

# **CHAPTER 5 Environmental Consequences**

---

Chapter 5 describes the probable impacts of each alternative. This section is divided by type of resource that would be affected, such as geology, air quality, noise, water quality, and biological, cultural, and visual resources. The information presented below is derived from technical studies that are incorporated by reference. The list of technical studies and where they may be reviewed are provided in Section 1.9.

In some cases, such as air quality and geography, impacts to the resource are examined in general terms rather than by specific alternative. Where impacts vary by alternative, the impacts for each alternative are evaluated.

As described in Section 1.5, Nodal Analysis, Caltrans and FHWA evaluated most alternatives in segments so that the alternatives could be recombined to avoid or reduce certain impacts. The build alternatives were each divided into two parts. Map 3 shows where the dividing point (or node) for each alternative is located.

The following text and tables are organized so that, in most cases, environmental impacts of each segment can be evaluated separately. Please note that not every environmental issue was examined by segment, such as certain biological resources or community issues, because they do not lend themselves to an effective segmental analysis.

## **5.1 Geology and Soils**

Overall, Alternatives J1T and LT appear to have the fewest geotechnical challenges. These alternatives avoid the Holocene Deposits with the highest liquefaction potential and avoid major road cuts and embankments in the Plio-Pleistocene Non-Marine Sedimentary Deposits and the Franciscan Melange that are prone to landsliding. Neither Alternative J1T nor LT cross the Alquist-Priolo Special Study Zone (Maacama Fault Zone).

### **5.1.1 Method of Analysis**

The following analysis is based on an investigation of the project area that was prepared to supply geotechnical information and recommendations relevant to the selection of a preferred alternative.

### 5.1.2 Impact Thresholds

The following thresholds help to determine when there is an impact related to geological conditions.

- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault (as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault); strong seismic ground shaking; seismic-related ground failure, including liquefaction; landslides.
- Substantial soil erosion or the loss of topsoil.
- Location of a project on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
- Location of a project on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

### 5.1.3 Mitigation Measures

The following mitigation measures will reduce impacts related to geological conditions:

**GEO-1:** Caltrans will incorporate special design considerations into the project, such as specialized foundation treatments, specialized cut slope and fill slope design, mechanically reinforced embankments, stabilization trenches, catchment areas, and specialized subsurface drainage techniques.

**GEO-2:** Where deposits are highly erodible and prone to landsliding, Caltrans will design the project to include specific slope ratios, special foundation treatments, and other engineering solutions.

**GEO-3:** No mitigation measures can prevent surface rupture from occurring during a major seismic event; however, Caltrans will incorporate special construction methods such as use of reinforcing geotextile fabrics can increase stability during strong seismic events. Caltrans will undertake further bridge foundation studies for proposed structures along Alternative E3. As for all structures statewide, Caltrans will design all project structures to withstand the maximum credible ground acceleration without collapse.

**GEO-4:** To minimize or prevent settlement, Caltrans will incorporate foundation treatments or long-term settlement periods into the design and construction of the project.

**GEO-5:** For any structures overlying potentially liquefiable deposits, Caltrans will design the project to be constructed on foundation piles that could be extended through the susceptible zones into structurally competent materials

#### **5.1.4 Impact Analysis**

Table 5-1 is a summary of the important geotechnical aspects of each alignment by southern and northern sections.

**Table 5-1. Summary of Major Geotechnical Variables for Each Alternative**

Alternative Segment	C1T		E3		J1T		LT		Designated Borrow Site
	South	North	South	North	South	North	South	North	
Maximum Height of Cut (m)	5	N/A	60	90	5	2	5	2	50
Maximum Height of Fill (m)	15	10	50	70	15	15	15	15	N/A
Stream Diversions (m)	275	2000	880	N/A	275	N/A	275	N/A	N/A
Landslide Potential	Low-Mod	Low	High	Low-Mod	Low-Mod	Low	Low-Mod	Low	Low
Embankment Settlement	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Crosses Alquist Priolo Fault Zone	No	No	Yes	No	No	No	No	No	No
Foundation Materials	Poor-Avg	Poor	Poor-Avg	Poor-Avg	Poor-Avg	Poor-Avg	Poor-Avg	Poor-Avg	Avg
Pre-dominant Bedrock*	HD, SD	HD	HD, FM	HD, FM, SS	HD, SD	HD	HD, SD	HD	SS

- \* HD = Holocene Deposits
- SS = Franciscan Sandstone
- FM = Franciscan Melange
- SD = Plio-Pleistocene Non-Marine Sedimentary Deposits

#### **5.1.4.1 Landslide Impacts**

All of the proposed alignments have the potential for landslides to occur along some portion of the alignment.

##### ***Alternative E3***

Alternative E3 has the highest potential for landslides to occur along its alignment. There is a high probability that a maximum credible earthquake of 7.25 magnitude along the Maacama Fault Zone could generate local landslides throughout the area, which could result in some segments of area roads to become impassable for some length of time.

The southern portion of Alternative E3 would be highly prone to landsliding because of the high moisture content contained in the soil in this area.

Mitigation Measure GEO-1 will reduce landslide impacts.

##### ***Alternatives C1T, J1T, and LT***

Construction of a major freeway through Little Lake Valley appears feasible, and geologic hazards that Alternatives C1T, J1T, and LT may be subject to are generally controllable and/or avoidable.

Mitigation Measure GEO-2 will reduce landslide impacts.

#### **5.1.4.2 Seismic Impacts**

##### ***Alternative E3***

At two areas at the southern end of Alternative E3, surface ground rupture and fault creep can be expected to occur accompanying a major earthquake along the Maacama Fault and its branches inside this established zone. In the first location, the resulting effects that would be incurred at road level due to surface rupture would probably be minor and quickly repairable. However, the stability of the embankments through this area is questionable. In the second location, the proposed alignment could be subject to creep induced by movement along the Maacama Fault. Should a major earthquake occur, the roadway could incur a substantial amount of deformation.

Mitigation Measure GEO-3 will reduce seismic impacts.

### **Alternatives C1T, J1T and LT**

Alternatives C1T, J1T and LT do not pass into the Alquist-Priolo Special Studies Zone that has been established for the Maacama Fault Zone.

#### **5.1.4.3 Settlement Impacts**

Because all of the proposed alternatives cross over questionable compressible deposits, it is anticipated that their embankments will experience settlement.

Mitigation Measure GEO-4 will reduce settlement impacts.

#### **5.1.4.4 Liquefaction Impacts**

The potential for liquefaction of the native ground along most of the proposed alignments during a severe earthquake is anticipated to be low to very low. Liquefaction is the result of very loose, granular sediments losing strength and behaving essentially as a dense liquid during earthquake motion cycles. Geologic deposits subject to liquefaction are primarily confined to the alluvial deposits in the center of Little Lake Valley. The following mitigation measure will reduce liquefaction impacts:

Mitigation Measure GEO-5 will reduce liquefaction impacts.

## **5.2 Community Impacts**

The four build alternatives proposed for the Willits Bypass would have varying levels of impact on land use, agricultural lands and open space preservation, neighborhoods, community facilities, and the regional economy. The number of residential and business displacements required varies widely between the proposed alternatives, and these displacements and the need for relocations would, themselves, have social and economic implications for the residents of the area. Taken cumulatively, the land use, social, and economic impacts of each of the four proposed build alternatives would result in a different picture of the Willits community and surrounding areas in the long-term.

### **5.2.1 Regulatory Setting**

Both the National Environmental Policy Act of 1969 (NEPA Regulations, Section 1508.14) and the California Environmental Quality Act of 1970 (CEQA Guidelines,

Section 15382) require consideration of social and economic impacts of projects in the preparation of environmental documents. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) incorporates Section 109(h) and 128 of Title 23 of the United States Code on Highways and its implementing regulations (23 CFR 771), which require that social and economic impacts of proposed federal-aid projects be determined, evaluated, and eliminated or minimized as part of environmental documentation for project development. These impacts include “destruction or disruption of man-made and natural resources, aesthetic values, community cohesion and the availability of public facilities and services; adverse employment effects, and tax and property values losses; injurious displacement of people, businesses and farms; and disruption of desirable community and regional growth.”

Additional relevant laws and regulations that apply are:

- Title VI of the Civil Rights Act of 1964, and related statutes, requires there be no discrimination in federally-assisted programs on the basis of race, color, national origin, age, sex, or disability.
- This project has been developed in accordance with the Civil Rights Act of 1964, as amended, and Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” This executive order requires each federal agency (or its designee) to take appropriate and necessary steps to identify and address disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations.
- The Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended in 1987, provides for uniform and equitable treatment of persons displaced from their homes, businesses, non-profit association, or farms by federal and federally-assisted programs, and establishes uniform and equitable land acquisition policies (Appendix J).
- The Americans with Disabilities Act (ADA) of 1990 extends the protection of the 1964 Civil Rights Act to the disabled, prohibiting discrimination in public accommodations and transportation and other services.

### **5.2.2 Impact Thresholds**

The following thresholds help to determine if the project would result in an impact related to social and economic conditions in the project area.

- Physical division of an established community.
- Displacement of substantial numbers of people or of existing housing, necessitating the construction of replacement housing elsewhere.
- Reduction of the overall housing vacancy rate below two percent or impacts to more than five percent of a specific type of unit.
- Removal of substantial amounts of taxable property from property tax base, relative to local fiscal conditions.
- Loss of substantial amounts of retail trade relative to local sales tax revenues.
- Loss of substantial amounts of employment-generating industry relative to local labor market.
- Imposition of disproportionately high and adverse impacts on low-income and / or minority populations (NEPA-specific threshold).

### **5.2.3 Method of Analysis**

The community impact analysis was based on a number of sources, including technical studies prepared by Caltrans for this project, such as: the Noise Report, Air Quality Analysis, Draft Relocation Impact Report (DRIR), Visual Impact Assessment, Farmlands Report, and the Economic Impact Report. Local planning documents were consulted, including the Willits General Plan Revision, Brooktrails Township Specific Plan, Mendocino County General Plan, and the Regional Transit Plan for Mendocino County. The primary source of data used in the analysis was the 1990 U.S. Census. Additionally, the analysis used data from the California Employment Development Department and the California Department of Finance.

Sources used in the preparation of the Draft Relocation Impact Report (DRIR) were both primary and secondary, including interviews with public agencies, project area realtors, property owners and review of parcel maps, public agency documents, multiple listing services, right-of-way route estimates, and U.S. Census records. When the preferred alternative is selected, a Final Relocation Impact Report will be prepared and the results included in the Final EIR/EIS.

An economic growth projection model was used to determine the effect of different bypass alternatives on the general economy in Willits over the planning horizon ending in 2027. The model uses traffic projections, various relationships between traffic and business activity, and the commercial composition of the City of Willits. This information is used to understand the effect of each alternative on the volume

and composition of traffic in the downtown area as well as the degree to which businesses in Willits rely on local and non-local traffic to generate business activity.

#### **5.2.4 Mitigation Measures**

The relocation assistance listed below (COM-1 through COM-6) are not considered mitigation measures under NEPA since relocation assistance is considered an entitlement under federal law. COM-1 through COM-6 can be considered mitigation measures under CEQA, however, and will be implemented to reduce community impacts:

**COM-1:** Caltrans will provide relocation assistance payments and counseling to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as Amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All eligible displacees will be entitled to moving expenses. All benefits and services will be provided equitably to all residential and business relocatees without regard to race, color, religion, age, national origins and disability as specified under Title VI of the Civil Rights Act of 1964. Please refer to Appendix J, Relocation Assistance Advisory Service.

**COM-2:** To accommodate all of the displaced residents, some vacant lots in Willits will have to be rezoned. Caltrans will work with the City of Willits for the rezoning of these lots to create affordable residential opportunities, including single and multi-family residential developments and mobile home parks.

**COM-3:** Caltrans will arrange for Last Resort Housing payments to displaced residents unable to utilize standard relocation benefits to locate existing housing within the project area.

**COM-4:** Caltrans will work with potentially displaced residents and local agencies to develop a comprehensive Relocation Plan to provide displaced residents with the greatest possible use of relocation benefits and Last Resort Payments.

**COM-5:** For relocated mobile home residents, relocation benefits will include both a purchase differential and a rental differential. These dual benefits will not be paid to residents of other types of housing displaced by the project.

**COM-6:** Caltrans will make every effort to relocate displaced residents in the same vicinity. Further, in relocating members of the mobile home park, Caltrans will strive to relocate these residents in the same area with each other, if residents indicate a desire to keep the community together.

## **5.2.5 Impact Analysis**

### **5.2.5.1 Impacts to Community Cohesion**

Alternatives C1T, E3, J1T, and LT utilize the largely agricultural lands east and west of Willits. All of the build alternatives would draw traffic away from the current U.S. 101 through Willits, resulting in an improvement to the quality of life in downtown Willits, as measured by pedestrian accessibility and decreased traffic congestion. Current traffic volumes on U.S. 101 (Main Street) separate the east and west sides of the community. Because construction of the project would result in decreased traffic volumes along Main Street, community cohesion could increase. Without the project, congestion on Main Street would increase, further dividing the community. Impacts to community cohesion of low-income populations are discussed in Section 5.2.5.3.

### **5.2.5.2 Residential Relocation**

The DRIR prepared for this project provides estimates of the number of businesses and residences (by type) that would be relocated by each of the proposed build alternatives. No relocations would be required by the No-Build Alternative. All of the proposed build alternatives would involve the relocation of some currently occupied residences (Table 5-2). Alternative E-3 would require relocating 114 residences, while the valley alternatives would require relocation of from 3 to 13 residences.

**Table 5-2. Residential Acquisitions by Type of Unit**

Alternative/ Segment	Single & Multiple		Mobile Home Units		Total Residential Displacement
	Number	Percent	Number	Percent	
C1T	2	67	1	33	3
North	0	0	0	0	0
South	2	67	1	33	3
E3	79	69	35	31	114
North	5	63	3	38	8
South	74	70	32	30	106
J1T	9	69	4	31	13
North	3	60	2	40	5
South	6	75	2	25	8
LT	5	71	2	29	7
North	3	75	2	50	5
South	2	100	0	0	2

Source: Caltrans Draft Relocation Impact Report, 2001

### **Alternatives C1T, J1T, LT**

Alternative C1T would require three residential displacements, Alternative J1T would require thirteen residential displacements, and Alternative LT would require seven residential displacements. Sufficient replacement housing exists within the community to accommodate these displaced residents. Alternatives C1T, J1T and LT would not require the construction of replacement housing.

Mitigation Measure COM-1 will reduce residential relocation impacts.

### **Alternative E3**

While there is not sufficient existing housing (decent, safe and sanitary) for the large number of residences (114) that would be displaced by this alternative, relocation could be accomplished by rezoning and developing vacant lots within the City of Willits.

The City of Willits General Plan identifies sufficient developable parcels to accommodate both its current projected growth and the residents that would be displaced along Alternative E3. This alternative would require the displacement of all of the residents of a mobile home park. There are currently insufficient mobile home park vacancies in this area to accommodate all of the displaced mobile home park residents. (Resulting disruption to the mobile home park community is

discussed in Section 5.2.4.3 Title VI and Environmental Justice: Impacts on Minority and Low-Income Populations.)

The relocation of 114 residences that would be required for Alternative E3 would be expensive and time-consuming, resulting in considerable delays in constructing the project. The construction of replacement of housing may or may not be necessary. Displaced residents would receive sufficient funds to ensure their relocation to housing that is decent, safe, and sanitary. Caltrans speculates that some housing construction would be necessary, given local housing market characteristics and assuming that the majority of displaced residents choose to relocate as close as possible to their current community. Therefore, the provision of replacement housing would include a lengthy period of site acquisition, design, design approval, and construction.

Mitigation Measures COM-1 through COM-4 will reduce residential relocation impacts.

### **5.2.5.3 Title VI and Environmental Justice: Impacts on Minority and Low-Income Populations**

The Census Tract Block Groups that would be affected by the proposed build alternatives are Block Groups 106.2, 106.3, and 106.4 in Census Tract 106 and Block Groups 107.1, 107.2, 107.3, 107.4, 107.5, and 107.6 in Census Tract 107 in Mendocino County. The average proportion of minority (non-white) residents in these block groups is 12.5 percent, according to 1990 U.S. Census data. The average proportion of residents below poverty in these block groups is 15 percent, according to 1990 U.S. Census data.

Block Groups 107.1 and 107.5 have proportions of minority residents that are considerably higher than the average for the affected area (21.5 percent and 17.1 percent, respectively). Block Groups 107.5 and 107.6 have proportions of low-income residents that are substantially higher than the average for the affected area (23.8 percent and 22.5 percent, respectively). Additionally, the DRIR identifies most of the mobile home units located in mobile home parks in the affected area as affordable housing. For the purposes of determining whether or not the proposed alternatives would have an adverse impact on low-income or minority residents, the block groups identified above have been combined with information from the DRIR to establish the affected minority/low-income population.

**All Build Alternatives**

Alternatives J1T, C1T, and LT would require the relocation of 1, 4 and 2 minority or low-income residences, respectively.

Alternative E3 would require the disproportionate displacement of residents living in areas identified as having high proportions of low-income or minority residents (Table 5-3). The majority (77) of the residences displaced by this alternative are located in areas that are associated with above-average proportions of minority and low-income residents. Thus, the impact of relocation would fall disproportionately on low-income and minority residents. As seen in Table 5-3, thirty percent of the residents displaced along Alternative E3 live in mobile homes. The majority of these are owner-occupied mobile homes in mobile home parks, including 25 units in the Little Lake Mobile Home Park and a unit located in the EZ Living Mobile Home Park. The existing mobile home units would not be relocated. Residents would be relocated to replacement housing.

**Table 5-3. Acquisitions of Residences from Low-Income/Minority Population**

Alternative/ Segment	Total	BLOCK GROUPS			DRIR Low- Income	Combined Low- Income & Minority	Percent Low-Income/ Minority
		107.1	107.5	107.6			
E3	114	1	0	14	62	77	68%
C1T	3	0	0	0	1	1	33%
North	0	0	0	0	0	0	0%
South	3	0	0	0	1	1	33%
J1T	13	2	0	0	1	4	31%
North	5	2	0	0	0	2	40%
South	8	0	0	0	2	2	25%
LT	7	0	0	0	0	2	29%
North	5	0	0	0	2	2	40%
South	2	0	0	0	0	0	0%

Source: Caltrans Draft Relocation Impact Report / US Census TIGER Maps

Alternative E3 would not substantially alter residents’ ability to access community facilities. While this alternative would create a new physical barrier at the southern end of the City of Willits – specifically, the Hollands Lane Interchange – this would not be an at-grade intersection, and accessibility to activities in downtown Willits along surface streets would be minimally affected. Most local services within Willits

– such as the local hospital, the library, and city offices – are located along the route of existing U.S. 101. As a result of the proposed project, traffic along this route would decrease, thus increasing accessibility for local pedestrians, bicyclists, and drivers.

The two greatest concentrations of low-income housing that would be affected by Alternative E3 are in the multi-family residential area near the Hollands Lane Interchange and in the Little Lake Mobile Home Park, where all of the residents would be displaced as a result of this project.

In the southern portion of the project, the Hollands Lane Interchange would require numerous displacements of low-income residents. Additionally, the presence of a freeway in this vicinity would result in physical divisions between the residents of this area, beyond those that are currently present in the form of existing U.S. 101.

Because the Census Tract Block Group in which this interchange would be partially located has been identified as having a higher proportion of low-income residents than in the project area as a whole, this impact is considered an impact to a low-income population.

The relocation of the residents of the Little Lake Mobile Home Park also is considered an impact to low-income residents. Because of the relatively low housing costs associated with mobile home parks in this area, all mobile home units in parks should be considered low-income housing. The level of community cohesion among residents of the Little Lake Mobile Home Park may be fairly high. Alternative E3 would disperse residents of this mobile home park throughout this area.

Because off-setting benefits in the form of last resort housing payments and other relocation benefits will be provided if Alternative E3 is chosen as the preferred alternative, this alternative would not constitute a disproportionately high and adverse impact to low-income populations, as defined in Executive Order 12898. Implementation of this alternative will require the full participation of the residents of these areas (the area adjacent to the proposed Hollands Lane interchange and the Little Lake Mobile Home Park).

A Public Participation Plan was established in August 1998 that summarized past actions taken in order to inform and consult with the public regarding this project, and proposed future actions. Actions taken prior to the creation of this Plan included public meetings / open houses, and the formation of two Technical Advisory Groups (TAG) – one focusing on social and economic impacts and the other focusing on impacts to the physical environment. Four newsletters were produced informing the public of the project's progress.

The Public Participation Plan recommended the creation of an Internet site to explain the purpose of the project and to illustrate the proposed alternatives. This Internet site has been established.

Construction of Alternative E3 would require a considerable degree of public involvement. Given the characteristics of the local housing market and the number of residents that would need to be relocated in order to construct this alternative, residents' input would be vital. One of the measures identified in Section 5.2.4 to reduce the severity of the impact of the relocations required under Alternative E3 is the development of a comprehensive Relocation Plan. Because residents' wishes play such an important role in the location of suitable replacement properties, this Plan – to be successful – would need to be based on public input.

In addition to these direct, adverse impacts, the alignment of Alternative E3 would pass within two hundred meters of the Sherwood Valley Rancheria, a casino operated by the Sherwood Valley Band of Pomo Indians.

Mitigation Measures COM-1, COM-5 and COM-6 will reduce impacts to low income and minority populations

**5.2.5.4 Affordable Housing Supply**

**All Build Alternatives**

Relative to the amount of affordable housing available in the City of Willits (estimated at 775 units), none of the valley alternatives would have an impact on the local affordable housing supply. The alternatives would involve less than one percent of all of the affordable housing in the Willits area (Table 5-4).

**Table 5-4. Affordable Housing Displacements as a Percentage of Total**

Alternative	Acquisitions from “Low-Income” Block Groups	Affordable Units Identified in the DRIR	TOTAL Low-Income Acquisitions	Percent of All Affordable Units in Willits
C1T	0	1	1	0.1%
E3	14	62	76	9.8%
J1T	1	2	3	0.5%
LT	0	2	2	0.3%

Sources: Caltrans Draft Relocation Impact Report, 1990 US Census Data, City of Willits General Plan

Alternative E3 would remove 9.8 percent of housing from the local housing market, much of which would be affordable to low-income residents. The low vacancy rate in the local housing market suggests that the vast majority of acquired units would be replaced within the project area. The data presented in Table 5-4 indicates the removal of affordable housing units from the local housing market. Caltrans’ Last Resort Housing payments would provide recipients with sufficient funds to ensure their relocation. In some cases, this may include the acquisition of new mobile home units.

**5.2.5.5 Relocation of Local Businesses**

**Alternatives C1T, E3, J1T (North), LT**

The business displacements required by these alternatives would not have a negative impact on the local economy or employment patterns because very few businesses would be relocated by these alternatives. Suitable replacement sites are available for the businesses so they would be expected to continue operating effectively.

At the time of the writing of the City of Willits General Plan, there were 241 acres of land within the city set aside for commercial uses, and less than half of this land had been developed. Commercial property is primarily located adjacent to existing U.S. 101 through the City of Willits. Few of the businesses to be displaced by the

proposed alternatives are highly visible from U.S. 101 or S.R. 20, the primary routes through the city. Since highway visibility is not likely to be a requirement for replacement sites, and the commercial land within this community is not built out, replacement sites are likely to be readily available.

The existing industrial park located on San Hedrin Circle in the City of Willits that would be displaced as a result of the southern segment of Alternative J1T was developed in 1996 using a Community Development Block Grant (CDBG) administered by the State of California. Acquisition for the purposes of highway construction would constitute a change in the use of property acquired using CDBG monies. If the City of Willits, the local government unit that applied for grant monies, were proposing this change of use, it would require repayment of the statewide CDBG program funds used to develop this area. Since Caltrans is proposing this use change and did not apply for the grant monies in question, repayment of the grant would not be required. (See Community Development Regulations, Part 570, Community Development Block Grants, Section 570.489.)

Section 6.1 of this environmental document discusses the potential for growth to occur along the proposed alternatives. Large-scale commercial development is unlikely at any of the proposed interchanges. Additionally, a small percentage (seventeen percent) of the businesses currently visible from U.S. 101 are likely to primarily serve through customers. The majority of businesses located along Main Street would not have an economic incentive to relocate to sites along the proposed alternatives. Such relocations would decrease businesses' accessibility to local residents.

***Alternative J1T (south)***

Alternative J1T (south) would require the relocation of the three businesses in the city's recently constructed industrial park. Alternative J1T (south) would also require relocating an automobile dismantling business and the six mini-storage units associated with this business. Additionally, a portion of a large local trucking company would be relocated. These businesses are relatively large employers within the context of the local labor market, and the industrial park represents a substantial step in the city's long-term plan for economic development. Additionally, the city has a considerable investment of infrastructure and other resources in this business park. The business park and the businesses would be relocated in accordance with Caltrans' Relocation Assistance Program.

Mitigation Measure COM-1 will reduce impacts to business relocation.

**5.2.5.6 Effects on City and County Tax Revenue**

The economic forecasting model utilized in the *Economic Impact Report* projects economic impacts to the project area based on the time, labor, and capital needed to construct proposed alternatives. Table 5-5 shows the anticipated taxable sales that would be generated by the expenditure of construction capital.

**Table 5-5. Impact on Taxable Sales (Millions of Dollars)**

Alternative	C1T	E3	J1T	LT	No Build
Estimated Taxable Sales	\$24.1	\$51.9	\$27.7	\$23.2	\$0.0

Source: Staff calculation using the data from Implan and University of California, Los Angeles, A Business Forecast

Not all of the economic benefits tabulated in the table above would accrue to the City of Willits. A construction project of this magnitude would require materials and labor exceeding the labor and physical resources the local community can provide, therefore, some of the required resources would have to be imported from outside the area. This would mean that some portion of the additional business activity, personal income, tax revenue, and jobs supported by this construction project would accrue outside the Willits area. The extent to which this might happen would be determined by the ability of the Willits area to meet the materials and labor needs of the contractors building the project. Benefits that would not accrue to the City of Willits would accrue to other taxpaying communities including other parts of Mendocino County.

**All Build Alternatives**

Construction of the project would result in taxable sales of from \$23.2 million to \$51.9 million, depending on the alternative chosen.

**5.2.5.7 Effects on Property Tax Base**

All of the proposed alignments would require the acquisition of private property. The amount and value of this property would vary with the proposed alternatives. Properties to be acquired would include both unimproved farmlands and improved occupied properties.

Property tax collections in Mendocino County are allocated to city, county, school, and other funds according to predetermined ratios. For property taxes collected in the City of Willits, most property tax revenue is divided between Mendocino County, the City of Willits, and the Willits Unified School District. The allocation ratios for property taxes collected within the City of Willits are: 25.53 percent to Mendocino County, 33.87 percent to the Willits Unified School District, 14.68 percent to the City of Willits. The remainder is divided among other local services.

Table 5-6 presents the anticipated property tax loss associated with each alternative in the context of total revenues for the three largest allocation ratios.

**Table 5-6. Estimated Property Tax Reductions as Proportions of Local Agency Revenues**

Local Agency	Total Agency Revenue (\$millions)	Allocation Ratio	Proportion of Agency's Revenue Impacted by Alternative			
			C1T	E3	J1T	LT
Mendocino County <sup>1</sup>	\$105	25.53%	0.002%	0.019%	0.009%	0.002%
City of Willits <sup>2</sup>	\$ 4	14.68%	0.028%	0.31%	0.14%	0.038%
Willits Unified School District <sup>3</sup>	\$ 15	33.87%	0.016%	0.18%	0.08%	0.022%

<sup>1</sup> Fiscal year 1998-99 receipts for Mendocino County, as presented in the California Statistical Abstract.

<sup>2</sup> Total revenue of funds receiving property tax revenue, Fiscal Year 2000 – 01.

<sup>3</sup> Willits Unified School District General Fund Revenues, Fiscal Year 1999-00.

**Alternative E3**

Of the proposed build alternatives, Alternative E3 would involve the greatest costs to the local property tax base, since it requires state acquisition of properties currently paying almost \$80,000 in property taxes. Within the context of the total revenues of the local agencies to which this money would be allocated, however, this alternative would have a barely appreciable impact.

Alternative E3 would result in a one-third of one percent reduction in the City of Willits' revenues and less than two-tenths of one percent reduction in the total

revenues of the Willits Unified School District. The reduction in revenue at the county level would amount to less than 0.02 percent of total revenues.

### **Alternatives C1T, J1T, and LT**

Alternatives C1T, J1T, and LT would require the removal of less property tax base than Alternative E3. As with Alternative E3, none of these alternatives would have an appreciable impact on local agencies' revenues.

Alternatives C1T and LT would remove minimal amounts of properties from the local tax base. Neither of these alternatives would reduce agencies' revenues by more than 0.038 percent.

Alternative J1T would reduce Mendocino County's total revenues by an estimated 0.009 percent, the City of Willits revenues by less than two-tenths of a percent, and the Willits Unified School District's revenues by less than one tenth of a percent.

### **5.2.5.8 Business Impacts**

Alternative E3 would have a more pronounced initial effect on downtown traffic and on the business activity generated by downtown traffic. At the time of the opening of alternative E3, it is expected that business activity in Willits will decrease by approximately 15 percent. This will be felt more by businesses that cater primarily to tourists and visitors.

Alternative E3 is expected to have the greatest impact on businesses catering to through traffic because it will be the most effective in eliminating through traffic from Willits. This alternative would place the intersection of U.S. 101 and S.R. 20 west of Willits' commercial center.

The effect of a bypass (under all of the build alternatives) is not expected to result in business failure for businesses that cater to a combination of through and local traffic, or for the most successful businesses oriented toward through customers. Business failures would be expected for the least successful businesses oriented toward through customer traffic. The degree of this impact cannot be determined without detailed knowledge of business receipts prior to project construction, which is unavailable at this time.

The failure of businesses oriented toward through customers would not be likely to have an impact upon the Willits community as a whole. The long-term economic result of traffic diversion is expected to be an improved and more inviting central business district.

Under the worst-case scenario, Willits would lose the sales taxes of 17 percent of the businesses located along U.S.101. However, the City of Willits would be expected to see an increase in sales taxes during project construction, given the need for construction workers to occupy motel rooms and to purchase food and other supplies locally.

#### **5.2.5.9 Regional Economic Impacts**

In terms of the movement of people and goods, traffic congestion along U.S. 101 in Willits creates additional costs to the state in time and decreases efficiency. Given the projections for future increases in traffic congestion in the project area, this portion of U.S. 101 is likely to become a more severe source of transportation cost increases for both workers and businesses. Without the project, increased transportation costs created by congestion along U.S. 101 in the City of Willits could impact the economy of this region. By alleviating congestion, all of the proposed build alternatives would decrease these transportation costs.

### **5.3 Community Facilities and Services Impacts**

#### **5.3.1 Impact Thresholds**

The following thresholds help to determine if there will be an impact related to social conditions in the project area.

- Substantial adverse physical impacts associated with the provision of new or physically altered community facilities.
- Substantial impacts to response times for emergency services, such as police and fire protection.
- Impacts to public parks or other public facilities.

## **5.3.2 Public Facilities**

### **5.3.2.1 Museum and Park**

The City of Willits and the County of Mendocino are developing the Redwood Empire Railroad History Project, a 10-acre educational and recreational complex next to the Mendocino County Museum. The city, Caltrans, and FHWA are planning the concurrent development of the recreational facilities and the proposed bypass.

Alternative J1T would traverse the eastern edge of the 10-acre museum and park. Alternative J1T would not conflict directly with the current or future park improvements and the city is developing the parcel to accommodate any of the bypass alternatives, including Alternative J1T.

The Mendocino County Museum has recommended highway markers that designate the location of the museum. Signs can be placed on U.S. 101 notifying motorists of the museum and Redwood Empire Railroad History Project can occur if the complex is within three miles from the freeway off ramp and the museum and history project have an annual minimum attendance of 200,000. The county would be responsible for placing surface street “trail blazer” signs directing motorists to the museum and history project once they have exited the freeway facility before highway signs can be placed.

### **5.3.2.2 Streets and Roads**

The proposed project, depending on the alternative, would result in relinquishment of portions of U.S. 101 and S.R. 20 to the City of Willits and the County of Mendocino (see Section 3.3.3 for a description of relinquishments by alternative). The city currently has insufficient resources to maintain its streets and roads in good condition, and additional roadway would increase the burden. However, because all roadways to be relinquished are required to be in a state of good repair at the time of relinquishment, the short-term costs of roadway maintenance for the city and county would be minor. Also, according to the California Department of Finance, there were 1,503.9 miles of roadway in the county in 1999. The relinquishments that would be associated with this project would not be a substantial contribution to the existing amount of roadway in the county.

The long-term costs of roadway maintenance are difficult to estimate, and the ratio of roadway maintenance funds to roadways requiring maintenance in these municipalities cannot be accurately estimated at this time. If either the City of Willits

or Mendocino County believes that long-term maintenance costs of relinquished roadways will negatively affect the maintenance of other local roadways, these issues will be raised during the process of establishing a relinquishment agreement.

While the satisfaction of all parties is not a condition of roadway relinquishment, negotiations between Caltrans and local agencies will seek to ensure that an equitable balance between state and local interests is reached. Generally, the process of reaching a relinquishment agreement includes the reasonable accommodation of protesting parties' requests. As a result, the process of developing a relinquishment agreement is likely to result in post-project conditions that would not impact either the City of Willits or Mendocino County.

The proposed relinquishments would result in greater control by the City of Willits over the design features of the roadways as they pass through the community. The City of Willits General Plan Revision includes a Circulation Policy that would "promote beautification along the City's roadways." Additionally, the General Plan's Environmental Impact Report contains a mitigation measure that would decrease the number of trucks on U.S. 101 after relinquishment. Mitigation Measure 4.238 in the Circulation section states that "On completion of the U.S. 101 bypass, load limits shall be established on Main Street between S.R. 20 and Commercial Street to reduce truck traffic on this portion of the roadway."

As a result of the constructed bypass, the level of traffic flowing through the city would be reduced. With jurisdiction over what is known locally as Main Street, the City of Willits would be able to capitalize on the reduction in through traffic in order to make this corridor more conducive to pedestrians and more aesthetically pleasing.

### **5.3.2.3 Railroads**

North of the termini of Alternatives J1T and LT, U.S. 101 would have at-grade railroad crossings with the Northwestern Pacific Railroad. Buses and certain trucks are required to stop at railroad crossings, and these stops lead to congestion, delay, and reduced capacity near the crossings. In addition to the conflicts between these slow-moving trucks and buses and other traffic operating at higher speeds, at-grade railroad crossings present the potential for collisions between trains and highway users at the crossing.

Currently, no trains operate on this reach of the railroad, but efforts are underway to restore the railroad to operational status. If in the future, the railroad traffic increases, Mendocino County may wish to replace the at-grade crossing with a grade separation structure. Such a project would carry a considerable capital cost and could have some environmental impacts. For Alternative C1T, the relatively short distance between the interchange and the railroad crossing may present difficulties. However, based on a preliminary examination, Caltrans Design staff believe a grade separation is possible at all three alternatives.

Alternative E3 crosses railroad tracks in three locations, but none are at-grade.

### **5.3.3 Public Services**

#### **5.3.3.1 Long-Term Impacts**

The proposed project would be beneficial for public services by reducing and, thus, improving response time for fire protection, law enforcement, emergency and other public services. The No-Build Alternative would be expected to have negative impacts on public services, including emergency services response times since congestion would not be alleviated.

#### **5.3.3.2 Short-Term Construction Impacts**

During construction of the project, traffic delays would not be anticipated since most of the project would be constructed on new alignment, and therefore, would have minimal impact on local roadways.

**PS-1:** Caltrans will make preconstruction contacts with the fire department, law enforcement, and ambulance services.

**PS-2:** Caltrans will notify concerned agencies of the construction schedule.

**PS-3:** Caltrans will implement a traffic management plan to minimize impacts to roadway users during construction of the project. (See Section 5.11.4.3.)

## 5.4 Land Use and Local Planning Impacts

### 5.4.1 Impact Thresholds

The following threshold helps to determine if there will be an impact related to social conditions in the project area.

- Creation of conflicts with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

#### 5.4.1.1 Consistency with Local Plans and Policies

The Mendocino County General Plan Circulation Element recommends improvements to U.S. 101. The Circulation Element includes statements that recognize the importance of constructing the Willits Bypass and improving U.S. 101 to provide a more efficient and safer transportation system. The proposed bypass project is consistent with the County's General Plan Circulation Element.

Also, Mendocino County's General Plan contains four goals and 26 separate policies designed to protect its agricultural land. The Agricultural Goals and Policies in the Mendocino County General Plan consist of policies supporting the following four goals:

*Goal Number 1:* The County shall protect and maintain prime agricultural land and prime range land.

*Goal Number 2:* The County shall seek to minimize the conflicts between agricultural operations and other land and resource uses.

*Goal Number 3:* The County shall constantly strive to create and promote those policies and conditions that will enable Mendocino County ranchers, farmers, and homesteaders to maintain economically sound and profitable operations.

*Goal Number 4:* The County shall maintain prime range land in units sufficient to provide for an economic management base.

Policies include measures to limit the encroachment of incompatible uses adjacent to agricultural areas, to support tax incentives and other economic incentives to maintain the viability of farms, and to discourage the division of land holdings of 640 acres or more, but permit development clusters (as opposed to development dispersing, which would result in a larger developed area) to the greatest extent possible.

There are no parks or other designated open spaces along the alignments of Alternatives C1T, E3 and LT. Alternative J1T would pass within sight of the City of Willits' little league baseball fields. These fields represent locally-designated recreational/open space areas. Section 5.14 discusses the joint development of the recreation area and the proposed bypass, and the project planning being undertaken to minimize impacts to the area.

#### **5.4.1.2 Consistency with Regional Transportation Plans**

U.S. 101 is the economic lifeline through northern California. In the long-term, increased congestion on this route in the City of Willits would be likely to dampen economic development along the entire U.S. 101 corridor.

Caltrans' 20-Year Route Concept for U.S. 101 is for a four-lane facility throughout Caltrans District 1 (Mendocino, Humboldt, and Del Norte Counties) (see footnote 3, page 2-5 for exceptions). The Mendocino Council of Governments' Regional Transportation Plan lists the Willits Bypass as the number one facility improvement priority to U.S. 101.

#### **5.4.1.3 Consistency with the City of Willits General Plan**

The Willits General Plan (1993) supports the construction of a bypass around the City. The General Plan supports a bypass around the east side of the City although the actual policy language of the General Plan (Policy 2.240) does not indicate where the bypass should be located. To demonstrate this policy, the General Plan includes a map that shows the bypass east of the City. However, the map includes a notation that indicates that the location of the bypass shown on the map is not specifically endorsed by the Plan.

### **5.4.2 Farmland**

#### ***Regulatory Setting***

Farmland Protection Policy Act: The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, USC 4201-4209; and its regulations,

7 Code of Federal Regulations (CFR, Section VI, Part 658) require the lead, federal agency to coordinate with the Natural Resource Conservation Service (NRCS) to examine the effects of farmland conversion before approving any federal action. The coordination process is set forth in the act and, if adverse effect is found, the agency must consider alternatives to lessen the impacts.

Projects where farmland may be converted to other uses require close coordination with the NRCS and the completion of a “Farmland Conversion Impact Rating” (Form AD 1006) or NRCS CPA-106 form, which was developed to address impacts related to corridor-type projects. The Farmland Conversion Impact Rating form provides a basis for assessing the extent of farmland impacts relative to federally established criteria.

California Land Conservation (Williamson Act): The Williamson Act of 1965 is discussed in Section 4.4.

Timber Production Zones: The establishment of the Timber Production Zones pursuant to Government Code Section 51112 et seq. in conjunction with the Z’berg-Warren-Keene-Collier Forest Taxation Reform of 1976 was enacted to help preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones are on 10-year cycles. According to Government Code Section 51152 “no public agency or person shall locate a public improvement within a timberland production zone (TPZ). . . .” However, the Government Code exempts state highways from this law.

### **5.4.3 Method of Analysis**

#### ***Farmland Conversion Impact Rating***

A Farmland Conversion Impact Rating for Corridor-Type Projects (Form NRCS-CPA-106) was prepared to identify the impacts of the proposed project on agricultural lands in the project area. The rating form uses a numerical indicator to assess the extent of farmland impacts relative to federally established criteria.

The Farmland Conversion Impact Rating form was developed by the Secretary of Agriculture in cooperation with other federal agencies to fulfill the requirement of Section 1541(a) of the Farmland Protection Policy Act. The form contains two parts:

1) the Land Evaluation criterion, Relative Value, for which the NRCS provides the rating or score, and 2) the Site Assessment criteria for which each federal agency must develop its own rating or scores. Together, the Land Evaluation and Site Assessment (LESA) is a rating system that numerically quantifies the relative importance of parcels used for agricultural purposes and are proposed for conversion.

The Land Evaluation portion of the system uses a scoring system (0 to 100) to evaluate the agricultural value of a parcel. The higher the score the greater the relative value of the parcel in question. The Site Assessment portion of the form uses a scoring system (0 to 160) to determine a parcel's suitability for protection as farmland. A copy of the completed Form NRCS-CPA-106 as a result of NRCS consultation for the proposed project is attached as Appendix L of this document.

The Department of Conservation and the NRCS classify agricultural lands into four categories:

*Prime Farmland:* Land with the best combination of physical and chemical soil properties for the production of agricultural crops;

*Farmland of Statewide Importance:* Land other than prime, which has a good combination of physical and chemical characteristic to produce crops. In addition, irrigated crop production within the last three years is a requirement to be classified in this category.

*Unique Farmlands:* Lands that do not meet the criteria for Prime or Farmland of Statewide Importance, but are currently used to produce specific high economic value crops.

*Farmland of Local Importance:* Lands that do not qualify as Prime, Statewide Importance, or Unique farmlands but are currently irrigated, pasture land, or produce non-irrigated crops. This designation is also used for lands that have the potential of being Prime or of Statewide Importance if properly irrigated.

#### **5.4.4 Impact Thresholds**

The following thresholds help to determine if the proposed project would result in an impact to farm lands:

- Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. Pursuant to the 1984 Farmland Protection and Policy Act, scores above the 160-point threshold on the Farmland Conversion Impact Rating for Corridor-Type Projects (Form NRCS-CPA-106) will result in an adverse impact.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

#### **5.4.5 Mitigation Measures**

Caltrans and FHWA have coordinated with the Mendocino County Agricultural Commissioner and the California Department of Conservation on the following mitigation measures will reduce impacts to farmlands:

**FRM-1:** Caltrans will establish an agricultural conservation easement in or near the project area that will ensure preservation of the land for farming uses in perpetuity. When a preferred alternative is identified, Caltrans will coordinate with the Mendocino County Agricultural Commission and other interested parties, in determining the size of the easement and identifying appropriate land. Caltrans has not begun coordination of this effort yet and does not know the feasibility of implementing this mitigation measure.

**FRM-2:** Caltrans will stockpile topsoil for local and re-vegetation use to conserve valuable Prime Farmland (soils). The use of topsoil facilitates the reestablishment of plant communities on disturbed soils and reintroduces this important resource back into the local ecosystem. The topsoil will be stored at an environmentally-approved site. Possible applications for the topsoil include: for landscaping the Willits bypass project corridor; and for use by the City of Willits, Mendocino County, and local/county residents/businesses/ farming operations.

**FRM-3:** If a valley alternative is chosen as the preferred alternative, the design will be modified to place the alignment on a continuous viaduct. A continuous viaduct would impact the least amount of farmland, however, it would more than triple the current estimated cost of each alternative.

**FRM-4:** Caltrans will contribute to the Department of Conservation’s Farmland Conservancy Fund, in an amount to be determined in coordination between Caltrans and the Department of Conservation. The fund provides grants for projects that use and support agricultural conservancy easements for protection of agricultural lands.

**5.4.6 Impact Analysis**

**5.4.6.1 Prime Farmland**

Alternatives C1T and E3 would have the highest impacts to prime farmland (Table 5-7).

**Table 5-7. Farmland Conversion by Alternative**

Alternatives	Land Converted ha (ac)	Prime & Unique Farmland ha (ac)	Percent of Farmland (County)	Farmland Conversion Impact Rating
C1T	98 (242)	53.2 (131.4)	0.47	153.2
E3	288 (713)	56.3 (139.1)	0.15	188.0
J1T	85 (209)	24.0 (59.0)	0.20	136.4
LT	91 (226)	24.9 (61.5)	0.20	155.6

Source: Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor-Type Projects)

Alternative C1T would permanently convert approximately 98 hectares (ha) (242 ac) of land for right-of-way, of which approximately 53.2 ha (131.4 ac) would be Prime or Unique Farmland. In addition, the amount of Prime or Unique Farmland impacted by this alternative is proportionately greater than that impacted by Alternative E3. Farmland removed by Alternative C1T represents approximately 2 percent of the farmland in the study area and about .47 percent of the total farmland in Mendocino County.

Alternative J1T would impact 24 ha (59 ac) of Prime and Unique Farmland, while Alternative LT would impact 24.9 ha (61.5 ac). The converted acres for Alternative J1T represent approximately 1.7 percent of the total agricultural acreage in the project area and 0.2 percent of farmland in the county.

Likewise, acreage percentage for Alternative LT is 1.9 percent and represents 0.2 percent of the total farmland in Mendocino County. Agricultural impacts associated with

these alignments are of a lower magnitude due to the fewer number of farms being affected.

Alternative E3, which includes 288 ha (713 ac) of right of way, has the highest amount of agricultural land conversion. However, the impacts to Prime and Unique Farmlands are proportionately less than the alternatives located in the valley because soils along the Alternative E3 alignment are not classified as Prime or Unique Farmland soils by the Department of Conservation or the NCRCS.

Alternatives E3, J1T, LT, and C1T have the greatest impact to agricultural lands at their southern segments (Table 5-8).

**Table 5-8. Prime Farmlands Impact Summary, by Segment**

Alternative	North Segment ha(ac)	South Segment ha(ac)	Total ha(ac)
C1T	9.3 (23.1)	43.8 (108.3)	53.2 (131.4)
E3	4.5 (11.1)	52.0 (128.0)	56.3 (139.1)
J1T	9.3 (23.0)	14.6 (36.0)	24.0 (59.3)
LT	9.7 (24.0)	15.1 (37.5)	24.9 (61.5)

Source: Farmland Impact Analysis, Caltrans, 2001

Note: Numbers may not add due to rounding.

Direct land conversion and associated important agricultural soil of each alternative are presented in Table 5-7, Farmland Conversion by Alternative. According to the 1984 Farmland Protection and Policy Act, scores above the 160-point threshold result in an adverse impact.

Alternative E3 exceeds the 160-point threshold in its conversion of Prime and Unique farmlands to other uses. Alternatives C1T, J1T, and LT do not exceed the 160-point threshold but Alternatives C1T and LT come very close.

Mitigation Measures FRM-1 through FRM-4 will reduce impacts to prime farmland.

#### **5.4.6.2 California Land Conservation (Williamson Act)**

Participation in the California Land Conservation (Williamson Act) program is well represented in the Little Lake Valley. All the alternatives affect parcels that are

enrolled in the program. Parcels enrolled in this program are designated by the county to be either Prime (A) or Non-Prime (B). Table 5-9 summarizes the impacts to Williamson Act parcels by alternative and segment.

**Table 5-9. Summary of Impacts to Williamson Act Parcels**

<b>Alternative</b>	<b>North Segment ha (ac)</b>	<b>South Segment ha (ac)</b>	<b>Total ha (ac)</b>
C1T	38.9 (96.0)	23.7 (58.6)	62.6 (154.6)
E3	12.2 (30.1)	47.1 (116.5)	59.3 (146.6)
J1T	6.7 (16.5)	14.0 (34.7)	20.7 (51.2)
LT	6.8 (16.7)	21.4 (52.8)	28.1 (69.5)

Appendix L shows by alternative the parcels that would be affected by the proposed project. The C1T alternative would affect the greatest number of hectares (62.6 ha; 154.6 ac) enrolled in the program. Although, the C1T alternative affects the largest number of hectares, the E3 alternative would affect the highest number of contracts (17). All of the build alternatives conflict with existing zoning for Williamson Act contract land.

Mitigation Measures FRM-1 and FRM-4 will help to reduce the level of impact to Williamson Act contract land.

**5.4.6.3 Timberland Protection Zone**

Alternative E3 impacts a Timberland Protection Zone (TPZ) designated parcel. The parcel (APN 037-160-27) is located within the corridor of Alternatives E3, which would remove approximately 0.8 ha (2 ac) of TPZ-designated land. However, since the amount of land is relatively small, the impact is minor. Alternatives C1T, J1T and LT do not impact any TPZ-designated land.

**5.5 Water Quality**

**5.5.1 Regulatory setting**

**5.5.1.1 Federal Requirements**

**Clean Water Act:** The federal Clean Water Act (CWA) addresses issues regarding water pollution control. The objective of the CWA is to restore and maintain the

chemical, physical, and biological integrity of the Nation's waters. The USEPA, together with the California Regional Water Quality Control Board, is responsible for administering the CWA. Please refer to Section 5.7.4.6 Wetlands and Other Waters of the U.S. for a discussion of the Clean Water Act and the ongoing NEPA/404 Concurrent Process.

**Federal Endangered Species Act (ESA):** Under the ESA, the United States Fish and Wildlife Service (USFWS) is responsible for protection of non-marine plant and animal species that are listed as threatened or endangered and for identifying candidate species for such listing.

The National Marine Fisheries Service (NMFS) is responsible for the management, conservation, and protection of living marine resources within the United States Exclusive Economic Zone. Under the ESA, NMFS is responsible for the protection of those marine species listed as threatened or endangered, and for identifying candidate species for such listings. Three special-status fish (coho and chinook salmon and steelhead) use streams in the study area for migration, spawning, and rearing. The coho salmon, chinook salmon, and steelhead are anadromous, and fall under NMFS responsibility.

**National Pollutant Discharge Elimination System (NPDES):** The NPDES program was established by USEPA to regulate storm water runoff and is implemented by the states. NPDES permits can be issued for municipal or industrial wastewater discharges, or for storm water discharges. There are three categories of storm water permits: construction (over five acres of disturbance), municipal, and industrial. The State of California has issued a general NPDES storm water permit for construction activity that would apply to the proposed project. In addition, a project-specific NPDES permit will also be required for this project because impacts are greater than 2 ha (5 ac). As part of this permit, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared. The Plan requires that pollution sources be identified and it commits to implementing storm water pollution prevention measures to reduce pollutants in storm water discharges from construction sites both during construction and after construction has been completed.

#### **5.5.1.2 State Requirements**

**Porter-Cologne Water Quality Control Act (California Water Code):**

California's Porter-Cologne Act, enacted in 1969, established a comprehensive

statewide system for water pollution control. This system operates at three jurisdictional levels:

- The State Water Resources Control Board (SWRCB)
- Nine Regional Water Quality Control Boards (RWQCB)
- Local governments

The SWRCB and RWQCBs are responsible for establishing the water quality standards (objectives) required by the CWA, and regulating discharges to ensure that the objectives are met. Water quality standards that affect the project area include the following:

**California Endangered Species Act:** The California Department of Fish and Game (CDFG) is the state agency directly responsible for the protection and preservation of California's vast number of animal, fish, plant, and bird species through enforcement of the California Endangered Species Act (CESA). The CDFG is a California Resources Agency which is governed by general policies constituted by the California Fish and Game Commission. The SWRCB and the nine RWQCBs work with the CDFG to enforce statewide policy on water pollution control. In practice, when CDFG determines that "a continuing and chronic condition of pollution exists," CDFG alerts the local RWQCB and works with the local RWQCB to correct or abate the violation.

The CDFG also issues permits for construction activities within defined stream channels. The CDFG's jurisdiction extends to the top of the stream banks. These permits typically include restrictions on the time(s) of year the contractors are allowed to work in the streambed, and other requirements intended to protect water quality and fisheries.

**Drinking Water Source Assessment Program:** The California Department of Health Services (DHS) recently developed the Drinking Water Source Assessment and Protection (DWSAP) program to help protect drinking water wells from contamination. This program evaluates individual well's susceptibility for potential contamination caused by existing conditions (e.g., underground tanks, septic systems, etc.), and provides guidelines to evaluate potential impacts that would be created by proposed projects.

### **5.5.1.3 Regional and Local Regulations**

**Water Quality Control Plans (Basin Plans):** The SWRCB is the designated lead agency for all federal CWA powers delegated to the state by the USEPA. The RWQCBs adopt Water Quality Control Plans (WQCP) and issue NPDES permits for their respective regions. Each water quality control plan establishes regional water quality objectives to ensure reasonable protection of California's water, while recognizing the possibility of changing the character of the water to some degree without unreasonably affecting beneficial uses. Environmental as well as economic concerns are considered in setting these water quality objectives. The water quality control plans and guidelines must be approved by the SWRCB.

The proposed alternatives are located within the jurisdiction of the North Coastal Basin RWQCB. The RWQCB has adopted the Water Quality Control Plan for the North Coast Region (Basin Plan) (most recently amended on May 23, 1996). This plan defines existing and potential beneficial uses and water quality objectives for groundwater, surface waters, and hydrographic areas.

The Basin Plan lists water quality objectives for a number of constituents (Tables 5-10, 5-11, and 5-12). The Basin Plan also lists objectives for a number of organic chemicals, but since the proposed project is not expected to contribute measurable amounts of this category, they are not included in these tables.

**Table 5-10. General Water Quality Objectives for Surface Waters Within the North Coastal Basin**

Constituent	Description								
Bacteriological	<p>The bacteriological quality of waters of the North Coastal Basin shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coastal Basin exceed the following:</p> <p style="padding-left: 40px;">In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30 day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30 day period exceed 400/100 ml (State Department of Health Services).</p>								
Biostimulatory Substances	<p>Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.</p>								
Chemical Constituents	<p>Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in the California Code of Regulation, Title 22, Chapter 15, Division 4, Article 4 Section 64435 (Tables 2 and 3) and Section 64444.5 (Table 5), and listed in the Basin Plan. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Numerical water quality objectives for individual waters are listed in the Basin Plan.</p>								
Dissolved Oxygen	<p>Dissolved oxygen concentrations shall conform to those limits listed in the Basin Plan. For waters not listed and where dissolved oxygen objectives are not prescribed, the dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Waters designated WARM*, MAR*, or SAL*</td> <td>5.0 mg/L</td> </tr> <tr> <td>Waters designated COLD*</td> <td>6.0 mg/L</td> </tr> <tr> <td>Waters designated SPWN*</td> <td>7.0 mg/L</td> </tr> <tr> <td>Waters designated SPWN* during critical spawning and egg incubation periods</td> <td>9.0 mg/L</td> </tr> </table>	Waters designated WARM*, MAR*, or SAL*	5.0 mg/L	Waters designated COLD*	6.0 mg/L	Waters designated SPWN*	7.0 mg/L	Waters designated SPWN* during critical spawning and egg incubation periods	9.0 mg/L
Waters designated WARM*, MAR*, or SAL*	5.0 mg/L								
Waters designated COLD*	6.0 mg/L								
Waters designated SPWN*	7.0 mg/L								
Waters designated SPWN* during critical spawning and egg incubation periods	9.0 mg/L								
Floating Material	<p>Waters shall not contain floating materials, including solids, liquids, foams, and scum in concentrations that cause nuisance or adversely affect beneficial uses.</p>								
Oil and Grease	<p>Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or which otherwise adversely affect beneficial uses.</p>								

Constituent	Description														
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation pesticide concentrations found in bottom sediments or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64444.5 (Table 5), and listed in the Basin Plan.														
pH	The pH shall conform to those limits listed in the Basin Plan. For waters not listed and where pH objectives are not prescribed, the pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.2 unit in waters with designated marine (MAR) or saline (SAL) beneficial uses nor 0.5 unit within the range specified above in fresh waters with designated COLD* or WARM* beneficial uses.														
Radioactivity	<p>Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or indigenous aquatic life.</p> <p>Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64443, Table 4, and listed below:</p> <table border="0" data-bbox="646 1003 1409 1276"> <thead> <tr> <th data-bbox="646 1003 1052 1031">Constituent</th> <th data-bbox="1052 1003 1409 1031">Max Contaminant Level, pCi/l</th> </tr> </thead> <tbody> <tr> <td data-bbox="646 1062 1122 1092">Combined Radium-226 and Radium-228</td> <td data-bbox="1317 1062 1338 1092">5</td> </tr> <tr> <td data-bbox="646 1094 1360 1157">Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)</td> <td data-bbox="1305 1094 1338 1123">15</td> </tr> <tr> <td data-bbox="646 1159 727 1188">Tritium</td> <td data-bbox="1252 1159 1338 1188">20,000</td> </tr> <tr> <td data-bbox="646 1190 797 1220">Strontium-90</td> <td data-bbox="1317 1190 1338 1220">8</td> </tr> <tr> <td data-bbox="646 1222 959 1251">Gross Beta particle activity</td> <td data-bbox="1305 1222 1338 1251">50</td> </tr> <tr> <td data-bbox="646 1253 743 1283">Uranium</td> <td data-bbox="1305 1253 1338 1283">20</td> </tr> </tbody> </table>	Constituent	Max Contaminant Level, pCi/l	Combined Radium-226 and Radium-228	5	Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	15	Tritium	20,000	Strontium-90	8	Gross Beta particle activity	50	Uranium	20
Constituent	Max Contaminant Level, pCi/l														
Combined Radium-226 and Radium-228	5														
Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium)	15														
Tritium	20,000														
Strontium-90	8														
Gross Beta particle activity	50														
Uranium	20														
Sediment	The suspended sediment load and suspended discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.														
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.														
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.														
Tastes and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.														

Constituent	Description
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD* water be increased by more than 3 deg C (5 deg F) above natural receiving water temperature. At no time or place shall the temperature of WARM* intrastate waters be increased more than 3 deg C (5 deg F) above natural receiving water temperature.
Toxicity	All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Source: Water Quality Control Plan for the North Coastal Basin - Region 1, 1994\*WARM = Warm Freshwater Habitat; COLD = Cold Freshwater Habitat; MAR = Marine; SAL = Saline; SPWN = Spawning, Reproduction, and/or Early Fish Development.

**Table 5-11. Specific Water Quality Objectives for Eel River and Outlet Creek**

Water Body	Specific Conductance (microhms) @77° F		Total Dissolved Solids (mg/l)		Total Dissolved Oxygen (mg/l)			pH	
	90% Upper Limit	50% Upper Limit	90% Upper Limit	50% Upper Limit	Min	90% Lower Limit	50% Lower Limit	Max	Min
Eel River	375	225	275	140	7	7.5	10	8.5	6.5
Outlet Creek	400	200	230	125	7	7.5	10	8.5	6.5

Source: Water Quality Control Plan for the North Coastal Basin - Region 1, 1994

**Table 5-12. Water Quality Objectives for Inorganic Chemicals**

Inorganic Chemicals	Maximum Contaminant Level (mg/l)
Aluminum	1.0
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate-N (as NO <sub>3</sub> )	45
Selenium	.01
Silver	0.05

Source: Water Quality Control Plan for the North Coastal Basin - Region 1, 1994

### 5.5.2 Water Quality Assessment

A water quality assessment (WQA) was prepared by Camp Dresser & McKee (CDM) (June 4, 1999) that evaluated the potential impacts of the proposed project on water quality. The WQA identifies impacts on surface water and groundwater resources that could result from construction of the Willits Bypass project; and describes project design, procedures, and practices that would minimize the project's impacts. The WQA determined whether project induced effects would have an impact on water quality. Whether or not there would be an impact is based on whether discharges to receiving waters would exceed quantitative water quality standards or have an adverse impact to the beneficial uses identified by the State of California.

### 5.5.3 Method of Analysis

#### **Water Temperature**

Following methods outlined in the *California Salmonid Stream Habitat Restoration Manual* (Flosi and Reynolds 1994), the North Coast Planning Group conducted intensive stream and habitat inventories within the Eel River watershed during the summer of 1995. Site-specific field data evaluated on salmonid fish habitat characteristics, included stream temperatures and canopy cover, which were collected for Willits, Haehl, Broaddus, and Baechtel creeks. Data were analyzed using simple linear regression statistical methods to determine the relationship between canopy

cover and water temperature in the specified streams. Linear regression analyses are commonly used models in the aquatic sciences that can predict the trend of the relationship between variables (i.e., canopy cover and stream temperature). Analysis of Variance (ANOVA) was used to determine if the linear relationship was substantial, which was determined at 95 percent confidence limits.

### 5.5.4 Impact Thresholds

The project would have an impact on water quality if it resulted in an impairment of a designated beneficial use. Table 5-13 presents the existing and potential beneficial uses designated in the Basin Plan for the surface waters in the vicinity of the project alternatives.

**Table 5-13. Existing and Potential Beneficial Uses for Surface Waters**

Regional Surface Water	MUN	AGR	AQUA	IND	GWR	REC1	REC2	WARM	COLD	WILD	RARE	MIGR	SPWN
Eel River	E	E	E	E	E	E	E	E	E	E	E	E	E
Outlet Creek*	P	E	P	E	E	E	E	**	E	E	**	E	E

- MUN = Municipal
- AGR = Agricultural Supply
- AQUA = Aquaculture
- IND = Industrial Service Supply
- GWR = Groundwater Recharge
- REC1 = Water Recreation Contact
- REC2 = Non-Contact Water Recreation
- WARM = Warm Freshwater Habitat
- COLD = Cold Freshwater Habitat
- WILD = Wildlife Habitat
- RARE = Rare, Threatened, or Endangered Species
- MIGR = Migration of Aquatic Organisms
- SPWN = Spawning, Reproduction and/or Early Development (fish)
- E = Existing Uses
- P = Potential Use

Source: Regional Water Quality Control Board

- \* Beneficial uses for Outlet Creek extend to its tributaries, including the Little Lake Valley area.
- \*\* Although WARM and RARE are not listed in the Basin Plan as existing or potential beneficial uses for Outlet Creek, Outlet Creek provides habitat that fits these descriptions.

The project would have an impact if it violated any water quality standards or waste discharge requirements set forth in the objectives listed above, in Tables 5-10, 5-11, and 5-12.

### **5.5.5 Mitigation Measures**

The following mitigation measures will reduce impacts to water quality:

**WQ-1:** To address potential water quality impacts, Caltrans will require the contractor to use a combination of Best Management Practices (BMPs) during construction through the Plans, Specifications and Estimates (PS&E) documents (DOT Standard Specifications). The purpose of the BMPs is to stabilize the disturbed soil, minimize erosion, and capture and remove sediment suspended in runoff before it leaves the site. Caltrans will include special provisions in the PS&E for this project requiring the contractor to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), and other project specific Standard Special Provisions (SSPs), which reduce pollutants in storm water discharges from construction sites both during construction and after construction has been completed.

**WQ-2:** Caltrans' Standard Special Provisions (SSPs) will prohibit the contractor from discharging oils, greases, chemicals, or spillage of concrete and grout into receiving waters. For example, on this project, equipment operating in water bodies will be required to be steam cleaned prior to arrival on site, and be maintained in a clean condition during the length of activities.

**WQ-3:** Where vegetation is removed or severely trimmed back, Caltrans will plant replacement vegetation for shading of creeks per the requirements provided in Section 5-8, Biological Resources.

**WQ-4:** Caltrans will carry out pre-planting along the relocated section of Haehl Creek, Mill Creek and Outlet Creek at the start of (or prior to) construction to establish shade. For Alternative E3, this is expected to be effective, since the total construction period is estimated to be five years, and the new width of Haehl Creek would be in the range of 5 m (16.4 ft) to 10 m (32.8 ft) in width. For Outlet Creek (Alternative C1T) this may not be fully effective, because the creek is

wider, and the overall construction period is three years. Land ownership issues may prevent the pre-planting of these sections prior to the start of construction.

**WQ-5:** Caltrans will design realigned sections of creeks to provide deep pools as a buffer for temperature increases and to allow migratory salmon to move from pool to pool.

**WQ-6:** Following the construction process, Caltrans will stabilize disturbed areas through permanent re-vegetation or other means. The Storm Water Quality Handbook Planning and Design Staff Guide (June 2000) provides detailed procedures for design of permanent slope stabilization controls. Caltrans will perform a detailed analysis of downstream channel stability during the design phase of the project. The procedures are intended to ensure that an appropriate design is developed that will allow all finished slopes to achieve stabilization, even under severe conditions.

**WQ-7:** The placement of sand on roads in the Willits area occurs relatively infrequently. When applied, Caltrans uses clean sand and follows the practices and procedures in Maintenance BMP (R1) Snow and Ice Control. Caltrans uses a double-barrel traction sand trap device to collect sand in stormwater runoff as a requirement of Caltrans' statewide NPDES permit.

**WQ-8:** As part of standard operation and maintenance procedures, Caltrans has developed a standard Hazardous Waste and Spill Response Plan (HW&SRP) that Caltrans will ensure is implemented during the project. These BMPs address water quality issues associated with accidental spills.

### **5.5.6 Impact Analysis**

Potential impacts for the proposed project can be divided into those associated with short-term construction activities and long-term operations and maintenance activities. The construction activities discussed below would apply to all of the build alternatives, while the operation and maintenance activities would apply to both the build and no-build alternatives.

The only activity that would penetrate into the groundwater table anticipated as part of any build alternative would be the placement of support piles and footings for bridges and structures; the relocation of groundwater wells; the placement of wick

drains and any associated de-watering activities. These minor and isolated intrusions are not expected to impact the quality of groundwater.

#### **5.5.6.1 Short-Term Impacts due to Sediments, Turbidity, and Floating Material**

Suspended material caused by erosion resulting from storm water runoff is considered a pollutant of primary importance by Caltrans on all projects. Construction activities would result in soil and ground disturbances, creating loose or unprotected soil that could be transported by surface runoff or wind to nearby watercourses. Such increases in sediment and turbidity could adversely affect receiving water quality. These impacts have the potential to occur for the duration of the construction activities. Beneficial uses that could be affected include GWR, REC-2, WARM, COLD, WILD, RARE, MIGR, and SPWN (refer to Table 5-13, above).

The following construction activities would be part of all of the build alternatives, and may contribute to increases in sediment, turbidity, and floating materials to receiving waters:

- **Daily contractor activity** – Routine construction activities such as material delivery, storage, and usage, waste management, vehicle/equipment cleaning and operation, and use of a construction staging area could result in generation of dust, sediments, and debris.
- **Vegetation removal/trimming** – Removal or trimming of vegetation would be required for both construction and access. This activity would eliminate the ground cover that protects the topsoil. Exposed topsoil would be more susceptible to erosion. Additionally, trimmings could fall or be transported by runoff into surface waters, resulting in the introduction of floating material and the potential for increased organic loading of the creeks.
- **Grading** - Grading would include removal of the natural and/or stabilizing cover (topsoil) and the creation of engineered slopes using fill material. Without establishment of temporary or permanent erosion control measures, graded material would be highly susceptible to erosion.
- **Temporary roads** - Construction of temporary roads would require grading, vegetation removal, and changes to the topography and drainage characteristics of the watershed. These temporary roads are typically composed of native material

and/or aggregate base rock. Where used as temporary detours, they would also have a layer of asphalt concrete pavement.

- **Activities within the creek corridor** – Construction of culverts, channel realignments, bridges, and viaducts would require a considerable presence in the stream corridors. These activities might require the construction of temporary access roads, temporary cofferdams, and/or jetties to re-route the watercourse(s).
- **Dewatering** – Construction may require localized dewatering in areas of shallow groundwater. Dewatering activities would be continuous but temporary for the duration of work in a particular area. Discharged groundwater may be high in turbidity.
- **Construction of temporary structures** – To support construction equipment, laborers, and construction forms, it may be necessary to erect falsework. Falsework is typically constructed of wood and metal connectors. Although the majority of woodcutting would take place outside of the stream corridors, some woodcutting would be necessary as the falsework is erected. This woodcutting could introduce sawdust to surface waters. Disassembly of the falsework may result in small pieces of wood, nails, and metal cuttings entering creeks.
- **Seeding and application of fertilizers and nutrients** - To prepare the ground for temporary and/or permanent cover and promote better growth, fertilizers and plant nutrients may be applied before and after planting. In the early stages of the seeding process, surface runoff could wash some of the re-vegetation material, including fertilizers, nutrients, and seeds, into surface waters.

Mitigation Measure WQ-1 will provide a high level of protection to the local receiving waters from discharge of sediment during construction.

#### **5.5.6.2 Short-Term Impacts from Oil, Grease, and Chemical Contamination**

Construction activities may introduce chemicals, oil, and grease that could be carried by runoff to surface water if not properly managed. These impacts have the potential to occur for the duration of the construction activities. Beneficial uses that could be impacted include GWR, FRSH, REC-2, WARM, COLD, WILD, RARE, MIGR, and SPWN (refer to Table 5-13 above).

The following construction activities would be part of any of the build alternatives:

- **Cement and grout** - As part of the bridge construction process, concrete and grout work would take place within the stream corridors. Spillage of concrete and grout into receiving waters during bridge construction could increase turbidity and alter the pH.
- **Application and storage of chemicals** - Accidental spills, improper storage, and improper application of chemicals during construction could potentially impact water quality. Chemicals such as fertilizers could also be washed into the creeks. Fertilizers may promote algae growth, which would reduce dissolved oxygen levels. Use of pesticides on roadways, including those maintained and operated by Caltrans, is prohibited in Mendocino County, and would not be an issue.
- **Application and storage of oil, grease, and fuel** - Improper storage of petroleum products could result in accidental spills and/or leaks within the construction area. Accidental spills during refueling and maintenance of construction vehicles and equipment could occur. Surface runoff could transport these materials to the local creeks. Similarly, application of petroleum chemicals during road construction could be washed into surface waters. These materials could have toxic effects on aquatic organisms.

Mitigation Measure WQ-2 will reduce impacts to water quality.

### **5.5.6.3 Short-Term Increases in Temperature**

Proposed work that would realign or modify considerable segments of stream channels would directly remove riparian and streamside vegetation. This type of activity would have direct, temporal impacts to water quality by increasing water temperature until riparian and streamside canopy cover could establish itself sufficiently to provide shade to affected stream areas. According to the regression analysis, the higher the canopy cover, the greater the benefits would be in regulating lower stream temperatures in Little Lake Valley.

Because of the sensitivity of salmonids in the California North Coast region, the impacts of removing riparian vegetation for some of the project alternatives would need to be assessed carefully. Based on the stream water temperature study for this project, where extensive riparian vegetation would be removed by large channel realignments, particularly in critical salmonid habitat areas, there would likely be severe consequences to the habitat quality by increased stream temperatures. According to the regression analysis, stream temperatures have the potential to

exceed the 3 deg C (5 deg F) threshold identified above, in Table 5-10. Beneficial uses that could be impacted include COLD, WILD, RARE, MIGR, and SPWN (refer to Table 5-13, above). Because Alternative E3 and the northern portion of Alternative C1T would require extensive channel realignment, they would have a greater impact on water temperature than Alternatives J1T and LT (see Section 5.7 Biological Resources).

Mitigation Measures WQ-3 through WQ-5 will reduce impacts to water temperature.

#### **5.5.6.4 Long-term Impacts due to Sediments, Turbidity, and Floating Material: All Build Alternatives**

As previously discussed, sediment is of specific concern in the project area since it is listed as a source of impairment to beneficial uses.

- **Hydrologic impacts** – The increase in impervious areas could cause an increase in the peak flow and higher runoff volumes that could lead to stream down-cutting, stream bank erosion, and loss of stream structure. The result could be an increase in sediment and turbidity in receiving waters.
- **Concentration of runoff** - Typical highway drainage design involves collecting runoff in pipes or ditches, and discharging, either directly or indirectly, into creeks. To the extent that localized flows were concentrated and/or altered from pre-project conditions, potential impacts would be similar to those described for increases in impervious areas.
- **Application of sand for winter traction control** – Caltrans applies sand to U.S. 101 during cold periods in the winter. Should runoff carry the sand to receiving water, this may contribute to sediment/siltation problems, including loss of spawning habitat.
- **Re-vegetation efforts** – Re-vegetation may take several seasons to provide adequate coverage. Mulches and other stabilizers could break down or be degraded by wind and run-off creating unprotected soil that could be carried by surface runoff or wind to watercourses, increasing sediment and turbidity. These impacts have the potential to occur for the duration of freeway operations. Beneficial uses that could be affected include GWR, REC-2, WARM, COLD, WILD, RARE, MIGR, and SPWN (refer to Table 5-13, above).

Mitigation Measures WQ-6 and WQ-7 will reduce impacts to water quality.

#### **5.5.6.5 Long-Term Impacts from Oil, Grease, and Chemical Contamination: All Build Alternatives**

Highway runoff and other long-term maintenance activities may introduce chemicals, oil, and grease to surface water. Beneficial uses that could be impacted include GWR, FRSH, REC-2, WARM, COLD, WILD, RARE, MIGR, and SPWN (refer to Table 5-13, above). Typical highway related activity and maintenance that affect runoff quality are highway run-off, application of chemicals, and accidental spills.

**Highway runoff** – Contaminants generated by traffic, pavement materials, and airborne particles that settle and are carried by runoff into receiving waters.

**Application of chemicals** - Application of fertilizers from landscaping activities could potentially enter into receiving waters. Fertilizers may promote algae growth, which would reduce dissolved oxygen levels. As previously noted, use of pesticides is not allowed on Caltrans right of way in Mendocino County.

Along the proposed Willits Bypass alignments, storm water runoff is anticipated to contain most of the conventional pollutants, minerals, metals, and bacteria. Few, if any, of the hydrocarbons (except oil and grease), volatile and semi-volatile organic compounds, or pesticides/herbicides are anticipated to be found in highway runoff, given the rural setting of the site. There are no large industrial (manufacturing), agro-industrial (packing plants), or agricultural operation/activities in the Little Lake Valley that use large amounts of solvents, pesticides, or herbicides.

Existing water quality monitoring results indicate that highway runoff in the Willits area is sufficiently diluted upon entering receiving waters to minimize increases in pollutant loads and do not exceed water quality objectives. Evidence of this consists of the low concentrations of pollutants currently found in Outlet Creek (typically below detection limits). Runoff from the proposed project is expected to be similarly diluted.

Another method of predicting whether or not the proposed project would result in an increase in pollutant loads to the receiving water that would exceed water quality objectives is to analyze the percentage of highway-related runoff with respect to the total amount of runoff in the watershed. The approximate percentage of paved

Caltrans' right of way for each of the alternatives, by watershed, was calculated. In all cases, Caltrans' paved right of way was a negligible percentage of the total watershed. Therefore, the proposed project would result in a minimal contribution to the quantity of contaminants in highway runoff.

**Accidental spills** - Spills have the ability to impact water quality, depending on the type and quantity of the material spilled.

Mitigation Measures WQ-1 and WQ-8 will reduce potential impacts from oil, grease, and chemical contamination. In addition, Caltrans' standard BMPs address water quality issues associated with chemical applications such as fertilizers.

## 5.6 Floodplain Impacts

### 5.6.1 Regulatory Setting

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) and delineates areas subject to flood hazard on Flood Insurance Rate Maps (FIRMs) for each community participating in the NFIP. The FIRMs illustrate flood risk locations based on local hydrology, topology, precipitation, flood protection measures, and other scientific data. The FIRMs show the area subject to inundation by a flood that has a 1 percent chance or greater of being equaled or exceeded in any given year. This magnitude of flood is referred to as the 100-year or base flood, and the inundated area is called the 100-year floodplain or base floodplain.

In addition to the floodplain, some of the FIRMs show areas within the floodplains called floodways. The floodway is the channel of a stream plus any adjacent floodplain area that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood depths. Table 5-14 provides definitions of FIRM designations.

Construction projects are restricted within flood hazard areas depending on the potential for flooding within each area. Standards that apply to floodplain issues are based on Title 23, Part 650 of the Code of Federal Regulations (CFR) and NFIP regulations. A substantial floodplain encroachment is defined as a highway

encroachment and any direct support of likely base floodplain development that would involve one or more impacts listed under “Impact Thresholds” below.

**Table 5-14. Flood Insurance Rate Map Designations**

*Zone A.* Areas of 100-year flood with base flood elevations and flood hazard factors not determined.

*Zone AE.* Areas of 100-year flood with base flood elevations determined.

*Zone A1 - A30.* Areas of 100-year flood; base flood elevations and flood hazard factors determined.

*Zone B.* Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile [2.59 km<sup>2</sup>]; or areas protected by levees from the base flood.

*Zone C.* Areas of minimal flooding outside of the base floodplain.

*Zone X – Other Flood Areas.* Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

*Zone X – Other Areas.* Areas determined to be outside the 500-year floodplain.

### **5.6.2 Method of Analysis**

The floodplain analysis was based on field reviews, previous flood insurance studies for Mendocino County and the City of Willits, previous studies performed by Caltrans Structures-Hydraulics Branch, Flood Insurance Rate Maps, USGS 7.5 minute topographical maps, Caltrans District 1 Hydraulics Branch records, and interviews with knowledgeable agencies and individuals. The *Willits Bypass*

*Floodplain Study* prepared by the University of California at Davis (1995) also was used for this floodplain analysis.

### **5.6.3 Impact Thresholds**

The following thresholds help to determine if there will be an impact related to floodplain conditions in the project area:

- Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a substantial risk of property loss, injury or death involving flooding; or
- Interrupt or terminate a transportation facility, which is needed for emergency vehicles or provides a community's only evacuation route.

### **5.6.4 Mitigation Measures**

Several design measures will result in limiting impacts on the floodplain. It would be more accurate to refer to these measures, which are prudent engineering practices, as avoidance or minimization measures rather than actual mitigation measures. These measures involve the design of structures spanning the floodway, drainage design philosophy, typical section design, and the geometric design of the freeway. The following measures will be incorporated into the design of the preferred build alternative:

**FP-1: Structure Design.** According to FEMA, the floodway is “the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream.” For each valley alternative, the Floodway Viaduct (bridge) spans the floodway. The only encroachments in the floodway are the columns supporting the structure. In addition, the structure designs have relatively long spans, in the range of 30 m (100 ft). These structure design features limit the impacts on the floodplain by minimizing the actual footprint of the impacts and obstructions to flow.

**FP-2: Drainage Philosophy.** The valley alternatives include equalizing culverts at periodic points along the embankments, which should minimize the redirection of flows, maintaining the existing flood patterns. The culverts will not be included, however, if detailed hydraulic studies indicate the culverts would cause other problems with flood patterns.

**FP-3: Design Cross Sections.** The cross sectional design of the facility, the side slopes, median, pavement widths, and so forth, has been established to limit impacts to floodplains as well as other resources. The median width, at 13.8 m (45 ft), is 4.8 m (16 ft) less than Caltrans' current design standard. This median width reduces the footprint of impact along the entire alignment, including the floodplain.

Sideslopes are the slopes connecting the roadbed with the existing ground. When the embankment is low, the sideslopes can be constructed at relatively low angles without extending an unreasonable distance from the roadbed. But as embankments increase in height, sideslopes constructed at the same angles would cover much wider areas and add to the volume of earth to be placed. To reduce the earthwork and footprint of higher embankments, sideslopes are constructed at steeper angles. In the floodplain, the higher embankments occur at bridge approaches, and the steeper sideslopes constructed in connection with these higher embankments limit the impacted areas.

**FP-4: Geometric Design.** The use of tight diamond interchanges rather than spread diamonds for the valley alternatives reduces the footprint of impacts on the floodplain. For Alternative C1T, the design includes a portion of flat grade, limiting the footprint.

### **5.6.5 Impact Analysis**

Map 14 shows the 100-year floodplain of the Little Lake Valley area, the various streams within the Little Lake Valley watershed, the FEMA-defined and Caltrans-estimated floodways, and the four proposed alternative highway alignments.

Table 5-15 shows the areas of floodplain encroachment estimated for each of the proposed build alternatives along with the estimated Little Lake Valley floodplain area.

**Table 5-15. Areas of Floodplain Encroachment**

Alternative	Hectares	Acres
C1T	35.0	86.4
E3	0.4	0.9
J1T	15.7	38.8
LT	25.7	63.6
Little Lake Valley Floodplain*	1,560	3,850

\*Does not include areas downstream of Outlet Creek Bridge on existing U.S. 101 or fingers of recognizably separate streams upstream of the general valley.

Each of the build alternatives would encroach upon the floodplain to some extent. Alternative E3 would cross the relatively narrow floodplain of Outlet Creek and would encroach upon the base floodplain of Little Lake Valley only near Upp Creek. Alternatives C1T, J1T, and LT would encroach upon the Little Lake Valley floodplain for substantial distances, and each alternative would result in longitudinal and transverse encroachments. All of the build alternatives would have bridge columns that encroach upon floodways. For each alternative, the total area of encroachment in the floodways would be approximately 0.01 ha (0.03 ac).

Each of the valley alternatives (Alternatives C1T, J1T, and LT) would cross the floodplain through much of its alignment. The freeway lanes would be elevated a minimum of 1.0 m (3.3 ft) above the 100-year flood level as would the soffits of its bridges. As a result, the freeway embankment would elevate the roadway above the surrounding area. The 100-year flood levels are not well defined and cannot be until an extensive hydraulic analysis is performed on the preferred alternative. For the Draft EIR/EIS, Caltrans Design staff have estimated the heights of embankments based on FEMA mapping of the area. Further refinements will be made after a preferred alternative is selected and detailed hydraulic studies are performed.

#### **5.6.5.1 Alternative C1T**

Alternative C1T would lie within Zones A, A3, and C. Alternative C1T would be the most easterly of the proposed center valley alternatives and encroach upon the Little Lake Valley floodplain to the greatest extent of the valley alternatives. Alternative C1T would enter the Little Lake Valley floodplain approximately 160 m (530 ft) south of the proposed Center Valley Road Undercrossing. The Floodway Viaduct would carry the roadway across Outlet and Mill creeks north of Hearst-Willits Road. North of the viaduct, the freeway, including structures, would encroach upon the base

floodplain until the freeway conforms to U.S. 101, near the existing lumber mill. The total encroachment or footprint cast upon the floodplain by the freeway, including the interchange and the channel realignments, is estimated at 35.0 ha (86.4 ac), or about 2.2 percent of the total base floodplain in the valley. This loss would have little effect on the floodplain's natural ability to moderate floods and recharge groundwater.

South of Center Valley Road, the alignment would be up to about 2 m (7 ft) above the surrounding area. The freeway would have structures crossing Center Valley and Hearst-Willits roads, and the roadway level would rise to about 4 to 8 m (13 to 26 ft) above the valley floor in approaching and crossing these local roadways. Continuing north, the alignment would be about 4 to 7 m (13 to 23 ft) above the valley floor through the Floodway Viaduct until the Truck Scales Interchange, where the freeway would rise to a high point of about 10 m (33 ft) above the valley floor. The alignment would return to the existing highway at the conform point just north of the Truck Scales Interchange.

North of Hearst-Willits Road, the 820 m (2,690 ft) floodway viaduct would span the entire combined floodway of Outlet Creek and the Mill Creek extension, transversely. For the viaduct, the soffit (the underside of the bridge's elevated roadway) would be a minimum of 0.3 m (1.0 ft) above the anticipated 100-year water surface level. The only encroachment on the floodways would be by the viaduct columns, with the total encroachment area estimated at 0.01 ha (0.03 ac).

In a study of an earlier version of Alternative C1T, U.C. Davis assumed two relatively short bridges for crossing the floodway at Outlet and Mill creeks and determined there would be no significant increase in water surface elevations. The longer Floodway Viaduct in Alternative C1T, with its correspondingly larger waterway passage, reduces the encroachment on the floodway. The probability of increased flooding impacts upstream of the structure due to highway construction is low.

The C1T alignment would cross Mill Creek at two other locations, one of which is north of the city limit and just east of the Northwestern Pacific Railroad alignment. A cross culvert would be placed at this location to perpetuate the existing flows. Just south of the Truck Scales Interchange, the alignment would require the relocation of Mill and Outlet Creeks. Approximately 400 m (1,312 ft) of Mill Creek would be realigned between the Northwestern Pacific Railroad and the eastern side of the C1T

alignment. The Mill Creek realignment would entail the construction of three bridges approximately 125 m (410 ft) long. A substantial effect on the base flood is not anticipated with the adequate design of the drainage facilities.

Alternative C1T would require the realignment of Outlet Creek for approximately 1.6 km (1.0 mi). This segment would begin approximately 1,200 m (3,940 ft) south of the Mill Creek Bridge and parallel the Northwestern Pacific Railroad along the eastern side. As is true elsewhere in the floodplain, the roadway would be elevated above the base flood elevation on fill. Cross culverts would be provided to perpetuate existing drainage. The realignment of Mill and Outlet creeks is not expected to alter the flood flow pattern.

Alternative C1T would create additional impervious surface area, increasing runoff to the Little Lake Valley Basin. Because of the relatively small additional impervious area, the increase in runoff would not exacerbate flooding conditions.

Although the embankments may result in some localized redirection of flood flows, the overall flood pattern would remain unchanged. This is due to the slow moving flood waters flowing over relatively flat terrain and the inclusion of features, as needed, such as equalizing culverts, to maintain those flows.

Mitigation Measures FP-1 through FP-4 will minimize floodplain impacts.

### **5.6.5.2 Alternative E3**

The E3 alignment would lie primarily in FEMA Zone C, an area designated as having minimal flooding outside the base floodplain. Alternative E3 would cross the base floodplain at a single location, downstream of the existing bridge on Outlet Creek. Alternative E3 would encroach upon the base floodplain at Upp Creek, as well, where Redwood Highway (existing U.S. 101) would be realigned to provide a local road to the north end of Willits at the Upp Creek Interchange. Alternative E3 would involve a total floodplain encroachment of approximately 0.4 ha (0.9 ac), or well under 0.1 percent of the total floodplain in the valley.

The proposed crossing at Outlet Creek would be approximately 465 meters (1530 ft) downstream of the existing bridge, and the bridge is quite high in the steep-sided ravine. The only encroachments in the Outlet Creek area are due to the columns supporting the bridge. Encroachment by Alternative E3 would have no adverse effect

on the base flood and there would be low risk of additional damage to adjacent property.

### **5.6.5.3 Alternative J1T**

Alternative J1T lies within Zones A, AE, A3, B, C, X-Other Flood Areas, and X-Other Areas. Alternative J1T encroaches on a floodplain at Haehl Creek, where a bridge carries the roadway over the streams. Alternative J1T then heads north and crosses into the combined floodplain of Baechtel, Broaddus, and Mill Creeks. Most of the length of this encroachment is by the floodway viaduct.

Encroachment into the floodplain results from the roadway embankment and the columns of the viaduct. North of the floodway viaduct, the J1T alternative also encroaches upon the floodplain of Upp Creek. The total encroachment or footprint cast upon the floodplain is estimated at 15.7 ha (38.8 ac), about 1 percent of the area of the total base floodplain in the valley. This loss would have little effect on the floodplain's natural ability to moderate floods and recharge groundwater.

A preliminary design for the proposed Haehl Creek Bridge yielded a 100 m (300 ft) long bridge, with a minimum soffit elevation at least 1 m (3 ft) above the base floodlevel. Because of its vertical clearance above the 100-year water surface and the large waterway opening, this encroachment would not have a substantial effect upon the base flood elevation. There would be low risk of additional damage to adjacent property.

About 300 m south of East Valley Street, the floodway viaduct would begin to carry Alternative J1T across the combined floodways of Baechtel and Broaddus creeks. The viaduct would continue across the Mill Creek floodway, as well. The proposed 1,660 m (5,450 ft) viaduct would have a soffit that would be a minimum of 0.3 m (1.0 ft) above the anticipated 100-year water surface. The viaduct, with its large waterway opening, would have no substantial effect upon the base flood elevation. The only encroachment of Alternative J1T on the floodways is the bridge columns, with the total encroachment area estimated at 0.01 ha (0.03 ac).

South of Center Valley Road, the alignment would be up to about 2 m (7 ft) above the surrounding area. Beginning with the Floodway Viaduct, Alternative J1T would rise to clear the floodplain and several local roads. The alignment here would be 7 to 10 m (23 to 33 ft) above the surrounding ground. Heading north across the

Northwestern Pacific Railroad tracks, Alternative J1T would rise to about 11 m (36 ft) above the valley floor and would continue to climb to the Quail Meadows Interchange, where the freeway would be about 15 m (49 ft) above the existing ground. After crossing the local road (Main Street) at the interchange, Alternative J1T would drop back toward the valley floor, conforming to the existing highway just south of the Northwestern Pacific Railroad crossing.

Alternative J1T would construct the Quail Meadows Interchange and the northern segment of Alternative J1T in the base floodplain. South of the Quail Meadows Undercrossing, existing U.S. 101 would be realigned to provide access to the freeway. This realigned segment would enter the base floodplain approximately 60 m (200 ft) south of the undercrossing. All segments of the alignment that would encroach into the floodplain would be elevated above the base flood elevation.

Drainage structures would convey the stream flows and would minimize the upstream impacts of the encroachment.

Further north, the existing highway dips into the base floodplain at Wild Oat Canyon Creek where roadway overtopping is anticipated during severe storms. With residential dwellings located between Upp and Wild Oat Canyon creeks, the highway provides the only evacuation route for the immediate area. Alternative J1T would not contribute to impacts because roadway overtopping at Wild Oat Canyon Creek is already anticipated under the current conditions. The encroachment should not have a substantial effect upon the base floodplain, and there is a low risk of additional damage to adjacent property.

Like Alternative C1T, the construction of Alternative J1T within the floodplain would have minimal impact related to additional impervious surface area or to beneficial floodplain values because of the relatively small areas involved.

Mitigation Measures FP-1 through FP-4 will minimize floodplain impacts.

#### **5.6.5.4 Alternative LT**

The LT alignment passes through Zones A, A3, C, X-Other Areas and X-Other Flood Areas. Alternative LT would enter the Little Lake Valley floodplain approximately 600 m (2000 ft) south of the Center Valley Road Undercrossing. The alignment would head north on embankment to approximately 700 m (2300 ft) north of the

Hearst-Willits Road Undercrossing where the floodway viaduct would begin. The floodway viaduct would carry the roadway across Outlet and Mill creeks where the alignment would resume on embankment across the Northwestern Pacific Railroad tracks to the Quail Meadows Interchange. North of the railroad, Alternative LT also would encroach upon the floodplain of Upp Creek. The total encroachment or footprint cast upon the floodplain is estimated at 25.7 ha (63.6 ac), about 1.6 percent of the area of the total base floodplain in the valley. This loss would have little effect on the floodplain's natural ability to moderate floods and recharge groundwater.

South of Center Valley Road, Alternative LT would be up to about 3 m (10 ft) above the surrounding area. From Center Valley Road to Hearst-Willits Road, the freeway has two structures, and these structures would raise the roadway level to about 5 to 8 m (16 to 26 ft) above the valley floor. Continuing north, the alignment would be about 6 to 10 m (20 to 33 ft) above the valley floor through the Floodway Viaduct. Heading north across the Northwestern Pacific Railroad tracks, Alternative LT rises to about 11 m (36 ft) above the valley floor, and continues to climb to the Quail Meadows Interchange, where the freeway would be about 15 m (49 ft) above the existing ground. After crossing the local road (Main Street) at the interchange, Alternative LT would drop back toward the valley floor, conforming to the existing highway just south of the Northwestern Pacific Railroad crossing.

The 840 m (2,755 ft) floodway viaduct would span the entire floodway of Outlet Creek and the Mill Creek extension, transversely. For the viaduct, the soffit would be a minimum of 0.3 m (1.0 ft) above the anticipated 100-year water surface level. The only encroachment on the floodways would be by the viaduct columns, with the total encroachment area estimated at 0.01 ha (0.03 ac). The U.C. Davis study assumed two relatively short bridges for crossing the floodway at Outlet and Mill creeks and determined there would be no significant increase in water surface elevations. The longer floodway viaduct in Alternative LT with its correspondingly larger waterway passage, reduces the encroachment on the floodway. The probability of increased flooding impacts upstream of the structure due to highway construction is low.

Alternative LT would construct the Quail Meadows Interchange and the northern segment of Alternative LT in the base floodplain. South of the Quail Meadows Undercrossing, U.S. 101 would be realigned to provide access to the freeway. This realigned segment would enter the base floodplain approximately 60 m (200 ft) south of the undercrossing. All segments of the alignment that would encroach into the

floodplain would be elevated above the base flood level. Drainage structures would convey the stream flows and would minimize upstream impacts of the encroachment.

Further north, the existing highway dips into the base floodplain at Wild Oat Canyon Creek where roadway overtopping is anticipated during severe storms. With residential dwellings located between Upp and Wild Oat Canyon creeks, the highway provides the only evacuation route for the immediate area. The construction of Alternative LT would not contribute to impacts because roadway overtopping at Wild Oat Canyon Creek is already anticipated under the current conditions. The encroachment should not have a substantial effect upon the base floodplain, and there would be low risk of additional damage to adjacent property.

Like Alternative CIT, the placement of Alternative LT within the floodplain would have minimal impact related to additional impervious surface area or to beneficial floodplain values because of the relatively small areas involved.

Although the embankments may result in some localized redirection of flood flows, the overall flood pattern would remain unchanged. This is due to the slow moving flood waters flowing over relatively flat terrain and the inclusion of features as needed, such as equalizing culverts, to maintain those flows.

Mitigation Measures FP-1 through FP-4 will minimize floodplain impacts.

## **5.7 Biological Resources**

Direct and indirect impacts to biological resources, and the severity of each impact, were assessed for each of the build alternatives. Impacts also were assessed through the nodal approach, which divides each alternative into two parts.

The following biological resources were assessed: plant communities, wetlands and waters of the U.S., wildlife habitat, special-status plant species, special-status wildlife species, and special-status fish species and fisheries habitat. Direct impacts result from the permanent removal or displacement of biological resources within the construction footprint of the highway, as well as the creation of additional barriers to wildlife and fish movement. Indirect impacts to biological resources outside the construction footprint may include: interruption in drainage and hydrology patterns in various wetland communities; alteration of hydrologic conditions that support

sensitive aquatic species; fragmentation of habitats that support sensitive plants; and changes in land use and management of adjacent lands.

### **5.7.1 Regulatory Setting**

The following discussion summarizes the regulatory context under which biological resources are managed at the federal, State, and local level, and addresses only those regulations that are applicable to resources potentially impacted by the proposed project.

#### **5.7.1.1 Special-Status Species**

Special-status plant and animal species are those species that are either protected under state and federal statutes or are considered rare by the scientific community. Special-status species are those that are any of the following:

- Protected under the federal Endangered Species Act (ESA) and/or Bald Eagle Protection Act (species listed as threatened or endangered);
- Candidates for possible future listing as threatened or endangered under the federal ESA;
- Species of concern to U.S. Fish and Wildlife Service (USFWS);
- Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act;
- Species meeting the definitions of rare or endangered under the California Environmental Quality Act;
- Listed as rare or endangered under the California Native Plant Protection Act;
- Considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (CNPS List 1B and 2 species);
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (CNPS List 3 and 4);
- Animal species of special concern identified by the California Department of Fish and Game (CDFG); or
- Animals fully protected in California Fish and Game Code, Sections 3511, 4700, and 5050.

The level of protection varies. The greatest level of protection is afforded to species that are listed federally as threatened or endangered or are proposed for listing as

threatened or endangered; or are state listed as rare, threatened or endangered or are candidates for listing as rare, threatened or endangered. The level of protection for state and federal species of concern, is generally less, but the level of protection can be at the discretion of the responsible resources agency.

### **5.7.1.2 Wetlands and Other Waters of the United States**

Under Section 404 of the Clean Water Act, ACOE has authority to regulate activities that could discharge fill or dredge material, or otherwise adversely modify wetlands or other waters of the U.S. Wetlands are defined as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” The term “other waters of the U.S.” includes seasonal or perennial waters (creeks, lakes or ponds) and other types of habitats that lack one or more of the three technical criteria for wetlands. In achieving the goals of the Clean Water Act, ACOE seeks to avoid adverse impacts and to offset unavoidable adverse impacts on existing aquatic resources. Any fill or adverse modification of wetlands or other waters requires a permit from ACOE prior to the start of work. Typically, permits issued by ACOE require mitigation to offset unavoidable impacts on wetlands and other waters of the U.S. in a manner that achieves the goal of no net loss of wetland acres or values. In other words, replacement and preservation is required to re-establish levels of habitat function and values that are equivalent to or greater than pre-project levels.

In addition, when an ACOE Section 404 individual permit is required, an analysis of alternatives relative to aquatic resources and associated impacts to federally listed, species proposed for listing, and federal species of concern is required to comply with the Section 404(b)(1) Guidelines. The U.S. Environmental Protection Agency (USEPA)(40 Code of Federal Regulations Part 230, December 24, 1980) published these Guidelines as binding regulations to require that where projects would adversely affect aquatic resources, no other alternative exists that avoids or would have less adverse effects to those resources. Based on these Guidelines, project sponsors must evaluate all practicable alternatives that either avoid or would have less adverse impacts to aquatic resources.

Executive Order (EO) 11990 is also a wetland protection policy that directs federal agencies to assure the protection, preservation, and enhancement of the nation’s

wetlands to the fullest extent practicable in the planning, construction, and operation of their projects.

### **NEPA/404 Concurrent Process**

In 1994, ACOE, USEPA, FHWA, USFWS, NMFS, and Caltrans signed a formal Memorandum of Understanding (MOU) that would integrate the NEPA process and Clean Water Act Section 404 procedures, as well as improve coordination among stakeholder agencies. The NEPA/404 Integration Process was designed to implement Section 404 more effectively in its efforts to preserve wetlands and the species of plants and animals dependent on this type of habitat.

Under the guidelines of the NEPA/404 Integration Process, signatory agencies are to agree to the project's Purpose and Need Statement, which sets forth the criteria for selecting project alternatives. The guidelines also specify that signatory agencies are to agree to the alternatives to be studied, early in the environmental review process.

Shortly after the MOU for the NEPA/404 Integration Process was established, Caltrans and FHWA initiated the NEPA/404 Integration Process for this project with USEPA, ACOE, USFWS, and NMFS and invited these agencies to join the Project Development Team. In 1995, the participating agencies approved the alternatives that would be studied and the Purpose and Need Statement that would guide the project design and operation.

Ongoing discussions with these and other government agencies, including the City of Willits and Mendocino County, have revolved around the approved Purpose and Need Statement and the alternatives that were agreed upon as part of the NEPA/404 Integration Process.

#### **5.7.1.3 Senate Concurrent Resolution 17 – Oak Tree Protection**

The California Senate passed a resolution effective September 1, 1990 protecting heritage oak stands. The Resolution states that state agencies shall “assess and determine the effects of their land use decisions or actions within any oak woodland. Oak woodland is defined as “a five-acre circular area containing five or more trees per acre of blue, Englemann, valley or coast live oak” and state agencies should “preserve and protect native oak woodlands to the maximum extent feasible...or provide for replacement plantings.”

#### **5.7.1.4 Noxious Weeds**

EO 13112 Invasive Species (February 3, 1999) directs all federal agencies to prevent the introduction or spread of invasive plant species in the United States. EO 13112 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Invasive Species Advisory Committee will oversee and facilitate implementation of the EO, including preparation of a National Invasive Species Management Plan (NISMP). The plan will recommend objectives and measures to implement the EO and prevent the introduction and spread of invasive species. The EO and directives from the FHWA require consideration of invasive species in NEPA analyses and final NEPA approval cannot be provided until an appropriate analysis is conducted. Presently, FHWA requires that state departments of transportation use the state's noxious weed list in the interim, which for California would be the California Department of Food and Agriculture's (CDFA) noxious weed list.

### **5.7.2 Methods**

#### **5.7.2.1 Plant Communities**

The plant communities on and adjacent to each alignment were mapped and described to identify local ecological conditions. Outside the study corridors, general habitat types in Little Lake Valley were mapped to provide a regional basis for analyzing impacts to habitats.

Prior to conducting field surveys, lists of special-status plant species and plant communities that could occur within the study area were developed. These lists were derived from a review of the California Natural Diversity Data Base (CNDDDB 1990, 1998), CNPS inventories (1988, 1994), U.S. Fish and Wildlife Service species list (1998); and through consultation with state and federal resource agencies and local individuals who have knowledge of biological resources in the project area.

Botanical resource and special-status plant field surveys within the project area were conducted during the blooming season, when plants are more easily detected. Surveys were conducted from 1991 through 1994, and in 1997. Special-status plant species surveyed for included Baker's meadowfoam, Baker's navarretia, and Western glandular dwarf flax.

### **5.7.2.2 Wetlands and Other Waters of the United States**

Field surveys to delineate wetlands and waters of the U.S. in the study area were conducted during various times in 1991, 1992, 1993, 1994, and 1999. Jurisdictional wetland boundaries were determined by collecting vegetation, soil, and hydrologic data at two or more points along a transect. Wetland boundaries were drawn based on corresponding hydrophytic vegetation, hydric soil, and topographic features. The Willits Bypass Natural Environmental Study (NES), prepared by Jones & Stokes Associates, Inc. (JSA) (1997) describes in detail the methods used to identify wetland vegetation, soils and hydrology. Wetland delineation maps were produced and submitted to the ACOE for verification. The ACOE verified and concurred with the wetland delineation (letter dated April 8, 1998) (Appendix F).

### **5.7.2.3 Wildlife and Wildlife Habitat**

Prior to conducting field surveys, biologists reviewed pertinent literature, contacted agency personnel, and consulted with local biologists to determine the status and distribution of wildlife in the project area. The CNDDDB, topographic maps, aerial photographs, and unpublished inventory reports were also consulted to develop a preliminary list of special-status wildlife species that could occur in the project area. Special-status wildlife species surveyed for were marbled murrelet, Northern spotted owl, bald eagle, peregrine falcon, and invertebrates. Other specific surveys included those for riparian birds, furbearers, amphibians, raptors, waterfowl, black-tailed deer, and tule elk.

The environmental analysis for this project included preparation of a wildlife study plan that described the proposed methods for conducting field surveys for special-status wildlife species and other special-interest wildlife and wildlife habitats in the study area. The plan was reviewed and approved by CDFG and USFWS. All wildlife species observed during the field surveys were recorded and species lists were developed for specific habitats and route alternatives.

Project team fisheries biologists compiled and reviewed available information on fisheries resources in the study area to determine species occurrence, seasonal use, historical impacts, regional and local fisheries management practices, regional and local importance and value of fish populations, and fisheries habitat in the study area. Information was obtained from published and unpublished CDFG reports and file records, communications with CDFG biologists, and consultation with other knowledgeable persons familiar with fisheries resources in the region and project

area. The presence of special-status and game fish species was determined by consulting scientific literature, reviewing the CNDDDB (1998), and discussions with federal, state and local fisheries biologists.

Project team biologists conducted reconnaissance-level stream surveys to determine the location and extent of stream reaches potentially affected by the project, including the location of proposed stream crossings that will occur along each project alternative. Stream gradient, channel morphology, and substrate characteristics within drainages were noted. These data provided the basis for delineating stream reaches into physiographically similar sub-reaches (Map 20). Electrofishing, dip nets, and visual observations were the methodologies used to determine species occurrence in selected stream reaches.

### **5.7.3 Impact Thresholds**

The purpose of impact thresholds is to establish criteria in determining if a project will have an impact on biological resources. Impact thresholds are defined for the following biological resources.

#### **5.7.3.1 Plant Communities and Wetlands Thresholds**

The project area includes large areas of natural plant communities and wetlands that support aquatic and/or terrestrial wildlife species, including special-status species. An adverse impact to natural plant communities would occur if the proposed action has the potential to result in or contribute to any of the following: declines in regional distribution and viability of species; threats to populations of rare, threatened, or endangered species in the area; reduction of, or impacts to, important ecosystem functions; or diminish populations of currently stable species to the point that they could become candidates for special-status listing.

#### **5.7.3.2 Special-Status Plants Threshold**

An adverse impact would result to populations of special-status plant species if the proposed project has the potential to directly disturb or result in fragmentation of occupied habitats, which could cause long-term effects to plant viability and population dynamics in the project area.

### **5.7.3.3 Special-Status Wildlife Threshold**

A direct adverse impact would result to a special-status wildlife species or its habitat if the project has the potential to directly disturb or create long-term effects to population dynamics and loss of sensitive wildlife use of existing habitats in the project area.

### **5.7.3.4 Wildlife Habitat Threshold**

A direct adverse impact would result to a wildlife habitat if the project has the potential to contribute to or create long-term effects to population dynamics and loss of wildlife use of existing habitat in the project area.

### **5.7.3.5 Special-Status Fish Threshold**

An adverse impact would result if the proposed project has the potential to disrupt special-status anadromous fish migratory patterns, and to affect stream habitat in Little Lake Valley, including loss of riparian vegetation, barriers to fish movement (e.g., culverts), and increased erosion and sedimentation along downstream reaches, that could impact spawning habitat.

## **5.7.4 Mitigation Measures**

Mitigation measures for the project alternatives include general and specific measures, which are discussed below. The general mitigation measures would be implemented during the construction of any of the project alternatives to minimize and avoid impacts on sensitive biological resources during construction activities. Specific mitigation measures apply to specific biological resources that are required by resource agencies. Mitigation measures discussed below correspond to impacts identified for each project alternative. Figure 5-1 identifies the magnitude of impact prior to mitigation. Figure 5-2 provides a summary of the magnitude of project-related effects after appropriate general and specific mitigation measures would be implemented.

### **5.7.4.1 General Mitigation Measures**

General mitigation measures apply to all biological resources in the project area and shall be implemented as part of any of the alternatives to minimize and avoid impacts on sensitive as well as common biological resources. The general mitigation measures include:

**BIO-1:** Mitigation and monitoring. Construction of a Willits bypass is contingent on Section 7 consultation with U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and U.S. Environmental Protection Agency (USEPA), and permits from the above agencies as well as from California Department of Fish and Game (CDFG). To satisfy conditions of the permits, Caltrans/FHWA will implement mitigation and monitoring. Before implementing mitigation and monitoring, Caltrans/FHWA will develop detailed Mitigation and Monitoring Plans (Plans) in consultation with the state and federal resource agencies, if a build alternative is selected. The Plans will include mitigation for impacts to special-status species and their habitats, including wetlands and other waters of the United States. The Plans will include: 1) the goals of mitigation; 2) performance standards; 3) final success criteria; 4) implementation methods; 5) maintenance activities; 6) monitoring methods; and 7) contingency measures to be implemented if the proposed success criteria are not met. The mitigation measures shall be specific to the species affected. Some species-specific measures are listed separately below.

**BIO-2.** Compensatory mitigation. Compensatory mitigation ratios will be based on the preferred alternative, and will be developed through coordination with the ACOE, USFWS, NMFS, USEPA, and CDFG. Several potential mitigation sites have been considered and evaluated conceptually. They include mitigation banks and participating in conservation easements, and are summarized below. Caltrans/FHWA will use either or both options and will explore each more fully once the final mitigation requirements have been determined. A final mitigation plan will be adopted before the Final Environmental Impact Report/Statement is distributed.

1. A conservation easement is a legal agreement a property owner makes with a land trust or public agency restricting types and amounts of development and other uses. Each conservation easement is different, tailored to the needs of the owner. Once the conservation easement is finalized, a land trust, nonprofit, or public agency monitors the land to ensure that the provisions are followed. The easement remains in perpetuity with the title, even when the land changes ownership by sale, death, or gift.

2. Mitigation banking is another option being explored by Caltrans. Caltrans currently is in discussions with a private mitigation banking organization that had identified land in the project area for restoration or protection of habitats, preserved in perpetuity, that would provide compensatory mitigation for the Willits Bypass Project, including for impacts to the designated borrow site which is spotted owl habitat.
3. Caltrans will implement on-site mitigation, such as re-vegetating the Designated Borrow Site (see BIO-15) with north-slope forest plant species. While this would be a long-term solution in this instance, it would eventually restore the site's Northern spotted owl habitat.

Caltrans/FHWA will undertake preservation and enhancement of one or more large plots of land providing a variety of biological resource values (e.g., wetlands, wildlife habitat, etc.) that may mitigate for a large proportion of the total project-related impacts. Caltrans/FHWA are investigating land that appears to be suitable and available in the project area for compensatory mitigation. These lands will be suitable for plant and animal species that would be impacted by the project (such as wetlands, riparian habitat, oak woodlands, grasslands, and spotted owl habitat). Caltrans/FHWA are considering and conceptually evaluating these sites and will explore them more fully once the final mitigation requirements have been determined. A final mitigation plan will be adopted before the Final EIR/EIS is distributed. Caltrans/FHWA will mitigate for wetland impacts in the valley, but some mitigation may have to be off-site. Caltrans/FHWA will pursue a combination of preservation, creation, and enhancement to provide a sustainable mitigation plan that will reduce overall impacts and have long-term benefits for fish and wildlife resources.

**BIO-3:** During the final design phase of the selected alternative, Caltrans biologists, Caltrans design engineers, and resource agencies will work together on additional design solutions that will avoid or minimize impacts to sensitive biological resources.

**BIO-4:** Caltrans/FHWA will establish and delineate Environmentally Sensitive Areas (ESAs) on project plans and specifications to protect sensitive biological resources adjacent to the construction corridor by prohibiting construction activities in those areas.

**BIO-5:** Caltrans/FHWA will develop and implement an environmental awareness and training program that informs construction workers how to identify and avoid sensitive species.

**BIO-6:** Caltrans/FHWA will have a qualified biologist monitor construction activities in sensitive biological resource areas to ensure permit conditions and mitigation requirements are adhered to.

#### **5.7.4.2 Species-Specific Mitigation Measures**

The following mitigation measures respond to the particular needs of specific plant and wildlife species.

**BIO-7:** Caltrans/FHWA will limit in-stream construction activities to low-flow conditions.

**BIO-8:** Caltrans/FHWA will replace oak woodland affected by the project. First, Caltrans/FHWA will prepare a mitigation plan that will be approved by CDFG. Caltrans/FHWA will comply with California Department of Fish and Game's Oak Protection Guidelines for mitigation of oak impacts. These guidelines recommend planting acorns or oak seedlings at a replacement ratio of 5:1 for oak trees > 2 inches diameter at breast height (dbh) impacted and 1:1 for oak trees < 2 inches dbh. Caltrans/FHWA may restore oak woodlands locally by planting oaks on suitable habitat sites and/or purchasing private land that will be transferred to a conservancy. Caltrans/FHWA will maintain and protect oak mitigation areas in perpetuity through conservation easement, deed restriction or other equivalent measure as discussed in Mitigation Measure BIO-2.

**BIO-9:** Caltrans/FHWA will mitigate for impacts to riparian forest habitat through creation and restoration or enhancement (including expansion) of existing degraded riparian habitat at a ratio agreed upon in consultation with CDFG, USFWS, NMFS, and USEPA. Caltrans/FHWA will protect riparian forest mitigation areas in perpetuity through conservation easements, deed restrictions or other equivalent measures as discussed in Mitigation Measure BIO-2. The primary goal of the Mitigation and Monitoring Plan for riparian communities will be to ensure that no permanent loss of habitat values occurs

as a result of the project and that the temporal loss of habitat is adequately mitigated.

**BIO-10:** Caltrans/FHWA will mitigate for loss of or disturbance to native bunchgrass grassland by implementing the mitigation measures set forth in the Mitigation and Monitoring Plan. The Plan will include measures to mitigate for native bunchgrass grassland in areas of existing annual grassland and other areas that would support native grasses; or on cut and fill slopes, following construction.

**BIO-11:** Caltrans/FHWA will mitigate for loss of Baker's meadowfoam by implementing the mitigation measures set forth in the Mitigation and Monitoring Plan. The Plan's mitigation measures will include enhancing existing degraded populations and establishing new populations within suitable unoccupied habitat in and/or near the Little Lake Valley. The Plan may include purchasing land in Little Lake Valley that will provide opportunities to enhance and create stands of Baker's meadowfoam. Caltrans/FHWA will develop methods of enhancement and creation of Baker's meadowfoam habitat through consultation with CDFG and California Native Plant Society (CNPS) botanists who have specific knowledge of the microhabitat requirements for this species. Baker's meadowfoam appears to be very adaptable to disturbed conditions, however, the California Native Plant Society (CNPS) reports that CDFG and others have found that transplanting was effective in only 15 percent of the cases studied; therefore, CDFG is expected to apply rigorous success criteria to creation efforts.

**BIO-12:** Caltrans/FHWA will mitigate for the loss of glandular western flax by implementing the mitigation measures that are set forth in the Mitigation and Monitoring Plan. The Plan will include enhancing existing degraded populations and establish new populations within suitable unoccupied habitat in and/or near Little Lake Valley. The Plan may include purchasing land in Little Lake Valley that will provide opportunities to enhance and create stands of glandular western flax. Caltrans/FHWA will develop methods of enhancement and creation of glandular western flax habitat through consultation with CDFG and California Native Plant Society (CNPS) botanists who have specific knowledge of the microhabitat requirements for this species.

**BIO-13:** Caltrans/FHWA will mitigate for impacts to wetlands and other waters of the U.S., by implementing the mitigation measures that are set forth in the Mitigation and Monitoring Plan. The Plan will include compensation requirements for unavoidable impacts to wetlands and other waters of the U.S., based on the selected alternative. The Plan will provide specific mitigation details, including the approved mitigation sites, and implementation design and construction, and a minimum five-year monitoring plan. Caltrans/FHWA will develop appropriate mitigation measures in coordination with the resource agencies and will implement the measures to offset project effects. The goal of the mitigation plan is no net loss of wetland habitat functions and values. Compensation wetlands will be designed to equal or exceed the values of wetlands impacted by the project. Mitigation for the loss of wetlands and other waters of the U.S. may include Caltrans/FHWA purchase of lands within Little Lake Valley, or at off-site locations that are approved by the resources agencies, that will provide opportunities to enhance and create wetland features and stream channels. Caltrans/FHWA will develop methods for creation and enhancement of wetlands and other waters of the U.S. through consultation with the ACOE and CDFG. In addition, Caltrans/FHWA will consult with hydrologists and fluvial geomorphologists who are familiar with the creation and enhancement of stream channels and wetland features in the region.

**BIO-14:** Prior to construction during the spring breeding season, Caltrans will arrange to have a qualified biologist conduct preconstruction surveys of impact areas to check for nesting birds, including California yellow warbler and yellow-breasted chat. If nesting activity is detected, Caltrans will establish buffers around the nest. The buffer width will be determined through consultation with CDFG. The buffer shall be maintained and construction activities shall avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased.

**BIO-15:** Caltrans/FHWA will mitigate for mixed north-slope forest by implementing the mitigation measures that are set forth in the Mitigation and Monitoring Plan. The Plan will require Caltrans/FHWA to plant trees to recreate the forest species composition and canopy cover that would be removed on or adjacent to the site. Also, because of the length of time for trees to mature and provide suitable habitat value, the plan will include

obtaining parcels near the project area with existing mature north-slope forest habitat. The Caltrans project team has identified acreage in the project area that may be suitable for a conservation easement or mitigation bank.

**BIO-16:** Caltrans will conduct additional pre-construction protocol-level surveys to determine if Northern spotted owls have reoccupied the project area. If so, or if the forest habitat provides suitable nesting or foraging habitat, Caltrans/FHWA shall enter into Section 7 (Endangered Species Act) consultation with the USFWS for Northern spotted owl. Caltrans/FHWA will document the results of all protocol surveys conducted for Northern spotted owls; identify known and historic nest locations; quantify existing suitable nesting and foraging habitat and the amount of suitable habitat that will be removed by the project. Caltrans/FHWA will consult with USFWS on specific mitigation measures.

**BIO-17:** If an active Northern spotted owl nest is found within 0.8 km (0.5 mi) of any proposed construction activity, USFWS may require that Caltrans establish a 0.8 km (0.5 mi) diameter buffer around the activity center during the breeding season (February 15 to August 31).

**BIO-18:** If California yellow warbler nesting activity is detected, Caltrans will establish buffers around each nest. The buffer width will be determined through consultation with CDFG. The buffer shall be maintained and construction activities shall avoid nest sites until the Caltrans biologist determines that the young have fledged or nesting activity has ceased.

**BIO-19:** For white-tailed kites and other raptors, Caltrans shall conduct a pre-construction survey during the spring or early summer (April-early July) to determine whether nesting raptors (e.g., white-tailed kites, Cooper's hawks, red-tailed hawks, red-shouldered hawks) are present on or within 0.40 km (0.25 mi) of the selected alternative. If the survey detects nesting raptors on or within 0.40 km (0.25 mi) of the selected alternative, Caltrans will maintain buffer areas and seasonal construction constraints (e.g., no work during active nesting periods) in coordination with CDFG.

**BIO-20:** If yellow-breasted chat nesting activity is detected, Caltrans will establish buffers around each nest. The buffer width will be determined

through consultation with CDFG. The buffer shall be maintained and construction activities shall avoid nest sites until the Caltrans biologist determines that the young have fledged or nesting activity has ceased.

**BIO-21:** Caltrans will construct wildlife under-crossings, if required by CDFG, that would be suitable for use by deer. The location, number and design of the under-crossings will be determined through consultation with CDFG.

**BIO-22:** In addition to preparing a Storm Water Pollution Prevention Plan (SWPPP), Caltrans will implement the following measures to minimize disturbances of aquatic resources:

- a. All construction-related materials shall be stored in designated staging areas at least 100 feet from perennial waterways and drainages.
- b. Refueling and vehicle maintenance shall be performed at least 100 feet from creeks and other water bodies.
- c. Operation of heavy equipment shall be minimized in perennial creeks (to the greatest extent possible).
- d. temporary sedimentation barriers, such as sandbags or siltation fencing, shall be installed to minimize the amount of silt entering the creeks and any ephemeral drainages with water present in the channel. The location of these barriers shall be determined by the resident engineer and environmental monitor, and shall be clearly marked in the field before construction activities begin.
- e. Additional Best Management Practices shall be implemented to prevent runoff from adjacent lands from flowing across construction areas; slow down the runoff traveling across construction sites; remove sediment from onsite runoff before it leaves the site; and provide soil stabilization.

**BIO-23:** To reduce the spread of invasive non-native plant species and minimize the potential for disturbance activities to decrease palatable vegetation for wildlife

species, Caltrans will implement the following protection measures to comply with Executive Order (EO) 13112:

- Prior to construction, Caltrans will conduct surveys in the construction corridor of the NEPA/404 preferred alternative for populations of plants listed on the California Department of Food and Agriculture (CDFA) noxious weed list. Populations of noxious weeds will be mapped. This will establish a baseline from which to evaluate the possible impacts of this construction on the spread of these invasive exotic plants or the establishment of other invasive exotic plants.
- Caltrans will not allow disposal of soil and plant materials from any areas that supports invasive species in areas that support stands dominated by native vegetation.
- Plant species used for erosion control will consist of native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
- All equipment that is used in identified invasive species areas will be washed prior to entering other project areas that are relatively weed free to prevent the spread of invasive weeds. Resident Engineers will be educated on weed identification and the importance of controlling and preventing the spread of identified invasive non-native species. Gravel and/or fill material to be placed in relatively weed-free areas will come from weed free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.
- Following construction, Caltrans will conduct a three-year program of invasive exotic weed monitoring, which will consist of conducting surveys every six months during the spring and late summer. The percent cover of invasive exotic plant species occurring within the construction corridor must not exceed the cover of invasive exotic plant species found outside the construction corridor, or the cover found in the construction corridor prior to construction. Monitoring potential invasive species will occur only where ground was disturbed within the construction corridor.
- If invasive weeds show evidence of spreading, Caltrans will develop an Invasive Weed Eradication Plan, targeting identified invasive species on the CDFA list. Herbicides would not be used since Caltrans does not use herbicides in Mendocino County.

**Figure 5-1 Summary of Impacts to Biological Resources Prior to Mitigation**

**Figure 5-2. Summary of Impacts to Biological Resources after Mitigation**

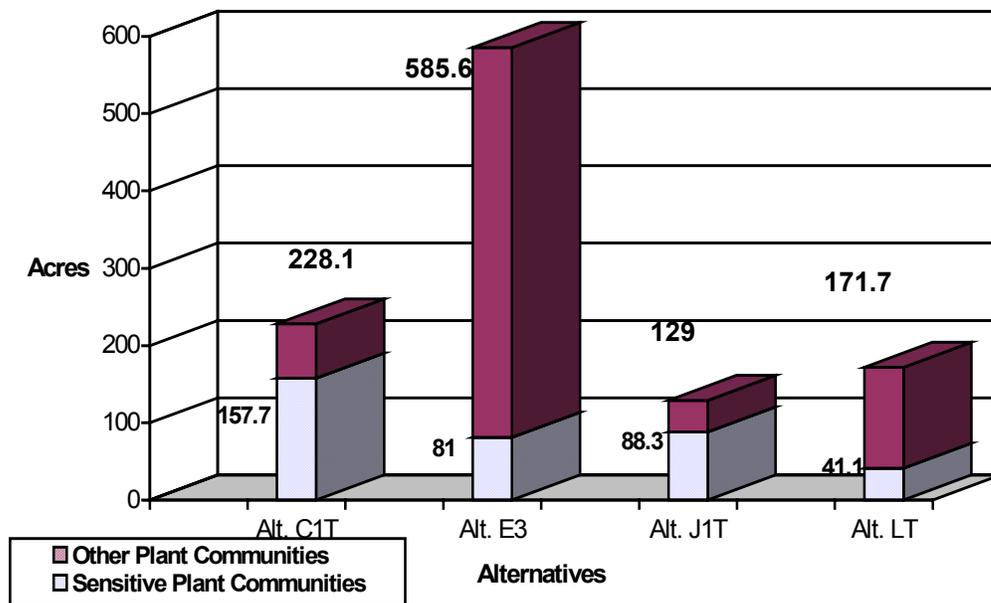
**5.7.4.3 Impact Analysis**

**5.7.4.4 Impacts To Plant Communities, including Sensitive Plant Communities**

Impacts, due to loss and disturbance, to plant communities including sensitive plant communities in the project area are:

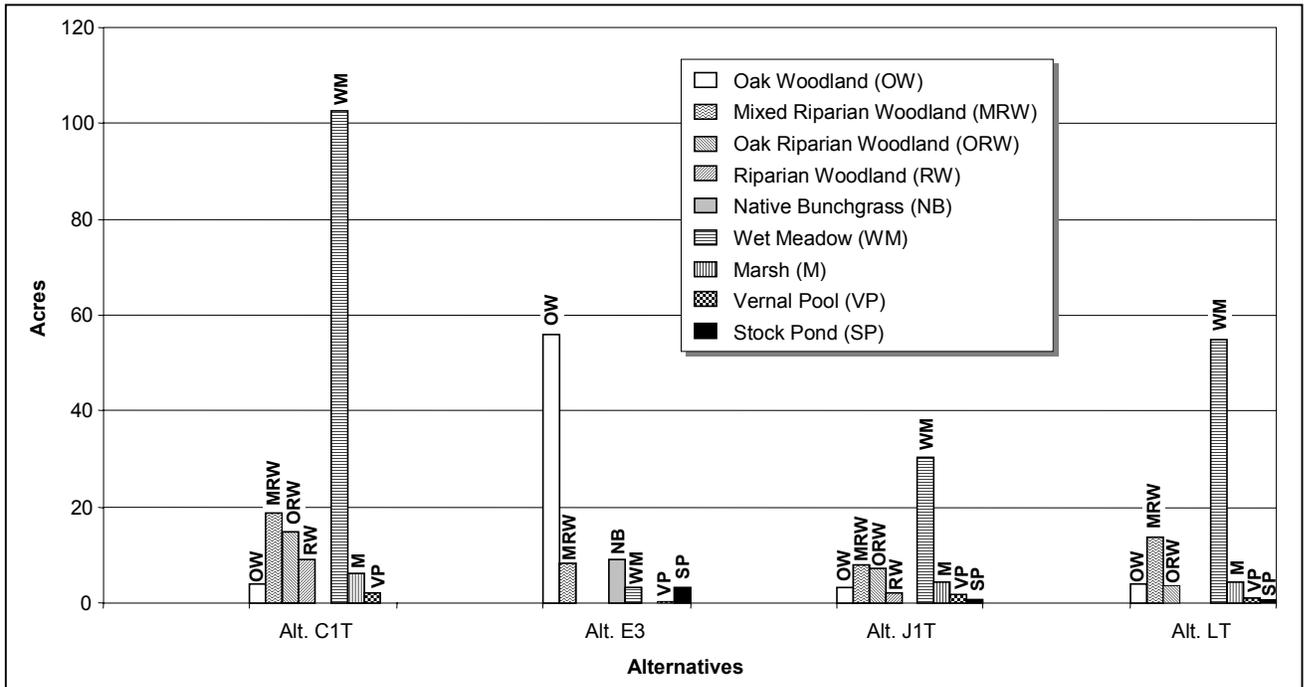
- Alternative C1T: 92.3 ha (228.1 ac)
- Alternative E3: 237 ha (585.6 ac)
- Alternative J1T: 52.2 ha (129 ac)
- Alternative LT: 69.5 ha (171.7 ac)

**Figure 5-3. Impacts to Plant Communities, Including Sensitive Plant Communities (in acres)**



The total impact to plant communities by each alternative includes impacts to sensitive plant communities, which are shown in Figure 5-3 and summarized by alternative, below. A detailed breakdown of impacts to sensitive plant communities is included in Table 5-16.

**Figure 5-4. Impacts to Sensitive Plant Communities**



**Alternative C1T Impact**

Alternative C1T would result in impacts, due to loss and disturbance, to about 92.3 ha (228.1 ac) of plant communities. Of this number, 63.8 ha (157.7 ac) represent sensitive plant communities (Figure 5-4), broken down as follows:

- Marsh – 2.4 ha (6.0 ac)
- Oak Woodland – 1.6 ha (4.0 ac)
- Mixed Riparian Woodland – 7.6 ha (18.8 ac)
- Oak Riparian Woodland – 5.9 ha (14.6 ac)
- Riparian Woodland – 3.7 ha (9.1 ac)
- Wet Meadow – 41.7 ha (103 ac)
- Vernal Pool – 0.9 ha (2.2 ac)

Mitigation Measures BIO-1 through 6, BIO-8, BIO-9, and BIO-13 will reduce impacts to oak woodland and riparian habitat. While replacement plantings will replace oak trees and riparian vegetation, it may take decades for the trees to mature and regain former wildlife habitat values.

**Table 5-16. Plant Community and Sensitive Plant Community Impact Summary [Values in ha (ac)]**

**Table 5-16. Plant Community and Sensitive Plant Community Impact Summary [values in ha (ac)]  
(continued)**

*Place holder*

The following habitats are not sensitive: orchard, grasslands (other than native bunchgrass), forest, and chaparral.

### **Alternative E3 Impacts**

Alternative E3 would impact, due to loss and disturbance, about 237 ha (585.6 ac) of plant communities (Figure 5-3). Of this amount, Alternative E3 would impact 32.8 ha (81 ac) of the following sensitive plant communities (Figure 5-4):

- Stock Pond -- 1.3 ha (3.2 ac)
- Native Bunchgrass Grassland – 3.6 ha (8.9 ac)
- Vernal Pool – 0.1 ha (0.2 ac)
- Oak Woodland – 22.7 ha (56.1 ac)
- Mixed Riparian Woodland – 3.4 ha (8.4 ac)
- Riparian Woodland – 0.04 ha (0.1 ac)
- Wet Meadow – 1.7 ha (4.2 ac)

Mitigation Measures BIO-1 through BIO-6, BIO-8, BIO-10, and BIO-13 will reduce impacts to sensitive plant communities. Even with mitigation, there would be a major impact to plant communities -- particularly the loss of 22.7 ha (56.1 ac) of oak woodlands -- resulting from construction of Alternative E3, due to the length of time required for oak woodland communities to mature and replace the functions and values for wildlife that are similar to existing conditions.

### **Alternative J1T Impacts**

Alternative J1T would result in direct loss of approximately 52.2 ha (129 ac) of plant communities (Figure 5-3). Of this amount, Alternative J1T would impact 35.7 ha (88.3 ac) of the following sensitive plant communities (Figure 5-4):

- Marsh – 1.7 ha (4.2 ac)
- Oak Woodland – 1.3 ha (3.2 ac)
- Mixed Riparian Woodland – 3.3 ha (8.1 ac)
- Oak Riparian Woodland – 2.9 ha (7.2 ac)
- Riparian Woodland – 0.9 ha (2.2 ac)
- Stock Pond – 0.3 ha (0.7 ac)
- Wet Meadow Communities – 24.7 ha (61.0 ac)
- Vernal Pool – 0.7 ha (1.7 ac)

Mitigation Measures BIO-1 through BIO-6, BIO-8, BIO-9, and BIO-13 would reduce impacts to these plant communities.

### **Alternative LT Impacts**

Alternative LT would result in loss and disturbance to approximately 69.5 ha (171.7 ac) of plant communities (Figure 5-3). Of this amount, Alternative LT would impact 41.1 ha (101.6 ac) of the following sensitive plant communities (Figure 5-4):

- Marsh – 1.7 ha (4.2 ac)
- Oak Woodland – 1.6 ha (4.0 ac)
- Mixed Riparian Woodland – 5.5 ha (13.5 ac)
- Oak Riparian Woodland – 1.5 ha (3.7 ac)
- Riparian Woodland – 0.3 ha (0.7 ac)
- Stock Pond – 0.3 ha (0.7 ac)
- Wet Meadow Communities – 29.8 ha (73.6 ac)
- Vernal Pool – 0.5 ha (1.2 ac)

Mitigation Measures BIO-1 through BIO-6, BIO-8, BIO-9, and BIO-13 would reduce impacts to these plant communities.

### **Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Sensitive Plant Communities**

Because of the absence of sensitive plant communities at the designated borrow site, potential excavation in this area for fill material for Alternatives C1T, J1T, or LT would not impact sensitive plant communities in this area. However, use of this site for fill material would result in the loss of 16 ha (40 ac) of mixed coniferous forest habitat, which is addressed below and under mitigation for Northern spotted owl (BIO-15 through BIO-17).

#### **5.7.4.5 Impacts To Special-Status Plants**

Special-status plants that would be impacted by the project are Baker's meadowfoam and glandular western flax. Baker's navarretia occurs in the vicinity of the project area, but would not be affected directly or indirectly by any of the alternatives. Of the alternatives discussed below, Alternatives E3 and LT would have fewer overall impacts to special-status plants than the other build alternatives.

### **Alternative C1T Impacts**

Alternative C1T would directly impact populations of Baker's meadowfoam and have a potentially indirect effect to this species by changing hydrologic conditions by the realignment of Mill and Outlet Creeks at the north end of the Little Lake Valley. The C1T alternative would not directly or indirectly affect Baker's navarretia or glandular western flax.

### ***Baker's Meadowfoam***

Baker's meadowfoam is listed by the state as rare. It is a federal species of concern and a California Native Plant Society (CNPS) List 1B species. It is found only in Mendocino County, with populations occurring in Little Lake Valley (Willits), Laytonville, and north of Covelo. Baker's meadowfoam occurs in seasonal marshes, vernal pools, swales and other types of seasonal wetlands. There are 31 populations of Baker's meadowfoam in Little Lake Valley, ranging in size from thousands to many millions of plants. In the northern half of the valley, Baker's meadowfoam occurs in narrow to wide bands along the edges of areas that flood under normal conditions. Map 15 illustrates the distribution of stands of Baker's meadowfoam in Little Lake Valley.

The C1T alternative would directly impact four Baker's meadowfoam populations, which would result in the removal of about 44,000 individual plants (10,300 in the south portion and 33,700 in the north portion); and affect approximately 1.3 ha (3.2 ac) of habitat occupied by Baker's meadowfoam (Table 5-17). Populations of Baker's meadowfoam not affected directly by this alignment could be subject to potential indirect impacts, including changes in hydrologic conditions and fragmentation. Populations affected would include the large population at the north end of Little Lake Valley where a portion of Mill and Outlet creeks would be realigned. The removal of suitable habitat for this species would be considered an adverse impact due to the rarity of this species. Construction of Alternative C1T would require realigning a portion of Mill and Outlet Creeks that would directly impact a small portion of this population and would indirectly expose the remaining population to potential hydrologic modification.

Alternative: Segment:	C1T		E3		J1T		LT		
	south	north	south	north	south	north	south	north	
Baker's Meadowfoam*	Approximate # of Plants	10,300	33,700	-	-	2,000	33,200	-	33,200
	Number of Populations	1	2	-	-	1	1	-	1
	Area [ha (ac)]	0.1 (0.2)	1.2 (3.0)	-	-	1.4 (3.5)	0.2 (0.5)	-	0.2 (0.5)
Glandular western flax	Approximate # of Plants	-	-	-	100	-	-	-	-

\* 30 populations have been identified in Little Lake Valley ranging from approximately 100 to over 8 million individuals.

**Table 5-17. Special-Status Plant Impact Summary**

Mitigation Measures BIO-1 through BIO-6 and BIO-11 would reduce impacts to special status plants.

**Alternative E3**

Alternative E3 would have a direct impact on a population of the glandular western flax. One small population (<100 plants) would be directly impacted by Alternative E3 along the northern portion of the alignment (Table 5-17). Alternative E3 would not impact Baker’s meadowfoam.

**Glandular Western Flax**

Glandular Western flax is a federal species of concern and a CNPS List 1B species. It has no state status. This species occurs in the inner Coast Range of Humboldt, Lake, and Mendocino Counties, and is found on semi-barren soils associated with grassland and chaparral habitats. It is most often found on serpentine derived soils. Three small populations of this species occur in the west side of Little Lake Valley.

Mitigation Measures BIO-1 through BIO-6 and BIO-12 will reduce impacts to special-status plants.

**Alternative J1T Impacts**

**Baker’s Meadowfoam**

Alternative J1T would result in direct impacts on two Baker's meadowfoam populations, which would affect about 35,000 individual plants and approximately

1.6 ha (4.0 ac) of habitat (Table 5-17). Indirect impacts on the portions of these populations not directly impacted could include hydrologic changes and fragmentation effects. The J1T alternative would not impact glandular western flax.

Mitigation Measures BIO-1 through BIO-6 and BIO-11 will reduce impacts to Baker's meadowfoam.

### **Alternative LT Impacts**

#### ***Baker's Meadowfoam***

Alternative LT would directly impact one population of Baker's meadowfoam, impacting approximately 33,000 plants and approximately 0.2 ha (0.5 ac) of habitat (Table 5-17). Alternative LT would not impact glandular western flax.

Mitigation Measures BIO-1 through BIO-6 and BIO-11 will reduce impacts to Baker's meadowfoam.

### **Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Special-Status Plants**

Because of the absence of special-status plant species at the designated borrow site, potential excavation in this area for fill material for Alternatives C1T, J1T, or LT would not impact special-status plant species in this area.

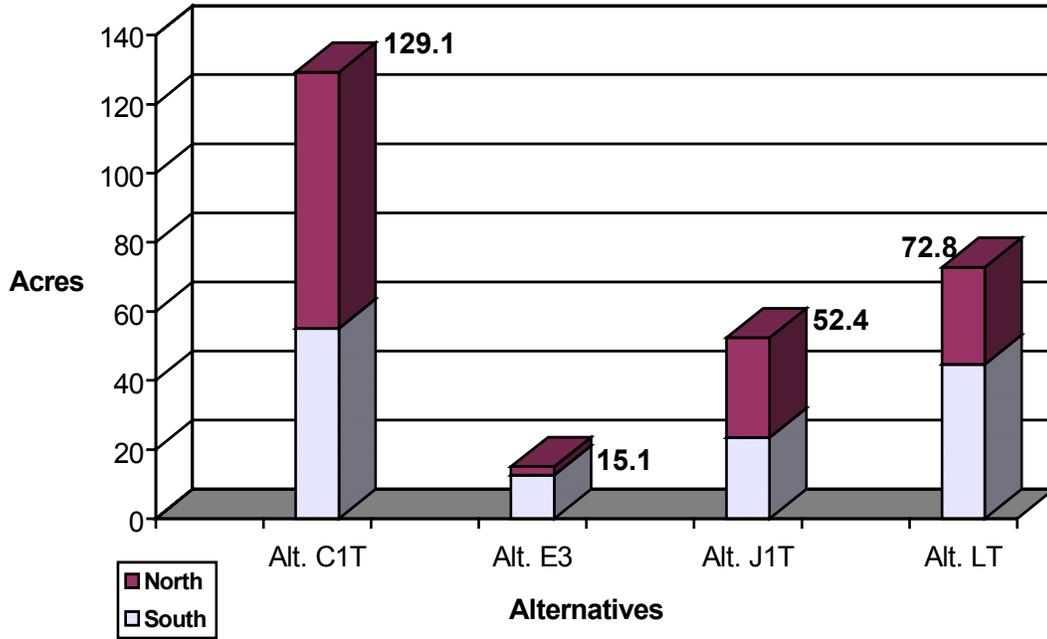
#### **5.7.4.6 Impacts To Wetlands and Other Waters Of The United States (U.S.)**

Permanent impacts, due to loss, to waters of the U.S. would be:

- Alternative C1T: 52.3 ha (129.1 ac)
- Alternative E3: 6.1 ha (15.1 ac)
- Alternatives J1T: 21.1 ha (52.4 ac)
- Alternative LT: 29.4 ha (72.8 ac)

Impacts to wetlands and other waters of the U.S. are summarized in Figure 5-5. Wetlands and other waters of the U.S. are shown on Map 16.

**Figure 5-5. Jurisdictional Waters of the U.S./Wetlands (in acres)**



**Alternative C1T Impacts**

Alternative C1T would have the greatest impact to wetlands and other waters of the U.S., impacting approximately 52.3 ha (129.1 ac) of wetland habitat that qualifies as waters of the U.S. (Figure 5-5). Over half of the affected wetlands on Alternative C1T include wet meadow habitats (Table 5-18).

Alternative C1T would also require the realignment of approximately 400 m (1,300 ft) of Mill Creek at the northern portion of Little Lake Valley, and 1,600 m (5,250 ft) of Outlet Creek bordering the east side of the Northwestern Pacific Railroad tracks. This, as well as the filling of large areas of wetland habitat, has the potential to directly and indirectly alter surface and groundwater hydrologic conditions of several flood basins within Little Lake Valley. Alternative C1T would have a major impact to wetlands and other waters of the U.S. because of the extent of fill and rechannelization required to construct this alternative.

Mitigation Measures BIO-1 through BIO-6 and BIO-13 will reduce impacts to wetlands and other waters of the U.S.

**Table 5-18. Jurisdictional Waters of the U.S./Wetlands [Values in ha (ac)]**

### **Alternative E3 Impacts**

Alternative E3 would impact approximately 6.1 ha (15.1 ac) of wetlands and other waters of the U.S. (Figure 5-5). Approximately half of the affected wetlands within Alternative E3 consist of mixed riparian habitat, encompassing approximately 3.0 ha (7.3 ac) (Table 5-18). Several intermittent drainages that qualify as other waters of the U.S. would require the installation of culverts, ranging in length from 150 m (500 ft) to 300 m (1,000 ft). These long culverts could result in increased velocities and concentrated flows that could affect downstream reaches.

Mitigation Measures BIO-1 through BIO-6 and BIO-13 will reduce impacts to wetlands and other waters of the U.S.

### **Alternative J1T Impacts**

Alternative J1T would impact about 21.1 ha (52.4 ac) of habitat that qualifies as waters of the U.S., including wetlands (Figure 5-5). Over two-thirds of the affected wetlands on this alternative consists of wet meadow habitats, encompassing approximately 13.4 ha (33.1 ac) (Table 5-18).

The Alternative J1T design would construct a viaduct approximately 1,660 m (5,450 ft) long, which would reduce the amount of potential impacts to surface and groundwater hydrologic conditions. The alignment traverses diagonally across the flood basin that annually conveys floodwaters when creeks entering Little Lake Valley overflow, including Haehl, Mill, Bechtel, and Broaddus creeks. The Alternative J1T viaduct design would also limit the extent of indirect effects on nearby wetlands and their dependent species located above and below the proposed viaduct (Map 6).

Mitigation Measures BIO-1 through BIO-6 and BIO-13 will reduce impacts to wetlands and other waters of the U.S.

### **Alternative LT Impacts**

Alternative LT would impact approximately 29.4 ha (72.8 ac) of habitat that qualifies as waters of the U.S., including wetlands (Figure 5-5). Most of the affected wetlands within the Alternative LT alignment consist of wet meadows 22.2 ha (54.9 ac) (Table 5-18).

Mitigation Measures BIO-1 through BIO-6 and BIO-13 will reduce impacts to wetlands and other waters of the U.S.

***Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Wetlands and Other Waters of the U.S.***

Potential excavation activities at the designated borrow site for fill material for Alternatives C1T, J1T, or LT would not directly affect any wetlands or other waters of the U.S. However, potential indirect impacts could include erosion of disturbed soils that could enter Outlet Creek during major storm events.

Mitigation Measures WQ-1 and WQ-6 state that Caltrans Best Management Practices and conditions of Caltrans NPDES permits would be implemented during and after construction. These measures will serve to minimize erosion and prevent project-generated sediments from entering surface waters.

**5.7.4.7 Impacts To Special-Status Wildlife**

Four wildlife species that are listed federally and/or by the state as threatened or endangered were observed in the project area and 11 species of special concern were observed. The listed wildlife species observed were Northern spotted owl, bald eagle, peregrine falcon and willow flycatcher. The project would not impact bald eagle and peregrine falcon due to the absence of suitable nesting habitat. The willow flycatcher would not be impacted because it is known only as a Spring and Fall migrant in the project area. Northern spotted owl was found nesting in the project area in 1991 and 1992. The project would not impact Townsend's western big-eared bat because of the absence of suitable habitat in the project corridors that could support this species.

The wildlife species of special concern observed were: golden eagle, osprey, Cooper's hawk, sharp-shinned hawk, northern harrier, white-tailed kite, California yellow warbler, yellow-breasted chat, prairie falcon, foothill yellow-legged frog and northwestern pond turtle.

***Alternative C1T Impacts***

The habitat of two special-status bird species (yellow warbler and yellow-breasted chat) may be impacted by Alternative C1T.

### ***California Yellow Warbler and Yellow-Breasted Chat***

The yellow warbler and yellow-breasted chat are both California species of special concern. They have no federal or state listing status. Both species nest in riparian scrub and riparian forest habitats, and both species were observed nesting in the project area.

Alternative C1T would indirectly impact at least two existing California yellow warbler territories and cause direct impacts on one existing yellow-breasted chat nesting territory and indirect impacts on at least four other territories. This alternative would remove mixed riparian woodland, oak riparian woodland, and riparian scrub habitat that provide suitable nesting habitat for yellow warbler and yellow-breasted chat.

Mitigation Measures BIO-1 through BIO-6, BIO-9, BIO-14, BIO-18, and BIO-20 will be implemented to reduce impacts to the California yellow warbler and yellow-breasted chat.

### ***Alternative E3 Impacts***

Three special-status species (foothill yellow-legged frog, Northern spotted owl, and red tree vole) would experience habitat losses under Alternative E3.

### ***Foothill Yellow-Legged Frog and Northwestern Pond Turtle***

The foothill yellow-legged frog and northwestern pond turtle are federal species of concern and state species of special concern. Foothill yellow-legged frog is found in shallow, shaded streams with rocky substrates, and northwestern pond turtle is found in streams and ponds that contain water seasonally and permanently. Both species were observed in streams in Little Lake Valley and in the foothills west of the valley.

Alternative E3 could adversely affect yellow-legged frog and northwestern pond turtle because drainages crossing this alternative would require culverts ranging from 150 m (490 ft) to 300 m (985 ft) in length. These long culverts would directly impact habitat for these species and could have indirect impacts resulting from increased water velocities and concentrations of flows, which could impair the ability of these species to disperse to upstream reaches.

Mitigation Measures BIO-1 through BIO-6 would apply. Also, the riparian mitigation measure (BIO-9) and wetland habitat mitigation measure (BIO-13) will be implemented to reduce impacts to foothill yellow-legged frog and northwestern pond turtle.

### *Northern Spotted Owl and Red Tree Vole*

The Northern spotted owl is listed federally as a threatened species. It has no state status. The Northern spotted owl occurs primarily in mature and old-growth coniferous forests with well-developed, multi-tiered stratification; large, decadent trees or snags with broken tops and cavities for nesting. Protocol-level surveys conducted in 1991 and 1992 resulted in finding two pair of spotted owls nesting in the project area, both located at the northern end of the study area. However, protocol-level surveys conducted in 1999 and 2000 did not detect any spotted owls in the project area.

Alternative E3 would remove approximately 127 ha (313 ac) of forest habitat that could provide suitable nesting and foraging habitat for Northern spotted owls occurring or potentially occurring in the project area, particularly in the northern portion of the alternative, where two Northern spotted owl breeding territories were detected in 1992. The loss of 127 ha (313 ac) of potential nesting and foraging habitat could adversely affect Northern spotted owls that may occur in the general vicinity or individuals that could return to the project area in the future.

The red tree vole is a federal species of concern and a state species of special concern. Red tree vole is almost entirely arboreal (living in trees), and occurs in coniferous forests along the Pacific Coast south to Sonoma County, and eastward to Trinity County.

The forest habitats occurring in Alternative E3 could provide suitable habitat for red tree vole. Red tree vole was not observed in the project area. However, the remains of one red tree vole was identified from a pellet (regurgitated prey remains) of a Northern spotted owl that nested within the project area, indicating that red tree vole could occur in the project area. Alternative E3 could impact red tree vole by removing nests and potentially injuring individuals during construction.

Mitigation Measures BIO-1 through BIO-6 and BIO-15 through BIO-17 will reduce impacts to Northern spotted owl and red tree vole.

### **Alternative J1T Impacts**

Alternative J1T potentially would affect two special-status species, white-tailed kite and yellow warbler.

#### ***White-Tailed Kite and California Yellow Warbler***

The white-tailed kite is not listed federally or by the state as threatened or endangered. However, it is a California fully protected species. White-tailed kite nests are located in trees in riparian and oak woodland habitats. They forage for small rodents in open grassland and agricultural habitats. White-tailed kites were observed nesting in Little Lake Valley.

Alternative J1T would have direct impacts on one existing white-tailed kite nesting territory, and could affect other territories that could be established in the future. In addition, Alternative J1T would affect important foraging habitat adjacent to this breeding territory.

Alternative J1T would indirectly impact at least one California yellow warbler nesting territory. This alternative would remove mixed riparian woodland, oak riparian woodland, and scrub riparian habitat, which constitute suitable yellow warbler nesting habitat.

Mitigation Measures BIO-1 through BIO-6, BIO-8, BIO-9, and BIO-19 will reduce impacts to white-tailed kites. Mitigation Measures BIO-1 through BIO-6, BIO-9 and BIO-18 will reduce impacts to the California yellow warbler.

### **Alternative LT Impacts**

One special-status bird species, yellow-breasted chat, may be impacted by Alternative LT.

#### ***Yellow-Breasted Chat***

One existing yellow-breasted chat territory could be directly affected and at least one other existing nesting territory would be affected indirectly by implementation of Alternative LT. This alternative would remove mixed riparian woodland, oak riparian woodland, and scrub riparian habitat, which constitute suitable yellow-breasted chat nesting habitat.

Mitigation Measures BIO-1 through BIO-6, BIO-9, and BIO-20 will be implemented to reduce impacts to the yellow-breasted chat.

***Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Special-Status Wildlife***

The potential removal of 12 to 16 ha (30 to 40 ac) of mixed north slope forest at the designated borrow site could adversely affect two special-status wildlife species, Northern spotted owl and red tree vole.

***Northern Spotted Owl and Red Tree Vole***

A portion of the designated borrow site is within 152 m (500 ft) of a Northern spotted owl breeding territory that was active in 1992. Although no nesting activity has been detected in recent years, the removal of 12 ha to 16 ha (30 to 40 ac) of potential nesting and/or foraging habitat could be a potentially adverse impact because of the difficulty in reestablishing forested habitat that provides suitable nesting and foraging habitat for Northern spotted owls.

Potential excavation at the designated borrow site could adversely affect red tree voles that might occur in the general vicinity of the project site. No tree voles were observed in the project area. However, the remains of a red tree vole were found in a Northern spotted owl pellet (regurgitated prey remains) of a spotted owl that nested in the project area, indicating that red tree voles occur in the area. Potential excavation at the designated borrow site could result in the removal of red tree vole nests or the injury or death of individuals.

Mitigation Measures BIO-15 through BIO-17 will be implemented to reduce impacts to Northern spotted owl and red tree vole.

**5.7.4.8 Impacts To Other Wildlife**

The California Department of Fish and Game (CDFG) has concerns regarding impacts to other wildlife species that are not identified as species of special concern, including black-tailed deer and waterfowl. Construction of the selected alternative would permanently disturb areas that provide suitable cover, nesting and foraging habitat for deer and waterfowl.

### **Alternative C1T**

Alternative C1T would result in impacts to habitats in the study area that supports black-tailed deer and waterfowl, including the loss of forested habitat, mixed riparian woodland, riparian oak woodland, riparian scrub habitat meadow habitats, and oak woodland (refer to Table 5-15). In addition, Alternative C1T would impact or potentially degrade marsh habitats located at the north end of Little Lake Valley near Outlet Creek; and would impact waterfowl habitat areas in the northern portion of Little Lake Valley flood basin.

### **Black-Tailed Deer**

Black-tailed deer distribution is influenced by seasonal habitat requirements and habitat quality. Different habitats are used for foraging, shelter and thermal cover; and for corridors for movement between shelter habitat and foraging areas, and water sources. Overall, Alternative C1T could increase deer mortality because of the additional traffic in the existing known high-use areas between Upp and Outlet creeks.

Mitigation Measures BIO-8, BIO-9, and BIO-13 for oak woodland, riparian and wetland habitat mitigation and BIO-21 (wildlife under-crossings) will compensate for the loss of black-tailed deer habitat.

### **Waterfowl**

Winter waterfowl surveys conducted in the project area resulted in detecting 13 waterfowl species, wood duck, green-winged teal, mallard, cinnamon teal, Eurasian wigeon, American wigeon, ring-necked duck, lesser scaup, common goldeneye, bufflehead, hooded merganser, common merganser, and ruddy duck. Five of these, wood duck, mallard, Cinnamon teal, common merganser, and ruddy duck could nest in the project area.

Alternative C1T would impact habitat for wintering waterfowl located primarily in the northern part of Little Lake Valley. Fragmentation of this habitat by freeway construction and traffic could reduce waterfowl use in this portion of the project area (Map 19).

Mitigation Measures BIO-8, BIO-9 and BIO-13 for oak woodland, riparian and wetland habitat mitigation will provide beneficial habitat for waterfowl in Little Lake Valley.

### **Alternative E3 Impacts**

#### ***Black-Tailed Deer***

Because of the variety of habitats affected by Alternative E3, this alternative would have substantial impacts to deer habitat occurring in the project area. In addition, this alternative would create additional barriers to the movement of deer, and other wildlife, and would result in the fragmentation of habitats in the project area.

Compared with other alternatives, Alternative E3 could result in more deer mortality resulting from collisions with vehicles. Large numbers of deer are expected to cross this alternative route because it parallels extensive areas of preferred deer habitat, including the known high-use area between Upp and Outlet Creeks, where there is a large concentration of deer crossing the highway.

This alternative will result in extensive areas of cut-and-fill, and these features have been associated with large numbers of deer fatalities along the highway. Steep-cut banks force deer to walk along the shoulder of the road, where they are more susceptible to collisions with vehicles. Deer potentially moving up steep fill slopes below the road would not be visible until they are on the shoulder of the road. The potential for a collision increases when deer appear from blind spots adjacent to the road.

Mitigation Measures BIO-8, BIO-9 and BIO-13 for oak woodland, riparian and wetland habitat mitigation and BIO-21 (wildlife under-crossings) will compensate for the loss of black-tailed deer habitat.

### **Alternative J1T Impacts**

#### ***Black-Tailed Deer***

Alternative J1T would result in moderate impacts to deer habitat. Deer-vehicle collisions on the J1T alignment would not increase substantially above the existing number of deer-vehicle collisions because this alignment bisects the valley far from preferred deer habitat areas in the surrounding foothills. Additionally, driver visibility increases in the valley floor due to the lack of roadside woody vegetation, which could reduce the potential for deer-vehicle collisions. Alternative J1T also would construct a viaduct that would allow wildlife movement beneath portions of the new freeway.

Mitigation Measures BIO-8, BIO-9, BIO-13, and BIO-21 will compensate for the loss of black-tailed deer habitat.

### **Alternative LT Impacts**

#### **Black-Tailed Deer**

Alternative LT would result in moderate impacts to deer habitats. Similar to Alternative J1T, deer-vehicle collisions on this alignment would not increase substantially above the existing number of deer-vehicle collisions because this alignment bisects the valley far from preferred deer habitat areas in the surrounding foothills. Additionally, driver visibility increases in the valley floor because of the lack of roadside woody vegetation, and the potential for deer-vehicle collisions is reduced.

Mitigation Measures BIO-8, BIO-9, BIO-13, and BIO-21 will compensate for the loss of black-tailed deer habitat.

### **Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Wildlife Habitat**

Potential excavation of the designated borrow site would result in the removal of 12 to 16 ha (30 to 40 ac) of mixed north-slope forest. This forest habitat could provide shelter for deer, and foraging and nesting habitat and other wildlife species.

Mitigation Measure BIO-15 for Northern spotted owl also will benefit deer and other wildlife species.

#### **5.7.4.9 Impacts To Special-Status Fish**

Three salmonid species occur in the project area, chinook salmon (California coastal evolutionarily significant unit [ESU]), coho salmon (Southern Oregon/Northern California ESU), and the steelhead (Northern California ESU). All three species are listed federally as threatened species; and are California species of special concern. All three species enter the project area via the Eel River and Outlet Creek. All three species spawn in creeks that have channel bottoms consisting of clean, relatively loose gravel; and young will remain in the natal streams for up to a year before migrating to the ocean.

The coho salmon occurring in the project area spawn from December through February. Important stream subreaches used by coho salmon for spawning include the upper reaches of Broaddus and Baechtel Creeks.

The steelhead occurring in the project area spawn from December through March. The upper reaches of Baechtel, Mill and Haehl Creeks have historically maintained steelhead spawning activity and are important stream segments for the development of young steelhead.

The chinook salmon occurring in the project area spawn from December through March. Stream reaches historically important for chinook salmon spawning include the upper reaches of Broaddus, Mill, Haehl and Davis Creeks.

Caltrans and FHWA are conducting on-going consultation with NMFS and CDFG to develop mitigation measures that will address the migratory fish passage issue. These mitigation measures will be incorporated into the Biological Assessment that will be submitted to NMFS as part of Section 7 consultation required by the federal Endangered Species Act. All measures required by NMFS and CDFG will be implemented.

### **Alternative C1T Impacts**

Alternative C1T would require five crossings of stream subreaches identified for fisheries analysis, including one over Haehl Creek, three over Mill Creek, and one over Outlet Creek (Map 20). Approximately 275 m (900 ft) of upper Haehl Creek in the southern portion of this alternative would be realigned; and 400 m (1,300 ft) of Mill Creek, and 1,600 m (5,250 ft) of Outlet Creek would be realigned in the northern portion of Little Lake Valley. This alternative is located on lower stream gradients and lower quality spawning habitat for salmonids.

However, Outlet Creek is the critical migratory corridor for the coho salmon, chinook salmon, and steelhead, because it connects with all the creeks in the Little Lake Valley area.

The risk of soil erosion is low for the southern portion of this alignment but higher for the northern portion of the alignment due to the realignment of Mill Creek and associated impacts to riparian vegetation (approximately 7.6 ha [18.7 ac]) exposing the creek banks. In the Little Lake Valley area, increases in water temperature are

directly related to reduced canopy cover. Hence, the removal of riparian vegetation could impact habitat quality by increasing stream temperatures, due to the absence of shade. This type of impact would be adverse along Outlet Creek, because of its importance as the only migratory corridor used by salmonids to reach other streams in the area.

Because of the realignment of over 2,000 m (6,500 ft) of Mill Creek and Outlet Creek, and the removal of riparian vegetation along some of the channel reaches, the construction of Alternative C1T would be a major impact on fish migratory patterns and habitat quality.

Mitigation Measures BIO-1 through BIO-7, BIO-9, and BIO-22 will reduce impacts to fisheries.

### **Alternative E3 Impacts**

Alternative E3 would require seven stream crossings over streams identified for fisheries analysis and bridge construction on upstream reaches of Haehl, Baechtel, Broaddus, Mill, Upp, and Outlet Creeks and could potentially affect downstream reaches from increases in sedimentation. The majority of potentially affected stream reaches is located in the foothills above Little Lake Valley and contains important habitat for anadromous fish. This alternative would directly affect the upper reaches of Baechtel (BT5), Broaddus (BD2), and Mill Creeks (M4) (Map 20). These reaches provide important spawning and rearing habitat for coho and chinook salmon, and steelhead trout. In addition, tributaries upstream of this alternative, including Willits Creek and segments of Mill, Broaddus, and Baechtel Creeks, support salmonid populations that could be indirectly affected as a result of construction activities that could temporarily block the passage of migrating fish.

The potential for impacts resulting from erosion is greatest with Alternative E3. This alternative would directly impact 3.6 ha (8.9 ac) of riparian habitat primarily along Haehl Creek, due to channel realignment. Soil disturbance associated with construction-related activities at the proposed stream crossings could result in an increase in sediments entering streams during storm events.

The impacts on fish habitat and the distribution and abundance of fish associated with Alternative E3 are considered adverse because of the high potential for permanent impacts to fish populations and suitable salmonid habitat resulting from the proposed

stream crossings, and the potential for increased erosion resulting from construction-related activities.

Mitigation Measures BIO-1 through BIO-7, BIO-9, and BIO-22 will reduce impacts to fisheries.

**Alternative J1T Impacts**

Alternative J1T would require six crossings of streams identified for fisheries analysis on Haehl, Baechtel (BT), Broaddus (BD), Mill (M), and Upp Creeks. Crossings would directly affect important reaches of these creeks (reaches BT3, BD1, and M3), which contain habitat for salmonids (Map 20). However, they would be located considerably downstream from the higher quality spawning habitat located in the upper reaches of these streams, and thus would have less severe effects on salmonids because of the smaller amount of high-quality habitat exposed to sedimentation impacts. The stream quality is lower at these crossings due to their location near the Little Lake Valley floor, where they pass through residential areas, and are generally characterized by lower habitat quality (e.g., less habitat complexity, less extensive riparian vegetation) than reaches located upstream in the foothills. Nonetheless, these reaches are important for fish migration and rearing.

The proposed alternative J1T would impact or degrade approximately 9.0 ha (22.0 ac) of riparian habitat. Soil disturbance from the cut-and-fill slopes would have the potential for sediments to enter the streams during storm events. The lower habitat values in the downstream reaches, below the proposed alternative E3, suggests that potential impacts to fish distribution and abundance would be less than for Alternative E3, which would affect higher quality fish habitat. The quantity of sediments that could enter the streams due to erosion of disturbed areas and the lineal extent of habitat impacts expected with Alternative J1T would be less for this alternative than for Alternatives E3 or C1T. The greatest impact to fish populations and habitat quality associated with Alternative J1T would be the number of stream crossings (six) and the potential for sedimentation of downstream reaches.

Mitigation Measures BIO-1 through BIO-7, BIO-9, and BIO-22 will reduce impacts to fisheries.

### **Alternative LT Impacts**

Alternative LT would require four crossings of streams identified for fisheries analysis and bridge construction on Outlet, Mill, and Upp Creeks. The stream crossings proposed for this alignment would be located primarily in valley locations. Habitat values would be similar to those occurring in Alternative J1T. Construction of this alternative would remove or degrade 7.3 ha (18.1 ac) of riparian habitat.

Alternative LT would cause less erosion than Alternatives C1T and E3 and would have similar impacts to Alternative J1T.

Mitigation Measures BIO-1 through BIO-7, BIO-9, and BIO-22 will reduce impacts to fisheries.

### **Alternatives C1T, J1T, LT: Designated Borrow Site Impacts to Fisheries**

Excavation at the designated borrow site for fill material would not directly affect any streams that support fish. However, indirect impacts to fisheries could result from construction related sediments that could enter Outlet Creek.

Mitigation Measure BIO-22 will reduce impacts to fisheries.

#### **5.7.4.10 Impacts Related To Invasive Plant Species**

All of the build alternatives could result in the introduction and spread of invasive non-native plant species.

Mitigation Measure BIO-23 will reduce potential impacts related to invasive plant species.

## **5.8 Cultural Resources**

A total of 22 architectural properties and 21 archaeological sites have been identified within the project area. The 22 architectural properties were formally evaluated for their potential eligibility for the National Register of Historic Places (NRHP) and for their qualifications as an historic resource by CEQA criteria. Elements of two properties, the California Western Railroad and the Northwestern Pacific Railroad, were found to be potentially eligible for the NRHP (Map 21). In addition to the potentially eligible properties, 113 properties were not evaluated and were treated

under the Memorandum of Understanding for Post 1945 Buildings and Pre-1945 Altered or Moved Buildings, updated to cover buildings from 1945 to 1950.

Twenty-one archaeological sites were identified within the project area; they are discussed below under Impact Analysis.

### **5.8.1 Regulatory Setting**

The treatment of cultural resources is governed by federal, state, and local laws and regulations. Federal and state regulations, which take precedence over local ordinances, are summarized below.

#### **5.8.1.1 Federal Regulations**

Federal regulations for cultural resources are governed primarily by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended). Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. To ensure that the requirements of Section 106 are met, the FHWA follows the Council's implementing procedures contained in 36 Code of Federal Regulations (CFR) Part 800. Cultural resources investigations performed pursuant to these statutes are documented in a Historic Property Survey Report (HPSR) prepared by Caltrans.

The National Register of Historic Places (NRHP) includes districts, sites, buildings, structures, and objects with local, regional, state or national significance. The definition of historic properties includes "any prehistoric or historic district, sites, building, structure or object included in, or eligible for inclusion in the National Register."

#### **5.8.1.2 State Regulations**

The State Historic Preservation Office (SHPO) maintains the California State Register of Historic Resources. A historic resource is deemed to be a significant resource if it is listed on the California Register of Historic Resources (CRHR). Properties listed on the NRHP are automatically listed on the CRHR. However, the CRHR can also include properties designated under local ordinances or identified through local historical resource surveys.

Section 21084.1 of the Public Resources Code states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have an adverse (significant) effect on the environment. Even if a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in the CEQA Guidelines Section 5024.1(g), a lead agency may determine that the resource is a historic resource for purposes of this section.

### **5.8.2 Method of Analysis**

The cultural resource inventory was conducted in accordance with state and federal requirements. The study area includes the maximum right of way for the construction of any of the four proposed “build” alternatives (C1T, E3, J1T, and LT), encompassing 44 km (27 mi) of the proposed alignments. The cultural resources study boundary is shown on Map 21. The cultural resources inventory involved architectural and archaeological research and field surveys. As part of the Section 106 public participation process, Caltrans coordinated with the Native American Heritage Commission, local Native American groups, local government offices, and local historical societies and preservation groups. These individuals and groups were notified of project plans, their input was requested, and they were informed of Caltrans’ findings. Public participation will continue to be an important aspect of the cultural resources management throughout all phases of the Willits Bypass Project. Public participation is discussed in Sections 1.8 and 1.9 of this report.

### **5.8.3 Impact Thresholds**

An adverse impact would occur if an important historic property or archaeological resource was removed, damaged or its value diminished. Important historic properties or archaeological resources are those that are eligible for inclusion in the National Register of Historic Places (NRHP) according to the criteria of Section 106 of the National Historic Preservation Act, as amended, or that meet the following criteria of the CEQA Guidelines:

- Has a recognized significance in California or American history or is of recognized scientific importance;

- Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions;
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
- Is at least 100 years old and possesses substantial stratigraphic integrity; or,
- Involves important research questions that historical research has shown can be answered only with archaeological methods.

#### **5.8.4 Mitigation Measures**

The following mitigation measures will reduce or avoid impacts to cultural resources:

**ARCH-1:** Once a preferred alternative is selected, and if that alternative is one of the “build” alternatives, Caltrans will conduct a detailed examination of archaeological properties. The Final EIR/EIS will report the findings of this examination and determine the level of impact and if further mitigation is required.

**ARCH-2:** It is Caltrans' policy to avoid cultural resources whenever possible. If buried cultural materials are encountered during construction, it is Caltrans' policy that work in that area must halt until a qualified archaeologist can evaluate the nature and significance of the find (Environmental Handbook, Volume 2, Chapter 1).

**ARCH-3:** If human remains are unearthed during construction, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur, in the immediate vicinity of the discovery, until the county Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. The Caltrans District Environmental Planning Branch shall be notified immediately (Environmental Handbook Section 1-2.2 and 7-8).

#### **5.8.5 Impact Analysis**

##### **5.8.5.1 Archaeological and Historic Properties**

The positive archaeological survey report prepared for this project describes 25 sites within the study area. Due to a modification in the project area resulting from

truncating three of the alternatives (J1, L, C1) and dropping the TSM alternative, only 18 sites are currently within the study area boundaries and 3 are adjacent. The archaeological sites include 4 historic, 10 prehistoric, and 4 sites with both prehistoric and historic components. The three sites adjacent to the study area include one prehistoric and two historic sites (CA-MEN-3036, CA-MEN-3037H, and CA-MEN-3035H). Table 5-19 provides the site totals for each of the alternatives by node and alignment, including resources counted for other alternatives when appropriate. In the event that a no build alternative is selected as a preferred alternative, no archaeological resources would be disturbed. There will be no impact to significant historic resources by the project.

**Table 5-19. Archaeological Sites by North and South Segments (W = Within; A = Adjacent)**

Site Number	Site Type	C1T No.	C1T So.	E3 No.	E3 So.	J1T No.	J1T So.	LT No.	LT So.
CA-MEN-2134H	Historic – Transportation	-	-	-	W	-	-	-	-
CA-MEN-2618H	Historic – Homestead	-	W	-	-	-	W	-	W
CA-MEN-2624	Prehistoric - Temporary Camp	W	-	-	-	-	-	-	-
CA-MEN-2623	Prehistoric - Temporary Camp	W	-	-	-	-	-	W	-
CA-MEN-2628	Prehistoric – Temporary Camp	-	-	-	W	-	-	-	-
CA-MEN-3033/H	Prehistoric – Temporary Camp; Historic – Homestead	-	-	-	W	-	-	-	-
CA-MEN-2615H	Historic – Homestead	-	-	-	W	-	-	-	-
CA-MEN-3031	Prehistoric – Residential	-	-	-	W	-	-	-	-
CA-MEN-3032	Prehistoric – Quarry	-	-	-	W	-	-	-	-
CA-MEN-404/H	Prehistoric/Proto historic Residential; Historic –	-	-	-	W	-	-	-	-

Site Number	Site Type	C1T No.	C1T So.	E3 No.	E3 So.	J1T No.	J1T So.	LT No.	LT So.
CA-MEN-3038H	Historic – Cemetery	-	-	-	W	-	-	-	-
CA-MEN-2644/H	Prehistoric – Lithic Scatter; Historic – Dairy	-	-	-	W	-	-	-	-
CA-MEN-3034	Prehistoric – Quarry	-	-	W	-	-	-	-	-
CA-MEN-2645/H	Prehistoric - Residential; Historic – Homestead	-	-	W	-	W	-	W	-
CA-MEN-3036	Prehistoric – Lithic Scatter	-	-	-	A	-	-	-	-
CA-MEN-2625	Prehistoric – Temporary Camp	-	-	W	-	-	-	-	-
CA-MEN-2626	Prehistoric – Temporary Camp	-	-	W	-	-	-	-	-
CA-MEN-2627	Prehistoric – Lithic Scatter	-	-	W	A	-	-	-	-
CA-MEN-3037H	Historic – Homestead	-	-	-	-	A	-	A	-
CA-MEN-2630	Prehistoric – Temporary Camp	-	-	W	-	-	-	-	-
CA-MEN-3035H	Historic – Dump	-	-	A	-	-	-	-	-
<b>TOTAL</b>		<b>2</b>	<b>1</b>	<b>7</b>	<b>11</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>
		<b>3</b>		<b>18</b>		<b>3</b>		<b>3</b>	

**All Build Alternatives**

Since surface evidence of integrity is often judged to be inconclusive for the evaluation of archaeological deposits, further investigations are necessary in order to evaluate the integrity and research potential of each archaeological site identified. If a build alternative is chosen, all archaeological sites not previously evaluated will be investigated to determine if they are eligible for the NRHP under 60.4(a) Code of Federal Regulations or meet the CEQA Guidelines Criteria as a historical resource. The investigation may include additional archival research and/or archaeological testing and evaluation.

For purposes of impact analysis, impacts to the 18 identified archeological sites should be considered “potentially significant” (under eligibility criteria) until further and more detailed examination of these sites can be made.

Mitigation Measures ARCH-1 through ARCH-3 will reduce or avoid impacts to cultural resources.

## **5.9 Hazardous Materials**

This discussion documents those properties that have a potential for hazardous waste issues that could affect construction of the proposed project. Hazardous waste issues include impacts to soil and groundwater due to leaking underground storage tanks (USTs), releases to the land, and highway spills.

It is Caltrans’ policy when acquiring properties to avoid all potential aspects of hazardous waste issues, whenever possible. If involvement became necessary prior to, during and/or after construction, protection for employees, workers and the community would be stressed. Confirmation and documentation of suspected hazardous waste issues would be performed, and an attempt would be made to have responsible parties perform cleanup activities. If Caltrans must clean up impacted properties, reimbursement of cleanup costs would be sought from the responsible parties.

### **5.9.1 Regulatory Setting**

The hazardous materials studies and agency coordination for this project have been conducted pursuant to the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, and its implementing regulations (40 CFR 260-271); and the Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA), as amended, and its implementing regulations (40 CFR 300 and 43 CFR 11). Both acts require coordination with the Environmental Protection Agency (EPA) or an EPA-approved state agency for any project that might require right-of-way containing a hazardous substance. In addition, the Mendocino County Environmental Health Department regulates land pollution within the study area, and the North Coast Regional Water Quality Control Board (RWQCB) regulates groundwater pollution in the study area. The Clean Air Act, 42 U.S.C. s/s 7401 et seq. (1970), as amended, is administered by the Mendocino County Air Pollution Control District to regulate air

emissions from area, stationary, and mobile sources in the project area. The Occupational Safety and Health Act (OSHA), 29 U.S.C. 651 et seq. (1970) governs exposure to, handling and clean-up of hazardous materials to ensure worker safety.

### **5.9.2 Method of Analysis**

The hazardous materials analysis involved a field inspection to identify existing land uses for potential hazardous waste sites or materials. A search of regulatory agency files, published government documents, current aerial photographs, Sanborn Fire Insurance Maps, and other sources provided information on known hazardous waste sites in or near the project area and past land uses that might indicate the presence of hazardous materials. In addition, a geologic field reconnaissance that included sampling and analysis of serpentine rocks for asbestos was completed.

### **5.9.3 Impact Thresholds**

The following thresholds help to determine if the project would result in impacts related to hazardous materials:

- Create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- An adverse impact would exist if any of the proposed alternatives increased the risk of a hazardous material spill occurring in a heavily populated area such as Main Street or S.R. 20 in Willits.
- Create a hazard to the public from remediation activities necessary to clean up a site required for highway construction. Hazards could be from releases to the air in the form of dusts or fumes.

### **5.9.4 Mitigation Measures**

The following mitigation measures will reduce impacts related to hazardous substances:

**HAZ-1:** An ISA has been performed. However, when a preferred alternative is selected, Caltrans will perform a more detailed site investigation (Phase II Study) on that alignment, including drilling of test holes and collection and laboratory analysis of collected soil and/or water samples, to confirm or

dismiss potential hazardous waste issues. Therefore, an unknown risk related to clean-up costs is associated with Alternative J1T, which is the only build alternative that would involve potential hazardous waste properties.

**HAZ-2:** Prior to commencing the Phase II study, Caltrans will prepare a Health and Safety Plan that addresses the potential effects of the various chemical compounds that could be encountered at each property with potentially hazardous substance issues. The health and safety plan will include evaluations of the suspected chemical hazards including symptoms of exposure and emergency treatment, appropriate use of personal protection equipment, and air monitoring. If Caltrans' contractors conduct the cleanup activities, the health and safety plan for each site shall identify training and personal protective equipment requirements for workers, visitors and the public. Only those workers and visitors who have reviewed the plan and have the specified required training may enter a site undergoing remediation.

**HAZ-3:** Upon confirmation of hazardous waste issues, responsible parties will be sought for cleanup activities. If Caltrans must clean up impacted properties, reimbursement of cleanup costs shall be sought from the Responsible Party(ies).

**HAZ-4:** For impacted soil encountered on potential acquisition properties, possible cleanup technologies employed by the Responsible Party(ies) would include excavation and disposal of the impacted soil at appropriately permitted landfills, and aeration or bioremediation of soil in situ or above ground. All soil remediation will be performed within the existing policies, rules and regulations of governing regulatory agencies. Those include the North Coast Regional Water Quality Control Board, Department of Toxic Substances Control, Mendocino County Air Quality Management District, and the Mendocino County Environmental Health Department.

**HAZ-5:** For impacted groundwater encountered beneath potential acquisition properties, possible cleanup technologies employed by the Responsible Party(ies) include removal of impacted water, with subsequent disposal or treatment.

**HAZ-6:** In the event that explosives are found to be present at any of the potential acquisition properties, the Responsible Party(ies) will be required to have them removed by specially trained crews and handled appropriately.

**HAZ-7:** For alternatives that require acquisition of structures, Caltrans will complete an asbestos survey prior to demolition activities. Caltrans will obtain Mendocino County Air Quality Management District (AQMD) permits (National Emission Standards for Hazardous Air Pollutants - NESHAP), which are required for demolition.

**HAZ-8:** Asbestos inspections for a NESHAP permit are done by Cal/OSHA certified inspectors. Regulated Asbestos Containing Materials (RACMs), Category I and II materials are identified during the survey and are noted on NESHAP permit. Caltrans will have all RACM abated by licensed asbe Impact Analysis.

### **5.9.5 Impact Analysis**

The following impact analysis includes hazardous waste sites, naturally occurring asbestos, and hazardous materials spills.

#### **5.9.5.1 Hazardous Waste Sites**

Based on the results of site reconnaissance, historical research, and regulatory file reviews, 56 properties were identified as having potential hazardous waste issue impacts to the build alternatives. Six properties were assigned high rankings based on their known and potential impacts to soil and groundwater, as well as their locations on the proposed alignments. Eleven properties were assigned medium rankings based on their known or potential impacts to soil and groundwater, and their locations adjacent to the proposed alignments.

The remaining 39 properties were assigned low rankings due to their lack of noteworthy impacts to soil and groundwater and/or their distance from the proposed alternative alignments. Properties that received low rankings were considered to have no hazardous waste issues that could impact the proposed alignments and were not addressed further; these properties are not shown on the table.

Table 5-20 lists the alternatives, the location and type of hazardous waste properties along each alignment, the affected media (soil or groundwater), and the rank of each property. In addition to Table 5-20, Atlas Map 22 (Volume II of this EIR/EIS) identifies the location and type of hazardous waste sites within the project area. Factors that were taken into consideration were industrial manufacturing activities within the alignment areas, suspected asbestos containing materials, industrial wastewater generation, recorded or observed cases of hazardous wastes/materials mismanagement practices on the subject property, pesticide use and potential polychlorinated biphenal (PCB) containing electrical devices.stos contractors prior to demolition.

**Table 5-20. Hazardous Waste Spills and Potential Hazardous Waste Properties**

	SITE NAME	ADDRESS	CONTAMINANTS OF CONCERN	AFFECTED MEDIA	RANKING
<b>POTENTIAL HAZARDOUS WASTE PROPERTIES</b>					
<b>SOUTH SEGMENT</b>					
<b>Alternative C1T, E3, LT:</b> No hazardous waste properties identified					
<b>Alternative J1T:</b>					
Atlas Map Label*					
2	Microphor, Inc.	452 E. Hill Road	VOCs	Soil/Groundwater	Medium
3	T T Auto Wreckers Mini-Storage	227 N. Lenore Avenue	Petroleum Hydrocarbons/Metals	Unknown	Medium
4	Shuster's Transportation	750 E. Valley Street	Petroleum Hydrocarbons/Metals	Soil/Groundwater	Medium
5	Dept. Public Works Road Yard	751 Hearst Willits Road	Petroleum Hydrocarbons/Metals	Soil/Groundwater	High
<b>NORTH SEGMENT</b>					
<b>Alternative C1T, E3, J1T, LT:</b> No hazardous waste properties identified					
<b>HAZARDOUS WASTE SPILLS (January 1, 1994 to present)</b>					
Atlas Map Label*					
A	U.S. 101	KP 82.17 / PM 51.0	Motor Oil/Hydraulic Oil/Diesel Fuel	Soil	NA
B	U.S. 101	KP 82.35 / PM 51.17	Diesel Fuel	Soil	NA
C	U.S. 101	KP 70.65 / PM 43.90	Diesel Fuel	Soil	NA
D	U.S. 101	KP 74.46 / PM 46.27 to KP 103.0 / PM 64.0	Diesel Fuel	Soil	NA
E	U.S. 101	KP 74.37 / PM 46.21	Diesel Fuel	Soil/Creek Bed	NA
F	U.S. 101	KP 78.05 / PM 48.5	Motor Oil/Diesel Fuel	Soil/Storm Drain	NA
G	U.S. 101	KP 81.98 / PM 50.94	Diesel Fuel	Pavement	NA

Notes:

\*See Volume II, Atlas Map 22 for locations 2, 3, 4, and 5.

Alt. = Alternative

NA = Not Applicable

VOCs = Volatile Organic Compounds

During additional site investigations, remediation activities, and subsequent construction activities for any of the build alternatives, public health and the health of the construction workers could be affected potentially by airborne dust particles containing heavy metals, petroleum hydrocarbons and asbestos from building materials and/or serpentine rock. Fumes from investigations of solvent plumes, and emissions from vapor extraction systems also could affect worker and public safety.

In the event the No-Build Alternative is selected as the preferred alternative, potential hazardous substance issues would not be addressed (by this project) and these sites would continue to have potential impacts to public health until the sites were cleaned up.

### **Alternative J1T**

Three sites with a medium ranking were located along J1T (South Node):

Microphor, Incorporated, 452 E. Hill Road. This property is adjacent to Alternative J1T. Due to the presence of volatile organic compounds (VOCs) in the groundwater beneath this property, soil and groundwater samples will be collected from the western portion of the proposed Alternative J1T right of way and analyzed for VOCs, if Alternative J1T is selected as the preferred alternative. (Location 2, Atlas Map 22)

T T Auto Wreckers Mini-Storage, 227 N. Lenore Avenue. Acquisition of a portion of this property will be required if Alternative J1T were selected. Due to the unknown soil and groundwater impacts at this property resulting from the storage of automobiles, engine parts and scrap metal, a site investigation will be performed on the portion of this property which would be acquired. The investigation will include soil and groundwater sampling for petroleum hydrocarbons and heavy metals. (Location 3, Atlas Map 22)

Shuster's Transportation, 750 E. Valley Road. Acquisition of all or a portion of this property will be required if Alternative J1T were selected. Due to the unknown petroleum hydrocarbon impacts at the property resulting from the former presence of USTs, hoists, and a truck wash rack, a site investigation will be performed at this property if Alternative J1T is selected. The investigation will include soil and groundwater sampling for petroleum hydrocarbons and heavy metals. (Location 4, Atlas Map 22)

One site with a high ranking was located along Alternative J1T (South Node):

Mendocino County Department of Public Works, Willits Road Yard, 751 Hearst-Willits Road. Acquisition of all or a portion of this property will be required if Alternative J1T is selected. Due to the unknown petroleum hydrocarbon impacts at the property resulting from the former presence of USTs and years of petroleum product handling, a site investigation will be performed at this property if Alternative J1T is selected. The investigation will include soil and groundwater sampling for petroleum hydrocarbons and heavy metals and a geophysical survey for undocumented USTs and drums. (Location 5, Atlas Map 22)

Mitigation Measures HAZ-1 through HAZ-6 will reduce impacts due to potential hazardous substances.

Caltrans will not perform a more detailed site investigation (Phase II Study) until selection of a preferred alternative to confirm or dismiss potential hazardous waste issues. Therefore, since Alternative J1T is the only build alternative that would involve potential hazardous waste properties, there is an unknown risk related to clean-up costs associated with this alternative.

### **All Build Alternatives**

All of the build alternatives have a potential for the presence of asbestos-containing building materials (ACBM) and lead-based paint in the buildings within the project boundaries.

Mitigation Measures HAZ-7 and HAZ-8 will reduce impacts due to potential ACBM and lead-based paint.

#### **5.9.5.2 Naturally Occurring Asbestos**

Alternative E3 had the potential for being in an area of serpentine rock that could contain asbestos. However, the results of laboratory analysis of rock samples collected during a geological field reconnaissance of serpentine rock in this area indicated that asbestos minerals are not present.

#### **5.9.5.3 Hazardous Material Spills**

Based on available records, there have been seven reported spills of petroleum products in the vicinity of Willits between January 1, 1994 and the present date.

There have been no reportable spills within or near the City of Willits that involved materials that have severely affected a large population. Hazardous spills that have occurred in the vicinity of Willits are listed in Chapter 4, Affected Environment.

Pursuant to the Caltrans *Hazardous Materials Spill Contingency Plan*, all hazardous spills or releases (regardless of size), must be reported immediately to the Caltrans district dispatch office by the California Highway Patrol and reports describing the incident must be filled out. Specific contingency plans are referenced in the *Hazardous Materials Spill Contingency Plan* in the event that flammable or toxic vapors are released, a fire or explosion occurs, or a hazardous substance is released.

The party responsible for the spill is given the opportunity to clean up the spill; however, if the responsible party does not have a means to clean up the spill, Caltrans contacts a pre-approved contractor to perform mitigation activities.

Under the No-Build Alternative, hazardous substances would still be transported through Willits. The potential would remain for a spill to occur which could adversely affect motorists and adjacent residents and businesses.

### **All Build Alternatives**

Construction of Alternative E3 would reduce the need to transport hazardous substances through downtown Willits. Thus this alternative reduces the potential for highway spills to occur within a densely populated area. Alternatives C1T, JT or LT would eliminate the interregional transport hazardous substances through Willits; however, hazardous substances would still travel on Main Street, from the proposed Haehl Creek Interchange to and from S.R. 20. As a result, all of the build alternatives would be beneficial in reducing the potential for hazardous spills for most interregional transport.

## **5.10 Visual Resources**

The following discussion summarizes the effects of the proposed project to off-highway viewers as well as roadway users who would be viewing the landscape from any of the proposed alignments. For drivers traveling a highway, views from the road are a major source of information as well as aesthetic pleasure. Conversely, for off-highway viewers, the highway is an integral part of the landscape. The Visual Impact Assessment for the proposed project concluded that, of the build alternatives,

Alternative J1T would result in the least visual impact. During the final design stages, if a build alternative is selected, Caltrans Design Engineers and staff from its Office of Landscape Architecture, Right of Way, and Environmental Management will work closely with the City of Willits (a Project Development Team member) to help make the project's visual elements (including landscaping and structural design treatments) compatible with the City's goals and policies.

### **5.10.1 Regulatory Setting**

Both NEPA (Sec. 101 [42 USC Sec. 4331 and its implementing regulations 40 CFR 1508.8) and CEQA (Guidelines 15126.2 and Appendix G) require an analysis of a project's impacts on the visual quality of the area in which it is located. The Federal-Aid Highway Act of 1968 states that "a special effort should be made to preserve the natural beauty of the countryside."

### **5.10.2 Method of Analysis**

FHWA has established guidelines (Technical Advisory T6640.8A) for the preparation of visual impact assessments. In accordance with these guidelines, the project area was divided into several landscape assessment units (LAUs) to facilitate the visual impact analysis. An LAU is an area comprised of landscape units and major viewsheds. A landscape unit is described as an outdoor room, separated by hillsides, railroads, farmlands, clusters of trees or similar features. A viewshed is all surface areas and critical objects visible from an observer's viewpoint.

The visual character of each LAU was investigated to determine dominance of landform, vegetation, color, line and texture. For this report, identification, inventory and evaluation of visual resources were accomplished by field inspection, including photography and visual surveys of the site. Comments from public meetings, the City's Planning Department, affected residents and the design team were considered throughout the visual study process. Backup information includes aerial photographs, U.S. Geological Survey (USGS) maps, tree inventories, biological reports, the project study report and the City of Willits' General Plan Land Use Map. A numbering and evaluation method determined the quality of the visual setting within each LAU, with and without the project.

Generally, the visual analysis study area included the environmental study limits plus adjacent affected areas within three miles of each alignment. The study area included

both natural and man-made elements. Distances of more than three miles were also taken into consideration for evaluating distant views of the hillsides. That portion of U.S. 101 that passes through the Little Lake Valley has unique aesthetic values but is not listed as a “State Designated Scenic Highway.” The analysis recognizes that valleys and woodlands within the project area play a major role in the visual quality and character of the area.

Please refer to Section 5.6 Floodplain Impacts for additional description of the roadway embankment that would be built for the valley alternatives.

### **5.10.3 Impact Thresholds**

The following thresholds are used to evaluate whether the project would result in an impact on visual resources:

- Substantially change a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare, which would impact views in the area.

### **5.10.4 Mitigation Measures**

The following mitigation measures will reduce visual impacts:

**VIS-1:** Caltrans will have the contractor avoid and preserve trees and vegetation where possible. Native vegetation that is removed for construction of the project will be replaced with like varieties to blend the freeway into the landscape. Tree mitigation is discussed under Biological Resources.

**VIS-2:** Caltrans will use stockpiled topsoil in revegetation efforts.

**VIS-3:** Slope protection will blend with existing features, simulating natural forms (i.e., rounding tops and bottoms of cut and fill slopes).

**VIS-4:** The contractor will avoid/preserve large rock formations that do not interfere with construction of the project.

**VIS-5:** Caltrans will plant landscaping that will include heavy planting of adjoining highway slopes to reduce visual impact. Plant materials will be a combination of native oaks, pines, and redwood trees as well as native shrubs and ground covers.

**VIS-6:** Caltrans will plant redwood trees between the baseball fields and the viaduct. In time, the fast-growing and dense vegetation will provide a screen between the baseball fields and the structure.

**VIS-7:** If headlight glare is a problem for nighttime games or for nighttime events at the fairgrounds, Caltrans will consider installing a glare screen on a portion of the bridge rail.

**VIS-8:** Caltrans will incorporate slope rounding, contour grading, and leaving a vegetative buffer between the highway and cut slope into the project design. At the time of design, the Caltrans Office of Landscape Architecture will provide specific design solutions for slope treatment.

**VIS-9:** Caltrans will provide screen planting for the home closest to excavation at the designated borrow site.

**VIS-10:** Caltrans Structures and Aesthetics Division in cooperation with the Office of Landscape Architecture will provide design treatments for project structures, such as bridges and viaduct, and to highway appurtenances, such as guardrail.

### **5.10.5 Impact Analysis**

In Chapter 4, Affected Environment, the existing conditions of the viewsheds and LAUs that are discussed below are described in Section 4.12, Visual Resources. Table 5-21 summarizes the existing visual quality of each viewshed and the visual quality for each alternative after construction.

*NOTE: Please refer to Map 23 in the environmental atlas (Volume II), which illustrates the viewsheds and LAUs that are referred to in the discussion below.*

**Table 5-21. Visual Quality of Viewsheds With and Without the Project**

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>	<b>N</b>	<b>O</b>	<b>P</b>
<b>Existing</b>	M/H	L/M	M	L	L/M	M/H	M/H	M	M/H	L/M	H	H	M	M	M	M/H
<b>Alt. C1T</b>	M/H	N/A	N/A	N/A	N/A	N/A	M/H	M	N/A	N/A	N/A	N/A	N/A	N/A	M	M/H
<b>Alt. E3</b>	M/H	L/M	M	N/A	N/A	N/A	M/H	N/A	N/A	N/A	H	L	L	L	M	M/H
<b>Alt. J1T</b>	M/H	N/A	N/A	N/A	N/A	L	M/H	M	M	L/M	N/A	N/A	N/A	N/A	M	M/H
<b>Alt. LT</b>	M/H	N/A	N/A	N/A	N/A	N/A	M/H	M	M	L/M	N/A	N/A	N/A	N/A	M	M/H

Key:

N/A=not applicable, cannot be seen from the area.

L = Low visual quality

M = Medium visual quality

H= High visual quality

### **5.10.5.1 Alternative C1T**

#### ***C1T: South Valley LAU***

About half of Alternative C1T would be built on previously placed embankment, creating minimal visual impact. The greatest visual impact of Alternative C1T within this LAU would involve the proposed Upper Haehl Creek Interchange, which would result in cuts and fills that would be visible to ranches and homes in this area (Figures 5-6 and 5-7). After the interchange, the highway would parallel the Northwestern Pacific Railroad on fill, creating little visual impact. Although earth movement for the interchange would change the appearance of the area, existing rolling hills would maintain the character of the southern entrance to the City of Willits.

#### ***Viewsheds within South Valley LAU***

Viewshed “A,” at the beginning of the Upper Haehl Creek Interchange, is an important viewshed since it is the entrance to the valley. Site grading for the interchange would remove a tree-covered hill on the north side of the highway. Some of the homes on Ridgewood Road and Hilltop Drive would have views of this interchange. The scale of the highway would be intensified by this alternative. On the other hand, the interchange would provide an opportunity to create an enhanced entry to the City of Willits.

Homes within Viewshed “P” would have limited views of Alternative C1T. Depending on the location, some residents would not see the highway, while others would get a glimpse of it. The visual quality for this viewshed remains medium/high both before and after the highway construction. Highway users would continue to see the natural hillsides of the area.

#### ***C1T: Little Lake Valley LAU***

Visual impacts of fill slopes and the Floodway Viaduct would occur mainly between East Hill Road and the north city limits. After the city limits, Alternative C1T generally follows the Northwestern Pacific Railroad and the existing highway. The raised Alternative C1T would be visible from the immediately surrounding ranches. This impact, however, would be minimal for homes on the eastern hills, as these residents look down and at a far distance upon the entire valley.

**Figure 5-6. Upper Haehl Creek Interchange**

**Figure 5-7. Proposed Condition Upper Haehl Creek Separation**

### **Viewsheds within Little Lake Valley LAU**

Viewshed “G” looks toward the west at Alternative C1T from the perspective of ranches on the flatlands. At 1250 Valley Road and surrounding parcels, the immediate ranches would have views of 6 m (20 ft) to 9 m (30 ft) high structures along with fill slopes. Ranches further away, however, would not have views of the structures or fill slopes. There would be minor visual degradation after project construction.

Viewshed “O” is a view from above Hearst-Willits Road. At this viewpoint, one can see the entire valley below. Although a panoramic view, objects are seen at a smaller scale as the distances are far from the center of town. Only the bridges of Alternative C1T would be visible to the homes in this area. As highway plantings mature, the impact of graded slopes would diminish. Initially, the highway itself would be seen at a distance at a very small scale. The visual quality would be diminished slightly.

### **C1T: Other LAUs**

Alternative C1T would not impact the Miracle Mile LAU, the Brooktrails LAU, the Historic District LAU, or any Central City Visual Receptors.

Mitigation Measures VIS-1 through VIS-5, VIS-10, BIO-1 through BIO-12 (Section 5.7), and WQ-1 through WQ-3 (Section 5.5) will reduce visual impacts.

### **5.10.5.2 Alternative E3**

#### **E3: South Valley LAU**

The greatest visual impact of Alternative E3 would result from the proposed Hollands Lane Interchange. In the area of this interchange, the topography is relatively flat. Structures of up to 19 m (62 ft) high would be seen by adjacent residents to the north of the interchange against the background of the hills.

This alternative would impact 13 to 15 homes in the immediate vicinity of the interchange. The primary aspects of visual change would be dominance of large structures, large-scale highway approaches, addition of non-indigenous colors and the visual conflict of manmade elements into a rural landscape. Other homes in the area also would have views of the structures, but to a lesser degree.

The impact of these structures would be blended partially into the topography via graded slopes. Visually, these graded slopes when planted with trees and shrubs would attain a better harmony with the adjacent landscape. A large footprint would be required to accommodate the Hollands Lane Interchange.

**Viewsheds within South Valley LAU**

The greatest visual impact in Viewshed “B” is related to Alternative E3. The homes on Hollands Lane would have views of the structure and site grading of the Hollands Lane Interchange. The existing visual quality is low/medium. Highway structures would lower the visual quality slightly.

At Viewshed “C,” homes north of Monica Lane are lower than the highway and would not be visually impacted by the Hollands Lane Interchange. Major site grading, however, would be necessary for Alternative E3 because it would pass through the hill southwest of the church at Monica Lane, which would negatively impact the visual quality of the area. Structures proposed for the Hollands Lane Interchange and site grading would create a visual impact. The Hollands Lane Interchange would be visible from the church. The homes south of Monica Lane are lower than the highway; looking up from their outdoor spaces, residents of these homes would view parts of this interchange. The overall visual quality for this area is medium before and after the project.

**E3: Little Lake Valley LAU**

Some of the homes and ranches located on the valley floor would have views of the graded slopes of Alternative E3 as it cuts through the hills near Muir Canyon Road and the foothills of the Brooktrails area. The homes on higher elevations of the eastern hills of the Little Lake Valley would have views of this alternative at a far distance.

**Viewsheds within Little Lake Valley LAU**

Viewshed “O” is a view from Hearst-Willits Road. At this viewpoint, one can see the entire valley below. Although a panoramic view, objects are seen at a smaller scale as the distances are far from the center of town. Viewers would be able to see the alternative from this location, but at a very small scale.

Only the largest graded slopes for Alternative E3 would be visible to the homes in this area. As highway plantings mature, the impact of graded slopes would diminish.

The highway itself, however, would be seen at a distance. The visual quality of this viewshed is medium and after highway construction, it would be reduced slightly.

**E3: Miracle Mile LAU**

Alternative E3 passes near the Sherwood Valley Rancheria at its southwesterly corner. At this location, the highway would be located on a fill slope with an average height of 40 to 45 m (131 to 147 ft) and a slope length of approximately 100 m (330 ft). Trees would frame this view of the highway.

The highway would create large cut and fill slopes between Muir Canyon Road and S.R. 20 Interchange. These graded slopes would scar the landscape. There are residential land uses on the north side of S.R. 20. On the south side of the highway, there is a mix of industrial and residential uses. The eastern part of this landscape unit is not predominantly rural, and as such has a medium existing visual quality.

Viewshed “N” is for properties along S.R. 20 that would have views of the S.R. 20 Interchange for the E3 Alternative (Figure 5-8). Large cuts would be required for Alternative E3 to the hills south of S.R. 20. The highest structure at 21 m (69 ft) would create a more urban look for S.R. 20.

Nearby ranches would be impacted. For highway users, beyond the immediate graded slopes, views of the natural hillsides would create a pleasant driving experience. Construction of Alternative E3 would reduce the visual quality of the western part of the Miracle Mile LAU from high to low.

**Figure 5-8. Proposed Condition Viewshed N Alternative E3**

### ***E3: Brooktrails LAU***

On the south side of this LAU, Alternative E3 would cross S.R. 20 near the KOA campground. Approximately five homes would have a narrow view of the bypass from a distance of between 600 m and 800 m (2,000 ft to 2,600 ft). Visual impacts of the bypass would be reduced for viewers looking at the highway from such far distances. Additionally, as a result of the existing hillsides, topography, and native vegetation, views would be inconsistent and broken. Therefore, visual impacts of the bypass would be minimal in this area.

At the Brooktrails area, where Sherwood Road crosses Alternative E3, an overcrossing structure would be constructed. Traffic in the area is local and commuter. Character of the area is rural/residential. In the vicinity of the structure, there are large ranches and grazing lands. The bridge would impose a smooth concrete shape into an area of an existing narrow two-lane roadway. Introduction of the manmade element in a rural area would result in an adverse visual impact.

Graded slopes of Alternative E3 would be visible from some of the homes on Sherwood Road and homes near Chain Fern Trail and Nutmeg Trail, both in the Brooktrails area, as well as homes located north of S.R. 20.

### ***Viewsheds within Brooktrails LAU***

Homes on Exley Lane would view the Exley Lane Bridge within Viewshed “M.” This bridge would saddle the valley at a height of 55 m (180 ft) and a length of 480 m (1,575 ft). The structure would be a tall bridge with columns and embankments and would cross the valley. The structure would obstruct views, change the existing soft texture of the area with its harsh angular lines. This immense structure would be a visual disruption to the homes on Exley Lane and sever the visual unity of the valley. Approximately 20 homes would have clear to partial views of the structure. Construction of Alternative E3 would reduce the existing visual quality from medium to low.

Within Viewshed “L” one looks from Sherwood Road toward Alternative E3 as it cuts through the southerly hillsides (Figure 5-9). The existing views on Sherwood Road consist of rolling, grassy hills in the foreground and forested valleys beyond. Sherwood Road Overcrossing would be placed in cut slopes over the highway. Fill slopes would be seen near Willits Creek.

**Figure 5-9. Proposed Condition Viewshed L, Alternative E3**

Traveling south on Sherwood Road, the Exley Lane Bridge might be visible at a far distance, but views of the bridge structure in the foreground would dominate. The highway would require large-scale grading and the concrete bridge structure would introduce manmade elements into a rural landscape.

The bridge structure would result in an adverse visual impact for the homes and ranches in the area. For highway users, this impact would be minimal, as one travels quickly over the bridge structure. The existing visual quality is medium/high and construction of Alternative E3 would reduce the visual quality from medium/high to low.

#### ***Historic District LAU***

Alternative E3 would not create a visual impact to the Historic District LAU or to any Central City visual receptors.

Alternative E3 would impact the South Valley Landscape unit, the western area of the Miracle Mile LAU (KOA campground and nearby ranches), the Brooktrails LAU, Viewshed “M” (Exley Lane), and Viewshed “L.”

Mitigation measures for Biological Resources (BIO-1 through BIO-12 and BIO-13) and Water Quality (WQ-1 through WQ-3) and Mitigation Measures VIS-1 through VIS-5, VIS-8, and VIS-10 will reduce visual impacts.

#### ***Alternative J1T***

Alternative J1T is a center valley alignment that stays close to the developed portion of Willits to minimize impacts to the agricultural land surrounding the town.

#### ***J1T: South Valley LAU***

Alternatives J1T, C1T and LT follow similar paths through this landscape unit. A major portion of the proposed highway would be placed on fills of previously graded roadbeds. Some of the homes and ranches in the area would view the Upper Haehl Creek Interchange. This area is sparsely populated. The highway itself would not pose a great visual impact for this landscape unit as it would blend with the existing rolling hills.

### *Viewsheds within South Valley LAU*

Viewshed “A” is at the beginning of the Upper Haehl Creek Interchange. This is an important viewshed because it is the entrance to the valley. Site grading for the interchange would remove a tree-covered hill on the north side of the highway. Some of the homes on Ridgewood Road and Hilltop Drive would see have views of this interchange. The highway would degrade this area because the scale of the highway would be intensified. On the other hand, the interchange would provide an opportunity to create an enhanced entry to the City of Willits. The visual quality of this viewshed remains medium/high both before and after highway construction. Any visual degradation would be experienced by viewers from existing homes. Highway users would experience the natural hillsides of the area.

Within Viewshed “P,” homes would have very limited views of Alternative J1T. Depending on the location, some residents would not see the highway, while others would get a glimpse of it. For drivers on East Side Road on the way to Pine Mountain, views of the highway would be framed by trees and rolling topography. The overall visual quality of this viewshed is medium to high. This quality would be lowered slightly.

### ***J1T: Little Lake Valley LAU***

Alternative J1T would negatively impact the Little Lake Valley Landscape unit. The viaduct between Center Valley Road and the north City limits would be an imposing 10 m (33 ft) high structure in the landscape. The existing riparian vegetation would be removed to place an urban-type structure in a rural area.

### *Viewsheds within Little Lake Valley LAU*

Viewers within Viewshed “G” would not see Alternative J1T because of intervening rows of trees and buildings. Ranches further away would not have views of the structures or fill slopes. This viewshed has a current quality of medium/high both before and after construction.

From U.S. 101 looking south, Viewshed “J” for Alternative J1T, motorists would see the Quail Meadows Interchange. This interchange would create a considerable physical change to the area. From the high point of the interchange, southbound travelers would have views of the east side of town. The visual quality of this area is low/medium and would not change after highway construction.

Viewshed “O” is a view from Hearst-Willits Road. At this viewpoint, one can see the entire valley below. Although a panoramic view, objects are seen at a smaller scale as the distances are far from the center of town. Viewers would be able to see the bypass from this location but at a very small scale. Only the largest graded slopes for Alternative J1T would be visible to the homes in this area. As highway plantings mature, the impact of graded slopes would diminish. The highway itself, however, would be seen at a distance. The visual quality score for this viewshed is medium before and after highway construction.

**J1T: Miracle Mile LAU**

The bypass would be located on the east side and parallel to Northwestern Pacific Railroad for approximately 1,700 m (5,600 ft). The roadway would be in harmony with the surrounding landscape since it would be parallel to the existing railroad landscape element. The greatest visual impact would be for the industrial developments, the senior citizens housing complex and the Senior Citizens Center near Baechtel Road. Currently, some of the buildings have views of the Little Lake Valley. The bypass would change the views since it places 10 m (33 ft) high fill slopes in this area. This, however, is a minimal visual impact for the Senior Citizen Center and the industrial buildings because they currently have limited viewing opportunities of the valley.

**J1T: Historic District LAU**

Alternative J1T would be located at the northeast corner of this landscape assessment unit and as a result of a relatively flat topography would not be visible from most of the homes in this area. The existing structures and vegetation would create a physical buffer between this landscape unit and the bypass. The bypass would be visible from several public facilities such as the rodeo grounds, the baseball fields, the public library, and Mendocino County Museum, which are in Viewshed “F,” and from Willits High School. Alternative J1T would have low impact to Willits High School, medium impact to the public library and the Mendocino County Museum. To construct the J1T alternative, Caltrans would purchase the Mendocino County Maintenance yard and remove all of the structures, which would be a visual improvement.

**J1T: Other LAUs and Viewsheds**

Alternative J1T would not impact the Brooktrails LAU, Viewshed H (Figure 5-10), or the following Central City visual receptors: Skunk Train Depot, the City Park, or the Community Center.

**Figure 5-10. Proposed Condition Viewshed H, Alternative J1T**

Alternative J1T would result in a visual impact to the baseball fields (Figure 5-11); however, the impact would not be substantial since the principle uses for the park are sports activities such as baseball and soccer. The fairgrounds are located west of the baseball fields and would experience low to medium impact. If it is determined during project design that headlight glare would be a problem for nighttime games at the ball fields or nighttime events at the fairgrounds, a glare screen could be considered on a portion of the bridge rail for the J1T viaduct.

Although Alternative J1T would not prohibit people from enjoying the baseball fields, it would change the current setting from rural, open space by introducing a large structure into the viewshed. This alternative may interfere with nighttime games due to headlight glare. This alternative may result in some headlight glare for nighttime events at the fairgrounds.

Mitigation Measures VIS-1 through VIS-7, VIS-10, BIO-1 through BIO-12 (Section 5.7) and WQ-1 through WQ-3 (Section 5.5) will reduce visual impacts.

### **5.10.5.3 Alternative LT**

#### ***LT: South Valley LAU***

The visual impact of Alternative LT is similar to that of Alternative C1T. The greatest visual impact would be for homes and ranches near the Upper Haehl Creek Interchange. The interchange would change the rural character of the area and introduce a man-made element into the landscape. The existing rolling hills would maintain the landforms of this area, thus creating a minimal visual impact for travelers.

**Figure 5-11. Proposed Condition Viewshed F, Alternative J1T**

### ***Viewsheds within the South Valley LAU***

Viewshed “A” is at the beginning of the Upper Haehl Creek Interchange. This is an important viewshed since it is the entrance to the valley. Site grading for the interchange would remove a tree-covered hill on the north side of the highway. Some of the homes on Ridgewood Road and Hilltop Drive would see this interchange. The highway would degrade this area because the scale of the highway would be intensified. On the other hand, the interchange would provide an opportunity to create an enhanced entry to the City of Willits. The visual quality for this viewshed remains medium/high after highway construction.

Homes within Viewshed “P” would have very limited views, if at all, of Alternative LT. Depending on the location, some residences would not see the highway, while others would get a glimpse of it. For drivers on East Side Road on the way to Pine Mountain, views of the highway would be framed by trees and rolling topography. After highway construction, the visual quality would be lowered slightly.

### ***LT: Little Lake Valley LAU***

The visual impact within this landscape unit would be similar to the impacts of Alternative C1T (Figure 5-12).

### ***Viewsheds within Little Lake Valley LAU***

Viewshed “G” looks west at Alternative LT from the perspective of ranches on flatlands. Adjacent homes and ranches probably would not have views of the alignment because of intervening trees, which would screen the views of Alternative LT. Ranches further away would not have views of the structures or fill slopes. The current visual quality of this viewshed would remain medium/high after construction.

The residents close to Alternative LT, just east of the alignment along Hearst-Willits Road and just west of the alignment on East Commercial Street would be able to see the embankment for Alternative LT, because there is little visual screening between these homes and the alignment.

Within Viewshed “J,” Alternative LT would have a low profile, creating a minimal visual impact.

**Figure 5-12. Photosimulation**

Viewshed “O” is a view from Hearst-Willits Road/Reynolds Highway. At this viewpoint, one can see the entire valley below. Although a panoramic view, objects are seen at a smaller scale as the distances are far from the center of town. Viewers would be able to see the bypass from this location but at a very small scale. As highway plantings mature, the impact of graded slopes would diminish. Initially, the highway itself would be seen at a distance at a very small scale. The visual quality for this viewshed is medium before and after highway construction.

### **LT: Other LAUs**

Alternative LT would not create a visual impact to the Miracle Mile LAU, the Brooktrails LAU, the Historic District LAU, or any Central City visual receptors except Willits High School, which would experience a low impact.

Mitigation Measures VIS-1 through VIS-5, VIS-10, BIO-1 through BIO-12 (Section 5.7), and WQ-1 through WQ-3 (Section 5.5) will reduce visual impacts.

#### **5.10.5.4 Alternatives C1T, J1T, and LT: Designated Borrow Site**

If the designated borrow site were used for fill material, excavation would begin north of the Reynolds Highway on the east side of the existing U.S. 101. Excavation would result in a visible cut slope next to the highway. Homes on the west side of the highway are far from the road. Dense woods provide a visual buffer for these residences. One home near the excavation on the east side of the highway and higher on the hill could be impacted visually.

If the designated borrow site is selected for borrow material for the proposed project, Mitigation Measures VIS-8 and VIS-9 will reduce visual impacts.

## **5.11 Noise**

### **5.11.1 Regulatory Setting**

#### **5.11.1.1 Federal Requirements**

Federal guidelines for assessing traffic noise are contained in Title 23 of the Code of Federal Regulations, Part 772 (23 CFR Part 772), “Procedures for Abatement of Highway Traffic Noise and Construction Noise.” These regulations constitute the

federal noise standard. Projects complying with this standard are also in compliance with the requirements stemming from NEPA.

FHWA and Caltrans use the criteria for evaluating noise impacts that are outlined in the "Traffic Noise Analysis Protocol, for New Highway Construction and Highway Reconstruction Projects - October, 1998." Based on the protocol, the proposed project is a Type 1 project. A Type I project is defined in 23 CFR 772 as follows: *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 that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes.*

Under FHWA regulations (23 CFR 772), noise abatement must be considered for Type I projects when the project results in a substantial noise increase, or when the predicted noise levels approach or exceed the Noise Abatement Criteria (NAC) (Table 5-22). Noise abatement measures that are reasonable and feasible and that are likely to be incorporated into the project, as well as noise impacts for which no apparent solution is available, must be identified and incorporated into the project's plans and specifications (23 CFR 772.11(e)(1) and (2)).

**Table 5-22. Activity Categories and Noise Abatement Criteria (NAC)**

Activity Category	NAC Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	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	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

### 5.11.1.2 State Regulations

Under CEQA, the potential for noise increase as a result of a project must be examined (CEQA Guidelines, Appendix G) and a substantial noise increase must be mitigated or identified as a noise impact for which it is likely that no, or only partial, abatement measures may be available.

Under the Streets and Highways Code, Section 216, if, as a result of a proposed freeway project, noise levels inside classrooms of public or private elementary or secondary schools exceed 52 dBA,  $L_{eq}(h)$ , the project proponent shall provide noise abatement to reduce interior classroom noise to the criteria or below. If the classroom noise exceeds the criteria before and after the freeway project, the project proponent shall provide noise abatement to reduce classroom noise to pre-project noise levels.

### 5.11.2 Impacts Thresholds

The following thresholds help to determine if a project would result in noise impacts:

- Persons are exposed to noise levels exceeding established standards of the local general plan or noise ordinance, or of other agencies (see regulatory setting above).
- When there is a substantial increase in noise levels. A substantial increase occurs when the predicted noise levels exceed existing noise levels by 12 dBA,  $L_{eq}(h)$ .
- When predicted noise levels approach (within 1 dBA) or exceed the federal Noise Abatement Criteria (NAC). The NAC for residences is 67 dBA,  $L_{eq}(h)$ .
- When noise levels within the *interior* of public or private elementary or secondary schools exceed 52 dBA,  $L_{eq}(h)$ .

### 5.11.3 Method of Analysis

Traffic noise levels generated by the proposed alternatives were calculated using the Caltrans traffic noise model Sound32. The Sound32 model is based on the methodology in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) but incorporates the California reference energy mean emission (Calveno) levels.

Sound32 calculates traffic noise based on the geometry of the site, which includes the positioning of lanes, receivers, and barriers. The noise source is the traffic flow,

which is input into the program in terms of hourly volumes and speeds of automobiles, medium trucks, and heavy trucks.

Caltrans North Region Office of Travel Forecasting and Analysis provided the traffic volumes used in the Sound32 noise prediction model. The vehicle mix was taken from the 2000 Annual Average Daily Truck Traffic on the California State Highway System (December 2001). Table 5-23 shows the vehicle mix percentages.

**Table 5-23. Vehicle Mix Percentages**

Vehicle type	Percentage
Automobile	92
Medium duty trucks	3
Heavy duty trucks	5

#### **5.11.4 Impact Analysis**

##### **5.11.4.1 Long-Term Noise Impacts**

Based on projections, noise levels without the project would remain virtually the same in most areas. With or without the project, sound levels along the existing U.S. 101 and S.R. 20 corridors would remain unchanged. Map 23 shows existing noise levels at a number of receptors along existing U.S. 101 approaching or exceeding a peak hour Leq(h) of 67 dBA. To have a perceptible change in the noise levels (3 dBA) the peak hour traffic would have to be reduced by 50 percent. In the rural areas, the noise levels would remain low.

Noise level increases along the proposed alternatives are predicted to range from 1 dBA to 19 dBA. Up to 13 locations could be impacted by the proposed project. Appendix M (Table M-1) includes a summary of predicted traffic noise impacts, showing the receptors that could be impacted by each alternative. Table M-1 shows existing noise levels and the results of noise modeling for the future build under each project alternative (2028). Where the noise levels approach or exceed the noise abatement criteria, noise abatement was analyzed. Where there was a substantial noise increase noise abatement/mitigation was also analyzed. The actual location of the receptors in relation to each alternative is shown on Map 23B in Volume II, Environmental Atlas.

### **Alternative C1T**

Noise levels along Alternative C1T show increases ranging from 1 to 16 dBA. At three locations (Receptors 3, 4, and 76) there would be substantial noise increases ( $\geq 12$  dBA, Leq(h) ) above the existing noise levels. Along with these three locations there are four additional locations (Receptors 11, 12, 15, and 92) where noise levels would approach or exceed the noise abatement criteria.

### **Alternative E3**

There are three locations (Receptor 16, 104, and 107) where there is a substantial increase over the existing noise level. There are eight locations (11, 12, 13, 14, 15, 81, 82, and 92) where the noise levels exceed or approach the noise abatement criteria.

### **Alternative J1T**

There are three locations (Receptors 3, 4, and 34) where there is a substantial increase in noise levels. There are five other locations (Receptor 11, 12, 13, 15, and 92) where the noise levels exceed or approach the noise abatement criteria.

### **Alternative LT**

There are two locations (Receptors 3 and 4) where there would be a substantial noise increase over the existing noise level. There are also ten other locations (Receptors 11, 12, 13, 15, 73, 74, 75, 80, 89, and 92) where the noise levels approach or exceed the noise abatement criteria.

#### **5.11.4.2 NEPA Noise Abatement Analysis**

For projects approaching or exceeding the Noise Abatement Criteria, noise abatement measures that are both *reasonable* and *feasible* must be identified (see Glossary for explanations of reasonableness and feasibility). Appendix M includes a summary (Table M-2) of impacted receptors and the feasibility and reasonableness of soundwall abatement for these impacted receptors. A soundwall was considered feasible only for receptors 73, 74, and 75. The conclusion was that a soundwall for these receptors did not meet the reasonableness criteria. The discussion below summarizes the results of the NEPA noise abatement analysis for each impacted receptor.

### **Alternative C1T**

Noise abatement was not considered at any of the receptors because Receptor 76 is proposed for purchase by the state and for Receptors 3 and 4, abatement would not be feasible due to inability to achieve 5 dBA reduction. Receptors 11, 12, 15, and 92 are outside the construction limits for Alternative C1T and abatement was not considered.

### **Alternative E3**

Noise abatement was not considered at Receptors 11, 12, 13, 14, 15, 16, 81, and 82 because the properties are proposed for purchase by the state, or at Receptors 104 and 107 because abatement would not be feasible due to inability to achieve 5 dBA reduction. The remaining receptor (92) was not considered for abatement because it is outside the limits of construction.

### **Alternative J1T**

Noise abatement was not considered at Receptor 34 because the property is proposed for purchase by the state or at Receptors 3 and 4 because abatement would not be feasible due to inability to achieve 5 dBA reduction. Receptors 11, 12, 13, 15, and 92 are outside the construction limits for Alternative J1T and abatement was not considered.

### **Alternative LT**

Noise abatement was not considered at Receptor 80 because the property is proposed for purchase by the state or at Receptors 3 and 4 because abatement would not be feasible due to inability to achieve 5 dBA reduction. Receptors 11, 12, 13, 15, 80, 89, and 92 are outside the construction limits for Alternative LT and abatement was not considered.

Noise abatement in the form of a soundwall was considered feasible at Receptors 73, 74, and 75. Receptors 73 and 75 are four single-family residences and Receptor 74 is the Seventh Day Adventist School. These receptors are located on Center Valley Road (Figure 5-13). A 2.5 m high soundwall would reduce future peak hour traffic noise levels (exterior) to below the Noise Abatement Criteria (NAC) as defined in CFR 772, with a minimum noise level reduction of 5 dB.

The reasonableness criteria was then applied to Receptors 73, 74 and 75, and concluded that, while the soundwall would be feasible, it is not reasonable. The allowable cost to build a 2.5 m high soundwall is \$222,000 (\$37,000 x 6 receptors)

(Table 5-24). Because the actual cost of building the soundwall is estimated at \$570,000, more than 2.5 times the allowable cost, a soundwall does not meet the reasonableness criteria.

**Table 5-24. Data For Determining Reasonableness**

<b>SOUND WALL I.D.: SW-1</b>				
<b>PREDICTED, W/O SOUND WALL</b>				
<b>Absolute Noise Level, <math>L_{eq}(h)</math>, dBA*</b>	<b>71</b>			
<b>Build Vs. No-build, dBA*</b>	<b>+8</b>			
<b>PREDICTED, WITH SOUND WALL</b>	<b>H=2.5 m</b>	<b>H=3.0 m</b>	<b>H=3.7 m</b>	<b>H=4.3 m</b>
<b>Insertion Loss (Noise Reduction), dBA*</b>	<b>7</b>	10	11	11
<b>No. of Benefitted Residences**</b>	<b>6</b>	6	6	6
<b>New Highway, or More Than 50% of Residences Predate 1978? (Yes or No)</b>	<b>YES</b>	YES	YES	YES
<b>Reasonable Allowance Per Benefitted Residence</b>	<b>\$37,000</b>	\$39,000	\$39,000	\$39,000

\*At critical receiver(s)

\*\* There are four single-family residences; the one school is considered as two units per Caltrans Noise Protocol.

**Figure 5-13. Evaluated Soundwall Location**

**5.11.4.3 CEQA Noise Impact and Mitigation Analysis**

According to the CEQA guidelines, a project may have a significant noise impact if it would increase substantially the ambient noise levels for adjoining areas. An increase of 12 dBA above the ambient noise level is defined as a substantial increase and could be considered significant under CEQA.

The following table shows the locations where, based on the results of the Sound32 noise model, there would be a substantial noise increase due to predicted traffic noise levels.

**Table 5-25. Locations of Predicted Substantial Noise Increase**

Receptor ID	Alternative CT	Alternative LT	Alternative J1T	Alternative E3
3	Yes	Yes	Yes	No
4	Yes	Yes	Yes	No
16	No	No	No	Yes
34	No	No	Yes	No
76	Yes	No	No	No
104	No	No	No	Yes
107	No	No	No	Yes

Of the above seven receptors, Receptor 76 on the C1T alignment and Receptor 16 on the E3 alignment are proposed for state acquisition prior to construction. Receptor 34 is a commercial location where there is no outdoor use that would benefit from a reduced noise level. Receptors 3, 4, 104, and 107 will have a substantial noise increase based on modeling yet the noise levels remain well below the NAC. Mitigation in the form of sound barriers would not be feasible because a 5 dBA reduction was not attainable.

Caltrans has found that open-graded asphalt can reduce traffic noise by 4 dBA to 6 dBA. The noise-reducing characteristics of open graded asphalt can be used when addressing the traffic-related noise impacts for the local/CEQA analysis.

Because FHWA does not officially accept the noise reduction aspects of open graded asphalt, the use of open graded asphalt was not taken into consideration for the federal/NEPA noise impact analysis. However, the noise reducing effects of open graded asphalt were applied to the previously modeled results for the CEQA analysis.

The analysis showed that there is only one location representing one receptor (107) on the E3 alignment where there would be a substantial noise increase. All other locations would be reduced to below a substantial noise increase.

Alternative E3 is 15.3 km (9.5 miles) in length and 67 receptor locations representing 162 receptors were analyzed. The predicted noise level at this location is 59 dBA but reduces to 54 dBA after taking into account the effect of open graded asphalt. Still, this 14 dBA increase exceeds the ambient noise level and is considered a substantial noise increase.

The normally acceptable land use category for residential usage in Mendocino County and the City of Willits is below Ldn 60 dBA. The analysis concluded that the noise level at Receptor 107 would remain in the same land use compatibility area with or without the project.

Based on the fact that there is only one receptor where there will be a substantial noise increase and it will remain in the same land use compatibility area, this is not considered a significant impact under the CEQA guidelines and no mitigation is required.

#### **5.11.4.4 Interior Classroom Noise**

If, as a result of a proposed freeway project, noise levels in classrooms of public or private elementary or secondary schools exceed 52 dBA, Leq (h) the Department shall provide noise abatement to reduce classroom noise to the criteria or below. If the classroom noise exceeds the criteria before and after the freeway project, the Department shall provide noise abatement to reduce classroom noise to pre-project noise levels.

Because these requirements apply to the Seventh Day Adventist School (Receptor 74), an analysis of the school classroom noise was conducted. The exterior noise levels were measured at Leq 54.7 dBA. Due to the low exterior noise level it was not possible to adequately measure the full amount of reduction created by the building facade. However, a typical building will provide a reduction of between 15 dBA for an older building and 25 dBA for a newer building from the exterior to interior noise levels. With the construction of Alternative LT, exterior noise levels are expected to increase to Leq 68 dBA, which is above the NAC and abatement has been analyzed

for exterior noise impacts. For the interior noise analysis, the following assumptions have been made: Based on the age of the school a mid-range (20 dBA) insertion loss was used to calculate the interior noise levels. With an exterior noise level of 68 dB and an insertion loss of 20 dB the interior noise level would be Leq 48 dBA; therefore, the project would not result in noise impacts (classroom interiors) to the school.

#### **5.11.4.5 Construction Equipment Noise Impacts**

Various construction activities for this project will occur over several years. During the construction phase of the project, noise from construction activities would dominate the noise environment in the immediate area. Activities involved in construction would generate noise levels ranging from 70 to 90 dB at a distance of 15m (50 ft) (Table 5-26). Construction activities would be temporary in nature, typically occurring during normal working hours. The following measures will reduce construction noise impacts.

**NOI-1:** The contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract (Caltrans Standard Specifications Section 7-1.01(I) “Sound control requirements.”)

**NOI-2:** Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler (Caltrans Standard Specifications Section 7-1.01(I) “Sound control requirements.”)

**NOI-3:** Minimize nighttime, holiday and weekend work. Although standard practice requires that construction be restricted to between the hours of 7:00 am and 7:00 pm (8:00 am and 7:00 pm on Saturdays), some nighttime work may be needed. Standard practice precludes construction work on Sundays and federal holidays.

**NOI-4:** Stationary construction equipment, such as compressors and generators, will be shielded and located as far away as feasible from receptor locations.

**NOI-5:** Place any maintenance yard, batch plant, haul roads, and other construction operations as far as possible from sensitive receptor locations.

**NOI-6:** Caltrans will keep area residents informed regarding construction work, the time involved, and control measures that will be used to reduce construction-related impacts.

**NOI-7:** A Traffic Management Plan will provide methods and restrictions to minimize construction traffic impacts to residents.

**Table 5-26. Construction Equipment Noise Ranges**

Type of equipment	Average noise level dBA
Pile Driver	100 @ 15 meters
Scrapers	88 @15 meters
Concrete Truck	82 @15 meters
Dump Truck	80 @15 meters
Front Loaders	80 @15 meters
Backhoes	79 @15 meters
Excavator	76 @15 meters
Bulldozers	71 @15 meters
Compressors	74 @15 meters
Cranes	70 @15 meters
Pumps	70 @15 meters

Sources: U.S. Army Corps of Engineers; U.S. Environmental Agency

## 5.12 Air Quality

### 5.12.1 Regulatory Setting

National and California Ambient Air Quality Standards have been established to define clean air. The standards establish the concentration at which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Both the California and federal governments have adopted health-based standards for the criteria pollutants, which include ozone, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and carbon monoxide. For some pollutants, the California (state) and national standards are similar. For other pollutants, the state

standards are more stringent. In addition, the state standards incorporate a margin of safety to protect sensitive individuals. USEPA promulgated national PM<sub>2.5</sub> standards in 1997. However, the transition to the PM<sub>2.5</sub> standard is just beginning, and the local air quality management districts are in the process of establishing monitoring stations.

The California Air Resources Board (CARB) coordinates and oversees both state and federal air quality control programs in California. The CARB establishes state air quality standards, monitors existing air quality, limits allowable emissions from mobile and stationary sources, and is responsible for developing the State Implementation Plan (SIP). The CARB has divided the state into many single and multi-county air basins. Willits is located in Mendocino County and this area is under the jurisdiction of the Mendocino County Air Quality Management District in the North Coast Air Basin.

#### **5.12.2 Method of Analysis**

Air quality impacts were addressed for the build and no-build alternatives. The dispersion modeling method followed that specified in Caltrans' Transportation Project-Level Carbon Monoxide Protocol. The modeling analysis concentrated on the microscale impacts of carbon monoxide (CO). The term microscale refers to an area near the project that might be directly affected by vehicular emissions associated with the project.

Air pollutant emission factors in the vicinity of the project area were calculated using the EMFAC7F computer program developed by the CARB. CO concentrations due to traffic emissions were modeled in the vicinity of the project using the Caltrans CALINE4 dispersion model. Modeled CO concentrations were then added to the existing background concentrations in order to project total CO concentrations.

#### **5.12.3 Impact Thresholds**

The following thresholds are used to determine if the project would have an impact on air quality:

- Conflicts with or obstructs implementation of the applicable air quality plan.
- Violates any air quality standard or contributed substantially to an existing or projected air quality violation.

- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors affecting a substantial number of people.

#### **5.12.4 Mitigation Measures**

The following measures will minimize impacts to air quality:

**AQ-1:** The contractor will apply water and/or chemical dust suppression on dirt haul roads and surfaces over which equipment travel.

**AQ-2:** The contractor will cover and/or water exposed dirt storage piles to inhibit wind erosion.

**AQ-3:** The contractor will stagger the time and location of fugitive dust-generating activities.

#### **5.12.5 Impact Analysis**

##### **5.12.5.1 Long-Term Air Quality Impacts for All Build Alternatives**

The air quality analysis results yielded no violations of the National Ambient Air Quality Standards or the California Ambient Air Quality Standards. The modeled 1- and 8-hour CO concentrations for all build alternatives, as well as the no build alternative are well below the standards. Therefore, based on the analysis conducted to date, the proposed project would have no air quality impacts to the region.

##### **5.12.5.2 Construction Impacts for All Build Alternatives**

Construction is a source of dust emissions that can have a substantial temporary impact on local air quality. Construction emissions would result from earthmoving (dust generation) and heavy equipment use. These emissions would be generated from land clearing, ground excavation, cut and fill operations, and the construction of the roadway itself. Dust emissions would vary substantially from day to day depending on the level of activity, the specific operations, and the prevailing weather. A major portion of these emissions probably would result from equipment traffic over

temporary construction roads. However, fugitive dust impacts could be substantial during conditions of limited atmospheric dispersion.

Caltrans staff met with the Mendocino Air Quality Management District (AQMD) in the spring of 2000 to ensure that the proposed mitigation measures, which are standard best management practices, comply with their Rule 430, as well as reduce construction dust emissions.

The AQMD concurred with Mitigation Measures AQ-1 through AQ-3 that are proposed to limit dust (PM<sub>10</sub>) from the construction site.

### **5.12.5.3 Asbestos**

Asbestos is a human health hazard when airborne and is regulated by the Air Resources Board and the Mendocino Air Quality Management District. As discussed in Section 5.9 Hazardous Materials, asbestos can be found in two forms: Naturally Occurring Asbestos (NOA) and structural asbestos. NOA is found in rock that is abundant in the State of California. Structural asbestos is found in older buildings as a construction material. If the project requires demolition of older buildings that contain asbestos or disturbance of rock formations that contain asbestos, certain removal techniques have to be incorporated to inhibit asbestos from becoming airborne.

Before the construction of any project, an Initial Site Assessment (ISA) is done on the project area. One component of the ISA examines the geology of the area for NOA and looks at the potential for structural asbestos in buildings that might be acquired for demolition. A full analysis of occurrence of asbestos in the project area is discussed in the Initial Site Assessment prepared for the Willits Bypass Project. The ISA recommended mitigation measures regarding asbestos are located in Section 5.9.

Mitigation Measures HAZ-7 and HAZ-8 will reduce air quality impacts related to naturally occurring and structural asbestos.

## 5.13 Energy

### 5.13.1 Regulatory Setting

The energy analysis for the proposed project was prepared pursuant to 40 CFR 1502.16(e) of the NEPA Guidelines, which states that the EIS shall include a discussion of “energy requirements and conservation potential of various alternatives...”; and Appendix G of the CEQA Guidelines, which states that a project will have an adverse (significant) effect if it has the potential “for using fuel, water, or energy in a wasteful manner.”

### 5.13.2 Method of Analysis

The Office of Traffic Forecasting provided all traffic information used in the energy analysis including the AADT for 2010-2015.

The energy analysis used a computer-modeling program developed by the California Department of Transportation. The Highway Energy Analysis Program (HEAP) is a computer model that determines energy consumption for different roadway alternatives. It calculated the direct and indirect energy due to traffic patterns and the indirect energy associated with roadway maintenance and construction. It also calculated the direct energy efficiency of the proposed alternatives and compared them with the no build alternative.

**Direct energy consumption** is the amount of fuel (gasoline or diesel) consumed by automobiles and trucks over a given period of time. Factors that influence fuel consumption and are taken into consideration include speed, grade, traffic density (free-flowing or congested) and a changing fuel economy due to newer, more fuel-efficient vehicles on the road.

**Indirect energy consumption** is associated with construction, operation and maintenance of the proposed project alternative, and the manufacture and maintenance of vehicles using the highway. HEAP estimates the indirect energy associated with the construction, maintenance, and replacement of roadway facilities. This includes:

- Fuels needed in the transportation of materials and equipment for the construction operation.

- Energy utilized in the manufacturing of parts, equipment, and other aspects that support construction activities.
- Energy consumed by maintenance operations, which represents the building, materials, fuels, and equipment needed for maintaining roadways.

**Direct energy efficiency** is analyzed in two ways:

- Vehicle Kilometers Traveled per Liter of Gasoline (VKmL) {MPG – miles per gallon}
- Energy Expended per Vehicle Kilometer Traveled (Btu/VKmT) {Btu/VMT – Btu/Vehicle Miles Traveled}

These measures of efficiency are calculated by HEAP based upon direct energy consumed, divided by the number of kilometers traveled for each alternative. Direct energy consumption is based on traffic volumes and physical characteristics of the alternatives and flow characteristics.

### **5.13.3 Impact Thresholds**

The proposed project would have an impact on energy and fuel resources if it has the potential “for using fuel . . . or energy in a wasteful manner.”

### **5.13.4 Impact Analysis**

#### ***Direct Energy Consumption***

Based upon projected energy consumption for the study period (2010-2015), direct energy expenditure for the build alternatives would range from 79.9 to 93.1 million liters (21.1 to 24.6 million gallons) of gasoline (Table 5-27). The lower direct energy consumption projected for the build alternatives is associated primarily with the reduction of traffic congestion and delay times during peak hours, the higher direct energy usage is due to an increase in VMT due to the alternatives’ longer lengths.

In comparison, the no build alternative would result in the consumption of approximately 83 million liters (22.0 million gallons), which is 16.2% lower to 2.4%

higher than the build alternatives. Table 5-27 shows a comparison of the alternatives with respect to energy efficiency.

**Table 5-27. Projected Direct Energy Consumption by Alternative: 2010 - 2015**

Description	No Build	Alternative C1T	Alternative E3	Alternative J1T	Alternative LT
LDVs	52.6 (13.9)	54.9 (14.5)	65.1 (17.2)	50.0 (13.2)	51.1 (13.5)
Trucks	30.7 (8.1)	23.0 (6.6)	28 (7.4)	23.1 (6.1)	23.5 (6.2)
Total Direct Energy	83.3 (22.0)	79.9 (21.1)	93.1(24.6)	73.1 (19.3)	74.6 (19.7)

Units are in millions of liters of gasoline equivalent (unit in parenthesis are equivalent millions of gallons)

**Indirect Energy Consumption**

The no build alternative would result in considerably less consumption of indirect energy due to the lack of construction (Table 5-28). Indirect energy consumption for the no build alternative would be equivalent to 31.8 million liters (8.4 million gallons).

**Table 5-28. Projected Indirect Energy Consumption by Alternative: 2010 - 2015**

Description	No Build	Alternative C1T	Alternative E3	Alternative J1T	Alternative LT
Vehicles	31.4 (8.3)	32.2 (8.5)	36.3 (9.6)	30.7 (8.1)	31.2 (8.2)
Road Maintenance	0.26 (.068)	0.40 (.105)	0.47 (.123)	0.37 (.098)	0.38 (.100)
Construction	0.0 (0.0)	125 (33.2)	270 (71.3)	144 (38.1)	120(31.9)
Total Indirect Energy	31.8 (8.4)	158 (41.8)	307 (81)	175 (46.3)	152.4 (40.2)

Units are in millions of liters of gasoline equivalent (unit in parenthesis are equivalent millions of gallons)

**Direct Energy Efficiency**

Looking at the vehicle kilometers per liter (KmL), vehicles using the build alternatives were calculated to have an average rating of approximately 8.6 to 9.1 KmL (20.0 to 23.8 MPG), compared to the no build alternative which is rated at an

average of 8.1 KmL (19.0 MPG). The build alternatives are approximately 6.2 to 12.3% more efficient than the no build alternative.

When analyzing the energy per vehicle kilometer traveled, the build alternatives were calculated to have a Btu/KmT rating of 4,151 to 4,461 Btu VKmT (6,680 to 7,180 Btu/VMT) and the no build is rated at 4,691 Btu/VKmT (7,550 Btu/VMT). The build alternatives are approximately 5% to 13% more efficient than the no build alternative. Table 5-29 shows a comparison of the alternatives with respect to energy efficiency.

**Table 5-29. Projected Direct Energy Efficiency by Alternative: 2010 - 2015**

Description	No Build	Alternative C1T	Alternative E3	Alternative J1T	Alternative LT
Kilometers per Liter (miles per gallon)	8.1 (19.0)	8.8 (20.6)	8.6 (20.0)	9.0 (21.5)	9.1 (21.4)
Btu/VKmT (Btu/VMT)	4,691 (7,550)	4,378 (6,980)	4,461 (7,180)	4,151 (6,680)	4,169 (6,710)
% Increase in Efficiency vs. No Build	0.0%	8.1%	5.0%	13.0%	12.5%

**Energy Impact Conclusion**

Any of the proposed build alternatives would consume approximately -12.2% less direct energy than the no-build alternative to 12.1% more direct energy than the no-build alternative. The amount of energy used as a result of energy efficiency factors would result in the build alternatives being 5% to 13% more efficient than the no-build alternative.

In terms of indirect energy consumption the build alternatives would use considerably more energy than the no-build alternative due to the tremendous amount of energy needed for construction. The build alternatives show an increase in energy consumption in the early years of operation due to the large amount of energy used during construction. Once this initial energy expenditure is accounted for, the improved U.S. 101 traffic flow would allow for an increase of energy efficiency over the no build alternative. The results of this analysis indicate that the build alternatives

would be a positive investment and would not result in any wasteful or inefficient use of energy resources.

## 5.14 Section 4(f) Resources

Pursuant to Section 4(f) of the United States Department of Transportation Act, 49 United States Code (USC) 303, the Secretary of Transportation shall not approve any project:

"...requiring the use of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge or national, state or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state or local officials having jurisdiction over the park, area, refuge, or site) [unless] (1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

The regulations implementing Section 4(f) state that "...any use of lands from a Section 4(f) property shall be evaluated early in the development of the action when alternatives to the proposed action are under study." (23 CFR 771.135(b)) Use of a Section 4(f) property occurs when:

- Section 4(f) properties are permanently incorporated into a transportation project. This occurs when the right of way for a new roadway must be located within the boundaries of a public park requiring the acquisition of all or part of the park property.
- There is temporary occupancy of Section 4(f) properties. This normally occurs when the construction process temporarily impairs the use of a 4(f) eligible property.
- There is a "constructive use" of Section 4(f) properties. Constructive use occurs when a transportation project impairs the activities, features or attributes of a Section 4(f) resource due to their proximity. For example, a constructive use may occur if an adjacent highway generates enough noise that it adversely affects the use of a park or blocks a scenic view.

- Historic properties and archaeological (cultural) resources included on, or eligible for, the National Register of Historic Places (NRHP) may be adversely affected. This may involve destroying the eligible property or degrading its setting so that it loses the qualities that made it eligible for the NRHP.

The City of Willits and the County of Mendocino are developing the Redwood Empire Railroad History Project, a 10-acre educational and recreational complex next to the Mendocino County Museum. In addition to the museum, the complex contains ball fields and plans to construct additional ball fields in the future. The project funding includes TEA-21 funds and is approved by the Mendocino Council of Governments and the California Transportation Commission.

The viaduct of Alternative J1T crosses the northwest corner of a city parcel containing the Railroad History Project recreational and educational complex. The City of Willits has planned the complex to prevent conflict with all of the proposed build alternatives, including Alternative J1T (Figure 5-14). The Railroad History Project is discussed also in Section 4.15. A letter from the City of Willits discusses the cooperative development of the city parcel and the bypass (Appendix N). FHWA has reviewed the joint planning for the concurrent development of the recreational facilities and the transportation project and determined that there is not a use of the protected property under Section 4(f).

Alternative J1T would cross a small sliver of the parcel and would not interfere with the recreation facilities. Also, based on predicted noise levels (Table 5-30), none of the recreational areas in close proximity to Alternative J1T would be impacted as the noise levels would not reach or approach the 67 dBA noise level threshold criteria.

**Table 5-30. Noise Impact Summary**

Receptor	Existing Level Leq(h), dBA	Highest* Predicted Level Leq(h), dBA
Lofling Ball Fields	56.1	58
Willits Rodeo Grounds	56.1	57
Recreation Grove Park	51.5	60

Section 5.10 Visual Resources discusses design solutions that will be considered if headlight glare is determined to be a problem for nighttime events at the ball fields or the fair grounds.

Based on coordination with interested Native American tribes and studies performed for cultural resources (Section 5.8), no archaeological properties or portions of historic properties that are eligible for the NRHP, or traditional cultural properties would be impacted by the project. However, archaeological properties have been identified within the APE that are potentially eligible for the NRHP and may require further investigation

FHWA has determined that none of the build alternatives would impact eligible historic, archaeological or other potential Section 4(f) properties. However, when a preferred alternative is chosen, all archaeological sites along the alignment will be reexamined in more detail. If any sites are determined eligible for the NRHP under Section 106 of the NHPA as a historical resource, they would also be considered a Section 4(f) resource. Section 4(f) will not apply if FHWA, after consultation with the SHPO and ACHP, determines that the archaeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place.

**Figure 5-14. Willits Long-Range Park Facilities**

## 5.15 SMARA Compliance

The valley alternatives would require from 1.8 million cubic meters (2.4 million cubic yards) to 2.4 million cubic meters (3.1 million cubic yards) for the construction of embankment (Section 3.3.2 Cut and Fill Requirements and Environmental Atlas Maps 25 through 28). Alternative E3 would not require additional fill material.

Caltrans has identified suitable material within its right of way in the Oil Well Hill area for embankment material. A SMARA permit is required for surface mining operations, including excavation of embankment material. Pursuant to SMARA, a permit application, an approved Reclamation Plan, and financial assurance must be submitted to the Department of Conservation, which issues the permit before surface mining operations may begin. Mendocino County has the approval authority for the Reclamation Plan, which contains mitigation for impacts that are identified as a result of the excavation work at the designated borrow site. The reclamation process requires annual reporting to both the state and the lead agency (Mendocino County) on the status of mining and reclamation activities, annual updates of financial assurances, and annual inspections (to be conducted under the auspices of the lead agency). Following completion of mining activities, and in accordance with the approved reclamation plan and relevant permit conditions, Caltrans will return the designated borrow site to a second, productive use. Possible post-mining uses for this area may include, but are not limited to, open space, wildlife habitat, agricultural lands, grazing, and park lands.

Removal of embankment material from the designated borrow site would result in impacts to biological resources (northslope forest, Northern spotted owl, red tree vole, and fisheries) and visual resources. Please refer to Sections 5.5 (Water Quality), 5.7 (Biological Resources) and 5.10 (Visual Resources) for specific impacts.

**DBS-1:** Caltrans and FHWA will obtain a SMARA permit before construction activities begin. Caltrans will submit a permit application, a Mendocino County-approved Reclamation Plan, and financial assurance to the Department of Conservation, Office of Mine Reclamation. Caltrans will implement the reclamation plan, which will include steps for maintaining water and air quality, minimizing flooding, erosion and damage to wildlife and aquatic habitats caused by the surface mining. The reclamation process will include topsoil replacement and revegetation with suitable plant species.

The reclamation plan also will contain measures to mitigate visual impacts. The plan will contain at a minimum Mitigation Measures BIO-2, BIO-16, BIO-17, BIO-18, BIO-19, BIO-24, BIO-25, WQ-1 and WQ-6, VIS-8, and VIS-9.

If the contractor selects an alternative borrow site(s) for this project, a separate environmental review for the contractor's site(s) would be required before the contractor obtains permits and begins construction.

## **5.16 CEQA Summary Table of Impacts and Mitigation Measures**

The following CEQA matrix of environmental impacts and mitigation measures lists the impacts identified in this Draft EIR/EIS, the level of each impact, proposed mitigation measures, and the level of each impact after mitigation.

Information in Table 5-31 has been prepared in response to CEQA requirements to list impacts, mitigation measures, and level of impact before and after mitigation. The table is organized to correspond to the impacts and mitigation measures discussions throughout Chapter 5, where the reader will find a detailed discussion of each environmental issue.

Environmental Justice (Section 5.2.5.3) and Section 4(f) Resources (Section 5.14) are not included in this table because they are federal-only requirements. In some instances, where the level of impact under CEQA before mitigation is less than significant, mitigation measures are listed in parenthesis. These mitigation measures are not required, but are proposed to lessen the impact further.

**Table 5-31. CEQA Summary of Environmental Impacts And Mitigation Measures**

Alternative	Environmental Impacts (Section Number)	Level of Impact under CEQA before Mitigation*	Mitigation Measures	Level of Impact under CEQA after Mitigation*
C1T, J1T, LT	Landsliding (5.1.4.1)	LS (GEO-2)	NA	NA
E3	Landsliding (5.1.4.2)	PS	GEO-1	PS
C1T, J1T, LT	Seismicity (5.1.4.2)	LS	NA	NA
E3	Seismicity (5.1.4.2)	PS	GEO-3	PS
All alts.	Settlement (5.1.4.3)	LS (GEO-4)	NA	NA
All alts.	Liquefaction (5.1.4.4)	LS (GEO-5)	NA	NA
All alts.	Impacts to Community Cohesion (5.2.4.1)	B	NA	NA
C1t, J1T, LT	Residential Relocation (5.2.5.2)	PS	COM-1	LS
E3	Residential Relocation (5.2.5.2)	S	COM-1 – COM-4	S
All alts.	Affordable Housing Supply (5.2.5.4)	LS	NA	NA
All alts.	Business Relocation or Disruption (5.2.5.5)	LS (COM-1)	NA	NA
J1T South	Business Relocation or Disruption (5.2.5.5)	PS	COM-1	LS
All alts.	Effects on City and County Tax Revenue (5.2.5.6)	LS	NA	NA
All alts.	Effects on Property Tax Base	LS	NA	NA
All alts.	Business Impacts (5.2.5.8)	LS	NA	NA
All alts.	Regional Economic Impacts (5.2.5.9)	B	NA	NA
All alts.	Public Facilities (5.3.2)	NI	NA	NA
All alts.	Public Services Long-Term (5.3.3.1)	B	NA	NA
All alts.	Public Services Short-Term(5.3.3.2)	LS	NA	NA
All alts.	Farmland/Prime Soils conversion to other uses (5.4.6.1)	S	FRM-1 – FRM-4	LS
E3, C1T	Williamson Act Contract land converted to other uses (5.4.6.1)	S	FRM-1, FRM-4	LS
J1T, LT	Williamson Act Contract land converted to other uses (5.4.6.1)	PS	FRM-1, FRM-4	LS
C1T, J1T, LT	Timberland (5.4.6.2)	NI	NA	NA
E3	Timberland (5.4.6.2)	LS	NA	NA

\* KEY to levels of impact: PS = potentially significant impact; S = significant impact; LS = less than significant impact; B = beneficial impact; NI = no impact; NA = not applicable

Alternative	Environmental Impacts (Section Number)	Level of Impact under CEQA before Mitigation*	Mitigation Measures	Level of Impact under CEQA after Mitigation*
All alts.	Short-term Water Quality: sediment, turbidity, floating material (5.5.6.1)	PS	WQ-1	LS
All alts.	Short-term Water Quality: oil, grease, chemical contamination (5.5.6.2)	PS	WQ-2	LS
C1T, E3	Short-term Water Quality: increases in temperature (5.5.6.3)	PS	WQ-3 – WQ-5	PS
All alts.	Long-term Water Quality: sediment, turbidity, floating material (5.5.6.4)	PS	WQ-6, WQ-7	LS
All alts.	Long-term Water Quality: oil, grease, and chemical contamination (5.5.6.5)	LS (WQ-1, WQ-8)	NA	NA
C1T, J1T, LT	Floodplain Encroachment (5.6)	PS	FP-1 – FP-4	LS
E3	Floodplain Encroachment (5.6)	LS	NA	NA
C1T	Impacts to Sensitive Plant Communities (5.7.4.4)	S	BIO-1 – BIO-6, BIO-8, 9, 13	S
E3	Impacts to Sensitive Plant Communities (5.7.4.4)	S	BIO-1 – BIO-6, BIO-8, 10, 13	S
J1T, LT	Impacts to Sensitive Plant Communities (5.7.4.4)	S	BIO-1 – BIO-6, BIO-8, 9, 13	LS
C1T, J1T, LT	Designated borrow site. No sensitive plan communities	NI	NA	NA
C1T, J1T, LT	Special-status Plants (5.7.4.5)	S	BIO-1 – BIO-6, BIO-11	LS
E3	Special-status Plants (5.7.4.5)	S	BIO-1 - BIO-6, BIO-12	LS
C1T, J1T, LT	Designated borrow site: No special status plant species.	NI	NA	NA
C1T	Impacts to Wetlands and Waters of the U.S. (5.7.4.6)	S	BIO-1 – BIO-6, BIO-13	S
E3, J1T, LT	Impacts to Wetlands and Waters of the U.S. (5.7.4.6)	S	BIO-1 – BIO-6, BIO-13	LS
C1T, J1T, LT	Designated borrow area: No wetlands or waters of the U.S., but potential indirect impacts could include erosion of disturbed soils that could enter Outlet Creek during major storm events. Caltrans BMPs would contain project-generated sediments.	LS	NA	NA
C1T	Special-Status Wildlife (5.7.4.7)	S	BIO-1 – BIO-6, BIO-9, 14	LS
E3	Special-Status Wildlife (5.7.4.7)	S	BIO-1 – BIO-6, BIO-9, 13, 15, 17	S
J1T	Special-Status Wildlife (5.7.4.7)	S	BIO-1 – BIO-6, BIO-8, 9, 18, 19	LS
LT	Special-Status Wildlife (5.7.4.7)	S	BIO-1 – BIO-6, BIO-9, 20	LS

Alternative	Environmental Impacts (Section Number)	Level of Impact under CEQA before Mitigation*	Mitigation Measures	Level of Impact under CEQA after Mitigation*
C1T, J1T, LT	Special-Status Wildlife Borrow Site (5.7.5.4)	PS	BIO-15 – BIO-17	LS
All alts.	Impacts to Other Wildlife (5.7.4.8)	S	BIO-8, 9, 13, 21	LS
C1T, J1T, LT	Designated borrow site: Would result in removal of 12-16 ha (30-40 ac) mixed north-slope forest, which could provide shelter for deer, and foraging and nesting habitat for other wildlife species.	S	BIO-15	LS
C1T, E3	Impacts to Special-status Fish (5.7.4.9)	S	BIO-1 – BIO-7, 9, 22	S
J1T, LT	Impacts to Special-status Fish (5.7.4.9)	S	BIO-1 – BIO-7, 9, 22	LS
C1T, J1T, LT	Designated borrow site: Indirect impacts to fisheries could result from construction related sediments that could enter Outlet Creek	PS	BIO-22	LS
All alts.	Impacts Related To Invasive Plant Species (5.7.4.10)	PS	BIO-23	LS
All alts.	Cultural Resources (5.8)	PS	ARCH-1 – ARCH-3	LS
J1T	Hazardous Materials (5.9)	PS	HAZ-1 – HAZ-6	PS
C1T, E3, LT	No sites present.	NI	NA	NA
All alts.	All of the build alternatives have a potential for the presence of asbestos-containing building materials (ACBM) and lead-based paint in the buildings within the project boundaries.	PS	HAZ-7, 8	LS
All alts.	Would be beneficial in reducing potential for hazardous spills for most interregional transport.	B	NA	NA
C1T	Visual Resources (5.10)	PS	VIS-1 – VIS-5, VIS-10, BIO-1 – BIO-12, WQ-1 – WQ-3	LS
E3	Visual Resources (5.10)	S		LS
J1T, LT	Visual Resources (5.10)	PS		LS
C1T, J1T, LT	Designated Borrow Site Visual Impacts	PS	VIS-8, 9	LS
All alts.	Long-Term Residential Noise Impacts (5.11.4.1)	LS	NA	NA
C1T, E3, J1T, LT	School Noise Impacts (5.11.4.2)	LS	NA	NA

<b>Alternative</b>	<b>Environmental Impacts (Section Number)</b>	<b>Level of Impact under CEQA before Mitigation*</b>	<b>Mitigation Measures</b>	<b>Level of Impact under CEQA after Mitigation*</b>
All alts.	Construction Equipment Noise (5.11.4.3)	LS (NOI-1 – NOI-8)	NA	NA
All alts.	Long-Term Regional Air Quality (5.12.5.1)	LS	NA	NA
All alts.	Short-Term Construction Air Quality (5.12.5.2)	LS	NA	NA
All alts.	Energy (5.13)	B	NA	NA
C1T, J1T, LT	SMARA (5.15)	PS	DBS-1	LS