within 45 days following the availability of the Draft EIS/EIR.

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SUMMARY

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division, in cooperation with the U.S. Department of Agriculture Forest Service (USDAFS), the California Department of Transportation (Caltrans), and Riverside County, is developing a project to improve a 13.2-kilometer (km) (8.2-mile [mi]) unpaved segment of California Forest Highway (FH) 224, Bautista Canyon Road, in Riverside County, California (Figures 1.3-1 and 1.3-2).

PROPOSED ACTION

The proposed project would realign and pave the 13.2 km (8.2 mi) segment of Bautista Canyon Road consistent with current design standards and regulatory requirements. The roadway would be improved as a low-volume, two-lane rural collector

The purpose of and need for the project is based on the condition of the existing roadway, which prevents it from functioning as an efficient link in the Riverside County transportation system. The currently unpaved segment of Bautista Canyon Road contains many operational deficiencies that require considerable maintenance and impede safe access to and through a portion of the San Bernardino National Forest (SBNF).

This Environmental Impact Statement (EIS) has been prepared under the National Environmental Policy Act (NEPA) for the Bautista Canyon Road Project because the FHWA has determined that the project has an overall “adverse effect” on the quality of the human environment. An Environmental Impact Report (EIR) has been prepared under the California Environmental Quality Act (CEQA) for the project because the County of Riverside has determined that the project has an overall “significant environmental effect” on the environment. The potential exists for environmental effects in the following areas: land use, socioeconomic/environmental justice, traffic/transportation, air quality, noise, biological resources, hydrology/water resources, cultural resources, hazardous materials, visual resources, recreation, soils/geology, public services/utilities, and fire hazard and risk. Preparation and distribution of this EIS/EIR is the method for analyzing the potential effects and presenting effective mitigation measures.

ALTERNATIVES CONSIDERED IN THIS EIS/EIR

This Draft EIS/EIR presents three build alternatives and a No Action alternative, described as follows:

- Alternative A – 40 km/h (25 mph) Design Speed
- Alternative B – 55 km/h (35 mph) Design Speed
- Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed
- Alternative D – No Action

Alternatives A, B, and C have varying alignments based on proposed design speeds. Alternative C has been designated as the preferred alternative. Under alternative C, the design speed varies depending on topography. These design considerations are intended to maximize the functionality of the proposed roadway while minimizing adverse environmental effects.

Alternative A – 40 km/h (25 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.3 km (7.6 mi). The proposed design speed for Alternative A is 40 km/h (25 mph). Alternative A would require approximately 225,000 m³ (294,300 yd³) of excavation and would result in approximately 16.1 ha (39.8 ac) of new disturbance. Alternative A would result in cut and fill slopes of up to 25 m (80 ft) in height. For 2025 conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 1,100 and 1,800 vehicles per day depending upon location. These 2025 traffic volume projections are well within the capacity of a two-lane rural collector.

Alternative B – 55 km/h (35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.1 km (7.5 mi). The proposed design speed for Alternative B is 55 km/h (35 mph). Alternative B would require approximately 303,000 m³ (396,400 yd³) of excavation and would result in approximately 17.9 ha (44.2 ac) of new disturbance. Alternative B would result in cut and fill slopes of up to 25 m (80 ft) in height.

Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.3 km (7.6 mi). As noted, the study area was divided into three segments based on terrain. Under Alternative C, design speeds were incorporated accordingly to maximize travel efficiency while minimizing resource disturbance. Alternative C would incorporate a 55 km/h (35 mph) design speed in Segments 1 and 3 of Bautista Canyon Road where the terrain is flatter and a 40 km/h (25 mph) along Segment 2 where the terrain is mountainous. Implementation of Alternative C would require approximately 235,000 m³ (307,400 yd³) of excavation and would result in approximately 16.6 ha (41.0 ac) of new disturbance. Alternative C would result in cut and fill slopes of up to 25 m (80 ft) in height (Figure 1.3-2).

Alternative D – No Action (No Project)

The No Action (No Project) alternative is characterized as a "no-build" alternative. Under this alternative, no road improvements are proposed and Bautista Canyon Road would not be paved or realigned. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current maintenance of the roadway would continue and

adequate maintenance would become increasingly expensive as the deficient aspects of the road remain unrepaired.

ALTERNATIVES CONSIDERED, BUT ELIMINATED

The alternatives discussed below were evaluated and found not to be prudent because they are inadequate in terms of engineering design, traffic safety, or ineffectiveness in meeting other project goals and objectives. Based on these findings, the alternatives were eliminated from further review for the reasons described below.

Proposed Variations to Build Alternatives

Alternatives A, B, and C have undergone a review process to examine potential effects to biological, cultural, and other resources. Where practicable, alternatives were revised to reflect more environmentally sensitive alignment variations within each alternative.

Ridge #1 Alignments: The existing roadway through this area descends into the drainage for Bautista Creek and crosses the creek with a low water crossing. The existing alignment contains multiple sharp horizontal curves that could not accommodate the proposed design speeds.

Originally, there were two alignment alternatives at the Bautista Creek crossing (Ridge # 1) in addition to the proposed alignment. One was a straight crossing that cut off the existing horseshoe alignment. This alignment bridged the creek drainage by continuing southeast where the existing road turns sharply to the north (the beginning of the “horseshoe”) and then reconnected at the eastern end of the “horseshoe”. In an effort to avoid impacts to wetlands, a second alignment (the “no bridge” alignment) was identified, which closely followed the existing alignment based on a 40 km/h (25 mph) design speed. The “no bridge” alignment shifted to the north, roughly following the existing alignment, and crossed Bautista Creek close to the existing crossing. The use of a culvert instead of a bridge was considered for this alignment due to the low profile. Preliminary review of these alignments indicated that each would result in unacceptable negative impacts to environmental resources. As a result, the proposed alignment was identified for this location and these early Ridge #1 alignments were eliminated from further review.

Ridge #2 Alignment: Ridge #2 is the location of another existing “horseshoe” curve that needs to be realigned to accommodate the 40 km/h (25 mph) design speed. The original design followed the existing roadway alignment on the north side of the hill along Bautista Creek (the top of the “horseshoe”). This alignment impacted wetlands and had a negative impact on wildlife. In order to reduce these impacts, the proposed alignment at Ridge #2 was shifted to the south of the hill along a natural drainage channel grade, eliminating the impacts to the wetlands and other environmental resources. Consequently, the earlier Ridge #2 alignment was eliminated from analysis in the EIS/EIR.

Pave Existing Bautista Canyon Road

Paving the existing road alignment was considered but eliminated because it would not meet the project's objectives to improve safety and emergency access. The existing roadway was not engineered to current standards and is too narrow in several locations for vehicles to pass safely. Furthermore, basic roadway geometry is poor, with numerous sharp horizontal and vertical curves that limit sight distance. Additionally, roadway drainage is poor and road washouts and rockfalls caused by storm water runoff and seasonal flooding at the low-water crossings of Bautista Creek and other drainages would prevent use of the road during storm events. Paving the existing route would leave these deficiencies in place and would not be an appropriate use of federal funds because suitable design standards would not be achieved and it would not accomplish the purpose of or satisfy the need for the proposed project.

Reconstruct and No Pave

Implementation of this alternative would involve reconstructing the roadway to one of the build alternative standards; however, the surface would not be paved. This alternative was eliminated because it would result in equal direct environmental effects as the build alternatives and greater indirect effects resulting from the unpaved surface. This alternative would not adequately address maintenance needs because the unpaved surface would continue to require regular maintenance to maintain a safe, smooth driving surface. Thus, implementation of this alternative would not accomplish the purpose of or satisfy the need for the project.

New Route Using Existing Streets

A new route using roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west was considered. This alternative was eliminated from further consideration because it would not improve access to the SBNF or provide a more efficient link between Valle Vista and Anza. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired.

New Route Through Bautista Canyon

A completely new alignment through Bautista Canyon was considered. This alternative was eliminated because construction of a new road would have greater environmental effects than those projected for reconstruction of the existing Bautista Canyon Road. Additionally, the SBNF opposed implementation of this alternative. A new route through Bautista Canyon would result in a significant increase in new disturbance over the build alternatives considered in this EIS/EIR, amplifying the potential for significant environmental effects.

25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route

A 25 or 32 km/h (15 or 20 mph) design speed for Bautista Canyon Road was considered but eliminated after review of established design standards because the projected traffic volumes would be too high for this slow of a design speed. Projected traffic volumes indicate a rural collector classification, which require design speeds of 40-48 km/h (25-30 mph). Furthermore, environmental impacts would be similar to those identified for the proposed action due to the similarity in design criteria and the required curve widening needed to accommodate the design speed. Therefore, no advantage (environmental or otherwise) would be realized by selecting this alternative.

Alternative Transit

Alternative means of transit were considered and eliminated from further consideration because of the remote location and the lack of connectivity to other existing mass transit facilities. Additionally, current deficiencies make this unusable as a transit route. As such, transit or other modes of transportation would not meet project objectives, including the provision of a safe vehicle travel route and improved access for emergency vehicles.

ENVIRONMENTAL SETTING

Improvements to the 13.2 km (8.2 mi) segment of Bautista Canyon Road are located almost entirely within the SBNF in central Riverside County. Most of the existing roadway is located on public lands (state and federal), with the lower 2.3 km (1.4 mi) portion traversing through rural residential and private lands. Surrounding land uses are mainly characterized as open space and passive recreational lands. Bautista Canyon Road links the communities of Valle Vista on the northern terminus with Anza on the southern terminus.

The project study area is characterized by open space, canyons, and creek beds, and is vegetated primarily with native vegetation, including scrubland, chaparral, and riparian habitats. Bautista Canyon Road is located within Bautista Canyon running parallel to the canyon and Bautista Creek. The canyon is flanked on both sides by ridges of small mountains.

AREAS OF CONCERN, ISSUES RAISED BY THE PUBLIC AND AGENCIES, AND UNRESOLVED ISSUES

Juan Bautista de Anza National Historic Trail (Anza NHT)

The Anza NHT was established to commemorate the Spanish colonizing expeditions from Sonora, Mexico, into Upper California in the 1770s. In August 1990, Congress passed Public Law 101-365 making the Juan Bautista de Anza National Historic Trail (Anza NHT) a component of the National Trails System, to be administered by the National Parks Service (NPS). The Anza NHT is an historic route that consists of "recreational trail" components and "auto route" components. Of the 1,200 mi length of the Anza NHT from Nogales, Arizona, to San Francisco, California, 161 mi are components that cross federal lands. The historic route

enters Riverside County from the south via Coyote Canyon, crosses the Cahuilla Indian Reservation, and descends to the Hemet/San Jacinto area via Bautista Canyon. The route follows the San Jacinto River to Mystic Lake, then through the Bernasconi Pass near Perris Lake State Recreation Area, passes through March Air Force Base to enter the urbanized area of Riverside today. It crosses the Santa Ana River and proceeds westerly through Pedley toward Mission San Gabriel (NPS1996: C-17).

The only trail component through a national forest is the 8 mi segment of Bautista Canyon Road that passes through the SBNF (i.e., the location of the proposed project). Here, the Anza NHT consists of a designated auto route (marked) but no recreational trail. Because this currently unpaved section of the trail route crosses federal lands in an area that is little changed from the 1774-1776 landscape that Anza's expeditions traversed, it has been identified as 1 of 17 "high-potential" segments "to interpret the trail's historical significance and to provide opportunities for high-quality recreation" (NPS 1996: 1-2, 20-23).

Implementation of Alternatives A, B, or C would have temporary and permanent effects on the Anza NHT. The roadway would be temporarily closed for up to 16 months during construction under all the build alternatives. Thus, access to the NHT auto route would be restricted. The impact would be temporary and occur only during construction.

Although paving of this segment of the roadway would reduce the rustic characteristic of the roadway, reconstruction and paving of the roadway should not diminish the ability to interpret the trail's historical significance. The 13.2 km (8.2 mi) segment of Anza NHT is also an historic travel and auto route through Bautista Canyon. The improved roadway would provide a safer route for all users. It would increase the opportunity for more recreational users to access the canyon and experience the historic landscape that is relatively unchanged since the early explorations of the 1700s, although the proposed project will introduce some visual changes. All the build alternatives also propose a 0.1 ha (0.3 ac) interpretive overlook area on a point overlooking Bautista Canyon that would provide an opportunity for all users to have a panoramic view of the canyon and learn more about the historic use of the canyon.

Alessandro Trail

The Alessandro Trail is a 24 km (15 mi) trail that begins at the top of Tripp Flats, just north of the Tripp Flats Forest Service Station at an elevation of approximately 1,200 m (4,000 ft) and approximately 1.6 km (1 mi) from Bautista Canyon Road. The trail proceeds down toward Bautista Creek and the CDC Bautista Conservation Camp at Bautista Canyon Road. OHV users mainly use this trail. The trailhead does not have a designated parking area. Trail users typically park along the roadside or in a small (one to two cars) dirt area that currently exists at the trailhead.

Implementation of Alternatives A, B, and C would have a beneficial effect for Alessandro Trail users under all these build alternatives. The proposed build alternatives would include construction of a 0.1 ha (0.3 ac) OHV trailhead pullout at the Alessandro Trailhead. This facility would be surfaced with decomposed granite and sized to accommodate approximately five

vehicles and trailers. A small informational bulletin board is also proposed. The proposed parking area would improve user safety by minimizing conflicts between users loading/unloading OHV equipment and other motorists traveling on the roadway. Improved access to OHV and hiking areas within the SBNF may increase the number of users. While use of the area may change as a result of the project, no significant adverse impacts are anticipated.

Bautista Canyon Archaeological District

A total of 15 prehistoric and protohistoric (i.e., resources associated with early Native American occupation) archaeological resources would be affected by the proposed project. Each is eligible for listing in the NRHP under Criterion (d) of Section 106 of the NHPA because they have the potential to yield information important to prehistory or history. The archaeological resources of the canyon as a whole have generally good integrity, and the overall pattern of aboriginal land use remains intact (SRI 2003).

The pattern of prehistoric and protohistoric archaeological sites, along with specific and general plant collection areas important in Native American cultural traditions, reflects Native American use of a landscape that retains integrity of location, setting, materials, feeling, and association that is hardly altered from its period of significance. Therefore, the prehistoric and protohistoric sites recorded in the archaeological studies for this project, along with several previously recorded archaeological sites (RIV-1889, RIV-3090, RIV-3091, and RIV-3092) immediately adjoining the study area in the CDC Bautista Conservation Camp, are considered elements of an archaeological district. Implementation of Alternatives A, B, and C could cause direct physical destruction or damage to seven archaeological sites.

Anza NHT Historic Transportation Corridor

Bautista Canyon Road is a historical-period cultural resource in its own right, having been constructed during 1914-1917, and a portion of an apparent earlier alignment may date to the 1890's. These two historic period sites are eligible for listing under Criteria (a) and (b) of the NHPA because of their association with events and persons that have made significant contributions to history. Because the historic landscape of Bautista Canyon is virtually intact and possesses integrity of setting, feeling, and association, sites BC-23 and BC-22 are considered contributing elements of a larger historic transportation corridor (Anza NHT). The period of significance for Bautista Canyon Road extends from 1774-1917 and is considered significant at a local, state, and national level, while the period of significance for the earlier alignment extends from 1890-1925 and is considered significant at the local level. The historic transportation corridor is a dynamic cultural feature evolving from prehistoric Native American use, passage of the Anza expedition, use by cattlemen to move stock from the valley to mountain pastures, use as a wagon road, and later improved to an automobile road.

Each build alternative would result in an adverse effect to the historic transportation corridor due to visual impacts to the historic landscape. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway.

Bautista Canyon Traditional Cultural Property (TCP)

The ethnobotanical resource of the canyon, including basketry material collecting locations, and the ethnographical landscape that contains them, and the associated prehistoric and protohistoric archaeological resources, are important in maintaining the cultural identity of the local Cahuilla people and other traditional practitioners. The Cahuilla have historically and still use numerous plants for food, medicine, construction, and utilitarian purposes. The Cahuilla and other tribes in the area value the isolated setting and serenity with the low traffic volume that exists in Bautista Canyon, where prayers are said before they collect plants. Tribal members often come to Bautista Canyon to collect plants. The unpaved segment of Bautista Canyon Road is located mainly along the bottom of the canyon near Bautista Creek, which provides convenient access to plant collecting areas.

The canyon is considered to be eligible for listing in the NRHP as a TCP under Criterion (c) of the NHPA. The boundaries of the TCP minimally include the study corridor for the ethnobotanical study (i.e., 500 m [1,640 ft]) on each side of the road for the length of the proposed project). Although Native Americans consulted during the course of cultural resources studies consider the TCP to include the entire canyon, it is not feasible to define the boundaries beyond the area investigated.

Access changes associated with implementation of Alternative A, B, or C would result in adverse effects to plant collecting areas. Changes in the road's alignment would create new accessible areas, while reducing access to existing accessible areas. All of the build alternatives would result in higher speeds, grade changes, and steep embankment slopes that would make it more difficult for traditional practitioners to pull off the road and/or access some plant areas. The proposed build alternatives would introduce noise and visual intrusions that may affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP. The proposed alternatives would also add increased traffic through the canyon.

A LIST OF OTHER ACTIONS REQUIRED FOR THE PROPOSED ACTION

Discretionary Actions

The Bautista Canyon Road Project is a California FH located within the SBNF in the County of Riverside. The highway is also designated as Riverside County Road (CR) S5019, Sections B and C, and the County of Riverside is responsible for maintaining the roadway, through an easement granted by the USDAFS. The project would require a Record of Decision by the FHWA and project approval and Final EIR certification by the Riverside County Board of Supervisors. Other discretionary permits, approvals, and agency notification requirements associated with implementation of the proposed Bautista Canyon Road Project are described below. Additional information regarding permitting requirements is provided throughout this Draft EIS/EIR as part of the discussion of specific environmental issues.

Approvals and Permits Required

The EIS/EIR document must include a list of the related environmental review and consultation requirements, permits, licenses, and other approvals required by federal, state, or local laws, regulations, or policies. Table S-1 lists the permits and approvals required for the proposed action.

**Table S-1
 Key Approvals and Permits**

Project Authority/ Requiring Authorization	Authorizing Agency	Authority	Permit/Approval
Discharge of Fill Material into "Waters of U.S."	U.S. Army Corps of Engineers	Clean Water Act; Section 10 of the Rivers and Harbors Act	Section 404 Permit
Discharge of Pollutants into "Waters of U.S."	Santa Ana Regional Water Quality Control Board	Clean Water Act; Sections 401 and 402	Water Quality Certification and National Pollution Discharge Elimination System (NPDES) permit
Effects to Threatened or Endangered Species	U.S. Fish and Wildlife Service	Federal Endangered Species Act	Biological Opinion (BO)
Effects to Historic Properties	California State Historic Preservation Officer (SHPO)	Section 106 of the National Historic Preservation Act	Review by SHPO
Unlawful Taking of Migratory birds	U.S. Fish and Wildlife Service	Migratory Bird Treaty Act	A depredation permit may be required
Lake or Streambed Alteration Program	California Department of Fish and Game	Fish and Game Code, Section 1600 Protection and Conservation of Fish and Wildlife Resources	Section 1601 agreement
Relocation of Utility Poles	U.S. Department of Agriculture-Forest Service (USDAFS)	Existing Special Use Permit	Modify existing Special Use Permit

Environmental Effects and Mitigation Measures

Table S-2 provides a comparison summary of the effects and mitigation measures of the project alternatives.

**Table S-2
Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
Socioeconomics/Environmental Justice	<p><u>Alternatives A, B, and C.</u> The temporary increase in truck traffic poses a safety concern for children crossing at the Fairview Avenue and Mayberry Avenue crosswalk during construction.</p>	<p><u>Alternatives A, B, and C.</u> Placement of a crossing guard is proposed at the intersection of Fairview Avenue and Mayberry Street during project construction to increase the safety of children who cross the street(s) on their way to and from school. Therefore, no mitigation measures are proposed.</p>
Air Quality	<p><u>Alternatives A, B, and C.</u> Short-term increases in emissions would occur during construction. Operation of the proposed project would have a positive effect on air quality.</p> <p><u>Alternative D.</u> Under the No Action alternative, improvements to Bautista Canyon Road would not occur. An alternate faster and shorter route would not be available to link Valle Vista and Anza. Therefore, air quality benefits would not occur. Implementation of this alternative would also 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.</p>	<p><u>Alternatives A, B, and C.</u> To reduce vehicle exhaust during construction:</p> <ul style="list-style-type: none"> • 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. <p>The construction contractor shall comply with SCAQMD's Rule 403 requirements for fugitive dust.</p> <p><u>Alternative D.</u> Significant and unmitigable long-term air quality impact.</p>
Noise	<p><u>Alternatives A, B, and C.</u> Noise levels are anticipated to exceed the abatement criteria in the southern portion of the study area. The southern segment of Bautista Canyon 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 pass by events during the peak travel hour.</p>	<p><u>Alternatives A, B, and C.</u> Noise barriers are most effective in urban areas where development densities make them feasible from an engineering and cost perspective. This would not be a feasible mitigation measure because the receptor is approximately 200 feet from the roadway and noise levels after the project would remain typical of rural residential areas. No other feasible mitigation is proposed.</p>
Biological Resources	<p><u>Alternative A.</u> <u>Botanical Resources</u> - a total of 22.4 ha (55.4 ac) of direct impact would result, which includes 13.5 ha (33.3 ac) of permanent roadway effects and 8.9 ha (22.1 ac) of temporary roadway effects.</p> <p><u>Zoological Resources</u> - a total impact of 7.8 ha (19.2 ac) to chaparral</p>	<p><u>Alternatives A, B, and C.</u> <u>Upland Habitat Compensation Program</u> - cut and fill slopes adjacent to the roadway (excluding blasted rock slopes and cut slopes steeper than a 1:1.5 [V:H] ratio) and construction staging areas would be revegetated according to the Bautista Canyon Road Revegetation Plan. Temporary effects to plant communities</p>

**Table S-2 (continued)
 Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
	<p>habitats, 0.6 ha (1.5 ac) of upland scrub habitat, and 0.05 ha (0.13 ac) of riparian habitat would result.</p> <p>Regulated Waterways, Wetlands, and Riparian Areas - a total impact of 0.13 ha (0.32 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total impact of 0.13 ha (0.33 ac) of USACE jurisdictional wetlands would result. A total impact of 0.38 ha (0.94 ac) of CDFG jurisdictional riparian habitat and a total impact of 0.26 ha (0.65 ac) to jurisdictional waters and wetlands would result.</p> <p>Quino Checkerspot Butterfly - direct impacts to 0.6 ha (1.4 ac) of occupied foraging habitat (vegetated) and 3.9 ha (9.6 ac) of potential suitable habitat within the study corridor (vegetated) would result.</p> <p>Arroyo Toad - direct impacts to 2.3 ha (5.7 ac) of occupied upland habitat would result. Approximately 3.5 ha (8.7 ac) of the previously designated Critical Habitat for the arroyo toad would be affected. Toad mortality due to an increase in traffic speed and volume in the vicinity of Hixon Trail would result.</p> <p>Southwestern Willow Flycatcher - direct impacts to 0.4 ha (1.1 ac) of suitable riparian habitat would result.</p> <p>Alternative B. Botanical Resources - a total impact of 23.1 ha (57.1 ac) direct effects to plant communities, which include 13.8 ha (34.1 ac) of permanent effects and 9.3 ha (23.0 ac) of temporary effects.</p> <p>Zoological Resources - a total impact of 8.8 ha (21.7 ac) to chaparral habitats, 0.6 ha (1.5 ac) of upland scrub habitat, and 0.05 ha (0.13 ac) of riparian habitat would result.</p> <p>Regulated Waterways, Wetlands, and Riparian Areas - a total impact of 0.15 ha (0.38 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total of 0.07 ha (0.18 ac) of USACE jurisdictional wetlands. Total impact to jurisdictional waters and wetlands would be approximately 0.22 ha (0.54 ac). A total impact of 0.31 ha (0.76 ac) to CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways would result.</p> <p>Quino Checkerspot Butterfly - impacts to 0.6 ha (1.4 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly would result.</p>	<p>would be mitigated at approximately a 1:1 ratio.</p> <p>Wetland Habitat Compensation Program - permanent effects would be mitigated through wetland creation at a 1:1 ratio (no-net-loss) and through wetland restoration or enhancement at a 1:1 ratio.</p> <p>Bautista Canyon Road Landscape and Revegetation Plan - shall provide recommendations for implementing the habitat compensation program and would include site preparation, seed and plant materials, monitoring and maintenance, irrigation, and development of performance criteria for chaparral, big sagebrush scrub, and riparian communities.</p> <p>General Conservation Measures:</p> <ul style="list-style-type: none"> • A qualified biological monitor(s) having local experience with the biological resources of Bautista Canyon would be retained to oversee and monitor all construction activities occurring adjacent to areas occupied by listed species. If multiple segments of the corridor are concurrently under construction, multiple biological monitors may be necessary. • The FHWA would hold preconstruction meetings to brief contractors on the location of sensitive resources and construction boundaries. • The biological monitor would ensure that environmental fencing marking the limits of work is appropriately placed to avoid accidental effects and protect listed species or their habitat and that it remains in good condition for the duration of the project. • All construction equipment shall be fueled and maintained at least 30.5 m (100 ft) from the nearest wetland or waters of the U.S. in designated staging areas with proper drip containment measures. • The biological monitor would document in monthly construction reports all cases where construction has directly affected occupied listed species habitat or an individual of a listed species. Appropriate corrective actions would be recommended in these reports and the reports would be forwarded to the wildlife agencies.

**Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
<p>Biological Resources (continued)</p>	<p>Arroyo Toad - impacts to 2.4 ha (5.9 ac) of occupied upland habitat and 3.7 ha (9.1 ac) of vegetated habitat previously designated as Critical Habitat would result.</p> <p>Southwestern Willow Flycatcher - direct effects to 0.4 ha (0.9 ac) of occupied riparian habitat would result.</p> <p>Alternative C. Botanical Resources - a total of 22.3 ha (55.1 ac) of direct impact, which includes 13.2 ha (32.6 ac) of permanent roadway effects and 9.1 ha (22.5 ac) of temporary roadway effects would result.</p> <p>Zoological Resources - a total impact of 7.77 ha (19.2 ac) to chaparral habitats, 0.61 ha (1.50 ac) of upland scrub habitat, and 0.03 ha (0.08 ac) of riparian habitat would result.</p> <p>Regulated Waterways, Wetlands, and Riparian Areas - a total impact of 0.14 ha (0.35 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total impact of 0.13 ha (0.32 ac) of USACE jurisdictional wetlands. Total impact to jurisdictional waters and wetlands would be approximately 0.27 ha (0.67 ac). A total impact of 0.21 ha (0.51 ac) of CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways would result.</p> <p>Quino Checkerspot Butterfly – direct impacts to 0.5 ha (1.3 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly would result.</p> <p>Arroyo Toad - direct impacts to 2.6 ha (6.5 ac) of occupied upland habitat and 3.9 ha (9.6 ac) of vegetated habitat previously designated as Critical Habitat for the arroyo toad would result.</p> <p>Southwestern Willow Flycatcher – direct impacts to 0.3 ha (0.7 ac) to occupied riparian habitat of the southwestern willow flycatcher would result.</p>	<ul style="list-style-type: none"> Unanticipated temporary damage to listed species habitat and wetlands during construction shall be restored to predisturbance habitat conditions. The appropriate enhancement shall be recommended by the biological monitor and approved by the USDAFS in coordination with the USFWS and FHWA. Permanent loss of listed species habitat would be compensated for based on the resource affected according to the procedures identified in this section. Compliance would be required with federal, state, and local regulations pertaining to hazardous waste and substances, and oily substances. The contractor would attend an environmental briefing and provide a list of the types, quantities, and use of hazardous materials brought onto the site and the types and quantities of wastes/wastewater that might be generated during construction. Appropriate BMPs shall be used such as diversion ditches, benches, berms, silt fences, and straw bales to retard and divert runoff to protected drainage courses and protect water quality during and after construction. <p>Resource Specific Conservation Measures</p> <p>Quino Checkerspot Butterfly</p> <ul style="list-style-type: none"> The improvement alternatives have been centered on the existing roadway in the vicinity of the known occupied habitat of the study corridor to reduce impact to natural vegetation in this area. Direct permanent loss of suitable habitat would be compensated through the habitat compensation measures described in section 3.6. Seed mixes to be developed for the final revegetation plan for this project should include host and nectaring plant species used by the Quino checkerspot butterfly, including dot-seed plantain and owl's clover.

**Table S-2 (continued)
 Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
		<p><u>Arroyo Toad</u></p> <ul style="list-style-type: none"> Construction in the northernmost 2.4 km (1.5 mi) of the study corridor (downstream section) would occur outside of the toad-breeding season (15 March through 15 August) to avoid effects to breeding toads, eggs, tadpoles, and maturing juveniles. This would also avoid effects to the designated Critical Habitat during the breeding season. <p><u>Southwestern Willow Flycatcher</u></p> <ul style="list-style-type: none"> Construction activities resulting in excessive noise (e.g., rock blasting) within 0.4 km (0.25 mi) of the known breeding territory would occur outside of the breeding season (considered to occur from 15 March to 31 August) to avoid construction noise effects to nesting birds. The proposed design would relocate the Bautista Canyon Road centerline between 72 and 89 m (236 and 292 ft) away from the species point location in the vicinity of Tripp Flats. This would act to mitigate any permanent indirect effects of increased traffic noise generation from the new roadway on this known breeding territory. Direct permanent loss of occupied riparian habitat would be compensated through the habitat compensation measures described in section 3.6. <p><u>Habitat Connectivity and Wildlife Movement</u></p> <ul style="list-style-type: none"> The project design includes a bridge at the main Bautista Creek crossing. This design will remove the effects of the existing dirt road crossing and enhance wildlife movement at this location. The project design includes a large, oversized box culvert at the Tripp Flats crossing. This design will allow for improved wildlife movement at this location. The design team has included provisions for wildlife movement at the following locations: Station 312+215 (Existing horseshoe bend west of the Bautista Crossing) <ul style="list-style-type: none"> The Bridge at Bautista Creek Station 320+440 (The base of the existing switchbacks) Station 324+532 (145 m north of Tripp Flats Road) Station 324+680 (Tripp Flats Road)

**Table S-2 (continued)
 Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
		<ul style="list-style-type: none"> • In general, the project has been designed to reduce the overall right-of-way corridor width through using steep cut and fill slopes. This reduces the overall impact acreage and minimizes the effects on habitat connectivity. • Other measures such as wildlife crossing signs and deer reflectors will be used at appropriate locations along the improved roadway to minimize the effect of the project on wildlife movement. <p><u>Other Specific Measures</u></p> <ul style="list-style-type: none"> • BMPs will be used during construction of the roadway to avoid and minimize erosion and sedimentation. A Storm Water Pollution Prevention Plan (SWPPP) will be developed that defines BMPs to be implemented during construction of the project to avoid and minimize these effects. • Preconstruction surveys for slender-horned spineflower would be conducted during the appropriate time of year in appropriate areas of the study corridor prior to construction to ensure this species would not be impacted by the project. Avoidance or relocation measures may be necessary if the species is located within the study corridor during these surveys. • Preconstruction raptor nest surveys would be conducted. Construction personnel would be informed of the general location of any raptor nests found and would be directed to avoid these locations to the maximum extent possible.
Hydrology/Water Resources	<p><u>Alternatives A, B, and C.</u> During storm events, erosion and sedimentation effects could occur. Proposed construction activities could also result in short-term effects to local water quality through accidental direct or indirect discharge of hazardous materials such as vehicle fuels, lubricants and chemicals (i.e., herbicides, etc.) into drainage courses.</p>	<p><u>Alternatives A, B, and C.</u></p> <ul style="list-style-type: none"> • A Conceptual Landscape and Revegetation Plan has been prepared and an erosion control plan would be prepared to reduce erosion and sedimentation from disturbed areas and cut and fill slopes. Additionally, all applicable requirements of the NPDES Program in effect at the time of project construction would be implemented to the satisfaction of the County of Riverside Transportation and Land Management Agency.

**Table S-2 (continued)
 Impact Analysis and Mitigation Measure Summary**

Issue Area	Issues and Effects	Mitigation Measures
Hydrology/Water Resources (continued)	<p><u>Alternative D.</u> The unpaved segment of Bautista Canyon Road would continue to erode adding higher sediment levels to Bautista Creek during storm events compared to the proposed paved segment.</p> <p>Flood hazards would continue in portions of Bautista Creek, thus exposing people to risk from flood waters, mud flows, or other direct and indirect effects associated with storm water runoff.</p>	<ul style="list-style-type: none"> Prior to the issuance of any construction or grading permit and/or the commencement of any clearing, grading, and excavation, a SWPPP would be prepared and submitted for approval to the Riverside County Transportation and Land Management Agency pursuant to County Ordinance No. 754.1. BMPs will be implemented during site grading and construction as part of the SWPPP. <p><u>Alternative D:</u> No mitigation is proposed.</p>
Cultural Resources	<p><u>Alternatives A, B, and C.</u> The historic properties that make up the archaeological district and TCP would be adversely affected. The historic properties that may be subject to physical destruction or damage include sites BC-7, BC-9, BC-4, BC-13, BC-3, BC-16, BC-1, BC-22, and BC-23, all of which are located completely or partially with the area of potential effects (APE) for archaeological resources. Sites outside the direct APE such as RIV-3092 also may be subject to indirect effects.</p> <p>Plant-collecting areas will be affected by access changes and higher speeds along the roadway. This would make it more difficult for traditional practitioners to pull off the road to collect plant materials. The project would also introduce noise and visual intrusions that will affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP.</p>	<p><u>Alternatives A, B, and C.</u></p> <ul style="list-style-type: none"> In consultation with Native American Tribes, SBNF, NPS, SHPO, and the Advisory Council on Historic Preservation, prepare a Memorandum of Agreement (MOA) according to the provisions of the NHPA (36 CFR 800.6). The MOA should contain provisions for FHWA and the County to prepare and implement mitigation measure for archaeological sites subject to direct adverse effects. The measures should address data recovery from imperiled features and cultural deposits in affected site areas, archaeological monitoring of sensitive areas for unanticipated discoveries during construction, Native American monitoring of project-related archaeological activities, and curation of all recovered cultural materials in a federally approved repository. The MOA also should address issues of protecting archaeological sites and collecting areas for basketry materials from degradation by unauthorized uses, while providing for access to qualified researchers, traditional practitioners, and agency staff. Any revegetation plan or visual treatment plan for the project should be prepared and implemented in consultation with traditional practitioners and designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
	<p>Potential adverse effects to human remains interred outside of formal cemeteries could occur during site excavation and grading.</p> <p>Alternative D. Degradation of historic sites by unauthorized users would continue to occur, as would ongoing erosion and disturbance from grading during road maintenanc</p>	<ul style="list-style-type: none"> If human remains are discovered, work shall halt in that area and procedures set forth in the California Resources Code (§ 5097.98) and State Health and Safety Code (§ 7050.5) shall be followed by the archaeological monitor after notification to the County Coroner by the FHWA project engineer. If Native American remains are present, the County Coroner shall contact the Native American Heritage Commission to designate a Most Likely Descendant, who will arrange for the dignified disposition and treatment of the remains. Ground disturbing activities shall be allowed to resume in the area of discover upon completion of the above requirement, to the satisfaction of the FHWA project engineer. <p>Alternative D. Significant and unmitigable.</p>
Hazardous Materials	<p>Alternatives A, B, and C. Although there was no documentation of unauthorized releases or of existing hazardous substances or petroleum product contamination at the project site, the evidence observed indicates the potential for contamination from hydrocarbons.</p>	<p>Alternatives A, B, and C. Additional soil sampling and analysis in areas where staining and burning and petroleum product release were observed would be required prior to the commencement of excavation and grading operations in order to reduce potential contamination from hydrocarbons and a potential hazard to construction personnel during excavation and grading.</p>
Visual Resources	<p>Alternatives A, B, and C. Proposed construction could substantially degrade the existing visual character or quality of the site and its surroundings. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon.</p>	<p>Alternatives A, B, and C.</p> <ul style="list-style-type: none"> Implement an Erosion Control and Revegetation plan for all soil disturbances, including road cuts and road fills. Use the existing landscape vegetation as a seed source for reseeding. Colorize the largest and most visible exposed rock surfaces (cut slopes too steep to revegetate) with Permeon or other types of aging chemicals to soften the color contrast of the exposed rock and reduce the visual impact. Blend fills into the natural contours, rather than leave them as flat faces. Round cut edges back to the natural slope and revegetate exposed slopes. Stain or paint materials such as wood or steel used for signposts or safety railing with colors that are not shiny and that complement the surrounding landscape.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Visual Resources (continued)		<ul style="list-style-type: none"> Construct guardrails with metal rails of “self weathering steel,” or galvanized steel guardrails.
Recreation	<p><u>Alternatives A, B, and C.</u> Construction would require temporary closure of the Anza NHT auto route.</p>	<p><u>Alternatives A, B, and C.</u> The FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS.</p>
Soils/Geology	<p><u>Alternatives A, B, and C.</u> Construction could result in significant soil erosion effects.</p> <p>Surface mapping of soil and rock conditions along the northern and central segments of the proposed project, indicated that excavation could be problematic along the proposed alignments. Dense silty sands with boulder material would be encountered in the northern portion of the project area, along with possible mixed cut slope conditions (alluvium and outcropping rock).</p> <p>Scaling and possibly spot bolting will be critical elements in arriving at stable rock cuts along Bautista Canyon.</p>	<p><u>Alternatives A, B, and C.</u></p> <ul style="list-style-type: none"> Detailed surface geologic structure mapping shall be required prior to project approval at additional locations along the central portion of the project area, and on the limited rock outcrop exposures along the southern canyon section. Following field mapping and data analyses, final design recommendations shall be developed for large rock cuts, including recommendations for rock mass stabilization. Topsoil locations and stripping depths shall be determined with the assistance of USDAFS personnel prior to project excavation. Bridge foundation recommendations shall build on the seismic information acquired to date and additional pier borings, recommended in the Interim Geotechnical Investigation Report. Box culvert bearing capacities shall also be developed. All cut slopes shall be observed during grading as directed by a geotechnical engineer to ensure conformity with anticipated subsurface conditions. Material density measurements shall be conducted to arrive at more accurate shrink-swell values for the proposed project prior to project approval. Special Contract Requirements (SCR) shall also be prepared following completion of the final cut slope, fill slope, and structure foundation designs prior to project approval.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Fire Hazard and Risk	<p>Alternative D. Fire and sheriff emergency vehicles using the roadway would continue to have slow response times.</p>	<p>Alternative D. Significant and unmitigable.</p>
Section 4(f)	<p>Juan Bautista de Anza National Historic Trail Implementation of Alternatives A, B, or C would cause the Anza NHT to be temporarily closed for up to 16 months during construction under all the build alternatives. Visually, each build alternative for the proposed road would change the landscape character of the canyon. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway.</p>	<p>The visual effect of large fills can be reduced with appropriate revegetation. The proposed design minimizes cut and fill slopes; thus, reducing the project's footprint and the amount of new disturbance. All disturbed areas and abandoned road segments would be revegetated with plant species native to the canyon where possible. On steeper slopes and rock faces, rock coloring would be used to minimize visual effects. To minimize effects associated with the temporary closure of the Anza NHT auto route, the FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS.</p>
	<p>Alessandro Trail Implementation of Alternatives A, B, and C would have a beneficial effect for Alessandro Trail users. The proposed build alternatives would include construction of an OHV trailhead pullout at the Alessandro Trailhead. A small informational bulletin board is also proposed. The proposed parking area would improve user safety by minimizing conflicts between users loading/unloading OHV equipment and other motorists traveling on the roadway. Improved access to OHV and hiking areas within the SBNF may increase the number of users. While use of the area may change as a result of the project, no significant adverse impacts are anticipated.</p>	<p>All disturbed areas adjacent to the trailhead would be revegetated with appropriate seed mixes corresponding to the adjacent plant community. Construction of the OHV pullout at the Alessandro Trailhead would compensate for any changes in use.</p>
	<p>Archaeological Resources and TCP Resources Implementation of Alternatives A, B, and C could cause direct physical destruction or damage to archaeological sites during excavation and grading of the project.</p> <p>Access changes associated with implementation of Alternative A, B, or C would result in adverse effects to plant collecting areas. All of the build alternatives would result in higher speeds, grade changes, and steep embankment slopes that would make it more difficult for traditional practitioners to pull off the road and/or access some plant areas.</p> <p>The proposed build alternatives would introduce noise and visual intrusions that may affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP. The proposed alternatives would also add increased traffic through the canyon.</p>	<ul style="list-style-type: none"> • In consultation with Native American Tribes, SBNF, NPS, SHPO, and the Advisory Council on Historic Preservation, prepare a Memorandum of Agreement (MOA) according to the provisions of the NHPA (36 CFR 800.6). • Any revegetation plan or visual treatment plan for the project should be prepared and implemented in consultation with traditional practitioners and designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project.