Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Affected Environment

The project begins at the Yuba/Nevada County line at KP 0.0 (PM 0.0) and extends 6.6 km (4.1 miles [mi]) east on SR 20. At the beginning of the project limits, the land is gently to moderately rolling and the eastern portion of the project area is moderately rolling to steep. The project area consists of sparsely located residences with one local restaurant at KP 0.1 (PM 0.16). Numerous private residential driveways connect to SR 20. Nevada County has designated the land surrounding the project area as rural and is zoned as agricultural. The proposed project would acquire agricultural land for the realignment and widening of SR 20. Although the land is zoned as agricultural, it is not protected under state of federal laws, which protect specified agricultural and timberland. The project would require the acquisition 14.8 hectars (ha)/ 36.6 acres (ac) of land. This would consist of strips of land adjacent to the existing alignment needed for construction to widen and realign SR 20. The proposed project is consistent with the policies contained in the Nevada County General Plan.

2.1. 1.2 Impacts

No impacts to land use would occur. No business or residences would be relocated.

2.1.1.3 Avoidance, Minimization and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures will be required.

2.1.2 Growth

2.1. 2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth.

2.1.2. 2 Impacts

As part of the scoping and environmental analysis conducted for the project, growth was considered but no potential for adverse impacts were identified. Consequently, no further discussion in regard to growth is included in this document.

2.1.3 Farmlands/Timberlands

2.1.3.1 Regulatory Setting

The provisions of the Farmland Protection Policy Act (FPPA) of 1984 require agencies to coordinate with the Natural Resources Conservation Service (NRCS) to examine the effects of farmland conversion before approving any federal action.

The Williamson Act, also known as the California Land Conservation Act of 1965, was enacted to protect agricultural and open-space lands. The program allows landowners to place their property under a Williamson Act contract, during which time the land is assessed for property taxes at a rate consistent with agricultural use, rather than its full market value.

2.1.3.2 Impacts

As part of the scoping and environmental analysis conducted for the project, the farmland and timberland resources were considered. Nevada County Planning Department was contacted to identify the presence of farmlands and timberlands, which are protected under

federal and state Acts. Nevada County zoning maps indicate that no protected farmland/timberlands are located in the project area. Consequently, no further discussion regarding farmlands and timberlands is included in this document.

2.1.4 Community Impacts

2.1.4.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 USC. 4331(b)(2)]. The Federal Highway Administration in its implementation of NEPA [23 USC. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment.

2.1.4.2 Affected Environment

The project area is rural with sparsely located residences and one business (approximately KP 0.16/PM 0.1). Several improved streets, dirt roads, and driveways intersect SR 20 throughout the project. The populated urban areas, outside the project area, include Penn Valley, Grass Valley, and Nevada City. Only 3.1% of the population within Nevada County live in the surrounding project area.

The economic characteristics in Nevada County and within the project area are described as follows. The major source of employment is management and professional; sales and office occupations; and service occupations, respectively. The major source of industry is educational, health and social services; retail trade; and construction, respectively. Both in Nevada County and within the surrounding project area, the economic characteristics are similar.

Residential

Nearby residences include single-family homes sparsely located throughout the project area. At KP 3.0 (PM 1.9), off SR 20, Melody Lane leads to a number of single-family ranch homes (Figure 2.1). Poker Flat Road serves approximately ten homes (Figure 2.2). SR 20 intersects other private roads, which serves single-family homes with large parcels.

Figure 2.1 Residences

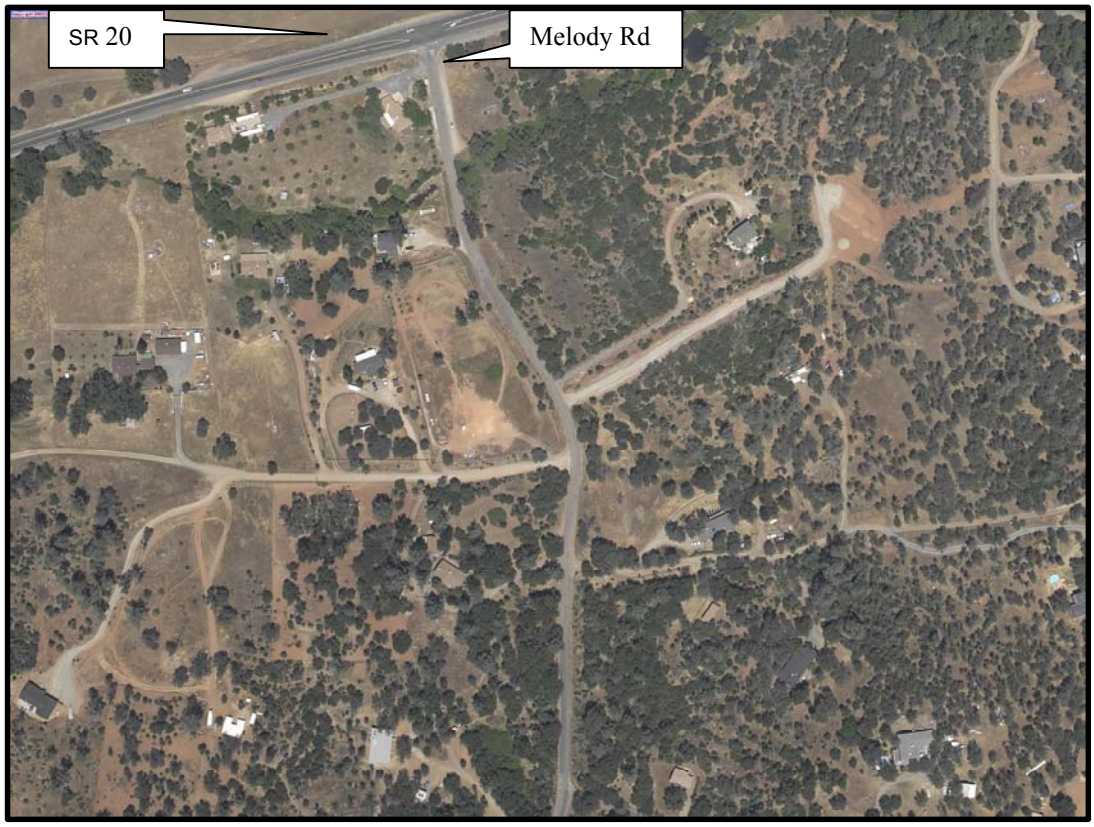
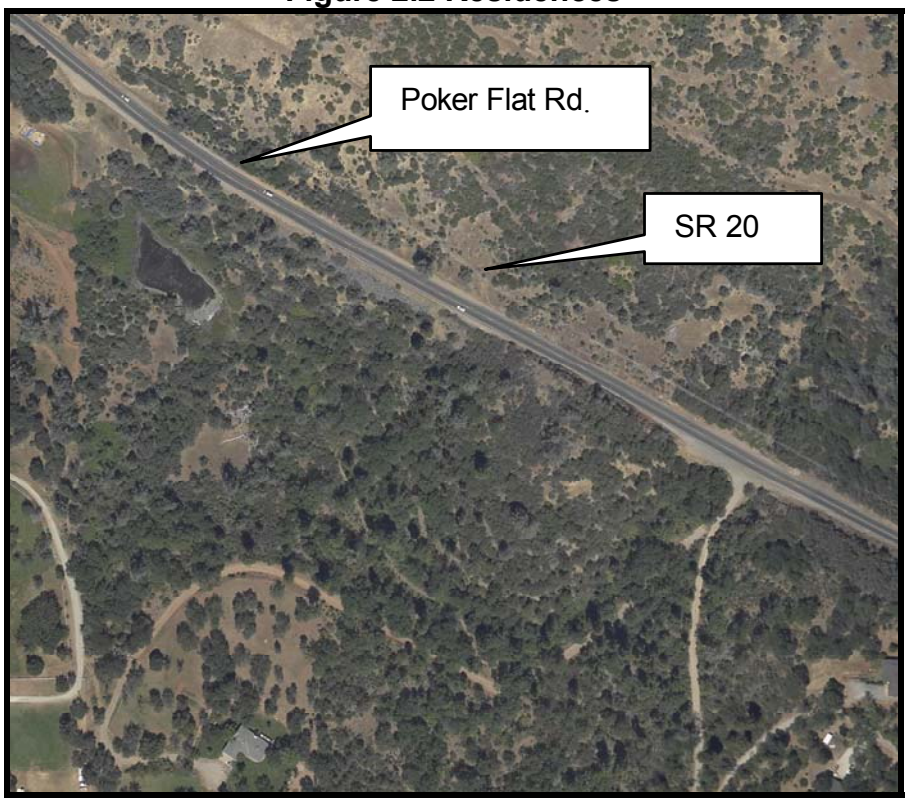


Figure 2.2 Residences



Business

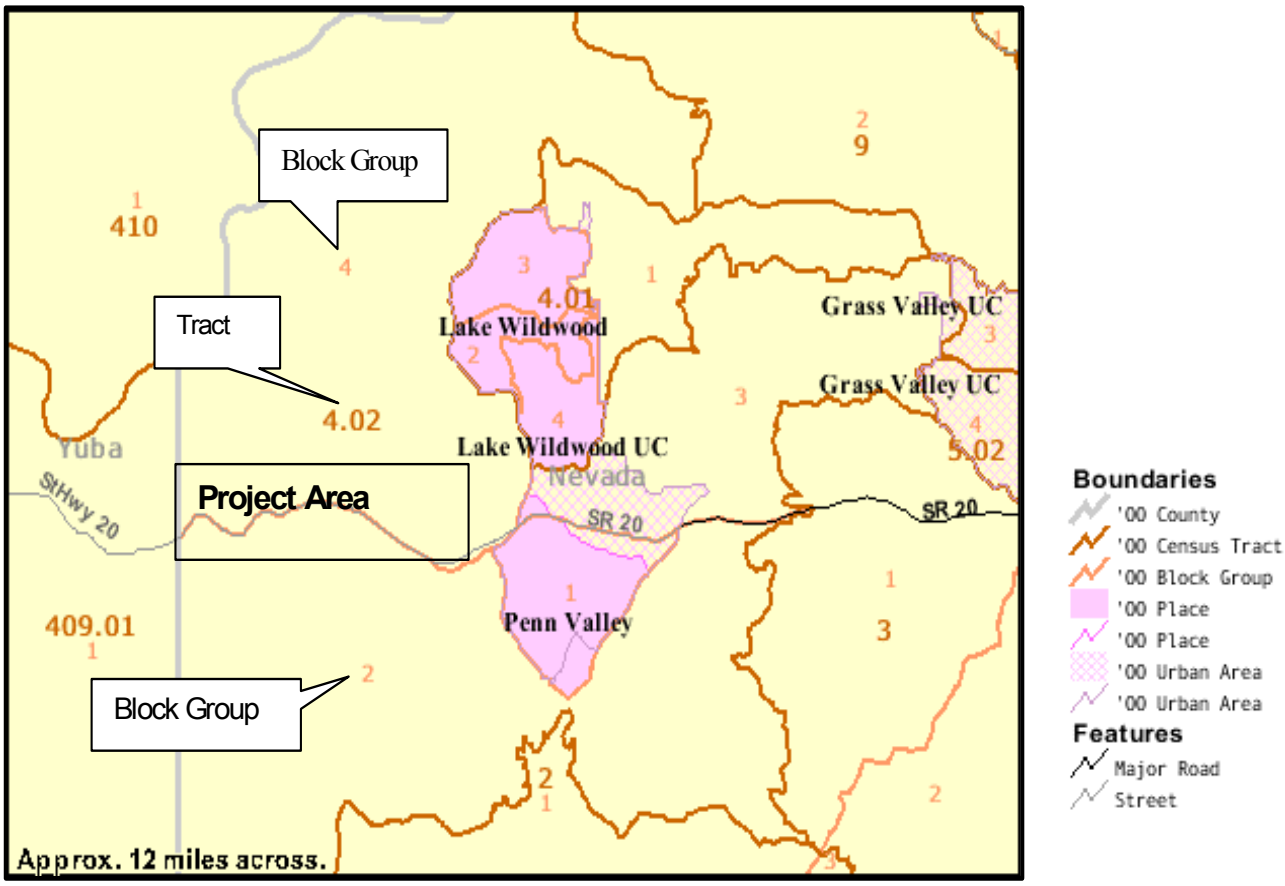
One business exists close to the project area. It is a local restaurant located at Mooney Flat Road and SR 20 near KP 0.16 (PM 0.1), as depicted in Figure 2.3.

Figure 2.3 Business

Demographics

The project area is located within Census Tract 4.02, Block Groups 2 and 4 based on the US Census Bureau geographical designations (Figure 2.4). Data was extrapolated from Block Groups 2 and 4 to represent the community demographics nearest to the project area. Block Group 4 is located to the north of the project area and Block Group 2 is located to the south of the project area. Both Block Groups are classified as rural. The nearest urban areas are Nevada City and Grass Valley (Figure 2.4).

Figure 2.4
Census Tract and Block Group Identification



Source: US Census Bureau, Census 2000

Race and Ethnicity Composition

Based on the US Census Bureau 2000 census, the total population in Nevada County is 92,033 people. The racial and ethnic composition is described in Table 2.1. The project area includes Block Groups 2 and 4 for the purposes of assessing the community composition. In both Nevada County and the project area, the population is predominately white. In Nevada County, 93.4% are white and in the project area 96.7% are white. For minority groups, the difference between the project area and Nevada County is minimal.

Table 2.1 Racial and Ethnic Composition

Population Groups	**Nevada County**	**Project Area** (Census Tract 4.02, Block Groups 2 & 4)
White	93.4%	96.6%
African American	0.3%	0.14%
American Indian	0.9%	0.5%
Asian	0.8%	0.6%
Native Hawaiian and other Pacific Islander	0.1%	0.14%
Other	4.5%	2.3%
Total Population	92,033	2,871

Source: US Census Bureau, Census 2000

Income Diversity

The median household income and per capita income surrounding the project area are compared to the Nevada County incomes (Table 2.2).

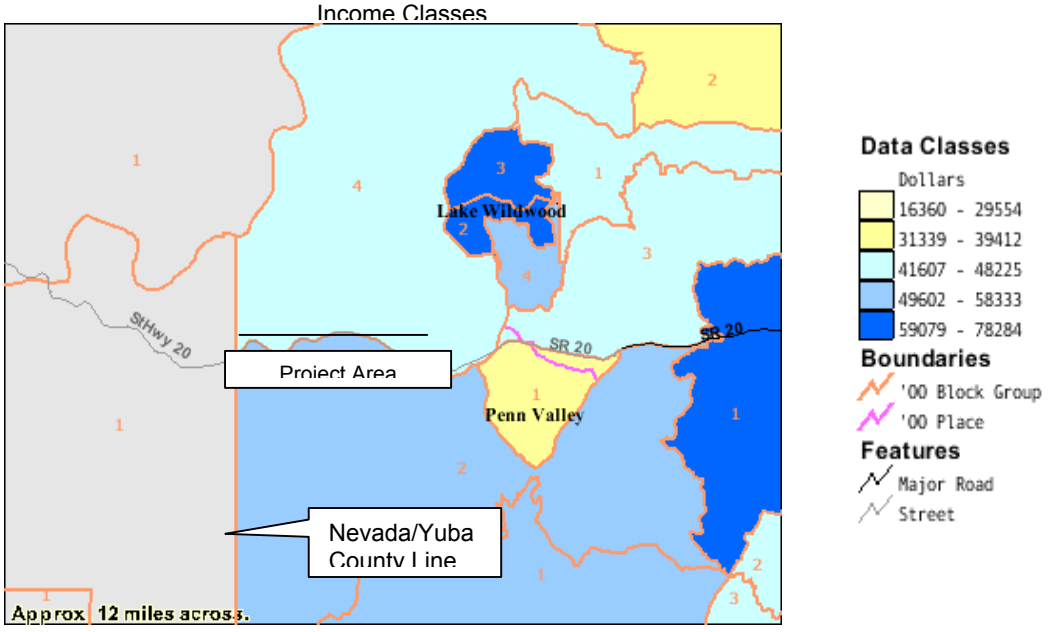
Table 2.2 Income Comparisons

Income in 1999 (dollars)	Nevada County	Project Area Nevada (Census Tract 4.02, Block group 2	Project Area Nevada (Census Tract 4.02, Block group 4
Median Household Income	$45,864	$52,273	$45,733
Per Capita Income	$24,007	$20,603	$23,525

Source: US Census Bureau, Census 2000

Figure 2.5 is referenced by Block Group and by five different income classes based on median household incomes. The classes range from $16,360 to $78,284. In Block Group 2 and 4 (project area), the income ranges from $41,607 to $48,225, which is approximately midway within the classes. The project area does not reflect a disparity in income levels.

Figure 2.5
Income Classes



Source: US Census Bureau, Census 2000

Poverty Levels

In the project area, 5.8% (Block Group 2) and 5.5% (Block Group 4) of the population are below the poverty level. In Nevada County, 5.5% of the population is below the poverty level.

Table 2.3 Poverty Level Comparisons

Percent Below Poverty Level in 1999	Nevada County	Project Area Census Tract 4.2, Block group 2	Project Area Census Tract 4.2, Block group 4
Below Poverty Level	5.5%	5.8%	5.5%

Source: US Census Bureau, Census 2000

2.1.4.3 Impacts

Right-of-Way

Minimal impacts to the community would result from the proposed project. Right-of-way acquisition would be required for construction of the project and consists of sections of residential parcels and driveways, as well as public roads. No relocation of residences will be required. New R/W will total 14.8 ha (36.6 ac). Property owners would be compensated the fair market value for any land acquired by Caltrans.

Environmental Justice

The demographic analysis of the project area does not indicate a disproportionate presence of low-income or minority populations. For the total population within the project area, temporary impacts during construction, including traffic delays, lane closures, and dust and noise generated from equipment could affect residents. These impacts would be minor and short-term and would not result in disproportionately high health or environmental effects on the community. The project is considered to be consistent with the objectives of Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low Income Populations).

In summary, the project area is not disproportionate in comparison to Nevada County when comparing income diversity, poverty levels, and race and ethnicity.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is necessary.

2.1.5 Utilities/Emergency

2.1.5.1 Affected Environment

A variety of utilities traverse the project area including electrical, telephone, and an irrigation ditch.

2.1.5.2 Impacts

Utility relocation would be necessary for this project. Relocation of the Nevada Irrigation Ditch (NID) will require relocation at various locations within the project area. Caltrans will coordinate closely with utility companies to ensure minimum disruption of service to customers in the project area.

No emergency services would be adversely impacted by construction of the project. The proposed project would not change access routes for emergency vehicles. During construction, Caltrans will coordinate with appropriate emergency response agencies to ensure adequate response times. The proposed project would result in improved conditions for fire protection, law enforcement, and other emergency response services along SR 20.

2.1.5.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is necessary.

2.1.6 Traffic Transportation/Pedestrian and Bicycle Facilities

2.1.6.1 Affected Environment

The section of SR 20 located in the project area is rolling foothills to steep terrain (near the east end of the project limits) and is a two-lane highway. The route is classified as a minor arterial along most sections of the SR 20. SR 20 is mainly a two-lane highway, which begins at SR 1 near Fort Bragg and ends at Interstate (I) 80 near Emigrant Gap.

In Nevada County, SR 20 runs from KP 0.0 to 20.0 (PM 0.0 to 12.3), which serves regional, commercial, agricultural and recreational traffic and interconnects with major routes elsewhere such as I-5, SR 99, SR 70 and I-80. SR 20 is significant as a feeder route for agricultural and commercial trucking connecting I-5, I-80, SR 99, and SR 70. In addition, SR 20 connects rural population centers with SR 16, 45, 49 and 174. SR 20 provides the major east/west interregional movement for people and goods across the northern Central Valley and provides movement to the urbanized areas of Yuba City/Marysville with connections to SR 99 and SR 70. It connects the high growth SR 49 corridor in Placer County to Interstate 80.

In Grass Valley/Nevada City, SR 20 serves primarily local and recreational trips. A larger percentage of the travel is recreational further east of Nevada City.

There are no existing pedestrian or bicycle facilities within the project. However, the project would add bicycling opportunities to the public through the addition of 2.4 m (8 ft) shoulders to the roadway throughout the project limits.

2.1.6.2 Impacts

The project would improve traffic flow, enhance safety, and reduce congestion on this section of SR 20 with realignment, wider shoulders, turn lanes, and a truck-climbing lane.

Temporary closures would be necessary to accommodate construction. A Traffic Management Plan will be prepared for this project. Construction would be staged in a manner to reduce impacts to the traveling public.

2.1.6.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is necessary.

2.1.7 Visual/Aesthetics

2.1.7.1 Regulatory

The National Environmental Policy Act (NEPA) of 1969 as amended establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 USC. 4331(b)(2)]. The Federal Highway Administration (FHWA) in its implementation of NEPA [23 USC. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with enjoyment of aesthetic, natural, scenic and historic environmental qualities." [CA Public Resources Code Section 21001(b)].

2.1. 7.2 Affected Environment

Residential and highway travelers are the two major viewer groups for the project. The largest viewer groups affected are the traveling public along SR 20, including commuters to Beale Air Force Base, local cities, and weekend drivers destined for recreation both locally and in the Sierra Nevada.

Existing speed limits vary from less than 50 to 65 km/h (30 to 40 mph). The proposed project will straighten the SR and speed limits will increase to 90 km/h (56 mph). Views are seen in short duration, because of the changes in road direction and close proximity of foothills.

The region's seclusion and oak woodland environment attracts retirees and families to live in the project area. A few homes have views of SR 20 from the top of the foothills. The area ranges from pasture areas to oak covered woodlands. Due to the vertical and horizontal

alignment of the SR and rolling foothills covered with mature oak woodland vegetation, the majority of the residents have narrow viewsheds of the highway.

2.1.7.3 Impacts

Residents and travelers along the corridor would be moderately affected by visual impacts created by the proposed project. The proposed cut slopes would have straight sharp angles at the top and toe of the slopes. This unnatural form is visually distracting. Whenever cut slopes are proposed, rock outcroppings will be exposed. Rock outcroppings can be aesthetically pleasing; however, when the slopes are dominated by exposed rock, the ground will not be suitable for re-vegetating.

2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts to the visual character of the project area would be mitigated by the following measures:

- The proposed foreground view of new cut and fill slopes have the potential to blend with the environment by revegetation of uneven benches and pockets.
- Preserve the typical rocky environment that is seen in the SR 20 corridor, such as preserving the natural rock outcropping whenever possible.
- At all abandoned road sections, remove asphalt road surface, regrade slopes, and re-vegetate to pre-road conditions.
- Re-vegetate (erosion control) the new cut and fill slopes and abandoned road sections to blend with the surrounding environment, as soil conditions permit.
- Cut back solid rock slopes to have the similar cut angles as the existing rock slopes in the project area.

Oak Planting

All varieties of oak tree species removed from the project site would be replanted. Under the Biological section of this document, the oak tree replacement is discussed in detail.

Erosion Control

All areas disturbed during construction will receive permanent erosion control measures. All finished slopes and contour graded areas will be hydroseeded with a permanent seed mix composed of native plant species indigenous to the area. A Landscape Architect will prepare the erosion control plans and specifications.

The Project Designer will coordinate with the Landscape Architect to achieve the most successful aesthetic design for all the mitigation measures.

2.1.8 Cultural Resources

2.1. 8.1 Regulatory Setting

The National Historic Preservation Act (NHPA), Section 106, as amended, sets forth national policy and procedures regarding "historic properties", which includes districts, sites, buildings, structures and objects included in or eligible for the National Register of Historic Places. NHPA, Section requires federal agencies to consider the effects of their undertakings on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

Under California law, cultural resources are protected by the California Environmental Quality Act (CEQA) as well as Public Resources Code Section 5024.1, which established the California Register of Historic Places. Section 5024.5 requires state agencies to provide notice to, and to confer with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historic resources.

2.1.8.2 Affected Environment

An assessment of the Area of Potential Effects (APE) was performed to determine whether cultural resources exist within the project limits. The APE encompasses direct or indirect effects associated with the proposed highway project that could cause alterations in the character or use of any historic property, if present. The archaeological APE encompasses potential direct effects related to ground-disturbing activities, which will be confined to the existing and proposed R/W and Temporary Construction Easements (TCEs). The proposed R/W along the new alignments ranges from 20.0 m to 35.0 m (66.0 ft -115.0 ft) from the new centerline. The proposed R/W along sections of the existing alignment to be widened will

extend 18.0 m to 36.0 m (59.0 ft to 118.0 ft) north of the existing centerline and 20.0 m to 25.0 m (66.0 ft to 82.0 ft) south of the existing centerline. The architectural APE encompasses all parcels containing built resources from which Caltrans will acquire new R/W.

The APE contains:

- four prehistoric archaeological sites;
- three segments of historic ditches that require formal evaluation of eligibility for inclusion on the National Register of Historic places (NRHP);
- and one built property that required formal evaluation.

All other properties that are within the APE are exempt from evaluation.

2.1.8.3 Impacts

Caltrans identified the following properties to be eligible:

The properties. The site numbers assigned are extrapolated from a the Historical Property Survey Report (HPSR), as summarized:

CA-NEV-944 (SR 20-1): This prehistoric archaeological site contains a combined total of eight bedrock mortars on two rock outcrops. Excavations along the proposed R/W and TCE indicate that the site does not extend into these areas and will not be directly affected by the proposed project. CA-NEV-944, however, will be treated as prospectively eligible for inclusion on the NRHP for purposes of this specific undertaking. An ESA will be established around the site to minimize the potential for unanticipated damage.

CA-NEV-941 (SR 20-4): This prehistoric archaeological site contains a midden deposit and three bedrock milling features. Excavations along the proposed R/W and TCE indicate that the site does not extend into these areas and will not be directly affected by the proposed project. CA-NEV-941, however, will be treated as prospectively eligible for inclusion on the NRHP for purposes of this specific undertaking. As described below, an ESA will be established around the site to protect it from unanticipated damage.

CA-NEV-938 (SR 20-8): This site consists of five separate bedrock mortar outcrops, two of which are within the proposed right-of-way and will potentially be affected by the proposed project. The portion of CA-NEV-938 within the proposed R/W was formally evaluated, and the paucity of artifactual remains within this area limits the research value of this portion of the site. The site area within the proposed right-of-way would not contribute towards the potential NRHP eligibility of CA-NEV-938 should it ever be determined eligible. The site area outside the proposed right-of-way was not formally evaluated, however, it will be treated as prospectively eligible for inclusion in the NRHP for purposes of this undertaking. An ESA will be established around the portion of CA-NEV-938 outside of the proposed R/W to protect the prospectively eligible portion of the site from unanticipated damages.

Caltrans found the following properties ineligible:

CA-NEV-940 (SR 20-5): This prehistoric archaeological site consists of a rock exposure containing seven bedrock mortars and two associated cobble pestles. An evaluation determined that the site appears to represent an isolated bedrock milling station and is not eligible for inclusion on the NRHP due to the absence of a subsurface deposit and lack of chronological data, which limit the research value of the site.

SR 20 – Ditch 2 (Meade Canal): A section of the Meade Canal crosses into the proposed and existing R/W. This property consists of an earthen ditch with some remaining stonework and conveys water from China Ditch to the town of Smartville. The portion of the Meade Canal within the APE is not eligible for inclusion on the NRHP.

SR 20-Ditch 7: This site consists of an earthen ditch and crosses into the proposed R/W. The ditch has some stonework along its length, which form retaining walls to support the earthwork. The ditch has been abandoned for an unknown period and is in moderate disrepair. The stonework, while aesthetically pleasing, does not meet the NRHP threshold of exhibiting interesting design.

SR 20 – Ditch 8 (China Ditch). This property consists of an earthen ditch that still conveys water and crosses into the proposed and existing R/W. The portion within the APE has poor integrity due to continued maintenance and upgrading. Concrete gates and steel pipes have

replaced the original wood features. The portion of the China Ditch within the APE is not eligible for inclusion on the NRHP.

Mooney Flat Road (Driftwood Inn): The property at Mooney Flat Road contains a house and the Driftwood Inn. The house was built during the 1920s and is typical of those associated with small rural ranches in the early part of the century. The building, which is now known as the Driftwood Inn, was built in 1942. Neither building appears to have potential for significance in architecture or to be associated with events or people that have made a significant contribution to history. The property is not eligible for inclusion on the NRHP.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

To protect cultural sites, measures will be incorporated to ensure that the potential for unanticipated damage to sites is minimized by establishing ESAs around sites CA-NEV-941, CA-NEV-944, and the portion of CA-NEV-938 outside the proposed R/W. In addition, ESAs will be established around the two bedrock milling features within the proposed R/W at site CA-NEV-938.

Prior to taking any action that could cause incidental damage to archaeological materials in these locations, Caltrans will ensure that these ESAs are clearly described and illustrated in the plans, specifications, and estimates prepared to guide construction activities. The Caltrans' Resident Engineer will review the locations of the ESAs with a professional Archaeologist(s) and ensure that protective temporary fencing is installed prior to initiating any work in those areas. Caltrans Archaeologists will inspect the construction area to ensure that the ESAs have not been breached. The responsible Caltrans Archaeologist will notify the State Historic Preservation Officer within 48 hours of any ESA breach and consult immediately to determine how the breach will be addressed. The temporary fencing will be removed at the conclusion of construction and the Caltrans Archaeologist will review the location of the permanent ESAs with the local maintenance supervisor to ensure the ongoing integrity of the ESAs.

It is possible that unidentified subsurface archaeological remains exist within the APE and could be encountered during ground-disturbing activities. In addition, if buried cultural

materials are encountered during construction activities, it is Caltrans policy that work in the immediate vicinity of the find halt until a qualified archaeologist can evaluate the nature and significance of the find.

2.2 Physical Environment

2. 2.1 Hydrology and Floodplains

2.2.1.1. Regulatory Setting

In accordance with Title 23, Part 650 of the Code of Federal Regulations, a Location Hydraulic Study using National Flood Insurance Program maps was performed in the proposed project area to analyze potential impacts to the floodplain.

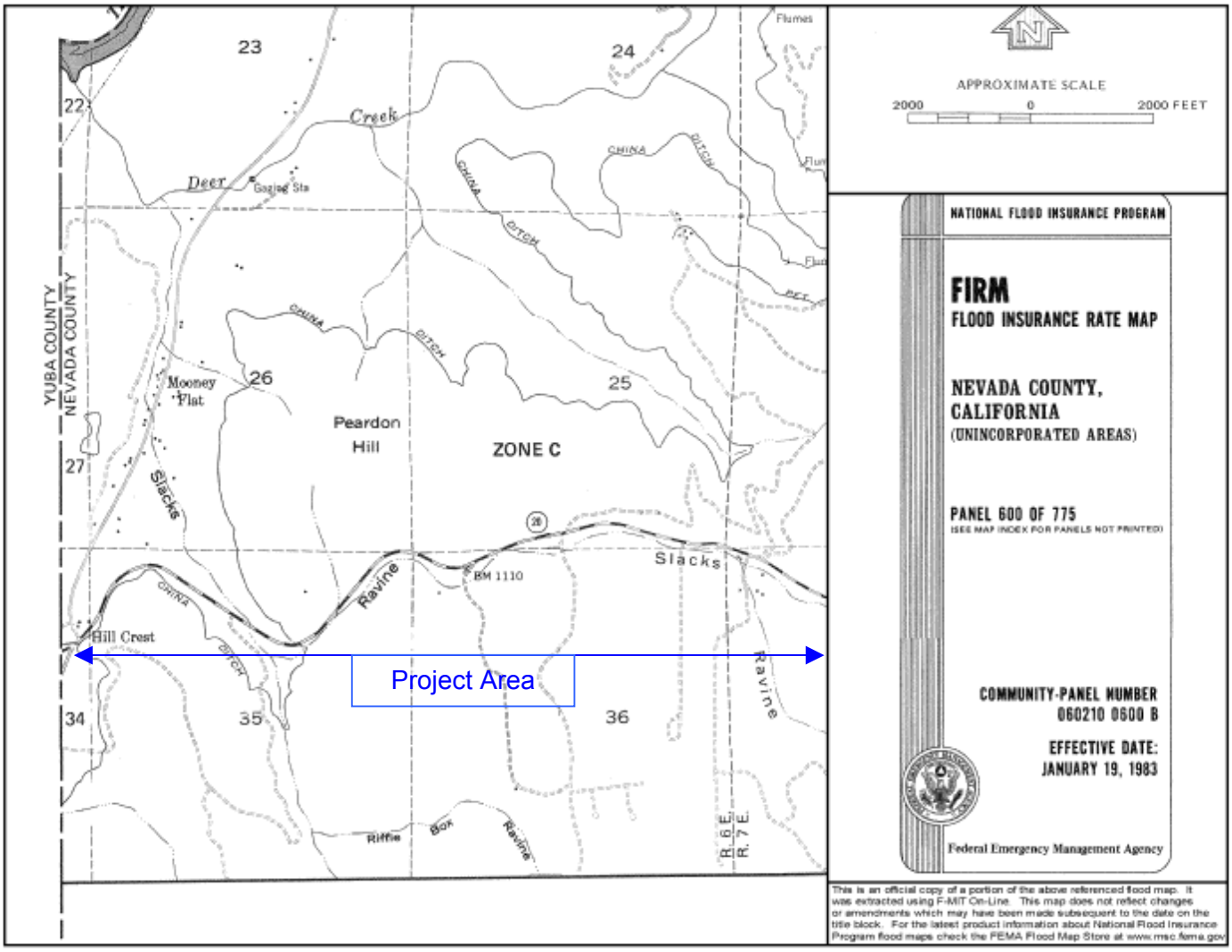
Executive Order 11988 for Floodplain Management directs federal agencies to refrain from conducting, supporting, or allowing an action in a floodplain unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A. An encroachment into a floodplain is defined as "an action within the limits of the 100-year floodplain," with the 100-year floodplain being defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." The National Flood Insurance Program produces maps that identify 100-year flood areas based on local hydrology, topography, precipitation, flood protection measures, and other scientific data. The Federal Emergency Management Agency (FEMA) administers this program.

2.2.1.2. Affected Environment

As defined by FEMA, Flood Insurance Rate Maps, the project area lies within Zone C, which is an area designated as "Areas of Minimal Flooding" (Figure 2.6).

The project area elevation varies between approximately 268 m to 479 m (880 ft to 1572 ft) above mean sea level. The average precipitation in the Grass Valley area, which is approximately 13 km (8.3 mi) east of the project location, is 54.24 inches. Occasional light snowfall has been known to occur within the area.

Figure 2.6
Floodplain Map



2.2.1.3. Impacts

As part of the scoping and environmental analysis conducted for the project, a determination has been made that no FEMA identified floodplains have been identified within the project limits; therefore, no impacts will result.

2.2.1.4. Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimizaton, and/or mitigation is necessary because the project is not located in a floodplain and the project will not impact the floodplain.

2.2.2 Water Quality and Stormwater Runoff

2.2.2.1. Regulatory Setting

The federal Clean Water Act (CWA) of 1972 addresses issues regarding water pollution control and water quality protection. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States for their beneficial uses. Federal environmental regulations based on the CWA have evolved to require the control of pollutants from municipal separate storm systems (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, and storm drains) and construction activities (clearing, grading, and excavation). Discharges from such sources were brought under the National Pollution Discharge Elimination System (NPDES) permit process by amendments to the CWA in 1987 and the subsequent 1990 promulgation of stormwater regulations by the EPA. In California, the EPA has delegated administration of the federal NPDES program to the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). Pursuant to these regulations, a NPDES permit is required for all Caltrans projects where construction activity would disturb more than 0.5 ha (1.0 ac) of total land area.

2.2.2.2. Affected Environment

The proposed project is located within the jurisdiction of the Central Valley Region Water Quality Control Board (CVRWQCB). The receiving water body within the project area is Slacks Ravine, which flows into Deer Creek (outside the project limits) and then flows into the Yuba River downstream of Englebright Lake.

2.2.2.3. Impacts

The proposed project would require excavation, grading, roadway construction, and loss of vegetation, all of which have the potential result in soil and ground disturbances. These disturbances would create loose and/or unprotected soil that, if not properly managed and contained on the project site, could be carried by surface runoff or wind to watercourses. Such increases in sediment and turbidity could adversely affect receiving water quality.

Construction activities may introduce chemicals, oils, and greases that could be carried by surface runoff to surface water, if not properly managed. These impacts have the potential to occur for the duration of construction. Highway runoff and other long-term maintenance activities may also introduce these pollutants to surface water.

2.2.2.4. Avoidance, Minimization, and/or Mitigation Measures

The contractor would be required to prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) to protect receiving waters from pollution. A site-specific SWPPP would be developed and implemented as required by the Caltrans Statewide NPDES permit.

To reduce temporary and permanent impacts due to erosion, sedimentation, and introduced pollutants, measures will be implemented to include, but not limited to, the following:

- All “in-water” work would comply with standards in the Central Valley Basin Plan of the Central Valley Regional Water Quality Control Board (CVRWQCB). The contractor’s work would comply with the water pollution protection provisions of Section 7-1.01G of Caltrans Standard Specifications and SWPPP, as well as with all conditions contained in regulatory permits.

- Prior to excavation, temporary erosion control fencing would be placed down slope of areas where disturbance of native soil is anticipated. The temporary fence would be maintained in a functional condition until soil disturbance activities are complete and permanent erosion control is applied. Loose soil built up behind the fencing would be incorporated into the slope or taken offsite.

- The contract specification for permanent erosion control would require the use of California native forb and grass species, from the same elevation and geographic area as the project site.

- Soils would be amended with compost containing long-term soil nutrients and slow-release organic fertilizers to provide nutrients over the first year. Mulches used on the project would be from source materials that would not introduce exotic species. No wheat or barley straw would be used on the project because of the potential to introduce weeds. Rice straw would be used in non-wetland areas. Native grass straw would be used in wetland areas.

- Permanent BMPs: The installation of Pollution Prevention in BMPs and Treatment BMPs will prevent long term increases in sediment releases and remove storm water pollutants to an insignificant level. BMPs reduce sediment from highways include pollution prevention, by stabilizing slopes and preventing the pollutants from entering the storm. Hard conveyance systems carry the water without increasing erosion, such asphalt concrete, dyke, culverts, and overside drain. Culverts and drains, which have flared, end sections and energy dissipaters, help to reduce erosion. Treatment BMPs may also be deployed to remove sediments and turbidity that have entered the storm water leaving the highway. Treatment BMPs include infiltration basins, detention basins, bio-strips, and bio-swales (vegetated area where water flows shallow). These systems will likely be used on this project depending on the site conditions and the most appropriate BMP throughout the project area. BMP design is based on checklists and guidelines in the Caltrans Storm Water Quality Handbooks, Project Planning and Design Guide.

2.2.3 Hazardous Waste/Materials

2.2.3.1. Regulatory Setting

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous wastes.

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Title 8, Division 1, Chapter 4, Subchapter 4, Section 1532.1, Lead, requires addressing Aerially Deposited Lead (ADL). Until 1986 when EPA banned the use of lead as an additive, gasoline and emissions from automobiles contained lead for more than 60 years. During that period of time approximately 50% of lead (Pb) released from motor vehicles was deposited within 100 ft of the roadway. Lead concentration decreases with distance from the road and increases with traffic volume, particularly along heavily traveled highways. Although gasoline no longer contains lead, accumulations persist adjacent to existing older roadways.

2.2.3.2. Affected Environment

Lead

Samples are collected to determine the presence for ADL at projects that have a peak, Average Annual Daily Traffic (AADT) volume of 10,000 vehicles or greater. To date, all projects sampled with AADT above 10,000 vehicles have contained hazardous levels of ADL.

Based on the rural location of the project area, and information from 1985 traffic volume data from Caltrans Traffic Census Department, the peak month, average annual daily traffic (AADT) volume before and ahead of the project area is below 10,000 vehicles (Table 2.4).

The project is not located in an area of concern for ADL; sampling and analysis will not be performed.

Table 2.4
Aerially Deposited Lead

Location	Average Annual Daily Traffic	Traffic Volume Data Peak Month
PM 0.00 Yub/Nev Co Line	4100	4950
PM 4.65 Pleasant Valley Rd	6900	8300

Hazardous Waste Storage Sites

A hazardous waste evaluation consisted of an Initial Site Assessment (ISA), using the services of VISTA Information Services. A VISTA report provides information from the databases of state and federal regulatory agencies on hazardous materials storage and releases. Based on the ISA information, no hazardous waste storage sites or releases are known to exist in the project vicinity.

2.2.3.3. Impacts

Lead

Yellow thermoplastic highway striping may contain heavy metals such as lead and chromium, which may exceed hazardous waste thresholds and could produce toxic fumes when heated.

Asbestos

In regard to asbestos and lead based paint, construction of the project would not result in the demolition of any structures; therefore, no impacts are expected. An Air Resources Board (ARB) Map, showing the principal asbestos deposits, indicates that the project site is not located in an area of naturally occurring asbestos. Asbestos is also addressed in the "Air Quality" section of this document because it is an airborne material and a concern regarding air quality.

2.2.3.4. Avoidance, Minimization, and/or Mitigation Measures

Lead

Lead may still be present in less than hazardous levels; therefore, the following mitigation measure is recommended:

- Implement a lead compliance plan and lead awareness training pursuant to Title 8 of the California Code of Regulations (Section 1532.1).
- Caltrans handling procedures for soil include dust control, spillage prevention, and air quality monitoring during excavation/construction.

The contractor will be required to follow the guidelines in the draft Standard Special Provisions for Removal of Traffic Stripe and Pavement Marking. If after subsequent testing, the removed yellow thermoplastic traffic striping material is determined to be hazardous material, it will be properly disposed of at an appropriate waste facility.

Asbestos

Caltrans, Office of Geotechnical Services will perform a supplemental investigation within the R/W that will be acquired for the project to ensure no asbestos is present. The Project Engineer and the Project Manager must initiate this investigation.

2.2.4 Air Quality

2.2.4.1 Regulatory Setting

The project area is subject to air quality planning programs established by the federal Clean Air Act (CAA) of 1970 and the California Clean Air Act (CCAA) of 1988. Both the federal and state statues provide for ambient air quality standards to protect public health, timetables for progressing toward achieving and maintaining ambient standards, and the development of plans to guide the air quality improvement efforts of state and local agencies. National and state ambient air quality standards have been established for several ambient air pollutants (criteria pollutants) which include ozone (O_3), carbon monoxide (CO), nitrogen oxides (Nox), sulfur dioxide (SO_2), particulate matter less than 10 and 2.5 micrometers in diameter (PM_{10} and PM2.5). The air basin is classified as being in "attainment," "non-attainment," or "unclassified" for each criteria pollutant, based on whether or not the national or state standards have been achieved.

Under the 1990 Clean Air Act Amendments, the US Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved. Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually 20 years. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would result in a violation of the Clean Air Act. If no violations would occur, then the Northern Sierra Air Quality Management District

(NSAQMD) makes the determination that the RTP is in conformity with the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to be in conformity at the regional level. Conformity at the project-level is also required. If a region is meeting the standard for a given pollutant, then the region is said to be in "attainment" for that pollutant. If a project is located in a non-attainment, then additional air quality analysis and reduction measures in regard to that pollutant is required.

2.2.4.2. Affected Environment

The proposed project is located within the jurisdiction of the NSAQMD, which encompasses Nevada, Plumas, and Sierra Counties. The attainment status of the NSAQMD is listed in Table 2.5.

Table 2.5
Attainment Status of Northern Sierra Air Quality Management District State and Federal Standards

Pollutant	State Standard	Federal Standard
O_3 (Ozone) 1 Hour Standard	Non-Attainment	Unclassified/Attainment
O_3 8 Hour Standard	Not Applicable	Unclassified/Attainment
PM_{10} (Particulate Matter)	Non-Attainment	Unclassified
$PM_{2.5}$	Proposed: Non-attainment for Portola Valley in Plumas County	Unclassified/Attainment
NO_2 (Nitrogen Dioxide)	Unclassified/Attainment	Unclassified/Attainment
SO_2 (Sulfur Dioxide)	Unclassified/Attainment	Unclassified/Attainment
CO (Carbon Monoxide)	Unclassified: Nevada and Sierra Counties Plumas County	Unclassified/Attainment
Sulfates	Attainment	Unclassified/Attainment

Regional Conformity Analysis

Transportation conformity ensures that Federal funding is approved for transportation activities that are consistent with air quality goals. Conformity applies to transportation plans, transportation improvement programs (TIPS), and projects funded or approved by FHWA in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as federal non-attainment or maintenance areas respectively. This project is in an area that has been designated as attainment for the federal standards; therefore, conformity does not apply to this project.

Local Carbon Monoxide

A local carbon monoxide analysis is required for projects that are likely to worsen air quality. To determine if a project is likely to worsen air quality, the criteria in the "Transportation Project-Level Carbon Monoxide Protocol" needs to be examined. If the project passes the criteria, then the project will not worsen air quality and no further analysis is necessary. In summary, this project passes the criteria and will not worsen air quality; therefore, the project will not have an air quality impact and a CO analysis is not necessary.

Asbestos

Within the State of California, natural occurring asbestos is known to exist in serpentine rock. Serpentine, the state rock of California is a greenish, greasy appearing rock that is common in the coast ranges, Klamath Mountains, and Sierra foothills. Asbestos is potent carcinogen, particularly when inhaled. Therefore, it is regulated as an airborne toxic material, and strict limits are placed on its use and handling in working environments.

2.2.4.3. Impacts

Asbestos

To determine the presence of asbestos within the project area, maps have to be consulted. Nevada County is known to contain ultramafic rock, which is known to consist of serpentine. State Route 20 is located in a rural area and could disturb areas that are known to contain serpentine rock.

Construction

Project construction will result in the generation of suspended PM_{10}. Although the amount of dust would result in impacts, the impacts would be temporary, local, and limited to the areas of construction.

2.2.4.4. Avoidance, Minimization, and/or Mitigation Measures

Asbestos

If asbestos is found, the NSAQMD Rule 904 must be adhered to when handling this material. These requirements will be incorporated into the project plans.

Construction

The project is in a PM_{10} non-attainment area; therefore, dust control practices must be incorporated into the project to mitigate potential impacts due to construction dust generated. The dust control practices must comply with the current Caltrans' Standard Specifications and the NSAQMD regulation 226 – Dust Control.

2. 2. 5 Noise

2.2.5.1. Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment.

For highway transportation projects with FHWA involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain Noise Abatement Criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.6 below lists the noise abatement criteria.

Table 2.6
Activity Categories and Noise Abatement Criteria (NAC)

Activity Category	NAC, Hourly A- Weighted Noise Level, dBA $L_{eq}(h)$[1]	Description of Activities
A	**57 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 Exterior**	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	**72 Exterior**	Developed lands, properties, or activities not included in Categories A or B above
D	**--**	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

[1] dBA = A weighted decibel
Leq (h) = 1 hour A-weighted equivalent sound level

2.2.5.2. Affected Environment

The area surrounding the proposed project is primarily rural with sparse residences. The area surrounding SR 20 is rolling hills and topography helps shield the noise for some residents.

A “type 1 project” pursuant to 23CFR772, is defined as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes.

The project design changes the horizontal and vertical alignment; as a result, it is defined as a “type 1 project”. Therefore, a noise study was conducted.

2.2.5.3. Impacts

Factors to consider regarding intensity or severity of impacts from a noise perspective include: (1) unique characteristics of the geographical area; (2) the degree to which the effects on the quality of the human environment are likely to be highly controversial; (3) whether the action is related to other actions with individually insignificant but cumulatively significant impacts; and (4) whether the action threatens a violation of Federal, State or local law or requirements imposed for the protection of the environment.

Within the project area, short-term noise levels were measured at one location/receptor (Table 2.7). Noise level measurements were taken at 1.5 m (5 ft) above ground. A receptor is a location that is sensitive to noise levels and where the measurements are conducted to determine the potential noise impacts due to the project. Noise levels were taken for 15 minutes and represent on-hour time period. The noise measurement location was selected to represent the noise environment without the interference of the backyard fences at the noise sensitive receptors.

Table 2.7 List of Measured and Modeled Noise Levels (Leqv2)					
Location	Existing dBA Leq (h)	Modeled dBA Leq (h)	2024 Future dBA Leq (h)	NAC	Greater than NAC or Significant Increase in Noise Level
Receiver/Receptor 1	58.0	57.0	60.0	67.0	No

Future Noise

Traffic volumes, composition and speeds would remain the same in the build and no build condition. The only change in the noise environment would be the addition of a truck climbing lane, and the location of the lanes. The noise level has a potential net increase of 3 dBA, and is well below the NAC of 67 dBA. This project will not result in adverse noise impacts.

2.2.5.4. Abatement

Construction

Various construction activities would occur over a period of time. During the construction phase of the project, noise from construction activities would dominate the noise environment in the immediate area. Construction activities would generate noise levels; however, they would be temporary in nature, typically occurring during normal working hours. Construction noise impacts could be adverse, as nighttime operations or use of unusually noisy equipment could result in annoyance or sleep disruption for nearby residences.

Construction noise is regulated by Caltrans Standard Specifications Section 7-1.01E, “Sound Control Requirements”. These requirements state that noise levels generated during construction shall comply with applicable local, state and federal regulations and that all equipment shall be fitted with adequate mufflers according to the manufactures' specifications

Adverse construction noise effects can be minimized through the following measures:

- Minimize nighttime, holiday and weekend work.
- Stationary construction equipment, such as compressors and generators, should be shielded and located as far away as feasible from receptors.
- Place any maintenance yard, batch plant, haul roads and other construction operations n locations, which minimize noise disturbances.
- Hold community meetings to inform the area residents of the construction work, time involved and control measures to be taken to reduce the impact of construction work.

2.3 Biological Environment

2. 3. 1 Natural Communities

This section of the document discusses natural communities of concern. Threatened and Endangered Species are discussed in section 2.3.5. Wetlands and other waters are discussed in section 2.3.2.

2.3.1.1. Affected Environment

Oak Woodland, Riparian and Upland

The dominant natural community within the Biological Sensitive Area (BSA) is oak woodland. The oak woodlands are composed of a canopy, which is dominated by oaks with a gray pine associate. The shrub layer consists of scrub oak, poison oak, ceanothus, manzanita, and California buckeye.

Annual Grassland

This natural community is found throughout the BSA as small, open communities and also on a larger scale as understory in the oak woodlands.

Aquatic

There are several different types of aquatic resources within the BSA. These include ephemeral creeks, an irrigation canal, a seasonally ponded area, perennial, seasonal wetlands and open waters.

2.3.1.2 Impacts

Oak Woodland, Riparian and Upland

The proposed project will impact 13.19 ha (32.59 acres) oak woodland. A limited amount of space is available and suitable for replacement planting on site.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Oak Woodland, Riparian and Upland

The balance of the mitigation will be accomplished off-site. Four options are under consideration for off-site mitigation.

The first option is similar replacement planting on an acre per acre basis. With this option, land would be secured, such as through an easement. The density of oak trees would vary from a savanna-like blue oak woodland with an open, herbaceous understory, to a more dense mixed oak woodland comprised of blue oak, interior live oak, gray pine and redbud, with a dense shrub layer of species such as buck-eye and manzanita. Nearby existing stands of habitat would be used as a reference site to determine plant species composition and success requirements. The site would be monitored for a minimum of five years. The off-site mitigation would be protected in perpetuity as a mitigation site.

The second option is to preserve existing oak woodland habitat at a 3:1 ratio (preserve 3 acres for every 1 acre lost). With this option land would be secured, such as through an easement or acquisition. The site would be managed for wildlife value. The land would be protected in perpetuity as a mitigation area.

A third option would be a combination of options 1 and 2 above. If options 1, 2 or 3 are chosen, a Conceptual Mitigation and Monitoring Plan will be prepared and serve as the blueprint for implementing mitigation. An operation and maintenance fund will be established for the long term management of any parcels that are acquired.

A fourth option would be to purchase oak woodland mitigation credits from a bank if the opportunity should arise. There are no suitable banks available at this time.

Once project design is complete and mitigation money becomes available for this project, one of the above options will be selected. Selection will be based on the availability and location of suitable parcels, and/or the availability of mitigation credits. Implementation of this oak mitigation will, at a minimum, be underway prior to the start of project construction.

Avoidable oak woodlands will be delineated on the project plans and in the field as an ESA.

2.3.2. Wetlands and Other Waters

2.3.2.1. Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. The federal (CWA) Clean Water Act (33 USC. 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is regulated by the US Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

2.3.2.2. Affected Environment

Wetlands

A number of wetlands were found within the BSA that are hydrologically connected to Slacks Ravine and fall under the jurisdiction of the ACOE.

Other Waters

Other waters refers to all aquatic habitats which fall under the ACOE's jurisdiction but do not qualify as wetlands according to their definition. Other waters in the BSA include the NID ditch, Slacks Ravine and its tributaries, and a seasonally ponded depression.

2.3.2.3. Impacts

Wetlands

The proposed project will impact 0.05 ha (0.12 acres) of jurisdictional wetlands. A portion of a beaver pond (wetland) located in the project area and a seasonal wetland will be permanently filled by the new alignment.

Federal regulations require that there be no net loss of wetlands. All projects are required to incorporate water quality measures to prevent water pollution within and beyond project areas. With no net loss of wetlands and mandatory water quality measures, it is expected that any impacts to wetlands and waters of the US would be temporary in nature and mitigation would include creation and preservation of natural habitats.

Other Waters

The project will impact 0.3 ha (0.74 ac) of other waters. Slacks Ravine and its tributaries will be temporarily impacted during the installation of new culverts and possibly the extension of existing culverts. The addition and modification of culverts will not change the hydrology of the area. Permanent impacts include the filling of a portion of China Ditch, and a seasonally ponded depression.

2.3.2.4. Avoidance, Minimization, and/or Mitigation Measures

Wetlands

Wetlands will be mitigated by purchasing credits at a ratio to be determined during the permitting process with the ACOE. Wetlands will be avoided by designating them as ESAs for those that will not be directly affected by construction.

Other Waters

China Ditch will be re-created south of the proposed alignment prior to construction/filling. To minimize impacts from culvert installation, Caltrans will restore banks to their original condition and revegetate with native species appropriate for the area.

2.3.3. Plant Species

2.3. 3.1 Affected Environment

As part of the scoping and environmental analysis conducted for the project, plant species were considered; however, no potential for adverse impacts was identified. Consequently, this document provides a brief statement regarding this topic.

Spring and summer botanical surveys did not reveal sensitive plant species. The California Natural Diversity Database (CNDDB) records did not indicate records of sensitive plants within the BSA. The technical study, Natural Environmental Study (NES), can be consulted for detailed results regarding the surveys and record searches.

2.3.4. Animal Species

2.3.4.1. Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The US Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NOAA Fisheries) and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts associated with wildlife not listed as threatened or endangered, or proposed for listing under the state or federal Endangered Species Acts. All

other special-status animal species are discussed in this section and species of special concern.

2.3.4.2. Affected Environment

Northwestern Pond Turtle

The northwestern pond turtle is a federal species of concern. Eight northwestern pond turtles were located during surveys (six were within the BSA, and two outside the BSA).

Birds

Federal and state birds of concern have habitat present within the BSA. These bird species include: tricolored blackbird, oak titmouse, ferruginous hawk, Lawrence's goldfinch, Vaux's swift, Lewis' woodpecker, Nutall's woodpecker, rufous hummingbird, California thrasher, yellow warbler, and the long-eared owl. Common birds such as the oak titmouse and rufous hummingbird are likely to be present within the project area. None of the above birds were identified during surveys, although some birds detected could not be positively identified because of inadequate observation.

Bats

The federal and state bats of concern have habitat present within the BSA, which include: small-footed myotis, long-legged myotis, Yuma myotis, long-eared myotis, fringed myotis, and the greater western mastiff.

2.3.4.3. Impacts

Northwestern Pond Turtle

The proposed action will have permanent and temporary effects to the northwestern pond turtle. Potential temporary effects include injury and mortality to individuals in the direct path of ground-disturbing activities, potential disruption of foraging and breeding, and additional stress and harassment from increased human activity during the construction season. Large equipment and earth moving activities can crush or bury northwestern pond turtles and destroy occupied nests. Those that do survive will suffer permanent loss of upland and aquatic habitat. The addition of impermeable surfaces increases roadway runoff

contaminated with silt and chemicals associated with vehicles (i.e., gasoline, oil), which may lead to water quality degradation. Another permanent effect may include a possible increase in mortality, as the turtles will have to cross a wider highway, in turn increasing their chances of being hit by traffic.

Bird Species

Sensitive birds that are present could face permanent and temporary impacts by the proposed project. Temporary impacts and disruption of breeding could occur if trees and shrubs are removed during the breeding season. Disruption of breeding and foraging, and increased stress could also occur due to noise and the presence of equipment and personnel. The project will contribute to a loss of habitat for the species.

Bats

The proposed project has the potential to impact bats within the project area. Maternity colonies roosting in trees could be destroyed during tree removal if performed during the summer breeding period. Tree removal during the winter months has the potential to kill or injure hibernating bats. Permanent loss of foraging and roosting habitat will result from the project. Temporary impacts include possible disruption of breeding and foraging, and increased stress from the presence of construction equipment and personnel. The predominant available maternity roost habitat is the trees.

2.3.4.4. Avoidance, Minimization, and/or Mitigation Measures

Northwestern Pond Turtle

To minimize direct mortality, a qualified biologist retained by the contractor will conduct surveys 24 hours prior to construction to identify and relocate turtles. Surveys will be repeated if a lapse in construction of more than two weeks occurs. If a turtle is encountered during construction, activities at that location will cease until corrective measures have been taken or the Caltrans Resident Engineer (RE) determines it will not be harmed. The RE and project Biologist will work together to outline appropriate corrective measures during such situations. The portion of China Ditch that has been dewatered in preparation for filling will remain dewatered for at least two weeks before it is filled. This two-week period will allow

turtles occupying that portion of the ditch to leave the area, minimizing their chance of being buried and crushed by equipment. Drainage culverts installed in the new roadway provide opportunities for turtles to safely cross under the widened highway. If the turtles use the culverts, mortality would decrease. Potential temporary and permanent impacts from possible water quality degradation will be minimized by implementing BMPs outlined in section 7-7.01G of Caltrans' Standard Specifications.

Birds

- To minimize impacts to birds and to comply with the Migratory Bird Treaty Act, the following measures will be implemented as follows:

- Tree removal can only occur between **September 1 through March 1.**

- It is also likely that birds will attempt to nest in the large culvert in Slacks Ravine.

- In order to prevent disruption of active nests, exclusion methods will be incorporated in the special provisions to prevent such birds from nesting in the culvert during the construction season. Some migratory birds, such as raptors, may decide to nest outside the BSA yet close enough to be disturbed by construction activities. These situations will be dealt with on a case-by-case basis, and possible solutions include but are not limited to monitoring, nest salvage, and work windows. Pre-construction surveys will be conducted in early spring to identify such situations.

- Areas, which are not directly in the path of construction, will be designated as ESAs. The ESA designations will minimize temporary habitat loss and protect active nests from accidentally being destroyed during construction.

- After construction is completed, all temporarily disturbed areas will be revegetated with native species appropriate for the region. Oak woodlands will be replanted on and off site.

Bats

- The tree removal work window implemented to avoid impacts to migratory birds will also avoid impacts to bat maternity roosts.

- ESAs will be designated for areas which are not directly in the path of construction. The ESA designations will minimize temporary habitat loss and protect active maternity roosts from accidentally being destroyed during construction.

- After construction is complete all temporarily disturbed areas will be revegetated with natives appropriate for the region and oak woodlands will be replanted.

2.3.5. Threatened and Endangered Species

2.3.5.1. Regulatory

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): United States Code (USC), Section 1531, et seq. (50 CFR Part 402). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies such as the Federal Highway Administration, are required to consult with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.3.5.2. Affected Environment

Valley Elderberry Longhorn Beetle

The Valley Elderberry Longhorn Beetle (VELB) is a federal threatened species. The elderberry shrub is the host plant for the VELB. The VELB relies on the elderberry shrub for survival. The larvae of the beetle feed and mature within the elderberry. Frequently, the only exterior evidence of VELB occupancy is the VELB exit hole created by the larvae prior to the pupal stage. Elderberry shrubs were located within the project area and the impacts are discribed under section, 2.3.5.3, below.

2.3.5.3. Impacts

Valley Elderberry Longhorn Beetle

Typically, if construction work occurs within 30.5 m (100 ft) from the dripline of a elderberry shrub there is potential for direct and indirect effects. These effects could include physical damage to the shrub or its root system, dust accumulation on the shrub, and mortality or increased stress to the VELB, if present.

Five elderberry shrubs are located within the BSA.

Shrub 1: This upland shrub lacks presence of VELB exit holes. It is located within the Caltrans current R/W and is approximately 107 m (350 ft) from ground disturbing activities. The distance from this shrub and any ground disturbance sufficiently protects it from direct and indirect effects.

Shrubs 2, 3, 4: These riparian shrubs lack presence of VELB exit holes, and are outside of the current and proposed R/W, and TCEs. They are located on private property over 30.5 m (100 ft) from any ground disturbance. The generous distance from the shrubs' dripline and the ground disturbance shields the plant from any potential effects.

Shrub 5: This upland shrub lacks VELB exit holes and sits within the current R/W. It is located over 30.5 m (100 ft) from any ground disturbance. The generous distance from the shrub's dripline and the ground disturbance shields the plant from any potential effects.

2.3.5.4. Avoidance, Minimization, and/or Mitigation Measures

Valley Elderberry Longhorn Beetle

Shrub 1: To alert workers of its sensitivity, its location and an associated 30.5 m (100 ft) ESA will be marked on project plans. This shrub will not be fenced because: 1) the excessive distance and rough terrain separating it from construction activities eliminates the likelihood that it will be accidentally encroached; 2) the steep terrain surrounding the shrub makes fencing impractical; 3) the disturbance to the shrub due to vegetation removal necessary for fencing would outweigh any benefits gained from the fence. As an additional precaution, dust abatement will be required and included in the project specifications. The portion of the existing SR 20 where this shrub is located may be relinquished to Nevada County upon project completion. Nevada County may require that Caltrans resurface that portion before relinquishment can occur. All work involved in resurfacing will remain on the current pavement and will not cause additional disturbance to what is currently present from existing traffic. If resurfacing becomes necessary, the shrub will be flagged and the pullout adjacent to the shrub will not be allowed for staging equipment or stockpiling. Once the new alignment is built and any necessary resurfacing is complete, the project will likely reduce the current disturbance levels to the shrub. This reduction can be attributed to the fact that

the vast majority of traffic will be traveling on the new alignment located over 107 m (350 ft) from the shrub. Currently, traffic is approximately one meter from the shrub.

Shrubs 2, 3 & 4: To ensure protection, the 30.5 m (100 ft) buffer will be marked on project plans and considered an ESA. These shrubs will not be fenced because 1) they are located on private property and outside the construction zone; 2) the excessive distance and rough terrain separating them from construction activities eliminates the likelihood that they will be accidentally encroached; 3) the disturbance to the shrubs due to vegetation removal necessary for fencing would outweigh any benefits gained from the fence. As an additional precaution, dust abatement will be required and included in the project specifications.

Shrub 5: Unlike the other shrubs, this shrub is easily accessible to personnel and equipment and within the construction zone (R/W). Those two aspects increase the likelihood that the shrub could be accidentally encroached upon during construction. A 30.5 m (100 ft) buffer will be maintained by erecting orange exclusion fence, which will prohibit personnel and equipment from entering the area. In addition, the shrub will be marked on project plans. As an additional precaution, dust abatement will be required and included in the project specifications.

During construction, ground disturbance will be restricted to the areas within the existing and proposed right of way, and TCEs.

2.3.6. Invasive Species

2.3. 6.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999 directs

the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.3.6.2. Avoidance, Minimization, and/or Mitigation Measures

The following revegetation measures for all disturbed soils will reduce the potential to introduce or spread invasive plant species and noxious weeds from or into the project area:

- The contract specifications for permanent erosion control will require the use of California native forb and grass species, from the same elevation and geographic area as the project site.
- All areas disturbed by construction will be treated with a seed mix comprised of local native grasses and forbes.
- Soils would be amended with compost containing long-term soil nutrients and slow-release organic fertilizers to provide nutrients over the first year.
- Mulches used on the project will be from source materials that will not introduce exotic species.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion,

sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.4.1.1 Impacts

For this project, the area used for evaluation of cumulative effects includes projects along the SR 20 corridor from the town of Smartville to Indian Springs Road. Smartville is approximately 1 mi east of the beginning of the project area. Indian Springs Road is east of the end of the project limits. According to the Nevada County General Plan, a Special Development Area has been designated approximately 1.6 km (1 mi) south of SR 20 and west of the Indian Springs and Spenceville Road intersection. Its purpose is to establish a Development Reserve. This Development Reserve shall require a Specific Plan with a Community Region boundary. Until such a plan is in place, the current designation allows for low-density development not to exceed an average density of one dwelling per 16 ha (40 ac). With the exception of the Special Development Area, all other land along the SR 20 corridor up to the Nevada County line is designated as either Rural 5 or Rural 10. Rural 5 and 10 designations require that parcels are a minimum of 2 ha or 4 ha (5 or 10 ac). Along the corridor, some of these parcels are developed with single-family homes. Those parcels undeveloped could eventually be developed, and parcels larger than 5 or 10 ac could be subdivided to the minimum designation and developed.

The Yuba Highlands Specific Plan, which includes the Smartville area, does not indicate any county-sponsored development for that region. However, private landowners could develop their own currently undeveloped parcels with single-family homes.

The proposed project is not expected to result in adverse cumulative impacts. It is a not a capacity increasing project. Future projects planned in the cumulative effects area are listed in Table 2.8. These projects would not collectively contribute to cumulative impacts.

Table 2.8 Projects Considered in Cumulative Effects Evaluation

Responsible Agency	Project Name	Type of Project	Location	Status
Caltrans	SR 20 Safety Improvement Rehabilitation (03-3C7400)	Install a roundabout on SR 20	SR 20 and Gold Flat Rd interchange Nevada County between grass Valley and Nevada City (KP 25/PM 16)	Programmed for 04/2004
Caltrans	Nevada County Maintenance Station (03-318001)	Construct Caltrans Maintenance Station	SR 20 and Gold Flat Road (KP 25/PM 15)	Programmed for 09/2010
Nevada County	Tentative Parcel Map	Parcel split from 1 lot (15 ac) to 3 lots (4 ac, 5 ac & 6 ac lots)	Poker Flat Road & Houghton Ranch Road	In Progress