WILLITS BYPASS

MENDOCINO COUNTY

KP R69.4/KP 84.2 (PM R43.1/52.3) [EA26200]

DRAFT
ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT

United States Department of Transportation
Federal Highway Administration

California Department of Transportation

VOLUME 1 OF 2

MAY 2002

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Report Number: SCH Number:
01-Men-101, KP R69.4/84.2 (PM R43.1/52.3)
262000

Construction and Operation of a Freeway Bypass on US 101 around the City of Willits in Mendocino County, California from KP R69.4 to KP 84.2 (PM R43.1/52.3)

DRAFT
ENVIRONMENTAL IMPACT STATEMENT/ ENVIROMENTAL IMPACT REPORT

Submitted Pursuant to:

National Environmental Policy Act, 42 U.S.C 4332 (2)(c) and the
California Environmental Quality Act, Div. 13, Public Resources Code
by the United States Department of Transportation-Federal Highway Administration
and the State of California Department of Transportation

Cooperating Agencies
California Transportation Commission, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service

Trustee Agency
California Department of Fish and Game

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ABSTRACT: The California Department of Transportation and the Federal Highway Administration propose to construct a new segment of U.S. 101 that would bypass the City of Willits in Mendocino County. Four build alternatives are under active consideration. Three of these alternatives would construct a new freeway segment east of Willits; the fourth alternative would construct a new freeway segment west of Willits. The alternatives vary in length from 9.0 kilometers (5.6 miles) to 14.8 kilometers (9.2 miles). A no build alternative is also under consideration. Mitigation measures are proposed to reduce impacts to various resources, such as biological resources, including wetlands; visual and cultural resources; farmland; business and residential relocations; minority and low-income residents; and hazardous materials.

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Summary

S.1 Introduction

The following summary focuses on major areas of importance to decision-makers regarding the proposed project. The reader will find additional pertinent information regarding the project, such as detailed project description, in the body of the report.

This Draft Environmental Impact Report (EIR) / Environmental Impact Statement (EIS) contains two volumes. Volume 1 consists of ten chapters, following this summary, and the Technical Appendices. Maps are included separately in Volume 2, Environmental Altas. To read this Draft EIR/EIS, readers should have Volume 2. Readers may wish to review Chapter 1 Introduction, which describes the purpose of this document and how to use it.

S.2 Summary of Proposed Action And Its Alternatives

The project area is located in the City of Willits (Willits) in Mendocino County (Figure S-1). The project is being proposed to reduce delays, improve safety, and achieve a "C" Level of Service (LOS -- a qualitative means of describing traffic conditions, Table 2-1) for interregional traffic. To address these operational problems due to the current facility being used as both an interregional through route and a local main street, the project proposes construction of a new segment of U.S. 101 that would bypass Willits (Figure S-2). The Willits Bypass project has been programmed for $116 million for capital improvements in the 2002 State Transportation Improvement Plan. Start of construction is scheduled for 2005. The Mendocino Council of Governments included its entire $17.3 million share of 1998 Regional Improvement Program funds for the project. Estimated capital costs for the build alternatives are Alternative C1T-- $128 million; Alternative E3 -- $301 million; Alternative J1T -- $151 million; and Alternative LT -- $130 million. Additional state and regional funds will be the source of the balance of funds needed to construct the project.

Approximately thirty bypass alternatives have been considered during the project's history (Figure S-3). The earliest alternative, referred to as Alternative A, was formally adopted by the California Transportation Commission (CTC) in 1963, prior to federal and state environmental laws. It involved building a new freeway segment across the Little Lake Valley and was essentially a straight line that was the shortest

possible route between the beginning and ending points for the bypass. This alternative was dropped eventually because of its adverse environmental impacts. Since then, other alternatives have been considered as a result of public and governmental agency input and independent investigation by Caltrans staff.

This Draft EIR/EIS presents four build alternatives to implementing the proposed project. Four of the alternatives (C1T, E3, J1T, and LT) would construct a four-lane freeway bypassing the Willits. Alternatives C1T, J1T, and LT would cross the Little Lake Valley east of Willits. Alternative E3 would traverse the hills west of Willits (Figure S-2).

In addition, a No-Build Alternative is being considered. Under, the No-Build Alternative, traffic would continue to travel on existing U.S. 101 on the same facility motorists now use.

The Willits Bypass Project Development Team (PDT) divided each alternative into smaller sections for evaluation purposes. This “nodal approach” also allows for combining sections of different alternatives, thus providing greater flexibility in identifying a preferred alternative (Section 1.5 Nodal Analysis). Most of the text and tables in this document display data in a manner that allows environmental impacts of each segment to be evaluated separately.

Chapter 3 of this document describes in detail each alternative under consideration and the alternatives that were considered but eliminated because they were determined to be infeasible or not “practicable.”

Figure S-1. Project Location

Figure S-2. Project Alternatives and Nodal Locations

Figure S-3. Alternatives That Have Been Studied and Eliminated

S.3 Summary of Possible Controversial Issues

CEQA Guidelines (Sec. 15123) and NEPA Regulations (40 C.F.R. 1502.12) require the summary to identify areas of controversy known to the lead agency including issues raised by other agencies and the public.

S.3.1 Two-Lane Bypass

FHWA regulations do not allow development of a facility that would be functionally obsolete within its design life. In 1992, Caltrans staff studied a two-lane bypass of Willits and determined that a two-lane bypass would not achieve a satisfactory level of service or improve safety. In 2000, after all technical studies were completed for the current range of alternatives, the Willits Environmental Center (WEC)[1] asked Caltrans to reconsider a two-lane alternative for the proposed bypass project. In response, Caltrans analyzed the concept but chose not to add a two-lane alternative because, foremost, a two-lane alternative would not meet the "purpose and need" for the project. The "purpose and need" calls for a facility that would provide a LOS “C” through the 20-year design period (i.e., 2028). A two-lane facility would provide a LOS “D” at peak hour upon construction (2008), and would diminish to LOS "E" within the 20-year period.[2] LOS "E" exists when a facility is at capacity during peak traffic flows. Thus, a new two-lane highway would be functionally obsolete within the design period. This issue is discussed in detail in Section 3.6.2.

S.3.2 Wetlands and Other Waters of the U.S.

Wetlands are distributed widely in the Little Lake Valley east of U.S. 101. Any of the valley alternatives (C1T, J1T, and LT) would result in the loss of a portion of these wetlands, with Alternative C1T having the greatest impacts. Alternative C1T would impact 52.3 ha (129.1 ac) of wetland habitat that qualifies as waters of the United States (U.S.). Impacts to wetlands and other waters of the U.S. are discussed in detailed in Section 5.7.4.6.

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[1] The Willits Environmental Center (previously Willits Citizens for a Safe Environment) has been a member of the project’s Technical Advisory Group since 1990.

[2] It is important to recognize that LOS of "C" on a 4-lane freeway is substantially different than LOS "C" on a 2-lane highway, in that a freeway offers continuous passing opportunities. On a 2-lane road, passing opportunities are affected by volume and sight distance. Average operating speeds are directly affected by slower traffic.

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

- Alternative C1T: 30.0 ha (74.2 ac) north segment and 22.3 ha (55.1 ac) south segment for a total of 52.3 ha (129.1 ac)
- Alternative E3: 1.0 ha (2.5 ac) north segment and 5.1 ha (12.6 ac) south segment for a total of 6.1 ha (15.1 ac)
- Alternatives J1T: 11.6 ha (28.9 ac) north segment and 9.5 ha (23.5 ac) south segment for a total of 21.1 ha (52.4 ac)
- Alternative LT: 11.3 ha (28.1 ac) north segment and 18.1 ha (44.7 ac) south segment for a total of 29.4 ha (72.8 ac)

S.3.3 Special-Status Plants

Two special-status plant species would be impacted by the build alternatives: Baker's meadowfoam and glandular western flax. Impacts include the direct loss of habitat that supports special-status species; direct loss of individual special-status plants; and indirect impacts. Indirect impacts could include project-related activities near habitats that support special-status species that could subsequently reduce habitat quality for those species. Direct and indirect impacts to special-status plants would be:

- Alternative C1T: 33,700 Baker's meadowfoam plants (north segment); 10,300 Baker's meadowfoam plants (south segment)
- Alternative E3: one population (less than 100 plants) of glandular western flax
- Alternatives J1T: 33,200 Baker's meadowfoam plants (north segment); 2,000 Baker's meadowfoam plants (south segment)
- Alternative LT: 33,200 Baker's meadowfoam plants (north segment)

S.3.4 Wildlife, Including Special-Status Species

All of the alternatives could impact riparian birds (including yellow warbler, yellow-breasted chat, and little willow flycatcher), raptors (including northern harrier, Cooper's hawk, white-tailed kite, and golden eagle), northwestern pond turtle, and foothill yellow-legged frog. In addition, Alternative E3 and the designated borrow site could impact Northern spotted owl and red tree vole.

Impacts include the direct loss of habitat that supports special-status species; direct loss of individual special-status species; and indirect impacts. Indirect impacts could

include project-related activities near habitats that support special-status species that could subsequently reduce habitat quality for those species.

S.3.5 Special-Status Fish Impacts

Three special-status fish, which use project area streams for migration, spawning, and rearing, would be affected potentially by all the alternatives: coho salmon (*Oncorhynchus kisutch*), fall-run chinook salmon (*oncorhynchus tshawytscha*), and steelhead (*Oncorhynchus mykiss*).

Alternative C1T would have the greatest impacts to fisheries, followed by Alternative E3. Alternatives J1T and LT would have the least impacts to fisheries. Alternative C1T would require the realignment of three creeks: 275 m (900 ft) of upper Haehl Creek (south segment of Alternative C1T); 400 m (1,300 ft) of Mill Creek and 1,600 m (5,250 ft) of Outlet Creek (north segment of Alternative C1T).

Alternatives J1T and LT (south segments) would require the realignment of 275 m (900 ft) of upper Haehl Creek.

Alternative E3 would create the greatest impacts of potential erosion relative to the other alternatives. The proposed alternative would directly impact or degrade 3.6 ha (8.9 ac) of riparian habitat, most of which is along Haehl Creek, due to channel realignment. Impacts to wildlife, including special-status species, in the project area are discussed in Sections 5.7.4.7 and 5.7.4.8. Impacts to special-status fish are discussed separately in Section 5.7.4.9.

S.3.6 Farmland Impacts

Alternative E3 would exceed the Farmland Protection and Policy Act 160-point threshold in its conversion of Prime and Unique Farmland to other uses and would result in the largest conversion of agricultural land (288 ha/713 ac) of the other build alternatives. However, Alternatives C1T, J1T and LT would come close to exceeding the 160-point threshold in their conversion of Prime and Unique Farmland. The greatest impact to agricultural lands would be at the southern segments of all of the build alternatives. Section 5.4.2 discusses impacts to farmlands in the project area.

S.3.7 Community Impacts

Alternative E3 would require 114 residential relocations. 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, the six mini-storage units associated with this business, and a portion of a large local trucking company. Section 5.2 discusses impacts to community resources.

S.4 Issues To Be Resolved

This DEIR/EIS does not identify a "preferred" alternative. Based on the information provided in this document, as well as oral and written comments from the public and governmental agencies, Caltrans and FHWA will identify preferred alternatives and select one for implementation. The preferred alternative that is selected for implementation will be identified in the Final EIR/EIS.

S.5 Least Environmentally Damaging Practicable Alternative (NEPA) and Environmentally Superior Alternative (CEQA)

Because of impacts to wetlands and other waters of the U.S. that are subject to U.S. Army Corps of Engineers (ACOE) jurisdiction, project sponsors must evaluate all practicable alternatives that avoid or would have less adverse impacts to aquatic resources (Clean Water Act, Section 404 (b)(1) Guidelines, Alternatives Analysis). The Section 404(b)(1) Alternatives Analysis is a specific evaluation to determine the Least Environmentally Damaging Practicable Alternative (LEDPA) to wetlands and other waters of the U.S., including wetlands, while meeting the project's purpose. ACOE will issue a Section 404 Permit only for the LEDPA.

The California Environmental Quality Act [Guidelines Sec. 15126(d)] requires EIRs to identify the environmentally superior alternative from the range of reasonable alternatives being evaluated. If the environmentally superior alternative is the No-Build Alternative, the EIR "shall also identify an environmentally superior alternative among the other alternatives." The LEDPA would be considered the environmental superior alternative for CEQA purposes.

The Section 404 analysis of the build and no-build alternatives for this project concluded that Alternatives E3 and C1T do not meet the LEDPA as required under

the Guidelines because of unavoidable and unacceptable environmental consequences and/or because of excessive costs. The No-Build Alternative, while being the least environmentally damaging alternative, does not meet the purpose and need of the project.

The two remaining alternatives, J1T and LT, would have similar impacts at the Quail Meadows Interchange where both Alternatives J1T and LT converge. Alternative J1T has lesser wetland impacts than Alternative LT in the southern segment. The analysis concluded that either Alternative LT or J1T meets Guidelines criteria for the LEDPA, because these alternatives meet the project's purpose and need and have moderate wetland impacts with lesser environmental consequences to other resources (e.g., community, cultural resources, fisheries).

Following the public comment period and input from the resource and regulatory agencies, the NEPA preferred alternative/Section 404 LEDPA will be disclosed in the Final EIS. If a build alternative is selected, project features will be refined for additional minimization of impacts and avoidance of resources within the project limits. In addition, a detailed compensatory mitigation plan will be finalized and approved by the resource agencies for all unavoidable impacts to aquatic resources based on the agreed upon preferred alternative. The Section 404 Alternatives Analysis is included herein as Appendix H.

S.6 Irreversible Commitment of Natural Resources

The proposed project would not result in an irreversible commitment of resources (i.e., fossil fuels, fiscal resources, land use, labor, etc.). Considerable amounts of fossil fuels and highway construction materials such as cement and aggregate would be expended in construction of the proposed project. Additionally, a large amount of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon their continued availability. Construction of the project also would require a substantial one-time expenditure of both state and federal funds that are not retrievable. The commitment of these resources will benefit the region, the state, and the residents of the immediate area with an improved transportation system. Benefits consist of improved safety and savings in time and fuel, which are anticipated to outweigh the commitment of the resources being used.

S.7 Adverse Environmental Effects that Cannot be Avoided if the Project is Implemented

An EIS must discuss the environmental impacts of the proposed action and its alternatives including any adverse environmental effects which cannot be avoided should the proposal be implemented (40 CFR 1502.16). The CEQA requirement is comparable in that an EIR must include a description of those impacts identified as significant and unavoidable if the proposed project were constructed [CEQA Guidelines, Section 15126.2(b)]. A project results in unavoidable impacts if mitigation is not effective in reducing the impact or if no mitigation or only partial mitigation is feasible. Table S-1 illustrates impacts, by alternative, that cannot be avoided if the project is implemented.

Table S-1. Comparison of Alternatives

X= With mitigation, impact remains O= With mitigation, impact reduced or minimized	C1T	E3	J1T	LT
Landsliding and other Seismic Impacts	O	X	O	O
Relocation Impacts	O	X	O	O
Impacts to Minority or Low-Income Populations (Environmental Justice)	O	O	O	O
Water Quality	X	X	O	O
Sensitive Plant Communities	O	X	O	O
Waters of the U.S.	X	O	O	O
Special Status Wildlife	O	X	O	O
Special Status Fish Species	X	X	O	O
Potential Hazardous Waste Properties	O	O	X	O

S.7.1 Landsliding and other Seismic Impacts

- Alternative E3: Even with special design mitigation, the ***potential for landslides*** would remain high for this alternative.

S.7.2 Relocation and Environmental Justice Impacts

- Alternative E3 would require 114 ***residential displacements.***
- Alternative E3: Alternative E3 would result in the relocation of low-income residents. However, last resort housing payments and other relocation benefits constitute off-setting benefits that will reduce impacts to affected low-income residents.

S.7.3 Water Quality and Special Status Fish Species

- Alternatives C1T (north segment): Because of realignment of over 2,000 m (6,500 ft) of Mill Creek and Outlet Creek, and removal of riparian vegetation along some channel reaches, Alternative C1T would result in adverse impacts to ***fish migratory patterns and habitat quality***, including *water temperature*.
- Alternative E3: Potential for impacts to ***fish populations and suitable salmonid habitat*** (including *water temperature*) resulting from erosion is greatest with Alternative E3. Also would require several stream crossings and would impact 3.6 ha (8.9 ac) of riparian habitat primarily along Haehl Creek, due to channel realignment.

S.7.4 Sensitive Plant Species

- Alternative E3: Would impact 32.8 ha (81 ac) of ***sensitive plant communities.*** The loss of 22.7 ha (56.1 ac) of oak woodlands, in particular, would be adverse, because of the length of time required for oak trees to grow into stands of mature trees that provide wildlife habitat.

S.7.5 Waters of the U.S.

- Alternative C1T: Would impact 52.3 ha (129.1 ac) ***wetlands and other waters of the U.S***. The north segment would also require the realignment of approximately 400 m (1,300 ft) of Mill Creek and 1,600 m (5,250 ft) of Outlet Creek.

S.7.6 Special Status Wildlife Species

- Alternative E3: Direct and indirect impact to intermittent streams resulting from culvert construction on the smaller drainages within this alignment would have impacts to ***foothill yellow-legged frogs*** and their habitats.
- Alternative E3: This alternative's impacts are unavoidable because of the magnitude of impacts and the difficulty of reestablishing mid- and old-growth forested habitat that provide optimal habitat for ***Northern spotted owl*** and ***red tree vole***.

S.7.7 Hazardous Waste Sites

- Alternative J1T: There is an unknown risk related to hazardous waste clean-up costs because four ***potential hazardous waste properties*** are located along its alignment.

S.8 Summary of Federal Actions Required for this Project

S.8.1 NEPA/404 MOU Integration Process

A Section 404 Individual Permit will be required from ACOE for impacts on wetlands and waters of the U.S. The ACOE issues the permit; however, the U.S. Environmental Protection Agency (USEPA) has oversight and override authority of this permit.

Concurrence has been obtained on the project's purpose and need, modal choice, range of alternatives and criteria for choosing an alternative by the signatories of the NEPA/404 Memorandum of Understanding (MOU): ACOE, USEPA, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), Federal Highway Administration (FHWA), and Caltrans. Concurrence also was received from the California Department of Fish and Game (CDFG). Although CDFG is not a signatory agency in the NEPA/404 MOU, Caltrans and FHWA invited them to participate early in the process.

An alternatives analysis (Appendix H) is being conducted in accordance with the Section 404(b)(1) Guidelines and the NEPA/404 Integration Process. The Section 404(b)(1) Alternatives Analysis is a specific evaluation to determine the Least Environmentally Damaging Practicable Alternative (LEDPA) to waters of the U.S., including wetlands, while meeting the project's purpose. This information would be used to obtain the Individual Permit from ACOE.

In coordination with public circulation of the Draft EIR/EIS, ACOE issues a Section 404 public notice of the Draft EIR/EIS. FHWA and Caltrans evaluate the Draft EIR/EIS comments received, and ACOE evaluates comments received on the Section 404 public notice. Following comments received on the Draft EIR/EIS and the Section 404 public notice, Caltrans/FHWA, ACOE and USEPA are required to concur with the NEPA-preferred/Section 404 LEDPA, which will be documented in the Final EIR/EIS for final approval. Written agreement that the preferred alternative is the LEDPA would be required from ACOE and USEPA. Agreement that the project mitigation plan and implementation schedule is adequate would be required after circulation of the Draft EIR/EIS, as well.

After circulation of the Draft EIR/EIS and identification of the LEDPA, a preliminary agreement with USFWS on project mitigation would be required. A "Non-Jeopardy" Biological Opinion pursuant to the Endangered Species Act (federal) also would be

required from USFWS at that time. After Final EIR/EIS approval, the document is circulated and ACOE issues a Section 404 public notice of the proposed Individual Permit.

The following documents will be included in the Final EIR/EIS as a preliminary agreement of Section 404(b)(1) compliance:

- Written USFWS preliminary agreement in the project mitigation plan as a result of earlier Fish and Wildlife Coordination Act consultation,
- Written USFWS/NMFS Non-Jeopardy documentation,
- Section 401 certification from State Water Quality Control Board, and
- Written ACOE and USEPA preliminary agreement on the following:
    - The final EIS NEPA preferred/Section 404 LEDPA,
    - That the project will not significantly degrade the aquatic environment, and
    - That the project mitigation plan and implementation schedule is adequate.

S.8.2 Section 7 Endangered Species Act

FHWA and Caltrans currently are engaged in informal consultation with USFWS and NMFS under Section 7 of the Endangered Species Act. FHWA and Caltrans continue to meet with agency staff to discuss their concerns and mitigation approaches. When a preferred alternative is selected, after public circulation of the Draft EIR/EIS, formal consultation will begin. At this time also, Biological Assessments on Northern spotted owl, coho salmon, Northern California steelhead, and California coastal chinook salmon will be prepared, which will identify impacts of the selected project alternative and proposed mitigation for each affected species.

Filing, Notices and Record of Decision

This Draft EIR/EIS has been filed with USEPA and a notice published in the Federal Register. After the 60-day public review of the Draft EIR/EIS and selection of a preferred alternative (explained above under Section S.8.1 NEPA/404 MOU Integration Process), Caltrans/FHWA will prepare the Final EIR/EIS after comments on the draft are received and reviewed. Caltrans/FHWA will file the Final EIR/EIS with USEPA, a notice will be published in the Federal Register, and the Final EIR/EIS will be available for a 30-day public review. At the end of the public review period, Caltrans/FHWA may adopt the EIS and will prepare a Record of Decision

(ROD), describing the reasons a specific alternative was chosen. The ROD will be made available to the public through public notice.

S.9 Revised Truck Scales Interchange (Alternative C1T)

In April of 2002, the Willits project design team developed revisions to the originally proposed Truck Scales Interchange for Alternative C1T. The original Truck Scales Interchange is shown on Map 25b in Volume 2. These revisions were made in response to critiques of the original proposal, as a result of Caltrans design exception approval process. The following interchange design changes are proposed: shift the mainline alignment easterly at the farthest point approximately 85 m (280 ft), change the interchange type to a diamond, and lengthen the connection to existing U.S. 101 at the north end by approximately 430 m (1400 ft) to complete the lane reduction. The revised interchange is shown on Map 25b(2) in Volume 2. Caltrans Headquarters and FHWA have approved the modified interchange concept proposed by the Caltrans Design team. The revised interchange improves operation and motorist safety.

Caltrans has studied the differences in environmental impact between the two interchanges and concluded that there would be a minimal change in area impacted by the revised interchange design. A table showing the differences in impact between the two interchanges is included in Appendix Q. The revised interchange design would result in approximately 0.43 ha (1.06 ac) increase in impact to jurisdictional wetlands and other waters of the U.S. Alternative C1T, with the former interchange design, impacted a total of 52.3 ha (129.1 ac). With the revised interchange the total would be 52.73 ha (130.16 ac). Caltrans has notified its NEPA/404 resource agency partners and California Department of Fish and Game of the revised interchange design and the differences in environmental impacts between the old and revised interchange designs (letter dated May 1, 2002, Appendix Q).

CHAPTER 1 Introduction

To assist readers in using this document, this section discusses basic format and organization of the document and the environmental process.

1.1 CEQA and NEPA

When a project involving state and/or federal funds or discretionary actions could have an adverse impact on the environment, the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) require the preparation of an Environmental Impact Report (EIR) and/or an Environmental Impact Statement (EIS), respectively. Adherence to both laws is required for the proposed Willits Bypass Project because the project could have an adverse impact on the environment, and decisions on the project must be made by both the California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA).

Although CEQA and NEPA are similar in their purpose, they are different in their specific requirements. To streamline these processes a single Draft EIR/EIS has been prepared, which addresses the requirements of both laws. Caltrans and FHWA are the "lead agencies" responsible for implementing these laws, as they are the public agencies responsible for initiating and carrying out the proposed project. FHWA has the responsibility to monitor the project for compliance with federal environmental laws, review the draft and final EIR/EIS for legal adequacy, and document how decisions on the project were made. Additional information about the environmental and decision-making processes is discussed below.

1.2 Purpose of this Draft EIR/EIS

Caltrans and FHWA prepared this Draft EIR/EIS to provide an objective evaluation of the environmental and community impacts associated with construction and operation of a proposed bypass that would re-route U.S. 101 off the main street of Willits. Figure 1-1 shows the location of the proposed Willits Bypass Project. As its name implies, a bypass is a road that takes through-traffic around an area of concern. Chapter 2, Purpose and Need for Project, describes why a bypass is being proposed.

Figure 1-1. Project Location

CEQA and NEPA require that each EIR and EIS, respectively, include specific components. Table 1-1 shows the content required by each law and where in the EIR/EIS each component can be found.

Table 1-1. Location of Required CEQA/NEPA Components in the Willits Bypass EIR/EIS

Required CEQA components	Location
Table of Contents (Guidelines Sec. 15122)	Table of contents
Summary (Guidelines Sec. 15123)	Summary
Project Description (Guidelines Sec. 15124)	Chapters 2 and 3
Environmental Setting (Guidelines Sec.15125)	Chapter 4
Environmental Impacts (Guidelines Secs.15126, 15064(f))	Chapter 5 and Table 5-31
Alternatives (Guidelines Sec. 15126.6)	Chapter 3
Mitigation Measures (Guidelines Sec. 15126.4(a))	Chapter 5 and Table 5-31
Growth-inducing Impacts (Guidelines Sec. 15126.2(d))	Chapter 6
Cumulative Impacts (Guidelines Sec. 15130)	Chapter 6
Required NEPA components	**Location**
Cover Sheet (40 CFR 1502.11)	Cover Sheet
Summary (40 CFR 1502.12)	Summary
Table of Contents [40 CFR 1502.10(c)]	Table of Contents
Statement of Purpose and Need (40 CFR 1502.13)	Chapter 2
Alternatives, Including the Proposed Action (40 CFR 1502.14)	Chapter 3
Affected Environment (40 CFR 1502.15)	Chapter 4
Environmental Consequences and Mitigation Measures (40 CFR 1502.16, 1508.8)	Chapter 5
Relationship Between Short-term Uses of the Environment and the Maintenance and Enhancement of Long-term Productivity (40 CFR 1502.16)	Chapter 6
Irreversible Environmental Changes (40 CFR 1502.16)	Chapter 6
Federal Permits That Must Be Obtained (40 CFR 1502.25)	Chapter 7
List of Preparers and Their Qualifications (40 CFR 1502.17)	Chapter 8
List of Agencies, Organizations, and Persons to Whom Copies are Sent (40 CFR 1502.10)	Chapter 9
Comments and Coordination (40 CFR 1501.7)	Chapter 10
Index (40 CFR 1502.10)	Chapter 11

This document is an informational report that identifies both the benefits of the proposed project and its environmental risks. It does not recommend whether the proposed project should be constructed or which alternative should be selected as the "preferred" alternative. Instead, this EIR/EIS provides information from which Caltrans/FHWA, other government agencies, and the public can evaluate the

proposed project. Based on this information, as well as written comments from the public and government agencies, Caltrans and FHWA will select an alternative for implementation.

1.3 Project Decision Making

The Draft EIR/EIS is being circulated for public review for a period of sixty (60) days. During the review period, a public hearing held in a public workshop format will be held so citizens can ask questions and provide comments. The date and time for the public hearing are identified in Section 1.8 Public Hearing.

The selection of a preferred alternative will not be made until the impacts of all alternatives, the comments on the Draft EIR/EIS, and the information from the public hearing are fully evaluated. When the review process is complete, the Project Development Team (PDT) (a group composed of multi-disciplinary Caltrans staff, FHWA, interested resource agencies, local government representatives, and other interested parties) will recommend a preferred alternative.

When a preferred alternative is selected by Caltrans and FHWA, a Final EIR/EIS will be prepared that will more precisely identify the impacts of the preferred alternative. The Final EIR/EIS will also respond to the comments received on the Draft EIR/EIS and will discuss changes to the project as a result of project comments. Caltrans and FHWA must then approve the Final EIR/EIS. Approval of the project by the California Transportation Commission (CTC) would be required since the CTC would vote funds and adopt the route for the project.

Once a decision is made about the project, even if the No-Build Alternative is selected, a Notice of Determination (NOD) and a Record of Decision (ROD) will be prepared by Caltrans and FHWA, respectively. The NOD and ROD describe the reasons why a specific alternative was chosen. Both documents will be available to the public for review.

1.4 Organization of the Draft EIR/EIS

Information is presented and discussed in the following order within this Draft EIR/EIS:

Volume 1: The Draft EIR/EIS is in two volumes. Volume 1 is principally text and contains ten chapters preceded by a summary and ending with appendices, as follows:

- **Summary:** The summary identifies adverse impacts, areas of known controversy, and issues to be resolved.
- **Introduction:** Explains how the Draft EIR/EIS is organized and provides information for commenting on the project/document.
- **Purpose and Need for Project:** Discusses the traffic and safety issues associated with the current U.S. 101 alignment. It reviews why the project is needed and what would be accomplished by building it. Includes a history of the project's planning and scoping process.
- **Description of the Proposed Action and its Alternatives:** Describes alternatives under consideration in detail. Describes other alternatives that were considered but eliminated from further consideration.
- **Affected Environment:** Describes the overall physical, biological, cultural, and socioeconomic conditions as they currently exist in the project area. It references technical studies that were completed specifically for the project.
- **Environmental Consequences:** Provides a detailed description of the anticipated environmental impacts and the proposed mitigation measures to avoid or minimize these effects.
- **Other Statutory Requirements:** This chapter addresses any irreversible and irretrievable commitment of resources and provides a discussion of adverse impacts.

- **Permits Required for this Project:** This chapter describes the federal and state permits that would be required for the proposed project.
- **Contributors and Reviewers:** Lists the principal authors of this analysis and consultants who prepared technical studies. The list also includes individuals who provided peer review of the technical studies and the Draft EIR/EIS.
- **List of Agencies, Organizations, and Persons:** Identifies the persons and agencies that were initially sent a copy of the Draft EIR/EIS. Other persons and agencies may have received the document but may not have been on the initial distribution list.
- **Comments and Coordination:** Describes the formal and informal coordination that has taken place between Caltrans/FHWA and other governmental agencies and the public.

- **Index:** Provides page numbers to areas of interest to the reader.

Appendices: The appendices at the back of Volume 1 contain additional information that is referenced in the main body of the document. Some appendices contain technical information that is summarized in the Draft EIR/EIS.

Glossary: The EIR/EIS includes a Glossary in Appendix A that the reader is encouraged to refer to for unfamiliar terms. Readers may also want to refer to a glossary of terms at Caltrans' website: http://www.dot.ca.gov/ser/glossary.htm**.**

Volume 2, Environmental Atlas: To make the Draft EIR/EIS easier to use, all maps have been compiled into a separate document (tables and figures have been retained in Volume 1).

1.5 Nodal Analysis

To provide flexibility in selecting a preferred alternative, Caltrans staff employed an evaluation procedure this document refers to as a "nodal approach." This approach allows a segment of one alternative to be combined with a segment of another alternative to create a "hybrid alternative." Map 3 shows where the dividing (or nodal) point for each alternative is located. By combining segments of alternatives, there are more possibilities for choosing a preferred alternative.

To implement the nodal approach, the text and tables in this document, for the most part, display data in a manner that allows environmental impacts of each segment to be evaluated separately. For some environmental issues, however, analysis by segment was not possible or prudent. For example, analysis by segments was not employed in the demographics discussion, because a segmental analysis could result in under-representing low-income or minority communities.

When readers of this document have a preference for a combination of node segments, they should indicate this preference in their comments on the Draft EIR/EIS (Section 1.7) and identify their reasons for recommending the hybrid alternative.

1.6 Metric System

Caltrans converted to the metric system of measurements, also known as the International System of Units (SI), in response to the President's 1991 Executive Order mandating all agencies using federal money to begin using the metric standard. Although the new federal transportation bill entitled "TEA 21" allows each state to choose its system of measurement units, Caltrans' metrication policy is not affected and the metric system is used throughout this Draft EIR/EIS. Equivalent measurements in U.S./English units are provided in parentheses.

1.7 Comments Requested

Written comments on the Draft EIR/EIS are encouraged and should be submitted prior to the close of the 60-day review period, which ends August 9, 2001. Comments should be directed to:

Cher Daniels, Chief
Caltrans Office of Environmental Management S-1
2800 Gateway Oaks Dr., Suite 100
Sacramento, CA 95833
Attn: Nancy MacKenzie, Environmental Coordinator

1.8 Public Hearing

A public hearing is scheduled for mid-July, and will be held at the City Hall in Willits, California. The hearing will be held in a public workshop format, and allows for individuals and representatives of public agencies and groups to review the project with Caltrans and FHWA staff, ask questions and submit comments. Other meetings may be scheduled as necessary.

1.9 Availability of Draft EIR/EIS and Technical Studies

The Draft EIR/EIS is available for viewing at:

- Willits Library, 390 E. Commercial Street, Willits
- Willits Environmental Center, 316 South Main St., Willits
- Fort Bragg Library, 499 East Laurel Street, Fort Bragg

- Ukiah Library, 105 N. Main St., Ukiah
- Caltrans District 1, 1656 Union Street, Eureka
- Caltrans Website:
http://www.dot.ca.gov/dist3/departments/environmental/willits/index.htm

A number of technical studies were used to analyze the impacts of the proposed project and its alternatives, and are summarized in this Draft EIR/EIS.

Air Quality Analysis
Community Impact Assessment
Draft Relocation Impact Report
Economic Impact Report
Energy Report
Farmland Impact Analysis
Floodplain Study (prepared by Caltrans)
Floodplain Study (prepared by U.C. Davis)
Floodplain Evaluation Report Summary
Focused Study of Streamwater Temperature and Canopy Cover
Geotechnical Report
Historic Properties Survey Report (for cultural resources)
Initial Site Assessment (for hazardous materials)
Noise Report
Natural Environmental Study and Supplemental Natural Environment Study
Traffic Report
Visual Impact Assessment
Water Quality Assessment

Technical studies are available for viewing, along with copies of the Draft EIR/EIS at:

Willits Library, 390 E. Commercial Street, Willits
Caltrans District 1, 1656 Union Street, Eureka

CHAPTER 2 Purpose and Need for Project

Caltrans and FHWA propose to build a new segment of U.S. 101 around Willits to improve safety and the efficiency of U.S. 101. The information presented below describes the reasons the project is being proposed and provides a history of the project. A copy of the 1995 Purpose and Need (P&N) statement is provided in Appendix G. Caltrans has updated the 1995 P&N statement with current data on traffic and safety conditions. The 1995 P&N statement has also been revised to a format that is more consistent with the Draft EIR/EIS.

The following P&N statement is critical for three primary reasons: because it justifies the proposed project even though it will result in environmental impacts; because it determines the range of alternatives that are being considered; and because it determines the selection of the preferred alternative. Interagency coordination for the proposed project strives to meet the purpose and need for the project while also considering the environmental constraints of meeting the need, such as Waters of the U.S., floodplains, endangered species, and historical properties. As part of the NEPA/404 Integration Process, a high priority is placed on avoidance of adverse impacts to waters of the U.S. (including wetlands). However, in meeting the agreed-upon purpose and need for this project, complete avoidance is not practicable, and minimization and mitigation will be achieved to the extent reasonable and practicable.

The following discussion of purpose and need is consistent with the 1995 NEPA/404 P&N statement agreed upon by participating members of the NEPA/404 Integration Process for this project (see Appendix G for explanation of NEPA/404 Integration Process). This interagency agreement on purpose and need is instrumental for facilitating interagency input and concurrence on the range of alternatives, selection of the preferred alternative, and issuance of mandatory permits/approvals, without which the project could not be constructed.

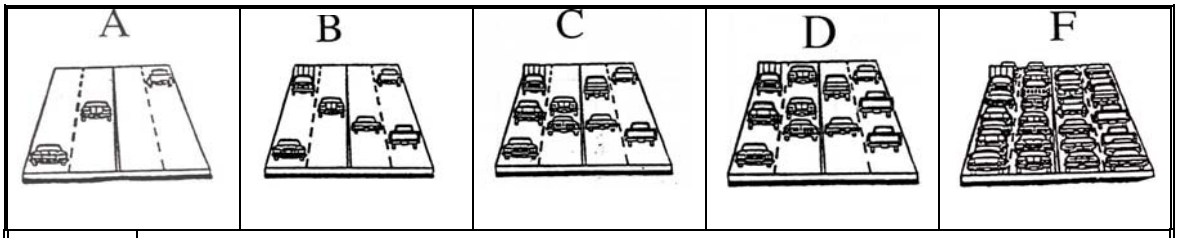
For a description of alternatives being considered, see Chapter 3.

2.1 Purpose of Proposed Bypass Project

Recognizing the importance of U.S. 101 for the interregional movement of people and goods, Caltrans and FHWA propose to construct a new segment of U.S. 101 that

would bypass Willits in Mendocino County. Caltrans and FHWA propose this bypass project to reduce delays, improve safety and achieve a level of service (LOS) of at least "C" for interregional traffic on U.S. 101 within the vicinity of Willits, through the 20-year design period (i.e., 2028). Table 2-1 defines LOS as it applies to freeways.

Table 2-1. Freeway Level of Service (LOS) Criteria



A	Highest quality of service. Free traffic flow, low volume and densities. Little or no restriction on maneuverability or speed. 105+ kph (65+ mph). No delay.
B	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability. 105 kph (65 mph). No delay.
C	Stable traffic flow, but less freedom to select speed, change lanes or pass. Density increasing. 104 kph (64.5 mph). Minimal delay.
D	Speeds tolerable but subject to sudden and considerable variation. 100 kph (62 mph). Minimal delay.
E	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headway's, low maneuverability and low driver comfort 84 kph (52 mph). Considerable delay.
F	Stop and go traffic. Speed and flow vary. Considerable delay.

2.2 Need for Proposed Bypass Project

U.S. 101 is an important route for interstate and interregional travel and is considered the economic lifeline of California's North Coast. It is the principal arterial route for people and goods between the San Francisco Bay Area and the greater Eureka-Arcata area. Travel times and the costs of transporting goods to and from the communities along U.S. 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays and delays caused by facility type at Willits where U.S. 101 passes through developed areas on surface streets.

Because U.S. 101 also serves as Main Street in Willits and is the only continuous north/south street traversing the city, U.S. 101 must accommodate nearly all local traffic traversing Willits as well as all interregional traffic intending to pass through. Traffic congestion has been a concern in Willits for a number of years, and it is becoming more prevalent as traffic volume increases. The proposed project is needed to respond to a number of deficiencies that exist on the current facility. These problems are discussed below in Sections 2.2.1, Existing Facility, through 2.2.6, Conditions for Bicyclists and Pedestrians.

2.2.1 Existing Facility

U.S. 101 traverses the states of Washington, Oregon, and California; it is the major north/south route connecting southern and central California with the communities along California's north coast and Oregon's southern and central coasts. U.S. 101 is on the California Freeway and Expressway System and in the National Highway System. This section of U.S. 101 is important for commerce and goods movement. U.S. 101 is designated for large interstate trucks and oversized permit loads, both of which are accommodated on this section of the route. U.S. 101 is part of the Strategic Highway Network.

The project study area extends from about 3.2 km (2.0 miles) south of Willits, where the existing four-lane freeway becomes a two-lane highway, to about 7.7 km (4.8 miles) north of the Willits city limits at Oil Well Hill, where it is a two-lane facility (Figure S-1).

South of the project study area, U.S. 101 is a four-lane freeway/expressway to approximately 2.7 km (1.7 mi) south of Willits where it becomes a two-lane highway. The two-lane highway serves a sparsely developed area before it increases to four lanes with a two-way left turn lane just north of the intersection with Baechtel Road, where commercial development intensifies. The four-lanes with a two-way left turn lane segment extends about one mile (called "the miracle mile") to about Hazel Street where one of the northbound lanes ends. North of S.R. 20, through the older downtown portion of Willits, U.S. 101 reduces further to two lanes with a two-way left turn lane until just beyond Willits High School. From Willits High School north to Reynolds Highway, U.S. 101 traverses rural lands as a two-lane highway. From Reynolds Highway north over Oil Well Hill, the two lane-lane highway is augmented with truck climbing lanes. The truck climbing lane northbound is about 1.5 km (0.9

mi) long and extends from about Reynolds Highway to the summit, while the southbound truck climbing lane runs from the summit to about 0.7 km (0.4 mi) north.

U.S. 101 is the only continuous north-south roadway through Willits; therefore, both interregional and local traffic must share the facility. The reduction of one northbound lane south of the S.R. 20/U.S. 101 intersection creates a bottleneck for northbound travelers approaching the intersection and is a significant source of congestion. Northbound traffic often queues-up south to Holly Street or beyond during peak-hour periods. Side street access at Holly Street is expected to improve with construction of a Holly Street signal in the near future, but it will not reduce overall delay. Traffic congestion in Willits will worsen as traffic volumes increase. Side street traffic, commercial driveways, street parking and pedestrian traffic conflict with interregional through traffic and will contribute to congestion in Willits.

The U.S. 101 right of way through Willits is relatively narrow. Widening the existing facility is not practicable, as much of the commercial development would need to be removed to make room for the widened highway.

Figure 2-1. Existing U.S. 101 in Willits

A long queue of commercial trucks and automobiles crawls through Willits, while bicyclists and pedestrians wait for an opportunity to safely cross congested U.S. 101, which also serves as Willits' Main Street.

Long queues of cars following concentrations of heavy commercial vehicles create slow, stop-and-go travel through Willits. Congestion is especially bad during the tourist season, with heavy southbound recreational traffic often backing up to Oil Well Hill, north of the S.R.20/U.S.101 intersection. The congestion results in increased travel time for motorists and delayed response time for emergency vehicles. While interregional traffic is delayed substantially, local residents have become increasingly frustrated with the time required to make local trips. These conditions are discussed in detail below.

2.2.2 Level of Service for Interregional Traffic

Recognizing the importance of U.S. 101 for the interregional movement of people and goods, Caltrans has established a concept LOS "C" for the route in the Route Concept Report. The Regional Transportation Plan adopted by the Mendocino Council of Governments (MCOG) recommends that new facilities provide a LOS of at least "C" through the year 2010. The Caltrans Route Concept Report (RCR) for U.S. 101, north from San Francisco to the Oregon border, calls for the ultimate construction of a four-lane freeway or expressway[3] to minimize congestion and delays, and to improve traffic safety. Achieving this concept would require additional bypasses of several communities such as Hopland, Laytonville, Eureka and Crescent City. A project to bypass Hopland is in the early environmental study process.

Travel times and the costs of transporting goods to and from the communities along U.S. 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays in Willits and other locations where U.S. 101 passes through developed areas on surface streets. When traffic volumes were lower, many more communities north of San Francisco had U.S. 101 passing through the middle of town on surface streets. Over time, most of those communities, including the cities of Novato, San Rafael, Petaluma, Santa Rosa, Cloverdale, Ukiah, Rio Dell, Fortuna, Arcata, and the communities of McKinleyville and Garberville have been bypassed or

[3] In November 1994, the RCR was revised to a lower concept for two segments between Eureka and Crescent City reflecting constraints imposed by the proximity of state and national park lands and the presence of protected species. The concept LOS for U.S. 101 at Willits was changed during that revision from "B" to "C."

had access-controlled freeways built through them. Willits is the only incorporated city between San Francisco and Eureka, a distance of 435 km (270 mi) that continues to have U.S. 101 traversing the city on surface streets.

One of the factors contributing to the high travel times through the Willits area is the facility type. Because the roadway is a conventional highway through town, speeds on the facility are relatively low. The posted speed limits range from 55 mph at the ends of the study area to 25 mph within portions of the city. Free flow travel time at the posted speed limits, assuming no delays for traffic signals, is just over 12 minutes.

Considerable friction associated with commercial driveways, side streets, parking and pedestrian traffic contributes further to decreased average speeds through Willits. Average speeds within the city are 16 mph (Baechtel Road to Sherwood Road) with average speeds of 30 mph for the full length of the study area. Slow average speeds delay interregional traffic travel substantially.

Table 2-2 shows travel times on U. S. 101 through the project limits from 0.9 km (0.6 mi.) south of the Haehl Overhead to 1.6 km (1.0 mi.) north of Reynolds Highway for the 1998, 2008, and 2028 No-Build as well as build alternatives.

Table 2-2. Travel Time on U.S. 101 (KP 69.4/84.2) for Interregional Traffic

Alternative	1998 Peak Hour (Minutes)	2008 Const. Year Peak Hour (Minutes)	2028 20 years After Construction Peak Hour (Minutes)
No-Build	18.3	23.9	32.3
Freeway Alternatives C1T, E3, J1T, LT	N/A	9.1-9.4	9.2-9.6

Source: Traffic Study for the Willits Bypass, Caltrans, 1999

N/A – not applicable

The travel times listed in Table 2-2 are for peak hour traffic, and comparing the free flow travel time of 12.1 minutes to the peak hour time of 18.3 minutes, one can see that congestion at peak hour currently increases travel time about 50 percent. In addition, travel times are expected to increase dramatically under the No Build Alternative. By 2008, travel times would almost double in comparison with free flow. And by 2028, would be more than 2.5 times as high as free flow times.

For motorists in the stream of traffic, this means considerable delay and frustration. Simple trips for shopping, transporting children to and from school functions, commercial deliveries, and interregional pleasure and business travel all are delayed by the times indicated. Traffic collisions increase these delays, and at these times, emergency vehicles are delayed even further in getting assistance to victims.

These slower average speeds reflected in the no-build scenarios above impact interregional and interstate traffic as well as regional traffic. The considerable delays imposed on interregional and interstate traffic passing through Willits, and other communities not yet bypassed, cumulatively impede the ability to effectively move people and goods on U.S. 101.

2.2.3 Safety Concerns

Within the project limits, U.S. 101 has several different facility types with a variety of roadbed widths, lane configurations and numerous at-grade intersections. Non-standard widths, lack of traffic separation, congestion and numerous conflicting traffic movements due to turns and cross-traffic, contribute to a collision rate of 1.40 collisions per million vehicle kilometers that exceeds the statewide average of 1.10 collision per million vehicle kilometers travel for similar facilities. The statewide average for a rural four-lane freeway with the same Average Daily Traffic (ADT) is 0.31 collisions per million vehicle kilometers traveled.

There were a total of 469 collisions on U.S. 101 between June 1995 and May 2000 in the project area. Of the 469 collisions reported, 3 resulted in fatalities, 141 resulted in injuries, and the remainder resulted solely in property damage. The existing total, injury, and fatality collision rates are 4.5, 3.0, and 1.5 times higher than the statewide average total, injury, and fatality rates, respectively, compared to a rural four-lane facility with the same ADT.

Interregional commercial vehicles must use U.S. 101 through Willits and pass high-density residential areas, schools and businesses. Interregional trucks carrying hazardous materials must also travel through Willits posing further risk to the community.

2.2.4 Interregional Truck Traffic Interferes with Local Travel

Trucks are an important component of U.S. 101 traffic. Truck traffic on U.S. 101 in the Willits area ranges from approximately 10 percent of the traffic volume south of S.R. 20 to approximately 5 percent of the traffic volume north of S.R. 20. Average daily truck traffic volumes exceed 1,000 south of the U.S. 101 intersection with S.R. 20. Trucks have a lower operating capability than passenger cars, particularly with respect to acceleration and deceleration. Trucks often slow the average speed of traffic by creating platoons of following vehicles, in effect slowing the average speed of the entire platoon. As stated above, many interregional commercial vehicles carry hazardous materials through Willits, passing businesses, high-density residential areas, and schools.

2.2.5 Noise and Vibration

The interregional automobile and truck traffic described above generates noise and vibration along existing U.S. 101 in Willits. By removing a large percentage of interregional traffic from the more densely developed areas, a bypass would reduce the amount of noise and vibration experienced by nearby homes, businesses, schools and other community facilities.

2.2.6 Conditions for Bicyclists and Pedestrians

Various roadway conditions throughout the length of the existing highway present difficulties for bicyclists and pedestrians. In particular, these issues make access within Willits difficult for less automobile-oriented groups such as children, the disabled, and the elderly.

In the five-lane section between Baechtel Road and just south of the California Western Railroad crossing, there are wide roadways and few marked crosswalks. The difficulties in crossing the four lanes of through traffic are compounded by traffic using the two-way left-turn lane. Conflicts between bicyclists and automobiles can arise when on-street parking is permitted, especially when coupled with narrow shoulders, which occurs between S.R. 20 and Commercial Street. North of Commercial Street, restaurants and convenience stores attract students from the high school across the highway. The pedestrian crossings exacerbate the congestion of turning movements across the highway. Offset intersections and driveways contribute to the general congestion on the route. The multiple driveways separated

by short lengths of curb and sidewalk add to the conflicting movements that make non-motorized travel more difficult.

Although no improvements to the existing facility are contemplated under any of the build alternatives, removing the substantial numbers of automobiles and large trucks with interregional origins and destinations is expected to improve conditions for both bicyclists and pedestrians along the existing highway.

2.3 Objectives of the Proposed Action

The objectives of the proposed project are to improve level of service, improve safety, and reduce delays for interregional traffic:

- Improve level of service (to LOS "C" on the newly constructed segments) for interregional traffic by decreasing congestion and delays on U.S. 101.
- Improve traffic safety on U.S. 101.
- Reduce delays for interregional traffic by separating interregional traffic from downtown traffic.

As a by-product of the proposed project, the following benefits would occur:

- Improved traffic safety on Main Street in Willits.
- Reduced noise and vibration experienced by nearby homes, businesses, schools and other community facilities in Willits due to interregional commercial truck and other through traffic. Removing the constant stream of U.S. 101 interregional truck traffic from Main Street will enhance the local community aspects of Willits.
- Improved conditions for bicyclists and pedestrians, and for less mobile groups such as the young, disabled and elderly. Removing interregional traffic from the City of Willits will improve the existing conditions for bicyclists and pedestrians, provide new opportunities for non-motorized circulation improvements, and enhance the friendly small town character of Willits.
- Improved conditions for local residents who use Main Street for routine trips to work places, shops, and schools. Removal of interregional traffic from Main Street will reduce congestion for local traffic.

2.4 History of Planning and Scoping Process

This section describes the history of the Willits Bypass project and the various alternatives that have been studied over the years. Several of the alternatives were eliminated during the scoping process. A description of the discarded alternatives is included in Chapter 3.6 Alternatives Considered but Eliminated from Further Study.

2.4.1 Pre-1987 History

The proposed Willits Bypass project dates back as far as the early 1960s. In 1962, the Director of District 1 of the California Division of Highways (later to become Caltrans) approved a project report recommending construction of a four-lane bypass within the current project limits. In 1963, the California Highway Commission (later to become the California Transportation Commission or CTC) adopted a route bypassing Willits to the east. The alignment would later be known as Alternative A.

In 1969, the Division of Highways improved U.S. 101 by constructing a segment of freeway south of Willits. That project placed excess excavated material as embankment in the southern end of the Little Lake Valley for a future freeway project envisioned to be constructed northward on the adopted route. Funding shortfalls and a lack of local support at that time halted further development of the bypass until 1987 when District 1 began the current project development effort.

2.4.2 Post-1987 History

In 1987, the CTC directed Caltrans to re-evaluate the adopted route (Alternative A) along with other alternatives. In 1988, the Chief of the Office of Project Planning and Design (OPPD) approved a Project Study Report (PSR) investigating the feasibility of constructing a four-lane freeway bypass. The PSR examined six alternatives (including the No Build). The current project alignments are much different from those examined in the PSR. In the letter approving the PSR, OPPD stated, “the District is authorized to complete environmental studies leading to a route adoption.”

Caltrans established a Project Development Team (PDT) to guide the project and two Technical Advisory Groups (TAGs) to disseminate information to and collect input from interested parties. (The two TAGs were later merged into the current single group.)

District 1 held a scoping session in 1989 with resource agencies and the public to determine issues of concern and to solicit ideas on the range of alternatives. As a result of the meetings, the PDT added Alternatives F through R to the six listed in the PSR. In 1990 several important steps occurred. The PDT narrowed the alternatives still under consideration to Alternatives A, C, E, J, K, O, and the No Build Alternative. In addition, the CTC programmed $1.1 million for right of way for the Willits Bypass.

In 1992, CTC staff requested Caltrans to estimate construction costs for a two-lane expressway in lieu of a four-lane freeway. CTC made this request due to limited funding for new projects. In the 1992 State Transportation Improvement Plan (STIP), the CTC programmed the Willits Bypass project for $60.5 million construction and a total of $9 million for right of way to construct a two-lane expressway within right of way for the ultimate four lanes. After further study, Caltrans staff determined that a two-lane bypass would not achieve a level of service (LOS) C, accommodate future traffic growth, and improve safety as well as a four-lane freeway.

Also in 1992, several other alternatives were investigated as a result of community input. These alternatives used Transportation System Management (TSM) concepts to seek ways to use the existing facilities in lieu of an entirely new route. Concepts that were investigated included improving intersections, introducing a couplet, and widening existing U.S. 101 to four lanes by restricting on street parking. These concepts evolved into the TSM Alternative.

In early 1993, the PDT dropped five alternatives including Alternative O. Later that year, the United States Environmental Protection Agency (USEPA) suggested study of Alternative K2 (intended to be a wetland avoidance alternative), while Willits suggested study of Alternative L.

In 1994, Caltrans initiated the NEPA/404 Integration process for this project with the ACOE, NMFS, USEPA, and USFWS, and the California Department of Fish and Game (DFG) (see Appendix G for an explanation of the NEPA/404 Memorandum of Understanding). By early 1995, pursuant to the NEPA/404 Integration Process, Caltrans, FHWA, and the participating agencies agreed to the Purpose and Need Statement for the project, and concurred with the modal choice statement, the criteria for comparisons, and the range of alternatives to be studied.

Engineering and environmental studies continued on several alternatives through 1994. The need to redirect resources to complete seismic safety projects and storm damage restoration projects, as a result of the 1995 storms, caused project efforts to be suspended until 1998. In 1998, with new funding and resources allocated, studies resumed on the alternatives approved by the NEPA/404 agencies. The 1998 STIP supplemented earlier funding and programmed the project for approximately $117 million. The project is included in the current 2002 STIP for approximately $116 million. The Mendocino Council of Governments (MCOG) programmed its entire $17.3 million share of Regional Improvement Program funds to indicate strong local support for the project.

Between 1963 and today, many alternatives were evaluated and eliminated from further analysis. Chapter 3 provides a discussion of the alternatives withdrawn from further consideration and the reasons for their elimination.

This Draft EIR/EIS represents the current status of the project and project alternatives. This document will lead to the selection of a preferred alternative. Caltrans and FHWA will prepare a Final Environmental Impact Report/Final Environmental Impact Statement (FEIR/EIS) for the preferred alternative. Selection and approval of the preferred alternative would lead to approvals for final design, permits and a construction project unless the No-Build Alternative is selected, in which case, Caltrans and FHWA will prepare a report dropping the project, and a freeway bypass will not be built.

2.5 Funding and Schedule

The Willits Bypass project has been programmed for $116 million in the 2002 STIP. Additional state and regional funds will be the source of the balance of funds needed to construct the project.

Estimated capital costs required for each build alternative under consideration are: Alternative C1T - $128 million; Alternative E3 - $301 million; Alternative J1T - $151 million; and Alternative LT - $130 million, broken down as follows:

Table 2-3. Estimated Project Cost

Total Capital Cost Rounded (in $1,000,000's)				
	Alt. C1T	**Alt. E3**	**Alt. J1T**	**Alt. LT**
North:	$65	$208	$93	$67
South:	$43	$93	$38	$38
Borrow:	$19	-0-	$20	$25
Total:	$128	$301	$151	$130

Currently, the project is scheduled to be advertised in fall of 2005 with a contractor selected and a construction contract awarded in winter of 2005. Physical work would begin in early 2006. The valley alternatives would require three full seasons, so construction would be completed late in 2008 or 2009. Alternative E3 would require five years of construction time, so project completion would not be until 2010 or 2011.

2.6 Support For The Project

A four-lane freeway bypass of Willits is formally supported by:

- Willits City Council
- Mendocino County Board of Supervisors
- Mendocino Council of Governments
- North Coastal Counties Supervisors Association, which represents the eight northwestern counties in California
- California Transportation Commission

The Willits City Council has formally endorsed a combination of Alternatives LT and C1T (L/C route), with Alternative L1T on the south and Alternative C1T at the north. The city has reserved land to the east of a new industrial park specifically for the bypass. The Brooktrails Township Community Services District Board of Directors has formally supported a two-lane alternative on the same L/C route.

The following organizations support other alternatives:

- Save All the Valley Eternally (SAVE) the Northwestern Pacific Railroad Support Coalition (Bayside), and the Mendocino County Railway Society (Fort Bragg) support a two-lane TSM alternative that includes freight and passenger rail service.

- The Willits Environmental Center (WEC) supports a two-lane alternative for one of the valley alternatives (C1T, J1T, or LT).

- The Mendocino County Agricultural Commissioner expressed his opposition to any alternative that would impact prime farmland.

Final selection of an alternative will not be made until after the full evaluation of environmental impacts, full consideration of public hearing comments, and approval of the Final EIR/EIS.

CHAPTER 3 Description of the Proposed Action and its Alternatives

3.1 Introduction

This chapter discusses the proposed action, alternatives under consideration, alternatives that have been eliminated, and the construction process that would be employed if any of the build alternatives were selected.

The proposed action is to construct a new segment of U.S. 101 that would bypass Willits in Mendocino County. Four build alternatives are being proposed to implement the project – C1T[4], J1T, E3, and LT (Map 3). These alternatives would construct a four-lane freeway, with Alternatives C1T, J1T, and LT crossing the Little Lake Valley east of Willits, and Alternative E3 traversing the hills west of Willits.

In addition, a No-Build Alternative is being considered. Under the No-Build scenario, no improvements to the existing roadways would be constructed, though traffic volumes would increase. Traffic would continue to travel on existing U.S. 101, the same facilities motorists now use. The No-Build Alternative allows reviewers of the Draft EIR/EIS to compare the effects of the build alternatives with a future scenario in which a bypass would not be constructed.

The selection of alternatives for evaluation was based on several factors, including benefits, capital cost, technical feasibility, geographic location, and public response. The four build alternatives presented here, along with the No-Build Alternative, are analyzed at an equal level of detail in this Draft EIR/EIS as required by NEPA.

3.2 Evaluating Alternatives by Segment

As described in Section 1.5, Nodal Analysis, Caltrans evaluated each alternative, as appropriate, by segments. The build alternatives have each been divided into two parts (Map 3).

[4] Alternatives C1 Truncated (C1T), J1T, and LT were shortened to conform to the existing highway at the north end of the project area to reduce the costs of former Alternatives C1, J1, and L.

As explained in Section 1.5, the text and tables in this document, for the most part, display data in a manner that allows environmental impacts of each segment to be evaluated separately. For some environmental issues, however, analysis by segment was not possible or prudent; for example, certain biological resources or community issues do not lend themselves to an effective segmental analysis.

Readers are encouraged to indicate alternative preference in their comments on the Draft EIR/EIS (Section 1.7) and identify their reasons for recommending a particular alternative or hybrid alternative.

3.3 Common Features of Alternatives C1T, E3, J1T, and LT

This section discusses the common features of Alternatives C1T, E3, J1T and LT . The dimensions listed in the following discussions are typical; during final design there may be some variance from them.

Alternatives C1T, E3, J1T and LT would be constructed with four lanes; two in each direction, with full access control bypassing Willits. Each lane would be 3.6 m (12 ft) wide. A 13.8 m (45.3 ft) median would separate the northbound and southbound lanes. Inside shoulder width would be 1.5 m (5 ft) (nearest the median) and 3.0 m (10 ft) on the outside shoulder. Cut slopes generally would vary between a 1:1 (vertical:horizontal) and a 1:2 ratio. Fill slopes generally would vary between a 1:2 and 1:4 ratio. The plans would call for slope rounding at appropriate locations. Figures 3-1 through 3-3 show Typical Cross Sections for the build alternatives.

Interchange ramps would have a single lane. Where local roads are improved or constructed, they would be two lanes or two lanes with a left-turn pocket, and would have generally 2.4 m (8 ft) shoulders. Private access roads would generally have two 3.6 m (12 ft) lanes and may be either paved or unpaved (Maps 25-28).

The freeway sections of the alternatives would maintain a minimum design speed of 110 kilometers per hour (kph) (68 mph), except at the end of Alternative E3 where the design speed would be 100 kph (62 mph). Each of the build alternatives would meet the purpose of providing at least LOS C. Each build alternative would carry the predicted average annual daily traffic (AADT) in 2028 at LOS C or better.

Figure 3-1. Typical Cross-Sections: Freeway Mainline

Figure 3-2. Typical Cross-Sections: Side Slopes

Figure 3-3. Typical Cross-section: Ramps, Local Roads, and Private Access Roads

3.3.1 Design Exceptions

3.3.1.1 Revised Truck Scales Interchange (Alternative C1T)

In April of 2002, the Willits project design team developed revisions to the originally proposed Truck Scales Interchange for Alternative C1T. The original Truck Scales Interchange is shown on Map 25b in Volume 2. These revisions were made in response to critiques of the original proposal, as a result of Caltrans design exception approval process. The following interchange design changes are proposed: shift the mainline alignment easterly at the farthest point approximately 85 m (280 ft), change the interchange type to a diamond, and lengthen the connection to existing U.S. 101 at the north end by approximately 430 m (1400 ft) to complete the lane reduction. The revised interchange is shown on Map 25b(2) in Volume 2. Caltrans Headquarters and FHWA have approved the modified interchange concept proposed by the Caltrans Design team. The revised interchange improves operation and motorist safety. See Appendix Q for more information regarding the revised interchange.

3.3.1.2 Median

The median separates opposing lanes of traffic and provides a clear recovery zone for errant vehicles. The median also provides a refuge area in emergency situations and reduces headlight glare. During the early stages of the development of the alternatives, the standard minimum median width for rural freeways was 46 feet. The current Caltrans design standard for minimum median width is 18.6 m (61.0 ft). As part of its effort to lower environmental impacts of the project, Caltrans retained the old standard, which when adapted to metric units is 13.8 m (45.3 ft). Caltrans policy requires a design exception approval for the proposed median.

3.3.1.3 Off-ramp

In addition, the 1100 m (3600 ft) northbound off ramp at the Upper Haehl Creek Interchange for Alternatives C1T, J1T, and LT would exceed the advisory standard for maximum length of a single lane ramp, and a design exception would be required. Otherwise, these alternatives would meet all design standards.

3.3.2 Estimated Cut and Fill Requirements – Designated Borrow Site

Alternative E3 would not require additional fill material. However, Alternatives C1T, J1T, and LT would be constructed largely on embankment and would require material

from elsewhere. The estimated fill requirements for the valley alternatives are estimated as follows:

- Alternative C1T: 1.8 million cubic meters (2.4 million cubic yards)
- Alternative J1T: 1.9 million cubic meters (2.5 million cubic yards)
- Alternative LT: 2.4 million cubic meters (3.1 million cubic yards)

The construction contractor would determine the specific source of material for earthwork; however, Caltrans has designated a borrow site in the project area as a possible source of material that the contractor may use for the project.

Caltrans has identified the Oil Well Hill area as the designated borrow site. The material in this area is of good quality and suitable for use in embankment construction. The right of way for U.S. 101 at the designated borrow site is wide enough to provide the necessary material for earthwork. The designated borrow site could be used for any of the valley alternatives, although the quantity excavated would depend on the amount needed for each alternative. In general, the area excavated would be similar for all three alternatives. Maps 25-28 in the Environmental Atlas (Volume 2) show locations of cut and fill areas.

Because the designated borrow site is a possible choice for obtaining material, it is included in this environmental review. The Surface Mining and Reclamation Act (SMARA) of 1975 is administered by the California Department of Conservation, Office of Mine Reclamation. Pursuant to SMARA, a permit application, a Reclamation Plan, and financial assurance are required before conducting surface mining operations. Mendocino County has the approval authority for the Reclamation Plan.

Contractors may choose to use their own selected sites when advantageous to them (e.g., savings in time or money). However, 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. The contractor would be responsible for performing and bearing the cost of the environmental review and of obtaining permits if the contractor chooses a different site. One drawback to an alternative borrow site would be potential project delay caused by the additional environmental review and permit processes. No disposal sites would be required for this project.

3.3.3 Relinquishment of Bypassed Portions of Existing U.S. 101

According to Section 27 of the California Streets and Highway Code, the State of California shall relinquish to any county or city any portion of any state highway within the county or city that has been removed from the state highway system. This also applies to portions of the state highway system that have been bypassed. Relinquishments are made by a resolution of the CTC.

After construction of the proposed project, bypassed portions of U.S. 101 would be relinquished to the City of Willits and Mendocino County. Those portions of U.S. 101 located in unincorporated portions of Mendocino County would be relinquished to Mendocino County, and those portions located in the City of Willits would be relinquished to the City of Willits. Coordination with Mendocino County and the City of Willits will result in the execution of a Freeway Agreement signed by all jurisdictions involved and will provide the basis for the relinquishment action later taken by the CTC.

For Alternative E3, the portion of U.S. 101 between the Hollands Lane interchange and the point at which the bypass route intersects with existing U.S. 101 would be relinquished to the city and county (Map 5). Additionally, this route would provide a connection between U.S. 101 and S.R. 20. As a result, the portion of existing S.R. 20 located between the existing U.S. 101 / S.R. 20 intersection and the proposed U.S. 101 / S.R. 20 interchange would be relinquished to the city and county.

Alternatives C1T, J1T, and LT would not include the relinquishment of S.R. 20, since these alternatives would not provide a new connection between U.S. 101 and S.R. 20 west of the City of Willits. As a result, the portion of the route that is currently both U.S. 101 and S.R. 20 would not be relinquished. This portion of the roadway would be designated S.R. 20.

Alternative C1T would include the relinquishment of existing U.S. 101 to the city and county between the proposed Upper Haehl Creek and Truck Scales interchanges (Map 4). Alternatives J1T and LT would include the relinquishment of existing U.S. 101 to the city and county between the proposed Upper Haehl Creek and Quail Meadows interchanges (Maps 6 and 7).

According to the California Streets and Highways Code, the State of California cannot “relinquish to any county or city any portion of any state highway that has

been superseded by relocation until the department has placed the highway … in a state of good repair." This includes maintenance such as litter removal, weed control, and tree and shrub trimming, up to the time of relinquishment.

Caltrans will seek to reach an agreement with Mendocino County and the City of Willits as to what constitutes a "state of good repair" prior to the start of construction. The Streets and Highways Code use of the word "highway" includes bridges, culverts, curbs, drains and all works incidental to highway construction, improvement, and maintenance. The process of presenting the highway in a state of good repair cannot include such work as roadway widening, new construction, or major reconstruction. It may include preventive maintenance, such as sealing asphalt concrete surfaces.

3.4 Description of Alternatives Under Consideration

This section describes the distinguishing features of each alternative. The three truncated valley alternatives are modifications of the original center valley Alternatives C1, J1, and L. The original alternatives traversed the entire Little Lake Valley and rejoined U.S. 101 just north of Willits. The decision to truncate or shorten these alignments was driven by the need to design a project within existing budget constraints. The technical studies prepared for this project have fully analyzed the potential impacts of the original alignments of Alternatives C1, J1, L and TSM, as well as the impacts of the truncated versions. These technical studies are available at the Caltrans Eureka Office and the Willits library. See Section 1.9 for addresses to these facilities.

In the individual alternative descriptions that follow, each alternative is described in relation to existing U.S. 101, S.R. 20, and local roads. If a build alternative is selected, portions of U.S. 101 and S.R. 20 will be relinquished to either Mendocino County or the City of Willits. Relinquishment is discussed in Section 3.3.3.

Table 3-1 presents the engineering features for each alternative, including total length, estimated fill requirements, and estimated capital costs.

Table 3-1. Alternatives Summary

Features	C1T	E3	J1T	LT
Length of freeway in km (mi)	10.6 (6.6)	14.8 (9.2)	9.0 (5.6)	9.3 (5.8)
Right of Way ha (ac)*	112 (277)	353 (872)	250 (617)	189 (466)
# of Interchanges	2	3	2	2
# of Lanes	4			
Earthwork borrow requirements Cubic meters (cubic yards)*	1.8 million (2.4 million)	--	1.9 million (2.5 million)	2.4 million (3.1 million)
Roadway Excavation Cubic meters (cubic yards)*	-0-	12 million (16 million)	-0-	-0-
Median m (ft)*	13.8 (45.3)			
Design Speed km/h (mph)	110 (68)			
Total Capital Cost Rounded (in $1,000,000's)*				
North:	$65	$208	$93	$67
South:	$43	$93	$38	$38
Borrow:	$19	-0-	$20	$25
Total:	$128	$301	$151	$130

Source: Caltrans, Design Engineering, May 2001

*Estimated

3.4.1 Alternative C1T

Volume II, Atlas Map 4 depicts the alignment and structures for Alternative C1T.

Alignment Description: Alternative C1T would begin approximately 0.9 km (0.6 mi) south of the proposed Haehl Overhead and would end approximately 1.4 km (0.9 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 10.6 km (6.6 mi). The estimated cost for Alternative C1T is $128 million.

South Segment: Alternative C1T would diverge from existing U.S. 101 at the proposed Upper Haehl Creek Interchange and head northwesterly on the existing embankment constructed with excess fill material from a previous highway project. The alignment would run along the east side of the Northwestern Pacific Railroad tracks, turning northeasterly as it passed west of Little Lake Cemetery. The alignment would cross Center Valley and Hearst-Willits Roads east of Bray Road, then turn northwesterly, skirting the Willits wastewater treatment plant. The

alignment then would cross Outlet and Mill Creeks, which is the approximate location of the node that separates the north and south segments of this alternative.

North Segment: The alignment would turn north along the east side of the Northwestern Pacific Railroad tracks. Near the railroad crossing with existing U.S. 101, Alternative C1T would begin paralleling the existing highway. The proposed Truck Scales Interchange would provide an access point along a northeasterly reach of the existing highway. Just north of the interchange near the existing lumber mill, the four-lane alternative would conform to the existing two-lane section of U.S. 101.

Engineering Features: The vertical alignment of Alternative C1T would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. Between East Hill Road and Outlet Creek, the profile grade would be nearly flat except at bridge approaches and departures.

Throughout the valley, Alternative C1T would cross the 100-year floodplain, but the roadway elevation would remain at least 1 m (3 ft) above the estimated 100-year water surface level. Alternative C1T would provide two interchanges that direct motorists to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would connect with existing U.S. 101, which would become S.R. 20 at this location. A second interchange called the Truck Scales Interchange would be located approximately 8.5 km (5.3 mi) north of the Upper Haehl Creek Interchange. For the Truck Scales Interchange, the ramps would terminate at existing U.S. 101, which would become a local road in this area.

South of the Truck Scales Interchange, the existing highway would serve as a local road, providing access to Willits from the interchange. The roadway would retain the existing at-grade crossing with the Northwestern Pacific Railroad.

Structures: The C1T alignment would include seven mainline structures and two ramp structures. The Floodway Viaduct would span the Little Lake Valley floodway at Outlet and Mill Creeks near the city's wastewater treatment plant so that floodwaters would not increase significantly due to the freeway. Bridges also would be constructed at Upper Haehl, and Mill Creeks.

3.4.2 Alternative E3

Volume II, Atlas Map 5 depicts the alignment and structures for Alternative E3.

Alignment Description: Construction of Alternative E3 would begin approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end approximately 1.6 km (1.0 mi) north of Reynolds Highway at Oil Well Hill. The overall length of this alternative would be approximately 14.8 km (9.2 mi). The estimated cost for Alternative E3 is $301 million.

South Segment: Alternative E3 would start at the end of the existing four-lane freeway section. The E3 alignment would turn to the northwest and cross the existing U.S. 101 near Hollands Lane where an interchange would be constructed. Heading into the hills west of Willits, Alternative E3 would cross Baechtel Creek and continue north on the west side of the Sherwood Valley Indian Rancheria. Alternative E3 would continue north across the California Western Railroad (Skunk Train), across Broaddus Creek, and S.R. 20 west of the Willits Cemetery. An interchange at S.R. 20 would provide access for motorists traveling to Fort Bragg or Willits. The alignment would turn to the northeast and continue through the hills, crossing over Exley Lane and under Sherwood Road. Turning north, Alternative E3 would provide a third interchange at Upp Creek. Just north of the Upp Creek Interchange is the approximate location of the node dividing the north and south segments of this alternative.

North Segment: The E3 alignment would continue north through the hills and east of the Brooktrails Community and the Willits Airport. The alignment would cross Outlet Creek, the Northwestern Pacific Railroad, and Skow Road before conforming with existing U.S. 101 north of Reynolds Highway at Oil Well Hill. The alignment would continue on the existing two-lane highway to the end of the project study area.

Engineering Features: The vertical alignment of Alternative E3 would begin with a slight downgrade, but after heading into the hills, the grades would increase. Grades would rarely be less than 2 percent except at the vertical crests and sags of the curves. Alternative E3 would include truck climbing lanes on a large, steep hill between Baechtel Creek and the proposed S.R. 20/U.S. 101 Interchange. The northbound truck-climbing lane would begin on the west side of the Baechtel Creek Bridge and end about 1.0 km (0.6 mi.) west. The southbound climbing lane would run about 1.5 km (0.9 mi) between the top of the hill and the southbound on-ramp at the S.R. 20/U.S. 101 Interchange.

Alternative E3 would include three interchanges that act as access points. The Hollands Lane Interchange would be located near the intersection of Hollands Lane with existing U.S. 101. A rehabilitated, and somewhat realigned Hollands Lane, which would become a portion of South Main Street, would form the local road for the southerly access to the Willits area.

A second interchange approximately 4.5 km (2.8 mi) northwest of the proposed Hollands Lane Interchange, which would be known as the S.R. 20/U.S. 101 Interchange, would provide access to Willits and Fort Bragg. Here again, the mainline of U.S. 101 would cross over the local road, which is S.R. 20. The highway would continue as S.R. 20 to the west, but it would become a local road to the east. At Upp Creek, approximately 2.9 km (1.8 mi) northwest of the second interchange, a third interchange would be constructed.

Alternative E3 would cross over the Northwestern Pacific Railroad tracks at the south end of the project at Upper Haehl Creek and again at the north end of the project near Outlet Creek. Near the S.R. 20/U.S. 101 Interchange, the alignment would cross the California Western Railroad. None of the crossings would be at-grade.

Structures: Alternative E3 includes ten structures on the mainline, six ramp structures, and two structures for local roads. Major structures include the Exley Lane Bridge, the Upp Creek Bridge, the Wild Oat Canyon Bridge, and the Outlet Creek Bridge.

3.4.3 Alternative J1T

Volume II, Atlas Map 6 depicts the alignment and structures for Alternative J1T.

Alignment Description: Alternative J1T would begin approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end approximately 2.9 km (1.8 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 9.0 km (5.6 mi). The estimated cost for J1T is $151 million.

South Segment: Like the other valley alternatives, Alternative J1T would diverge from existing U.S. 101 at the Upper Haehl Creek Interchange and head northwesterly on the existing embankment constructed with excess fill material from a previous highway project. The alignment would run along the east side of the Northwestern

Pacific Railroad tracks for approximately 1.7 km (1.1 mi.), turn north to cross Center Valley and Hearst -Willits Roads just east of the Lofling Field baseball diamonds and Willits Rodeo Grounds, then turn northwesterly and skirt west of the city's wastewater treatment plant. The alignment then would cross Mill Creek which is the approximate location of the node that separates the south and north segments of this alternative.

North Segment: After crossing the Northwestern Pacific Railroad, Alternative J1T would provide access to the north side of Willits with the Quail Meadows Interchange. The mainline would reduce from four lanes to two lanes and conform to existing U.S. 101 just north of the old truck scales and just south of the at-grade crossing of the Northwestern Pacific Railroad. The alignment would continue on the existing two-lane highway to the end of the project study area.

Engineering Features: The vertical alignment would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. From this point north to the Quail Meadows Interchange, the flat valley floor would allow grades that are nearly flat except at structure approaches and departures. Throughout the valley, Alternative J1T would cross the 100-year floodplain. However, Alternative J1T would be constructed at least 1 m (3 ft) above the estimated 100-year water surface level.

Alternative J1T would include two interchanges as the access points to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would tie directly to existing U.S. 101 and would become S.R. 20 at this location. Approximately 6.3 km (3.9 mi) northwest of the proposed Upper Haehl Creek Interchange, the Quail Meadows Interchange would provide access to Willits and Fort Bragg via Main Street, as U.S. 101 would become a local road in this area. For this interchange, the ramps would terminate at a realigned Redwood Highway (existing U.S. 101) that would become a local road in this area. Between the point where existing U.S. 101 would be realigned and where Alternative J1T would connect to existing U.S. 101, the former highway (existing U.S. 101) would become an access road for the mobile home parks and other parcels that had their direct access to U.S. 101 severed.

This alternative would conform to existing U.S. 101 approximately 1.7 km (1.1 mi) north of the Quail Meadows Interchange. The existing highway would remain in

service at U.S. 101 north of this point and retain the existing at-grade crossing with the Northwestern Pacific Railroad.

Structures: The alignment would include seven mainline structures and two ramp structures. The major structure in this group would be the Floodway Viaduct that would span the Little Lake Valley floodway.

3.4.4 Alternative LT

Volume II, Atlas Map 7 depicts the alignment and structures for Alternative LT.

Alignment Description: Alternative LT would start approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end 2.9 km (1.8 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 9.3 km (5.8 mi). The estimated cost for Alternative LT is $130 million.

South Segment: Like the other center valley alternatives, Alternative LT would diverge from existing U.S. 101 at the proposed Upper Haehl Creek Interchange and head northwesterly on the embankment constructed with excess fill from a previous freeway project. The alignment would run along the east side of the Northwestern Pacific Railroad tracks, turn north to pass Little Lake Valley Cemetery and across East Hill Road. The alignment would lie immediately west of Bray Road as the alternative crossed Center Valley and Hearst-Willits Roads. Alternative LT then would turn westerly as it continued across the valley north of the city's wastewater treatment plant. The alignment then would cross Outlet and Mill creeks. Mill Creek is just east of the node that separates the south and north segments of this alternative.

North Segment: After crossing the Northwestern Pacific Railroad, Alternative LT would provide access to the north side of Willits with the Quail Meadows Interchange. The roadway would reduce from four to two lanes and conform to existing U.S. 101 just north of the old truck scales and just south of the at-grade crossing of the Northwestern Pacific Railroad. Alternative LT would be identical to Alternative J1T after crossing the access road for the proposed Quail Meadows Interchange. The alignment would continue on the existing two-lane highway to the end of the project study area.

Engineering Features: The vertical alignment would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. Between East Hill Road and the Quail Meadows Interchange, the flat valley floor would allow nearly flat grades except at bridge approaches and departures. Throughout the valley, Alternative LT would cross the 100-year floodplain. The profile of Alternative LT mainline would remain at least 1 m (3 ft) above the estimated 100-year water surface level.

Alternative LT would include two interchanges to direct motorists to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would tie into existing U.S. 101, which would become S.R. 20 at this location.

Approximately 6.6 km (4.1 mi) northwest of the proposed Upper Haehl Creek Interchange, the Quail Meadows Interchange would provide access to Willits and Fort Bragg toward the north end of the project. For this interchange, the ramps would terminate at a realigned U.S. 101 that would become a local road in this area. Between the point where existing U.S. 101 would be realigned and where Alternative LT would connect to existing U.S. 101, the former highway (existing U.S. 101) would become an access road for the mobile home parks and other parcels that had direct access to U.S. 101 severed.

This alternative would conform to existing U.S. 101 approximately 1.7 km (1.1 mi) north of the Quail Meadows Interchange. The existing highway would remain in service at U.S. 101 north of this point and retain the existing at-grade crossing with the Northwestern Pacific Railroad.

Structures: Alternative LT would include eight mainline structures and two ramp structures. Its floodway viaduct would span the Little Lake Valley floodway over Outlet and Mill Creeks. This viaduct would be designed to convey the base flood without substantially increasing the 100-year water surface elevation. Smaller bridges or culverts would be constructed over other creeks in the area.

3.4.5 No-Build Alternative

Under the No-Build Alternative, conditions along U.S. 101 would remain as they currently exist. The No-Build Alternative would not cause adverse environmental

impacts identified for the proposed project and no mitigation measures would be needed.

With the No-Build Alternative, no improvements would be made to the existing facilities though traffic volumes would increase. The No-Build scenario evaluates future traffic conditions with no capacity increasing improvements to the study area. Routine maintenance would continue.

If the No-Build Alternative were chosen, congestion would increase substantially in and around the Willits area. If no bypass is constructed and U.S. 101 is not improved through Willits, as assumed in the No-Build scenario, delay would increase exponentially. Northbound traffic queues approaching the intersection of U.S.101 at S.R. 20 is expected to back up past Evergreen Village during the peak hour. Congested conditions are expected to occur beyond the peak hour and queues would back up for several hours of the day. Average northbound speeds under the No-Build scenario are expected to be less than 8 miles per hour in the peak hour in downtown Willits (Baechtel Road to Sherwood Road), which is half the speed that northbound traffic currently experiences in downtown Willits. Traffic collisions increase these delays, and at these times, emergency vehicles are delayed even further in getting assistance to victims.

With the No-Build scenario, interregional travelers will continue to travel through downtown Willits and to experience increased delay as a result of increased congestion in Willits. Traffic congestion in Willits will worsen as traffic volumes increase. Northbound traffic will continue to queue-up south to Holly Street or beyond during peak hour periods. Although traffic operation at the Holly Street intersection is expected to improve with construction of a Holly Street signal in the near future, it will not reduce overall delay. Higher traffic congestion will increase friction associated with commercial driveways, side street traffic, parking and pedestrians. Side street traffic trying to access U.S. 101 increasingly will experience delayed access to U.S. 101, further increasing congestion on the side streets leading to Main Street.

With no capital improvements, there is no capital cost for this alternative. As with any highway, there would be continued costs associated with maintenance, periodic rehabilitation, and any safety and operational improvements to the existing facility. Although difficult to quantify, there also would be costs born by the local community

related to air quality, noise, social, and economic impacts; and regional costs associated with an inefficient transportation system.

Section 2.2, Need for Proposed Bypass Project discusses the existing roadway conditions in Willits, including problems and deficiencies, collision rates, and pedestrian and bicycle conflicts with interregional traffic that would continue if the No-Build Alternative were chosen. Section 3.5.1, below, illustrates projected safety conditions under the No-Build Alternative.

3.5 Comparison of Alternatives

Goals of the project are to improve level of service, improve safety, and reduce delays for interregional/interstate traffic on U.S. 101. All of the alternatives under consideration would meet these three goals by taking interregional traffic out of Willits. Benefits of the project are improved safety and level of service to local traffic, reduced noise and vibration on Main Street through Willits, and improved conditions for bicyclists and pedestrians in Willits. Comparisons among the alternatives for safety and for LOS are discussed below.

3.5.1 Safety

Caltrans District 1 Office of Traffic Safety determined the statewide average number of collisions for a five-year period for each of the alternatives based on averages for similar facilities and using forecasted traffic volumes for the year 2028. A summary of the statewide average total number of collisions and the statewide average number of fatal plus injury collisions for each alternative is given Tables 3-2 and 3-3.

These averages are based on statewide averages of similar facilities and are for comparison purposes only. The preferred alternative may not perform as indicated in the tables.

In the following tables, the column titled “U.S. 101 Freeway” represents the statewide average number of collisions for the proposed U.S. 101 facility for each alternative. This is the route intended for interregional traffic on U.S. 101.

Table 3-2. Statewide Average Number of Collisions Over a Five-Year Period Using 2028 AADTs

Alternative	U.S. 101 Freeway	Main Street	S.R. 20	Intersections	Total
C1T	179	382	62	112	735
E3	103	241	24	106	474
J1T	239	294	62	113	708
LT	241	294	62	113	710
No Build	N/A	734	62	142	938

Source: District 1 Traffic Safety Office

As demonstrated in Table 3-2, Alternative E3 has the lowest statewide average total number of collisions, slightly less than half the average number for the No Build Alternative. This is a result of two factors. First, Alternative E3 moves more traffic off of Main Street than the other alternatives. Secondly, Alternative E3 provides a freeway the full length of the alternative rather than a combination of freeway and two-lane conventional highway provided by the valley alternatives. Freeway facilities typically have lower collision rates than conventional highways.

The average total number of collisions for the valley alternatives is approximately 22 to 25 percent below the No Build Alternative. All of the build alternatives provide alternate routes for Main Street traffic, thus the average number of collisions on Main Street for these alternatives is less than the number for the No Build.

Table 3-3. Statewide Average Number of Fatal Plus Injury Collisions Five-Year Period Using 2028 AADTs

Alternative	U.S. 101 Freeway	Main Street	S.R. 20	Intersections	Total
C1T	84	178	28	52	342
E3	49	113	11	52	225
J1T	111	138	28	52	329
LT	112	138	28	52	330
No Build	N/A	342	28	67	437

Source: District 1 Traffic Safety Office

The average number of fatal plus injury collisions for all the build alternatives is below the number for the No Build Alternative. Alternative E3 has the lowest number at just over half the number on No Build Alternative, while the other freeway alternatives are about 75 percent of the number on the No Build Alternative.

3.5.2 Level of Service

Figures 3-4 and 3-5 provide a comparison of the alternatives showing average speeds and estimated travel times on U.S. 101 in the project limits from 0.9 km (0.6 mi.) south of the Haehl Overhead to 1.6 km (1.0 mi.) north of Reynolds Highway. Both tables indicate that freeway travel along all the proposed alternatives will be 70 percent shorter for average trips through Little Lake Valley in 2028 compared with the No Build Alternative.

Figure 3-4. Average Speed on U.S. 101

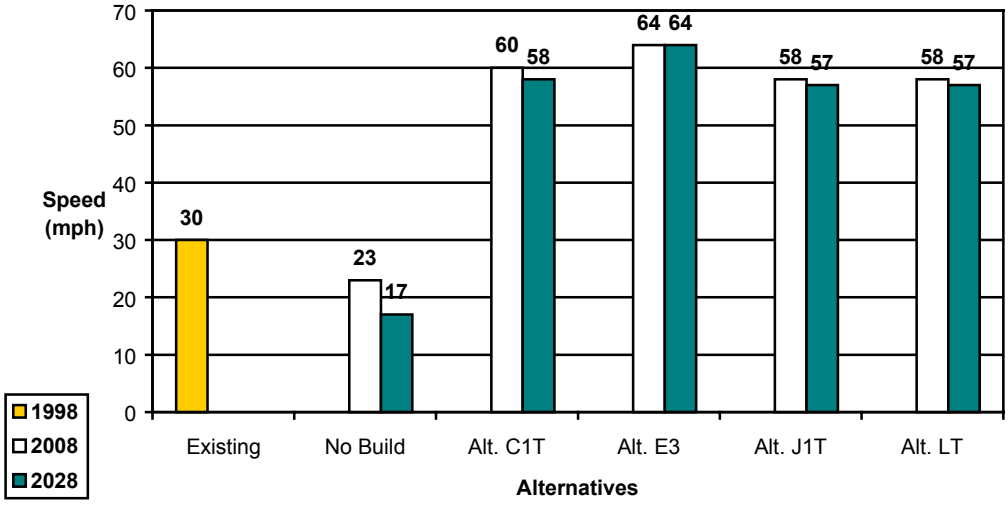
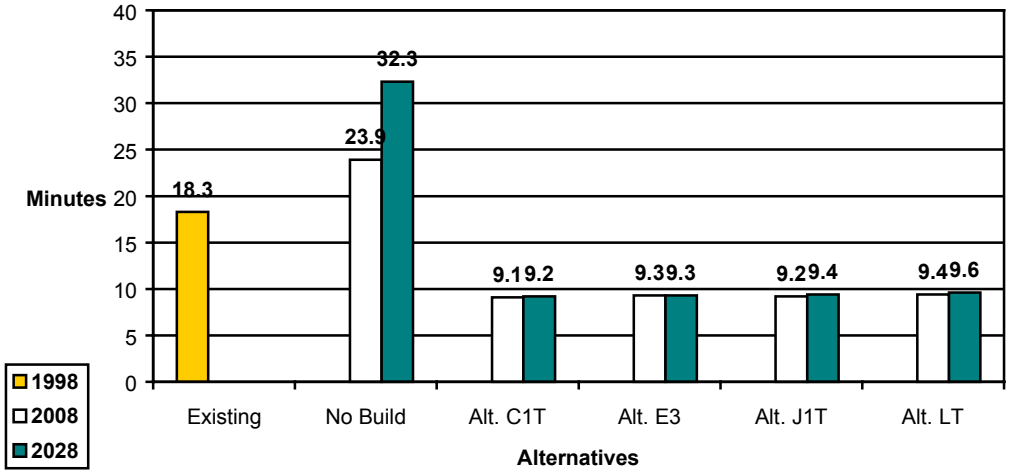


Figure 3-5. Average Travel Time on U.S. 101


40
35
30
25
20
15
10
5
0
Minutes
18.3
23.9
32.3
9.1
9.2
9.3
9.3
9.2
9.4
9.4
9.6
1998
2008
2028
Existing
No Build
Alt. C1T
Alt. E3
Alt. J1T
Alt. LT
Alternatives

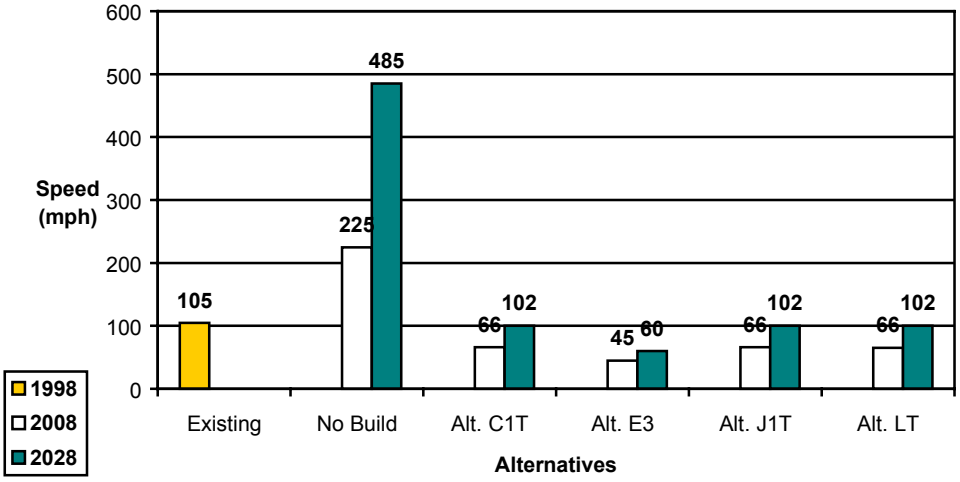
The existing intersection of U.S. 101 (Main Street) and S.R. 20 operates at Level of Service F. All of the build alternatives result in significant improvements to that intersection. Alternative E3 offers the most improvement, with the intersection operating at LOS C for both 2008 and 2028. Alternatives C1T, J1T, and LT provide LOS D at this intersection in 2008 and 2028.

For alternatives C1T, J1T, and LT, the south and west legs of the intersection would be S.R. 20, and traffic travelling on U.S. 101 destined for Fort Bragg would turn west here. For Alternative E3, the intersection is strictly where two local roads, Main Street and Willits-Fort Bragg Road intersect. The junction of U.S. 101 and S.R. 20 would be at the interchange west of town, and traffic on U.S. 101 heading toward Fort Bragg would not need to enter Willits. The removal of some of the traffic from the intersection in town is what allows Alternative E3 to provide a better level of service at that intersection than the valley alternatives provide.

No traffic queues or congestion related delay is anticipated on the freeway portion of the bypass alternatives through the 20-year time horizon after construction. With the No-Build Alternative, northbound traffic approaching the U.S. 101 (Main Street)/S.R. 20 junction would back up south past Evergreen Village. Currently, these long queues limit and often result in delayed access to U.S. 101 (Main Street) for side-street traffic. This condition would occur with higher frequency and duration in future years if no improvements were made to the system.

No delay is anticipated on the freeway portion of the bypass alternatives through the 20-year time horizon after construction. If the No-Build Alternative were chosen, future delay would be considerably higher in and around Willits. Currently, overall total delay for the study area is 105 hours in the peak hour, and if no improvements are made to the system, this delay would increase to 485 hours in 2028, a 350 percent increase. Figure 3-6 shows the total peak hour delays on the system through the project limits. With the No-Build Alternative, congestion in and around Willits increasingly would delay interregional traffic. Existing average speeds are 30 mph for the project study area and, with the No-Build Alternative, would average 17 mph in 2028. This decreases the average speed by 13 mph and increases the travel time by 14 minutes per vehicle.

Figure 3-6. Total Peak Hour Delay



LOS A would be maintained on all freeway portions of the bypass alternatives. Special holiday weekends such as Labor Day and Memorial Day are exceptions, though levels of service would not be expected to drop below LOS B. Levels of service on the two-lane highway section north of Willits would be LOS D in 2008 and LOS E in 2028 for Alternatives C1T, J1T, and LT. The level of service for the No-Build Alternative would be LOS F by 2008 and beyond.

All of the build alternatives--C1T, E3, J1T, and LT—would provide LOS C or better for interregional traffic on the roadway to be constructed. The project traffic report, for the period through the year 2028, anticipates that travel on the freeway mainlines would operate at LOS A.

Traffic congestion and lack of capacity on the existing highway result in lengthy queues. This is especially evident north of the city during peak traffic volumes on holiday weekends and special events, when southbound queues may extend as far north as Reynolds Highway. Any of the build alternatives will allow through traffic to bypass Willits where the most severe congestion occurs. Diverting heavy traffic around the congested area should eliminate, or at least relieve, the queuing on the existing highway. Thus, although Alternatives C1T, J1T, and LT will make no capital improvements north of the conform points, the existing highway north of these points is expected to operate better than under the No Build Alternative.

Alternative E3 would provide LOS A on the mainline to Oil Well Hill.

All of the build alternatives would reduce volumes on existing U.S. 101 (Main Street) in Willits in comparison to the No Build Alternative.

Table 3-4 summarizes the existing traffic volumes as well as the projected 2008 and 2028 traffic volumes for each of the alternatives.

Table 3-4. Traffic Volumes on U.S. 101

	Traffic Volumes					
	Peak Hour (vph)			Annual Average Daily Traffic (vpd)		
Alternative	**1998**	**2008**	**2028**	**1998**	**2008**	**2028**
Existing	1,920			25,700		
No Build		2,470	3,060		32,600	40,800
C1T		920	1,150		12,300	15,300
E3		1,270	1,590		16,900	21,200
J1T		1,080	1,350		14,400	18,000
LT		1,080	1,350		14,400	18,000

Vph – vehicles per hour
Vpd – vehicles per day

3.6 Alternatives Considered But Eliminated From Further Study

A range of reasonable alternatives that potentially could meet the stated project purpose and need were considered by the Project Development Team (PDT), the Willits Technical Advisory Groups (TAG), and the Section 404 Memorandum of Understanding (MOU) signatory agencies. Alternative alignments were formulated and studied. Many of the alternatives studied had a number of alignment variations resulting from different interchange locations and combinations. Some of these have been eliminated, and some have remained viable for detailed study in this DEIR/EIS.

The study for the Willits Bypass began in the early 1960s. However, due to lack of funding and higher priority projects, the Willits Bypass project was delayed. In 1998, Caltrans re-initiated formal studies.

Five alternatives are studied in this DEIR/EIS. Four of these are freeway alternatives and one is the No Build Alternative. During the project development process, Caltrans held meetings with City of Willits staff, the TAG and interested community groups to develop alternatives for study. Several elected bodies such as the Willits City Council, the Mendocino Planning Commission, the Mendocino Board of Supervisors and the Brooktrails Township CSD also provided input on alternative design alignments.

In 1988, Alternatives A through E along with the No Build Alternative were studied in the Project Study Report (PSR), prepared for the California Transportation Commission (CTC). The six alternatives were presented to the public at an informational public meeting held in Willits on April 6, 1988. On December 5, 1989, Caltrans conducted additional scoping sessions. As a result of the meetings, the PDT added Alternatives F through R to the six listed in the PSR for a total of 19 alternatives to be studied during the project development process. Map 29 in Volume II shows these alternatives.

In 1992, based on the recommendations from the Willits Traffic Advisory Committee, Caltrans investigated a city street type alternative parallel to U.S. 101. This became the Transportation System Management (TSM) alternative. Caltrans also studied a generic two-lane alternative and determined that a two-lane bypass would not achieve a level of service C. Reasons for eliminating both alternatives are discussed in Section 3.6.1 and Section 3.6.2, respectively.

In 1993, two more alternatives were recommended for study. USEPA suggested study of Alternative K2 and the Willits City Council suggested study of Alternative L. The reasons for eliminating Alternative K2 are discussed in Table 3-5.

In early 1993, TAG and PDT meetings were held in Willits to discuss Caltrans staff recommendations to drop a number of design alternatives from further consideration in the project development process. Caltrans staff prepared an alternative location map, a matrix that illustrated the various alternative selection criteria and a list of criteria for interpreting the engineering and environmental matrix. The intended

purpose of developing the criteria and matrix was to rank and evaluate the alternatives, which included a combination of alternatives, ranging from alternatives that bypassed Little Lake Valley in the hills to the east (K) and to the west (E). The Willits Bypass Study Team (Caltrans staff) evaluated and ranked alternatives based on ability to achieve the following criteria: cost; hazardous waste conflicts; interregional traffic delay reduction; accident reduction; Section 4(f) impacts; wetland impacts; upland habitat impacts; sensitive species impacts; residential, agricultural, and business relocations; service to local traffic; and engineering feasibility.

Refer to Appendix P for the recommendation matrix comparing the alternatives. The evaluated each of the alternatives against several criteria, using a ranking of "excellent" to "poor." "Excellent" represented an alternative that is superior with respect to a particular criterion and "poor" represented an alternative that is poor with respect to a given criterion. The PDT rejected several of the alternatives for the reasons shown in the matrix and recommended further study on Alternatives A, C1, J1, E3, TSM and No Build.

On May 26, 1994, the NEPA 404 MOU signatory agencies met and agreed to the project purpose and need statement, modal choice statement, criteria for selection of alternatives and the range of alternatives to be studied further. Alternatives C1, E3, J1, K, K2, L, TSM, and No Build constituted the range of alternatives. Preliminary engineering and environmental investigations continued on these alternatives, but due to funding shortages and resource redirection, by 1995, progress was stopped. In 1998, new funding and resources were allocated and studies resumed on the alternatives approved under the NEPA 404 MOU process.

Throughout the scoping sessions, suggestions for various mid-valley interchange locations arose along with variations of a rail alternative. Alternatives F through R came out of the 1988-1989 scoping sessions. In 1998, Caltrans commissioned a Value Analysis (VA) Study that evaluated many of the F through R Alternatives. Several of the VA proposals dealt with reducing construction for the northern portions of the alternatives. Modifying the valley alternatives to the truncated alternatives addressed this concern. A number of alternatives included at-grade intersections and were rejected due to safety concerns. A number of VA study team proposals were implemented. Appendix P summarizes the highlights of the VA study.

After extensive engineering and environmental investigations, Caltrans determined that Alternatives K and K2 were no longer prudent or feasible and the TSM alternative did not meet the project's purpose and need, and therefore, reduced the number of alternatives to C1, J1, L, E3 and No Build. In Fall 2000, due to budget constraints, Caltrans decided to truncate or shorten Alternatives C1, J1 and L. The decision to truncate the valley alternatives resulted in Alternatives C1T, J1T and LT. These truncated alternatives were shortened to conform to the existing highway at the north end of the project area and to reduce the costs of former Alternatives C1, J1 and L. Table 3-5 summarizes the reasons why alternatives were eliminated from further environmental analysis in the DEIR/DEIS.

Table 3-5. Alternatives Considered But Eliminated from Further Study

Alternatives	Reason for Elimination from Further Study
Alternatives A, A1, A2, A3 & A4. CTC adopted Alternative A as the original alignment in 1962. Versions of Alternative A known as A1 - A4 identified different combinations of interchange locations.	The PDT rejected Alternative A due to the substantial potential impacts to wetlands and other sensitive natural habitat. Alternative A also required time-consuming and extensive construction techniques to address embankment settlement and consolidation caused by poor soil conditions in northern Little Lake Valley.
Alternative B. In an effort to modify Alternative A to avoid wetlands, Alternative B diverged from Alternative A beginning just north of the crossing of Hearst-Willits Road, then veered to the east and skirted the eastern limits of Little Lake Valley.	Preliminary investigations revealed that Alternative B, rather than having lower wetland impacts, actually had higher wetland impacts than Alternative A. In addition, a later alignment, Alternative K, better represented the intent of Alternative B.
Alternative C. Similar to Alternative B, Alternative C diverged from Alternative A beginning just north of the crossing of Hearst-Willits Road. From there, Alternative C skirted the west side of Little Lake Valley and rejoined Alternative A and the existing highway on Oil Well Hill. Alternative C1T developed from Alternative C. Versions of Alternative C known as C1-C4 identified different combinations of interchange locations.	Alternative C1 was retained for further study. The PDT rejected other versions of Alternative C because of the substantial potential impacts to wetlands and due to the high cost and growth-inducing impacts of additional valley interchanges. Mendocino County requested Caltrans to investigate the Alternative C/J in 1993. This was a combination of what is now the south portion of C1T and the north portion of J1. Most of Alternative J1 north of Quail Meadows is no longer under consideration, and hence, the C/J alternative is no longer considered viable.
Alternative D traversed the hilly terrain west of Willits and was similar to E3 but closer to Willits.	The PDT rejected Alternative D based on its similarity to Alternative E and due to substantial potential impacts to wetlands and riparian habitat along the north end of Little Lake Valley.

Alternative E ran through the hills near Willits cemetery. The north end connected to Alternative A after traversing the hills west of the old Louisiana Pacific mill site. Versions of Alternative E known as E1-E3 had different combinations of interchange locations.	Alternative E3 was retained for further studies. The PDT rejected other versions of Alternative E3 due to potential impacts to residential development and the estimated higher cost for interchanges at Wild Oat Canyon and at Oil Well Hill.
Alternative F proposed relocating the Northwestern Pacific Railroad tracks through a portion of Willits and using the resulting right of way for a low speed expressway.	The PDT rejected Alternative F due to its similarity with Alternative O and due to the high cost of relocating railroad tracks.
Alternative G describes many variations of alternatives from the Project Study Report that connected with US 101 south of Oil Well Hill and north of Haehl Creek.	The PDT rejected Alternative G because there was no cohesive alternative described from the public scoping sessions. Many of the proposals loosely defined under this alternative were studied as variations of other alternatives.
Alternative H came out of the scoping sessions as an alignment that would relocate U.S. 101 at least 8 miles west of Willits to remove noise and air pollution from town.	The PDT rejected this alternative due to the high costs and because it was outside the scope of the study area.
Alternative I was a tunnel located roughly in the Alternative E corridor. It was suggested as a means of reducing impacts to Willits Cemetery and the other properties along the proposed D/E alignments.	With an estimated cost of $250 million to $300 million for the tunnel alone, the PDT rejected this alternative.
Alternatives K and K2 were studied under the NEPA/404 MOU process. Alternative K was an easterly wetland avoidance alternative located in the hills to the east of Reynolds Highway. Alternative K2 followed K for about the first 1.2 miles, then continued north along the base of the hills on the east side of the valley.	With concurrence from the NEPA 404 agencies, the PDT rejected both alternatives. The PDT felt that constructing facilities on the east side of the valley resulted in poor service in terms of interchange locations. Studies indicated that both alternatives generated unavoidable impacts to wetlands, archaeological resources, and the destruction of millions of Baker's Meadowfoam plants, a listed species of concern and listed as rare under the California Plant Protection Act. Both alternatives required deep cuts in active landslide areas and traversed material of questionable stability.
Alternatives J1 and J2 followed the railroad tracks after leaving existing U.S. 101 at the south end of Willits, skirted the rodeo grounds, skirted the sewage plant to the east, and headed back toward U.S. 101, conforming just north of the Willits northerly city limits.	The PDT rejected J2 because it resulted in poor service in terms of interchange locations and could have growth-inducing impacts. The PDT retained Alternative J1 for further studies. Alternative J1 was truncated to become J1T.

Alternative L is a center valley alternative that avoids large wetland impacts along its northern half by conforming to the alignment of the existing highway and railroad.	The PDT retained Alternative L for further studies. Alternative L, which continued to a point on Oil Well Hill, was later truncated to become LT.
Alternative M offered an expressway through Willits skirting the wastewater treatment plant and corporation yard and widened existing U.S. 101 at the north end of the project to four lanes.	Based on its similarity with Alternative J, and because of safety concerns and whether an expressway could meet the project's purpose and need, the PDT dropped Alternative M.
Alternative N departed from U.S. 101 near Holland's Lane, then skirted the east side of the Mormon Church property crossing Haehl Creek, passing over East Hill Road and the railroad tracks, then paralleled the tracks with a two lane roadway through Willits.	A portion of Alternative N included four lanes with turn pockets and a portion included a continuous left turn lane. The PDT rejected this alternative based on its similarity to Alternative O.
Alternative O was similar to Alternative N, paralleling the Northwestern Pacific Railroad tracts. Alternative O proposed a four-lane boulevard expressway that continued beyond the old truck scales and railroad crossing north of Willits.	The PDT rejected this alternative due to substantial potential impacts to multi-dwelling residential units and potential impacts to Section 4(f) eligible properties.
Alternative P was a couplet through Willits. A couplet is a pair of one-way city streets with traffic running in opposite directions usually separated by a city block.	A preliminary traffic analysis revealed that this alternative would operate poorly because of the substantial out-of-direction travel it required. Citing the failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.
Alternative Q involved a concept of two-lane routes with increased railroad use.	The modal analysis indicated a need for a highway solution rather than rail and, citing failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.
Alternative R was a couplet through Willits. The alignment identified Main Street as the northbound lanes and suggested southbound lanes to the west of U.S. 101.	Like Alternative P, this alternative had widely separated north/southbound legs that required out-of-direction travel. Citing the failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.

3.6.1 Alternative TSM

Transportation System Management (TSM) involves using existing transportation facilities for maximum benefit and making generally low cost improvements rather than constructing more expensive new or additional facilities. At the request of

members of the TAG and the PDT, the TSM alternative was developed as a non-freeway study alternative. Because of the fragmented local street network and the narrow roadway along Railroad Avenue, the Willits Bypass TSM alternative included construction of new roadway segments and purchase of numerous right of way parcels. This alternative paralleled existing U.S. 101 through Willits and provided at grade intersections including signalized and unsignalized local road connections. Community members with environmental concerns initially supported the TSM alternative. However, changes were made to meet City of Willits concerns and Caltrans design standards. Due primarily to high cost and severe environmental impacts, there appears to be limited public support for the current TSM alternative.

In February 2001, Caltrans management and FHWA considered but eliminated the TSM alternative because it would not attain the project purpose and need. The TSM alternative would operate as a parallel arterial to existing U.S. 101 and would provide the least delay reduction of all the alternatives. In addition, traffic studies showed that Alternative TSM was not expected to reduce the number of collisions when compared with the No Build Alternative. The freeway study alternatives, however, are expected to provide a substantial reduction in collisions, approximately 18 percent for the valley alternatives and 30 percent for Alternative E3.

The TSM alternative would have the greatest impact on community housing stock. The alternative would result in the removal of 140 residential units, including 104 single-family homes, 15 multi family units and 21 mobile homes. In addition, 28 commercial and industrial business would be relocated (including one utility which, alone, would cost an estimated $25 million to relocate). There would not be sufficient housing in Willits for the large number of residents who would be displaced by the TSM alternative.

The TSM Alternative was the only alternative that would result in unavoidable adverse impacts to eligible historic architectural properties, including numerous structures within block 3 of the Willits Historic District. The TSM alternative would also have direct impact to those land uses in close proximity to its alignment. Possible impacts could include increased noise, increased traffic volumes, reduction in parking supply, and reduced access in the vicinity. These impacts would likely modify the existing character of the area. Finally, the TSM alternative had the

potential to physically divide the community of Willits and conflicts with the City's goal to provide a "livable, walkable" community.

On April 6, 2001, Caltrans submitted a letter, on behalf of Caltrans and FHWA, to each NEPA/404 resource agency informing them of Caltrans and FHWA's decision to eliminate the TSM alternative from further analysis (Appendix G). Caltrans and FHWA followed the letter with a telephone call to each agency. Each agency that was contacted expressed its lack of objection to eliminating the TSM alternative. USEPA expressed concern about eliminating the TSM alternative but said that it did not object to its elimination from further analysis.

3.6.2 Two-Lane Alternative

In 1992, the California Transportation Commission (CTC), recognizing the importance of the Willits Bypass, programmed $60.5 million for the project. Due to limited funding available for new projects, the CTC programmed only the funding for an initial two-lane expressway within an ultimate four-lane freeway right of way.

Following programming in 1992, Caltrans and FHWA found that there was no local or regional agency support for a two-lane expressway. The City, County, Mendocino Council of Governments (MCOG), and the North Coastal Counties Supervisors Association (representing the eight northwestern counties in California) recommended that funding be provided for initial four-lane freeway construction for the following reasons:

- Inconsistency with state and regional planning
- Poor level of service and lack of passing opportunities
- Safety concerns as a result of at-grade intersections
- Possible need for traffic signals
- Having to impact the corridor a second time when upgrading to 4-lane freeway

Responding to input from these agencies/organizations and the public, the CTC in the 1998 STIP changed the project from a two-lane expressway to a four-lane freeway, adding additional funding to the project. By this time, Regional Transportation Planning Agencies (RTPAs) had responsibility for 75 percent of the funding for new highway improvements. The MCOG chose to commit nearly all of its available funding ($17 million) to the project to fully fund a four-lane freeway. The 2002 STIP

includes approximately $116 million for construction and right of way for the project.[5]

Throughout the planning and environmental process for this project, a four-lane freeway project was being pursued, even when a two-lane expressway was to be the first phase.

Caltrans, through its Project Development Team (PDT), worked cooperatively with resource agencies, local agencies and the public in the development of the "purpose and need" statement, the alternatives, and in making decisions on alternatives to be dropped.

In 2000, after all technical studies were completed, the Willits Environmental Center (WEC) asked the PDT to add a two-lane alternative on “one of the valley alignments.” In response, Caltrans and FHWA analyzed the concept but chose not to add a two-lane alternative because a two-lane alternative would not meet the "purpose and need" for the project. The "purpose and need" calls for a facility that would provide a "C" Level of Service (LOS) through the 20-year design period (i.e., 2023). A 2-lane facility would provide a "D" LOS at peak hour upon construction (2008), and would diminish to LOS "E" within the 20-year period.[6] LOS "E" exists when a facility approaches capacity during peak traffic flows. As such, to develop a two-lane highway would result in a facility that would be functionally obsolete within the design period. Based on the foregoing, Caltrans and FHWA have determined that a two-lane alternative would be eliminated from further environmental analysis and should not be considered.

3.6.3 Modal Choice Decision

The NEPA/Section 404 MOU stipulates that there will be concurrence over the choice of transportation mode early in the planning process. Caltrans and FHWA analyzed the feasibility and practicability of employing alternative methods of reducing traffic volumes on U.S. 101 in Willits. Their studies concluded that local

[5] As noted in Section 2.5 Funding and Schedule, additional state and regional funds will be acquired to fully fund construction of the project.

[6] It is important to recognize that LOS of "C" on a 4-lane freeway is substantially different than LOS "C" on a 2-lane highway, in that a freeway offers continuous passing opportunities. On a 2-lane road, passing opportunities are affected by volume and sight distance.

and regional rail is less feasible for the Willits/Ukiah area than increased bus transit, and interregional passenger rail ridership would not affect a significant change on Willits area highway traffic volumes. Low ridership projections are due to low population numbers and low densities. Due to these low ridership projections, neither bus transit nor passenger rail would reduce substantially the number of single occupancy vehicles in Willits enough to cause a notable reduction in traffic volumes on U.S. 101. In addition, short average trip lengths (two miles) with attendant waiting and travel to rail stations also make transit less attractive in the Willits area. Further, the Mendocino County RTP recognizes that the rural and sparsely populated nature of Mendocino County is most conducive to personal car use as a transportation mode. Consequently, the county's RTP focuses on improvements to streets, roads, and highway.

CHAPTER 4 Affected Environment

This chapter describes the environment likely to be affected by the project. The purpose of the chapter is to give the reader background information to evaluate the impacts of the project which are described in Chapter 5, Environmental Consequences.

4.1 Topography and Climate

The proposed Willits Bypass is located within the Mendocino Highlands physiographic area. The Mendocino Highlands are the ridges and valleys that have a general north-northwest trend that is sub-parallel to the California coastline located approximately 35 km (22 mi) to the west.

Although elevations in the region are moderate, relief is sometimes considerable. The highest peak surrounding the Little Lake Valley has an elevation of 1,010 m (3,320 ft) and the valley floor drops to an elevation of 400 m (1,320 ft). Little Lake Valley and valleys located to the north are drained by the Eel River system. Valleys located south of Little Lake Valley drain to the Russian River system.

The project area has a Mediterranean climate. Summers are warm to hot with occasional temperatures over 38 °C (100 °F). Winters are cool to cold and can be accompanied by rare light snowfall. Frost and fog conditions can be expected to occur anytime throughout the winter months.

Rainfall is primarily concentrated between the months of October through March. Average annual rainfall in the Little Lake Valley is approximately 1,350 millimeters (mm) (53 inches [in]).

4.2 Geology

4.2.1 Regional Geology

The project area is located within the California Coast Range Geomorphic Province, which is characterized by numerous northwesterly trending geologic structures. The geologic history and structure of the California Coast Range Geomorphic Province is

extremely complex due to nearly continuous tectonic deformation. Approximately 80 million years ago, folding and faulting of uplifted rock formed the Mendocino Highlands most of which have remained exposed since their initial uplifting. Approximately 25 to 30 million years ago, the San Andreas Fault System began forming. The San Andreas Fault System now depicts the division between the Pacific and North American Tectonic Plates. Continued deformation has progressed to produce the present day geologic structures that are seen in the California Coast Ranges.

Several geologic conditions are present in the area, which may influence the selection of a preferred alternative, and the manner in which it would be constructed. Information about these conditions is presented below and the potential impacts of these conditions are discussed in Chapter 5, Environmental Consequences.

4.2.2 Soils

The various types of soil in the project area correspond approximately with the major topological features. The Cole soil is formed in recent alluvium and comprises most of the valley soil. The Pinole-Yokayo-Redvine soil is formed on alluvium terraces. The Yorkville-Yorktree-Squawrock soil is an upland soil formed under grass and oaks on unstable side slopes of hills and mountains where the underlying bedrock is graywacke, chloritic schist or shale. The Casabonne-Wohly-Pardaloe is an upland soil formed under forest where the underlying bedrock is Franciscan sandstone. The characteristics of these soils are summarized in Table 4-1.

Cole Soil underlies Alternatives C1T, J1T and LT. Alternative E3 is underlain primarily by Yorkville-Yorktree-Squawrock Soil and Casabonne-Wohly-Pardaloe Soil.

Table 4-1. Summary of General Soil Characteristics

Character	Cole	Pinole-Yokayo-Redvine	Yorkville-Yorktree-Squawrock	Casabonne-Wohly-Pardaloe
Surface Depth	203 mm	254 mm	457 mm	381 mm
Surface Color	Dark grey-brown	Brown	Brown-yellow	Reddish-yellow
Soil Type	Clay-loam	Gravelly-loam	Gravelly-loam	Gravelly-loam
Total Depth	1270 mm	1550 mm	1525 mm	1448 mm
Drainage	Poor	Good	Poor	Moderate
Permeability	Slow	Slow	Slow-moderate	Moderate
Available Water Capacity	High	High	Moderate-high	Low-moderate
Run-off	Ponded	Medium	Rapid	Very rapid
Surface Drainage	Required	NA	Saturated	NA
Shrink-Swell Potential	High	Moderate	High	Moderate
Load Support	Limited	Subject to compaction	Low soil strength	Moderate
Hazard of Erosion	Low-Moderate	Moderate	Moderate-high	Very high

Source: Willits Bypass Geotechnical Report, Caltrans, 1999

NA – information not available.

4.2.3 Seismic Activity

The California Coast Range Province is one of the most seismically active regions in the world. However, within the vicinity of Willits, little significant seismic disturbance has occurred historically when compared to adjacent regions. The relative absence of consequential seismic activity does not preclude the possibility that Willits will experience a large-scale event in the future. Two faults, Maacama and San Andreas, are present in the region. Table 4-2 summarizes pertinent data associated with these faults (Map 10).

A maximum credible earthquake is defined as the maximum earthquake that appears possible based on presently known geologic evidence. The maximum credible earthquake in the project area would result in a maximum credible acceleration of 0.7 g.

Table 4-2. Seismic Activity

Fault	Distance to Project Site Km	(mi)	Maximum Credible Earthquake Magnitude Richter Scale	Maximum Credible Earthquake Project Area
Maacama	0	0	7.25	0.7 G
San Andreas	47	29	8.00	0.2 G

Source: Willits Bypass Geotechnical Report, Caltrans, 1999

4.2.4 Landslides

Several naturally occurring types of landslides are present throughout the Willits area. The primary types of landslides present within the project limits are landslide slumps, translational and rotational landslides, and massive earthflows (Map 10). The geologic units that are of most concern, in respect to landslides, are the Plio-Pleistocene Non-Marine Sedimentary Deposits (PPNMSD) and the Franciscan Melange Unit (FMU).

The primary types of landslides that occur on hill slopes underlain by the PPNMSD are landslide slumps, and shallow to slightly deep-seated translational and rotational landslides. Within the PPNMSD, landslides tend to develop on moderately steep and steeper slopes where local ground water sources are present. Hill slopes comprised of the PPNMSD that are disturbed by road construction can develop ground distress with horizontal slope angles as low as 26 degrees.

The FMU is highly susceptible to the generation of landslides, even on gentle slopes. Soil creep, landslide slumps, shallow to moderately deep-seated translational and rotational landslides, and moderately deep to deep-seated massive earthflows can be common along hill slopes underlain by the FMU. Hill slopes subject to soil creep and earthflows usually have a hummocky appearance and can have horizontal slope angles as low as 14 to 17 degrees.

4.2.5 Mineral Resources

No mineral or aggregate quarries are operating currently in the project area. Three sand and gravel quarries are operating south of Willits, outside the project area, and therefore, would not be impacted by the proposed project.

4.3 Land Use

4.3.1 Land Use Regulation

Mendocino County, the City of Willits, and the Brooktrails Township Community Services District (Brooktrails) are the jurisdictions responsible for preparing land use planning documents and making decisions that affect land use in and around the project area. Land use planning activities in Mendocino County and Willits are directed by their General Plans, which lay out a blueprint for the physical, economic, and social development of community and county. A Specific Plan is the guiding document for development in Brooktrails.

The Mendocino County General Plan includes a wide variety of goals and policies to implement state planning laws; the protection of agricultural land and the maintenance of the county's natural resources are dominant themes in this document. In addition, the county's General Plan recognizes the importance of improving the transportation system including the State Highway System. For example, within the Circulation Element are statements regarding the need to improve U.S. 101 around Willits to improve safety and the efficiency of the system. The General Plan also recognizes the Willits Bypass as one of two higher priority projects in the county although no specific route is identified.

Willits is also in the process of adopting a Bike and Pedestrian Plan and a Downtown Specific Plan as part of its General Plan. Both of these plans are being developed within the context of a potential future bypass of the city by U.S. 101. The Bike and Pedestrian Plan will address outstanding safety issues for bicyclists and pedestrians, particularly along heavily traveled corridors within the city, such as the existing U.S. 101. The Downtown Specific Plan includes measures to improve the appearance of downtown Willits along the existing U.S. 101 corridor. The prospect of a bypass around Willits creates the possibility for substantial improvements along the current facility through the city. The Downtown Specific Plan will discuss the potential for wider sidewalks and fewer lanes of traffic along this corridor.

The Willits General Plan includes many policies designed to address the requirements of state planning laws and to achieve a self sustaining, small town community by balancing jobs, commercial development, and residential land uses. However, one policy stands out in the discussion of the Willits Bypass. Policy 2.240 of the General Plan indicates that Willits supports the "proposed U.S. 101 bypass of Willits,

including provisions for direct access from the bypass to the downtown Willits commercial area." The General Plan includes a Preferred Future Roadway Network Map that shows a bypass located east of Willits in approximately the same location as Alternative J1T. However, the map includes a notation that the exact location of the bypass will be determined at a later date.

4.3.2 Existing Land Use

Mendocino County - Land use in the Little Lake Valley area can be characterized as agricultural production interspersed with large lots of rural residential uses. The primary farming activities are the production of hay and livestock, most commonly, sheep, cattle, and horses. A more detailed discussion of local agriculture and farmland is located in Section 4.4. Farmlands.

Willits - Within Willits, there is a variety of land uses including commercial, single family residential, and industrial uses. The city's current General Plan land use map is shown in Figure 4-1. Commercial uses are located generally along or near U.S. 101 or S.R. 20. S.R. 20 serves as a generalized boundary that divides the newer and highway commercial uses (south) from the older and more locally related commercial uses to the north. The older and historic residential areas are located east of town between U.S. 101 and the railroad tracks. East of U.S. 101 is a mixture of older and newer residential units. Industrial uses are located along the periphery of the city limits. Table 4-3 shows the acreage of land used for each land use type within the city.

Table 4-3. Existing Land Use in the City of Willits

Land Use	Amount Zoned Hectares	(acres)	Amount Developed Hectares	(acres)
Residential	263	(650)	135	(334)
Commercial	98	(241)	47	(116)
Industrial	262	(646)	58	(144)
Public Facilities	71	(174)	N/A	N/A
Open Space	14	(35)	N/A	N/A
Total	707	(1,746)	----	----

Source: Willits General Plan, 1992

Adjacent to Proposed Interchanges – Quail Meadows (Alternatives J1T and LT): Partially located in the northern tip of the City of Willits and partially in the adjacent unincorporated area. Zoning in this portion of Willits is C-G, General Commercial. Land use in Mendocino County west of this interchange is SR, Suburban Residential. To the east, land use is AG, Agricultural.

Upp Creek (Alternatives E3): Located in unincorporated Mendocino County, north of the City of Willits and west of existing U.S. 101. Land use in this portion of the county is SR, Suburban Residential.

Truck Scales Interchange (Alternative C1T): northernmost interchange, outside of the City of Willits. Land use on both sides of U.S. 101 at this interchange is agricultural.

Hollands Lane Interchange (Alternative E3): At Hollands Lane, near the City of Willits' southwestern edge, adjacent to both city and county land. Within the city, zoning is R-S, Residential-Suburban. The area in Mendocino County immediately to the west of this interchange is RL, Rangelands. Immediately south of the interchange, land use is Suburban Residential. To the south of the interchange, but not adjacent to it, is a large area designated as RMR20, Remote Residential with minimum 20-acre parcels.

Upper Haehl Creek Interchange (southern interchange for Alternatives C1T, LT, and J1T): located east of Willits' southern tip, entirely within Mendocino County. The use surrounding this interchange is Rangelands. Suburban Residential use is located to the west of the interchange. To the north, there is an area of RR5, Rural Residential with 5-acre minimum parcels. South of the interchange is a large area of Remote Residential with 20-acre minimum parcels.

Brooktrails - During the 1960s, the redwood and mixed forest area northwest of the City of Willits was subdivided into approximately 6,000 lots ranging in size from about 680 square meters (7,300 square feet [sq ft]) to 93 ha (230 ac). Development was intended for vacation or second homes, but gradually the development has become one of year-round permanent residents. Currently, about 1,250 residential lots are developed along with a golf course, limited commercial uses, and a community center. Although Brooktrails is an unincorporated area, it is served by a community services district that provides city services such as sewer, domestic water

and fire protection. Water supply and the development of a second access road into Brooktrails are the most immediate concerns that will affect its future development.

Joint Development – 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 project funding includes TEA-21 funds and is approved by the Mendocino Council of Governments and the CTC. The City of Willits has planned the Railroad History Project improvements to prevent conflict with all of the proposed build alternatives. This project is discussed further in Sections 4.15 and 5.14. A letter from the City of Willits discussing the cooperative development of the city parcel and the bypass is included in Appendix N.

Figure 4-1. Willits General Plan Land Use Diagram

Place-holder

4.4 Farmlands

Today, the primary farming activity in the project area is the production of hay and livestock, most commonly, sheep, cattle, and horses (Map 13). The foothills west of Willits are used extensively as rangeland.

Mendocino County's prime farmland is found in several small Mayacamas and Coastal Range Mountain valleys. Many of these intermontane valleys have alluvial fans, stream and lake deposits: these areas are subject to inundation making agricultural activity difficult if not impossible. Much of the County's higher land is home to the County's urban centers, which precludes the full utilization of its prime farmland.

The State Department of Conservation's Farmland Mapping and Monitoring program has not mapped Mendocino County; as a result, land use information, such as farmland conversions and other pertinent information, has not been compiled. However, the agricultural census does give some insight to the existing condition of farmland utilization in the county (Table 4-4).

According to the agricultural census for 1997, Mendocino County has seen an increase in the number of full-time farms from 532 in 1992 to 564 in 1997. However, there is a decrease from 725,118 acres in 1992 to 638,566 acres of land in agricultural use in 1997. Mendocino County has seen a marked decrease of 56 percent in the acreage of land permitted for grazing, from 134,126 acres in 1992 to 58,742 acres in 1997.

Table 4-4. Mendocino County Summary by Land Use Category

Agricultural Land Use Category	County Summary (acres)	
	1992	1997
Land in farms	725,118	638,566
Irrigated	23,060	24,716
Total cropland	29,298	30,425
Average size of farm	666	585
Full time farms	532	564

Source: Agricultural Census for Mendocino County

The Natural Resources Conservation Service (NRCS) soil survey indicates a high concentration of prime soils in the project area; however, intensive agricultural production is not found in the area. This phenomenon is due to the high water table and lack of drainage, which precludes the ability to cultivate orchards or vineyards in the area.

4.4.1 California Land Conservation (Williamson Act)

The Williamson Act of 1965 is the state's principal policy for the preservation of agricultural and open-space land. The program encourages landowners to work with local governments in order to protect important farmland and open-space. Landowners can enroll parcels for a minimum of 10 years. This program helps local governments to restrict land to agricultural and compatible open space use. In doing so, land is assessed for property taxes at a rate consistent with its actual use, rather than the potential value of the land. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth.

Williamson Act lands are classified as prime or non-prime. Prime Farmland is lands rated I and II in the Land Use Capability Index or has a rating of 80 through 100 in the Storie Index, a method of evaluation used by the Natural Resources Conservation Service. Non-prime land is usually grazing and rangeland. These lands can also be considered as Open Space of Statewide Significance.

The Williamson Act contains notification provisions (Government Code Section 51291(b)) that require state and local agencies to notify the Department of Conservation of the possible acquisition of Williamson Act contracted land.

Mendocino County actively participates in the Williamson Act program (Table 4-5). In 1999, a total of 464,095 acres was enrolled in the program. Land considered prime under this program totaled 32,192 acres (7%) and non-prime, 431,903 acres (93%), constituted the remainder. There has been a decrease of 33,835 acres or 3.5 percent enrolled in the program from the previous year. Property value increases and the steadily-rising demand for residential property in Mendocino County have led to decreasing enrollment in Williamson Act contracts.

Table 4-5. Mendocino County Acreage Enrolled in Williamson Act Program

Category	Total Acreage Per Year	
	1998	1999
Prime	33,256	32,192
Non-prime	464,674	431,903
Total	497,930	464,095

Source: Personal communication, Tim Bryant, Williamson Act Analyst, Department of Conservation.

Table 5-9 in Section 5 Environmental Consequences shows a summary of Williamson Act contracted land in the project area that would be impacted by the proposed project alternatives.

4.5 Social Characteristics

The following discussion describes the social and economic environment in the project area.

4.5.1 Environmental Justice

Executive Order 12898 (Federal Register, Vol. 59, No. 32) requires each federal agency to take the appropriate and necessary steps to identify and avoid "disproportionately high and adverse" effects of federal projects on minority and low-income populations' health and/or environment. As part of the NEPA process, FHWA with assistance from Caltrans will determine consistency with this Executive Order.

In response to Executive Order (EO) 12898, FHWA provides FHWA Order 6640.23 that provides direction in complying with EO 12898. The order requires the environmental document to explain EO 12898, identify minority and low income groups and communities in the project area; discuss public participation efforts during project development; identify beneficial and adverse impacts, as well as mitigation measures; and identify if the project will cause a disproportionately high adverse human health or environmental effect on a minority and/or low income population in the project area.

In addition to EO 12898, 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.

To comply with these laws and regulations, this Draft EIR/EIS presents, in the following sections, the demographic, housing, and economic characteristics of Willits to identify minority or low-income populations that might be impacted by the proposed project.

4.5.2 Demographics

The population of Willits and its trade area (an area from Willits to the Mendocino/Humboldt County border) has increased at an even and moderate rate over the last six years. The growth of the city has been approximately 1.7 to 2 percent per year while its trade area has grown at an annual rate of between 1.6 to 2.2 percent. Table 4-6 shows the population growth of both Willits and its trade area.

Table 4-6. Willits Area Population

Population	Willits	Greater Willits Area
1980 Total	3,706	9,935
1990 Total	5,027	13,155
1996 Total	5,402	14,213
2001 Projected	5,677	14,958
% Change 1980 - 1990	35.6%	32.4%
% Change 1990 – 1996	7.5%	8.0%

Source: Willits Chamber of Commerce Website, 2000

Note: Trade Area includes four census tracts and includes an are from Willits to Mendocino/Humboldt County border.

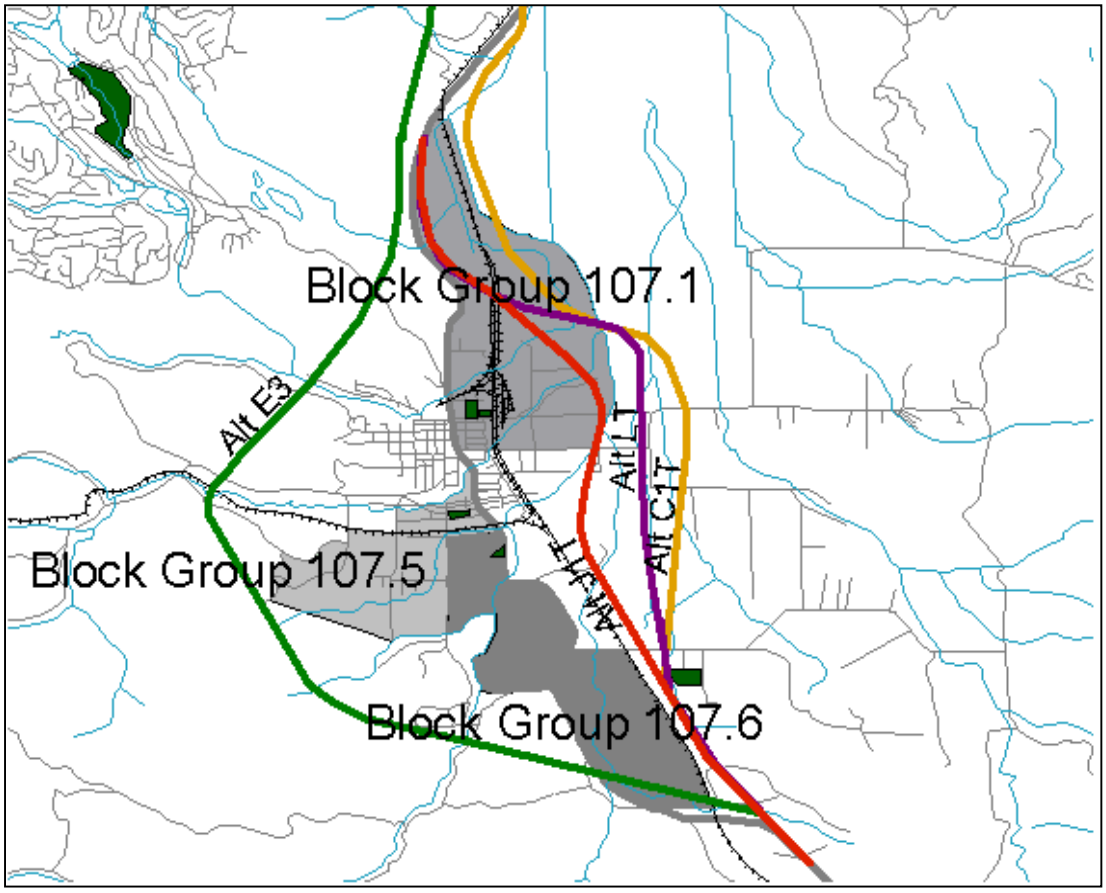
According to the Willits Housing Element, in 1990 nearly 14 percent of the population was 65 years of age or older, up from 12.7 percent in 1980. The aging of the population, while slight during the 1980s is expected to accelerate in the future. The Department of Finance (DOF) estimates that between 1990 and 2020, the number of persons in Mendocino County age 65 and older will increase more than twice as fast as the population as a whole. The median age of residents of Willits was between 30 and 34 years of age in 1990. This was consistent with the median age of residents of Mendocino County in 1990, which was 35 years of age.

In 1990, 84 percent of the population in Willits was classified as non-Hispanic white. By 1996, the proportion of non-Hispanic white residents declined to about 78 percent. The remainder of the population was primarily composed of white Hispanic and American Indian residents. The Sherwood Valley Band of Pomo Indians of California has a rancheria and casino west of Willits near S.R. 20 (see Volume II, Atlas Map 2).

The proportion of minority residents in Census Tract Block Groups 107.1 and 107.5 were 21.5 percent and 17.1 percent, respectively (Figure 4-2). Given the proportions of minority residents elsewhere in the affected area, these block groups have considerably higher proportions of minority residents. "Considerably higher" in this context means that the proportion of minority residents in these block groups was at least one standard deviation (4.3 percent) greater than the average proportion of minority residents.

Figure 4-2. Census Tract Block Groups 107.1, 107.5, and 107.6

4.5.3 Housing Characteristics



Since the DOF information is presented by jurisdiction, housing estimates are presented for both Willits and Mendocino County but not for the greater Willits trade area or the Little Lake Valley. Table 4-7 presents a summary of housing characteristics based on DOF projections and the Caltrans Draft Relocation Impact Report (DRIR) (1999).

Table 4-7. Housing Characteristics

Characteristics	Willits	Mendocino County
Total Housing Units	2,012	37,112
Single Family Units	1,239	26,465
2+ Units	611	4,945
Mobile Homes	162	5,702
% Owner Occupied	46.40%	56.2%
Vacancy Rate	03.18%	09.74%
Persons Per Units	2.617	2.537
Median Housing Value (1996)	$112,570	$123,900

Sources: Department of Finance Estimates, 1999 and Caltrans Draft Relocation Impact Report, 1999
Note: All figures are 1999 unless noted.

In 1999, DOF estimated there were 2,012 housing units within Willits, an increase of only 44 units from the 1990 census. Of the 2,012 housing units in Willits, 1,239 are single-family units and 162 are mobile homes (Map 11). The remaining units are multi-family dwellings of 2+ units per building.

There are four mobile home parks within the project area, including: Wagon Wheel Mobile Home Park, located at 1750 South Main Street; Parkside Mobile Home Park, at 19401 Walker Road; Valley Oaks Mobile Home Park located east of Alternative C1T at 2101 Valley Road; and Grange Mobile Home Park located at 20 Pine Street in Willits. Two mobile home parks -- the EZ Living Mobile Home Park, located at 19925 North Highway 101, and the Little Lake Mobile Home Park, located at 24800 North Highway 101 -- are adjacent to the proposed project.

Some of the residential units in Willits share characteristics of both multi-family and single-family dwellings. These small, densely grouped units resemble “bungalows” rather than traditional single-family units or apartments. In some cases, they share common walls and in other cases they are stand-alone. They are not located on separate parcels, however, and are rented to multiple tenants by a common owner. For the purposes of this report, these “bungalows” are referred to as multi-family dwellings.

Several figures from the Willits General Plan Housing Element and the DOF projections suggest a “tight” housing market. First, the DOF vacancy rate is projected to be 3.18 percent of the total housing units. This is compared to a

countywide vacancy rate average of 9.74 percent. Willits also has a persons-per-household rate of 2.61, which is the highest in the county for any incorporated area.

Willits has historically had a relatively low proportion of home ownership. In 1990 only 48 percent of the City's housing units were owner occupied. In 1999, only 46.4 percent were estimated to be owner occupied. The Willits Housing Element attributes the low home ownership rate, at least partially, to a decrease in "income adequacy on the part of Willits residents."

The DRIR identifies areas of affordable housing along Hollands Lane in Willits. The DRIR also identifies most of the mobile home units located in mobile home parks in the affected area as affordable housing.

In 1996, the median housing value was estimated at $112,570. Increases in home prices combined with income and supply inadequacies have created a housing affordability problem in Willits. The Housing Element indicates this problem can be addressed by increasing the supply of affordable housing units and facilitating the creation of jobs to enhance the ability of residents to pay for housing.

Under existing zoning, a maximum of 1,631 additional dwelling units could be built, including 1,208 multi-family units. None of the developable land within the city is currently designated for use as a mobile home park.

4.5.4 Employment and Income Characteristics

The fastest growing employment sectors in Willits are those with relatively low wage rates, such as retail trade and services. Based on the latest available data (1997) from the Employment Development Department, 2,280 people were employed in different sectors of the economy in 1997, and the unemployment rate was estimated at 7.8 percent. For comparison, the 1997 unemployment rates for Mendocino County, California, and the United States were 7.9 percent, 6.3 percent, and 4.7 percent, respectively.

Based on the latest data available (1996), per capita income for Willits was $12,735 and the average household income was $33,250 with nearly $15,000 worth of annual household retail and service expenditures.

U.S. Census Tract Block Groups 107.5 and 107.6 have proportions of low-income residents that are significantly higher than the average for the affected area (23.8 percent and 22.5 percent, respectively) (Figure 4-2).

4.6 Economics

4.6.1 Existing Economic Setting

The Willits trade area consists of four census tracts, which include the communities of Brooktrails, Pine Mountain, Leggett, Laytonville, Covelo, and Willits. Table 4-8 shows the population of Willits and its trade area. The Willits trade area includes 7,400 households, with an average annual household income of almost $33,250 of which nearly $15,000 is spent on annual retail and service expenditures. Residents of the trade area who live outside of Willits in the unincorporated area make up approximately 25 percent of the non-tourist business with the city.

Table 4-8. Willits/Trade Area Population

Year	Population within City Limits	Population in the Greater Willits Area	Total Population in the Willits Trade Area
1980	3,706	9,935	13,641
1990	5,027	13,155	18,182
1996	5,402	14,213	19,615

Source: Willits Chamber of Commerce, 1999.

Major Types of Economic Activities

The economy of Willits is characterized by strong retail sales, stable government finances, and a growing labor market. The city functions as a subregional commercial center serving a market area of over 19,600 people.

An increasingly significant role in the local economy is played by retail sales. Nearly one in four nonagricultural jobs is in the retail trade sector. Taxes generated through retail trade constitute the largest component of local government revenue. Table 4-9 shows the number of retail stores by type, number of permits, and total taxable sales for Willits in 1997.

Table 4-9. Taxable Transactions in Willits

Type of Retail Store	Permits on January 1, 1998	Total Taxable Sales (1,000 of dollars)
Apparel Stores	5	374
General Merchandise Stores	3	Not Released
Food Stores	12	10,714
Eating and Drinking Establishments	36	9,353
Home Furnishing & Appliances	9	1,457
Bldg. Materials & Farm Equipment	13	13,162
Auto Dealers & Auto Supplies	10	8,187
Service Stations	6	10,175
Other Retail Stores	56	11,247
Retail Stores Total	150	64,669

Source: Board of Equalization, 1999

Applying a sales tax rate of 7.25 percent to the total taxable sales, the retail sales tax revenue from the Willits area would amount to about $4.7 million. Of this amount, the revenue actually distributed to the City of Willits was $803,574 in 1997. Sales tax revenue provides approximately one-third of the total City budget, which is indicated by the 1998-1999 budget of $2.5 million, $872,800 of which is estimated to come from the sales tax revenue.

Business Activity Along U.S. 101

Willits has a wide variety of businesses serving the needs of the local trade area residents as well as those of travelers. A visual survey conducted by Caltrans staff in December of 1998, determined that there were approximately 188 businesses along U.S. 101 within the city limits. More than half of these businesses (122) provide services primarily to local residents and the greater Willits market area rather than visitors or tourists. The survey ensures that the businesses considered in the study area are those that have visual exposure to through traffic on the existing route and are, therefore, most likely to be impacted by the bypass alternatives. Table 4-10 classifies the existing businesses along U.S. 101 within the city limits according to the findings of the visual survey.

Table 4-10. Count and Classification of Businesses Along U.S. 101 Through Willits

Category	# of Businesses Along U.S. 101	Percent
Local Professional	28	15%
Local Retail	44	23%
Other Local Services	48	26%
Restaurant	25	13%
Fast Food	6	3%
Gasoline	8	4%
Convenience (no gas)	1	1%
Hotel/Motel	11	6%
Gift/Variety Shops	15	8%
Other Tourist Services	2	1%
Total	188	100%

Source: Visual survey by Caltrans staff, 1999

The first three categories of Table 4-10 refer to businesses that provide goods or services primarily to local area residents (i.e., residents in the Willits trade area). Examples of businesses in these categories include accounting, medical and legal professionals; hardware, home, and grocery shops; automobile services; and beauty salons. Sixty four percent of the businesses from the survey along the existing route were local businesses. The next four categories refer to businesses that provide goods or services to both local area residents and tourists. Examples of such businesses include traditional and fast food restaurants, gasoline stations, and convenience stores. These businesses comprise 21 percent of those found in the visual survey. Finally, the last three categories refer to businesses that provide goods or services primarily to tourists. Examples of businesses in these categories include hotels, motels, gift and variety shops, and camping/RV businesses. These categories comprise 15 percent of those found in the visual survey.

For perspective, the number of retail store permits in Willits was 150 on January 1, 1998 (see Table 4-9). The survey of businesses along U.S. 101 through the business district revealed 118 retail stores, or 77 percent of the total retail stores in the entire City of Willits. Of the 118 retail stores along U.S. 101, 26 of them, or 17 percent, appeared to cater primarily to tourists or both tourists and area residents.

The downtown business district can be evaluated in two distinct sections (Map 12). The first section, referred to locally as the "Miracle Mile," is the section of U.S. 101 north from the southern city limits to the S.R. 20 intersection. This section of the business district is visible to north-south traffic along U.S. 101 as well as traffic between Ft. Bragg and areas south of Willits. This is considered the prime location for commercial retail establishments due to the high visibility to out-of-town travelers. The second section is U.S. 101 north of S.R. 20 to the northern city limits.

The survey of businesses along U.S. 101 through Willits indicated that the percent of businesses engaged in tourist trade along the Miracle Mile is not dramatically different from the northern stretch of the route through town (Table 4-11). Therefore, regardless of the specific bypass design, Caltrans studies do not anticipate a disproportionate change in business activity along the Miracle Mile relative to the northern section.

Table 4-11. Concentration of Businesses Along U.S. 101 by Location and Type

Location	Local	Local &Tourist	Tourist
All Business	64 %	21%	15%
Miracle Mile Business	59%	24%	17%
North Section Business	68%	19%	13%

Source: Willits Economic Survey Report, Caltrans, 1999

4.7 Water Resources

4.7.1 Surface Water Hydrology

Elevation within the project area ranges from 1,010 m (3,320 ft) in the surrounding hillsides to 400 m (1,320 ft) on the Little Lake Valley floor. The valley itself is relatively level, with an average slope from south to north of 0.25 percent. All surface waters from the project area enter into Outlet Creek, a major tributary of the Eel River basin above its confluence with the Middle Fork of the Eel River. The Little Lake Valley watershed is approximately 194 square km (75 square miles [sq mi]). Little Lake Valley is contained within the 422 square km (163 sq mi) Outlet Creek Hydrologic Shed Area (HSA). The HSA is located within the Eel River Hydrologic Unit (HU), with a total area of 9,360 square km (3,614 sq mi). The Eel

River flows northward through Humboldt County, where it discharges to the Pacific Ocean.

The northwestern portion of California has a mild and wet climate. Annual average precipitation in the Little Lake Valley is about 1,350 mm (53 in). Most precipitation occurs during low intensity winter and spring rains. A small amount of snow falls on higher elevations.

There are numerous seasonal creeks that flow from the surrounding hills into Little Lake Valley, converging at the north end in a poorly drained, marshy area to form Outlet Creek (Map 14). Following heavy rainfall events, a small lake forms in the northern part of Little Lake Valley, and is present for most of the wet season (Map 19).

Streams on the Little Lake Valley floor characteristically have flatter gradients and broader channel widths than in the surrounding foothills, and substrates consisting of sand- and silt-sized particles. Stream bank stability is low, particularly where livestock are present. On the west side of the valley, stream reaches with valley floor characteristics include Haehl Creek, and the lower sections of Baechtel, Broaddus, Mill, and Upp Creeks as they merge and form Outlet Creek.

In the foothills, streams consist largely of narrow, deep pools and shallow runs and riffles with predominantly gravel and cobble substrates. On the south and west side of the valley, the streams with these characteristics include Upper Haehl Creek, and the middle parts of Baechtel, Broaddus, Mill, and Upp Creeks.

Due to the seasonal nature of precipitation, flow fluctuates significantly from the high flow periods (December to May) to the low flow periods (June to November). During dry years, Outlet Creek may have no flow.

4.7.2 Groundwater Hydrology

An estimated 74 million m^3 (60,000 acre ft) of groundwater are available in Little Lake Valley, while the recharge rate is estimated at 12.3 million m^3 (10,000 acre ft) per year. The groundwater depth is generally less than 4.6 m (15 ft) below the valley floor. Drawdown has been an issue in the valley since the 1940s, and the Little Lake Water District has implemented a drawdown ordinance.

4.7.3 Regional Water Quality

The State of California, in accordance with Section 303(d) of the Clean Water Act, has submitted to the U.S. Environmental Protection Agency (USEPA) a draft list of impaired waters. Within the Eel River watershed, the Eel River, including its north, south and middle forks have been listed as impaired due to temperature and sediment/siltation concerns. Total maximum daily pollutant loads (TMDLs) have not been adopted at this time but are anticipated to be in place prior to implementation of any build alternative.

Outside of the sediment and temperature concerns in the Eel River basin, water quality is generally good. The area is lightly populated, with little industry. Vineyards, cattle grazing, and roads are the major man-made sediment impacts to the ambient surface water quality, although a large majority of erosion attributed to roads is associated with logging and other unpaved roads.

USEPA has developed an Index of Watershed Indicators (IWI) in an effort to present information on the overall aquatic health of specific watersheds. The IWI lists the Upper Eel River watershed as having "Less serious problems – low vulnerability." Water quality data that were collected from 1992 through 1997 just upstream of the confluence of Outlet Creek and the Eel River indicate the waters meet or exceed the Basin Plan objectives (excluding temperature and sediments) and, in most cases, organics and inorganics of concern are below detection limits.

4.8 Floodplain Encroachment

Little Lake is a seasonal lake located in the Willits-Little Lake Valley basin. The lake is fed by many tributaries and has its outlet through Outlet Creek. Because of a natural constriction where Outlet Creek flows from the basin, a substantial backwater forms to create Little Lake during periods of extended rainfall. The flood of December 1964 raised the lake levels to an elevation of approximately 407 m (1335 ft). At this elevation, Little Lake inundates an area of about 890 ha (8.9 km^2 or 2200 ac) and has a storage capacity of approximately twenty-seven million m^3 (22,000 acre feet). Major floods have occurred in 1955, 1964, and 1974. Localized flooding is generally related to debris and/or erosion problems within the creeks.

There are numerous streams that discharge into Little Lake Valley (Map 14). Listed in Table 4-12 are the seven largest streams, their drainage areas, and their estimated 100-year peak discharges.

Table 4-12. Drainage Area and 100-Year Peak Discharge

Creek	Drainage Area square kilometers (square miles)	100-Year Peak Discharge cubic meters per second (cubic feet per second)
Baechtel Creek, Above confluence w/ Haehl Creek	35.74 (13.8)	110.4 (3,900)
Broaddus Creek, Above confluence with Baechtel Creek	20.46 (7.9)	74.2 (2,620)
Davis Creek At Hearst-Willits Road	38.33 (14.8)	123.5 (4,360)
Haehl Creek, Above confluence w/ Baechtel Creek	28.23 (10.9)	80.4 (2,840)
Mill Creek, At downstream City of Willits corporate limits	25.12 (9.7)	90.3 (3,190)
Berry Creek Near Reynolds Highway	7.77 (3.0)	30.0 (1,060)
Outlet Creek At Highway 101 Bridge	Not Determined	764.5 (27,000)

Source: Location Hydraulics Study, Caltrans, 2000

The Federal Emergency Management Agency (FEMA) conducted studies of the Little Lake Valley Floodplain in support of their National Flood Insurance Program. The Flood Insurance Studies investigated the existence and severity of flood hazards in the City of Willits and the surrounding unincorporated areas. To estimate the 100-year water surface elevation of the major streams in the Little Lake Valley, a technique developed by ACOE was used to model the streams. This information, as well as high water data obtained by ACOE during the 1964 flood, was used to determine the base floodplain. The base floodplain is depicted on Flood Insurance Rate Maps (FIRM) for Mendocino County (Community-Panel Numbers 060183 0587C, 060183 0589B, and 060183 0600B) and the FIRM for the City of Willits (Panel 060187 0001C) (Map 14).

Floodways were determined by FEMA for the portions of Mill, Broaddus, and Baechtel Creeks located within the City of Willits. Floodways were not determined by FEMA for these three creeks outside of the Willits city limits. A floodway area was also determined for Davis Creek, from the Hearst-Willits Road bridge to approximately 1.6 km (1.0 mi) upstream. A floodway is the channel of a stream, plus any adjacent floodplain areas, which must be kept free of encroachment so that a 100-year flood event can be carried without substantial increase in flood elevations. Floodways generally follow creek drainages in the Little Lake Valley.

4.9 Biological Resources

Little Lake Valley and the surrounding foothills consist of a wide variety of topographic, hydrologic, and edaphic (soil) conditions, which supports a number of habitat types and provide habitat for a diversity of biological communities (see Maps 15 through 19).

4.9.1 Natural Communities

The natural plant communities and wildlife habitats of the valley bottom include extensive wetland habitats, including wet meadows, marshes, and riparian woodlands; however, much of the wetland vegetation has been altered by farming and urban development. Large expanses of these habitat types are unusual in the North Coast Range because wide graben-type valleys, like Little Lake Valley, with poor drainage are uncommon. Because they are regionally uncommon, these extensive wetland and riparian habitats in the project area have become particularly important to migrating waterfowl and other wildlife species. In the hills surrounding Little Lake Valley, the vegetation is typical of the grasslands, woodlands, and forests of the North Coast Range and is relatively undisturbed.

A number of wildlife species will use plant communities occurring in the project area for foraging, breeding and resting. Table 4-13 lists the estimated area of the habitats on the floor of Little Lake Valley excluding foothill habitat areas that surround the valley floor.

Table 4-13. Habitat Areas on the Floor of Little Lake Valley

Habitat Formation	Approximate Area [ha (ac)]
Wooded riparian	320 (791)
Wet meadow	1,050 (2,594)
Marsh	240 (593)
Grassland	650 (1,606)
Oak woodland	40 (99)
Total	2,300 (5,683)

Source: Supplemental Natural Environmental Study, Caltrans, 2000
Note: Foothill habitats are not included in this table.

The general natural communities (habitats) identified above can be subdivided further into approximately 31 plant communities, which were identified in the study area and listed in Table 4-14. Several plant communities and habitats in the study area are regulated (e.g., wetlands under Section 404 of the Clean Water Act) or support special biological values, including wet meadow, marshes, riparian woodlands, oak woodlands, and vernal pools/swales.

Hay and residential meadows are disturbed or cultivated communities, portions which are jurisdictional wetlands that are common in Little Lake Valley. These provide marginal wetland functions and values.

Garry and black oak woodlands are locally and regionally common woodlands in the study area. These oak woodland areas provide important biological and aesthetic values, including food sources, roosting and nesting sites for wildlife, habitat diversity, and visual diversity.

Several plant communities in the study area were identified as sensitive and included native bunchgrass grasslands, riparian scrub and woodlands, wet meadow, marshes, vernal pools, swales, and other waters of the U.S. (streams).

Table 4-14. Plant Communities in the Willits Bypass Project Area

Formation	Plant Community	Section 404 Jurisdiction [a]	Sensitive Natural Community [b]
Grassland	Annual grassland		
	Pasture grassland		
	Native bunchgrass grassland		X
	Old field grassland		
	Dryland farmed grassland		
Oak woodland	Garry oak woodland		

Formation	Plant Community	Section 404 Jurisdiction [a]	Sensitive Natural Community [b]
	Black oak woodland		
Wooded riparian	Mixed riparian woodland	X	X
	Ash riparian woodland	X	X
	Valley oak riparian woodland	X	X
	Valley oak–ash riparian woodland	X	X
	Willow riparian scrub	X	X
	Mixed riparian scrub	X	X
	Montane riparian woodland	X	X
Forest	Mixed north-slope forest		
	Douglas-fir forest		
	Mixed conifer forest		
	Mixed evergreen forest		
Chaparral	Northern mixed chaparral		
	Manzanita chaparral		
Marsh	Mixed marsh	X	X
	Cattail marsh	X	X
	Tule marsh	X	X
Meadow	Wet meadow	X	X
	Hay meadow	X	
	Residential meadow	X	
	Dry meadow		
Vernal pool	Vernal pool	X	X
Swale	Swale	X	X
Stock pond	Stock pond/open water	X	
Other waters	Other waters (creeks/channels)	X	X

Source: Supplemental Natural Environmental Study, Caltrans, 200

Notes:

a = Jurisdictional wetland communities

b = Communities that are either naturally rare, substantially diminished by human activities, have particularly high ecological and human amenity values, or are targeted for protection by state or federal laws and policies (e.g., wetland resources).

4.9.2 Threatened And Endangered Species And Species Of Concern

This section provides an overview of the special-status species that are known to occur or may occur within the project area.

4.9.2.1 Special-Status Plants

Fourteen special-status plants were identified as potentially occurring in the project region. Table 4-15 identifies these special-status plants. Of these species, three were

located during the floristic studies conducted in 1997, including one state-listed species and two other sensitive species (Map 15):

- Baker's meadowfoam (*Limnanthes bakeri*), a federal species of concern and state listed as rare, was widespread in Little Lake Valley and was located along Alternatives C1T, J1T, and LT.
- Glandular western flax (*Hesperolinon adenophyllum*), a federal species of concern and a California Native Plant Society (CNPS) List 1B species, was located along Alternative E3.
- Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), a CNPS List 1B species, occurs in the project area but would not be impacted by any of the build alternatives.

4.9.2.2 Special-Status Wildlife and Fish Species

Thirty special-status wildlife and fish species were identified as occurring or potentially occurring in the project region (see Maps 16 and 17). The status and potential for occurrence of special-status wildlife and fish species are summarized in Tables 4-16 and 4-17, respectively. Of these wildlife and fish species, 18 were observed in the project area. Seven of these species are listed as threatened or endangered, or are candidates for listing, the Chinook salmon (*Oncorhynchus tshawytscha)*, coho salmon (*O. kisutch)*, steelhead (*O. mykiss)*, northern spotted owl (*Strix occidentalis caurina)*, bald eagle (*Haliaeetus leucocephalus)*, American peregrine falcon (*Falco peregrinus anatum)*, and little willow flycatcher (*Empidonax traillii brewsteri)*; and 11 are species of special concern, which are the foothill yellow-legged frog (*Rana boylei)*, Northwestern pond turtle (*Clemmys marmorata marmorata)*, osprey (*Pandions haliaetus)*, white-tailed kite (*Elanus caeruleus)*, Northern harrier (*Circus cyaneus)*, Cooper's hawk (*Accipiter cooperi)*, sharp-shinned hawk (*Accipiter striatus)*, golden eagle (*Aquila chrysaetos)*, prairie falcon (*Falco mexicanus)*, California yellow warbler (*Dendroica petechia brewsteri)*, and yellow-breasted chat (*Icterias virens)*.

In addition, the remains of another special-status species, the red-tree vole (*Arborimus pomo)*, were found in the *project* area near the nest of a Northern spotted owl. It could not be determined if the owls captured the voles within the project area or outside the project area.

Non-special-status raptors observed nesting in the project area were red-tailed hawk and red-shouldered hawk (see Map 16 and 17). Special-status species that may be affected by the project include:

Table 4-15. Special-Status Plants Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
Federal and State Listed Species				
Roderick's fritillary *Fritillaria roderickii* (*F. biflora* var. *biflora*)	--/E/1B	Limited area in central Mendocino County	Grasslands and oak woodlands, generally near the coast	very low
Burke's goldfields ***Lasthenia burkei***	E/E/1B	Lake, Mendocino, and Sonoma Counties	Wet meadows and vernal pools	very low
Baker's meadowfoam ***Limnanthes bakeri***	SC/R/1B	Mendocino County, including Little Lake Valley and near Laytonville	Vernal pools, swales, other seasonal wetlands	present
Milo Baker's lupine ***Lupinus milo-bakeri***	SC/T/1B	Colusa and Mendocino Counties; reported from U.S. 101 near Longvale [5 km (3 mi.) north of Little Lake Valley]	Oak and mixed evergreen-oak-conifer forests; frequents roadsides and similar disturbed areas	moderate
Hoover's semaphore grass ***Pleuropogon hooverianus***	SC/R/1B	Mendocino, Marin, Sonoma Counties	Marshes, meadows, and other types of seasonal wetlands where water ponds during the wet season	low
Showy Indian clover ***Trifolium amoenum***	E/--/1B	Historically in Coast Range from Santa Clara to Mendocino Counties; now known only in Sonoma County	Grassland, oak woodland	low
Other Special-Status Species				
Livid sedge *Carex livida*	--/--/1A	Reported from coast of Mendocino County, Oregon, and Washington; last seen in California in 1866	Marshes and swamps	very low
Glandular western flax ***Hesperolinon adenophyllum***	SC/--/1B	North and central Coast Range, especially Lake and Mendocino Counties	Serpentine soils in chaparral and grasslands	present
Thin-lobed horkelia ***Horkelia tenuiloba***	SC/--/1B	Marin, Mendocino, and Sonoma Counties	Mesic openings in chaparral	low
Mendocino bush-mallow ***Malacothamnus mendocinensis***	SC/--/1A	Known only from near Ukiah; last seen in 1938	Open banks in oak woodland	very low
Baker's navarretia *Navarretia leucocephala*	--/--/1B	Interior north Coast Ranges and western Sacramento Valley	Oak woodlands, conifer forests, wet meadows, grasslands, vernal pools	present

Table 4-15. Special-Status Plants Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
ssp. *Bakeri*				
Gairdner's yampah *Perideridia gairdneri* ssp. *gairdneri*	SC/--/4	Known from the coast from Kern to Mendocino County	Broadleaf forest, chaparral, grasslands, vernal pools	very low
Nuttall's pondweed *Potamogeton epihydrus* ssp. *Nuttallii*	--/--/2	Coast Ranges of Mendocino County, Several Sierra Nevada Counties; Oregon and Washington	Marshes, swamps, slow moving streams, ponds, lakes, and irrigation ditches	high
Beaked tracyina *Tracyina rostrata*	--/--/1B	Humboldt, Lake, and Sonoma Counties	Oak woodlands, hardwood forest, open grassy areas, probably areas where soil surface is visible (i.e., no thatch layer, bare sterile ground, and roadcuts)	low

Status explanations:
Federal
E = listed as endangered under the Endangered Species Act (federal).
SC = species of concern
State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act.

California Native Plant Society
List 1A = species presumed extinct in California.
List 1B = species rare, threatened, or endangered in California and elsewhere.
List 2 = species rare, threatened, or endangered in California but more common elsewhere.
List 3 = species about which more information is needed to determine their status.
List 4 = species of limited distribution.

Source: SNES, Caltrans, 2000

**Probability based on information available after field surveys were conducted: proximity of nearest occurrences, the geographic extent of the species, and suitability of habitats in the Willits project area

Bolded text *is meant to emphasize species with federal protection.*

Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species: **Common Name** **Latin Name**	**Status*** **Federal/** **State**	**California Distribution**	**Habitats**	**Potential to Occur within the Project Area**
Federal and State Listed Species				
Birds **Marbled murrelet** ***Brachyramphus marmoratus***	T/E	Nesting sites from the Oregon border to Eureka and between Santa Cruz and Half Moon Bay; winters near shore and offshore along the entire California coastline	Mature, coastal coniferous forests for nesting; forages in nearby coastal water and nests in conifer stands greater than 150 years old and may be located up to 56 km inland	Species surveyed for but not observed in project area: no suitable habitat present for this species.
Marbled murrelet Critical Habitat			Critical Habitat is USFWS designated areas essential to marbled murrelet's survival and is concentrated on defined large, contiguous blocks of late-successional forest lands along the coastal Pacific Northwest.	Designated Critical Habitat does not occur in the project area
American peregrine falcon *Falco peregrinus anatum*	D/E	Permanent resident on the north and south Coast Ranges; may summer on the Cascade and Klamath Ranges south through the Sierra Nevada to Madera County; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area
Bald eagle ***Haliaeetus leucocephalus***	PR/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe area; winter range over most of California except the southeastern deserts and high altitudes in the Sierras	In western North America, nests and roosts in coniferous forests within 1.5 km (0.9 mi) of a lake, reservoir, river, or the ocean	Species observed in project area

Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species: **Common Name** **Latin Name**	**Status*** **Federal/** **State**	**California Distribution**	**Habitats**	**Potential to Occur within the Project Area**
Northern spotted owl ***Strix occidentalis caurina***	T/--	A permanent resident throughout its range; found in the north Coast, Klamath, and western Cascade Ranges, from Del Norte to Marin Counties	Dense, old-growth forests dominated by conifers, with topped trees or oaks available for nesting crevices	Species observed in project area
Northern spotted owl Critical Habitat			Critical Habitat is USFWS designated areas essential to the northern spotted owl's conservation and applies solely to the owl's habitat units on federal lands	Designated Critical Habitat does not occur in the project area
Little willow flycatcher ***Empidonax traillii brewsteri***	SC/E	Central and northern California along the Coast Range from Santa Barbara County north to Oregon	Nests in riparian areas and often forages in adjacent open areas and meadows	Species observed in project area: known only as a migrant in the area
Other Special-status Species				
Birds Cooper's hawk *Accipiter cooperi*	--/SCS	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range; permanent residents occupy the rest of the state	Nests primarily in riparian forests dominated by deciduous species and in densely canopied forests and forages in open woodlands	Species observed in project area
Northern goshawk ***Accipiter gentilis***	SC/SCS	Permanent resident on the Klamath and Cascade Ranges, the north Coast Ranges from Del Norte to Mendocino Counties, and in the Sierra Nevada south to Kern County; winters in Modoc, Lassen, Mono, and northern Inyo Counties; rare in southern California	Nests and roosts in red fir, Jeffrey pine, and lodgepole pine forests; hunts in forests and forest clearings and meadows	Species surveyed for but not observed in project area

Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species: Common Name Latin Name	**Status* Federal/ State**	**California Distribution**	**Habitats**	**Potential to Occur within the Project Area**
Sharp-shinned hawk *Accipiter striatus*	--/SCS	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid-elevations, as well as along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties; winters over the rest of the state except very high elevations	Dense-canopy ponderosa pine or mixed conifer forest and riparian habitats	Species observed in project area
Golden eagle ***Aquila chrysaetos***	PR/SCS,FP	Mountains and foothills throughout California	Cliffs and escarpments or tall trees for nesting; forages in grasslands, chaparral, and oak woodlands	Species observed in project area
Northern harrier *Circus cyaneus*	--/SCS	North and central coast, central valley, and northeastern California and has been recorded on the eastern side of the Sierra Nevada mountains during winter	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover	Species observed in project area
California yellow warbler *Dendroica petechia brewsteri*	--/SCS	Nests over most of California except the Central Valley, the Mojave Desert region, and high elevations in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders, or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Species observed in project area
White-tailed kite *Elanus caeruleus*	--/CP	Lowland areas west of Sierra Nevada from northern Sacramento Valley south and coastal valleys and foothills to western San Diego County	Low foothills or valley areas with valley or live oaks, riparian areas, and marshlands near open grasslands for foraging	Species observed in project area
Prairie falcon *Falco mexicanus*	--/SCS	Resident throughout California	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area

Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species: **Common Name** **Latin Name**	**Status*** **Federal/** **State**	**California Distribution**	**Habitats**	**Potential to Occur within the Project Area**
Yellow-breasted chat *Icterias virens*	--/SCS	Uncommon migrant in California; nests in a few locations with appropriate habitat such as Sweetwater Creek, El Dorado County; along the Russian River, Sonoma County; Little Lake Valley, Mendocino County; and Putah Creek, Yolo County	Nests in dense riparian habitats dominated by willows, tall weeds, blackberry vines, and grapevines	Species observed in project area
Osprey ***Pandions haliaetus***	SC/SCS	Found in northern California primarily in the Coast Range and also in the Klamath and western Cascade Ranges	Found adjacent to lakes, rivers, coastal marine, and estuary habitats	Species observed in project area
Mammals **Pacific fisher** ***Martes pennanti pacifica***	SC/SCS	Coastal mountains from Del Norte to Sonoma Counties; east through Cascades to Lassen County, south in Sierra Nevada to Kern County	Mixed conifer habitats with high overstory cover prefering riparian habitat	Species surveyed for but not observed in project area
Red tree vole *Arborimus pomo*	--/SCS	Occurs along the north Coast Range from Del Norte County south to Sonoma County, California	Inhabits old-growth forest of Douglas-fir, redwood, or montane hardwood-conifer forest	Species could occur in project area: remains of one red tree vole found in pellet of spotted owl nesting in the project area
Townsend's western big-eared bat ***Corynorhinus townsendii townsendii***	SC/SCS	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; sensitive to disturbances and may abandon a roost after on-site visit	Species not surveyed for but may occur in project area
Amphibians **Tailed frog** ***Ascaphus truei***	SC/SCS	Occurs in California from Del Norte county south to central Sonoma County	old, perennial, swift flowing streams and is associated with mature, old growth forest	Species surveyed for but not observed in project area

Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species: Common Name Latin Name	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Northern red-legged frog ***Rana aurora aurora***	SC/SCS	Found along the coast and coastal mountain ranges of California from Del Norte to Mendocino	Permanent and semi-permanent aquatic habitats such as creeks and cold water ponds bordered with grassy or shrubby vegetation; may estivate in rodent burrows or cracks during dry periods	Species surveyed for but not observed in project area
Foothill yellow-legged frog ***Rana boylei***	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge usually found near riffles with rocks and sunny banks nearby	Species observed in project area
Olympic salamander ***Rhyacotriton variegatus***	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge	Species surveyed for but not observed in project area
Reptiles **Northwestern pond turtle** ***Clemmys marmorata marmorata***	SC/SCS	In California, range extends from Oregon border south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms	Species observed in project area

*Status explanations:

Federal
E = listed as endangered under the Endangered Species Act (federal)
T = listed as threatened under the Endangered Species Act (federal)
PE = proposed endangered under the Endangered Species Act (federal)
D = delisted from the Endangered Species Act (federal), monitored for 5 years
SC = species of concern
PR = protected under the "Bald Eagle Protection Act"

State
E = listed as endangered under the California Endangered Species Act
FP = fully protected under the California Fish and Game Code
SCS = special concern species
CP = fully protected species in California

Bolded text *is meant to emphasize species with federal protection*
Source: SNES, Caltrans, 2000

- Northern spotted owl, a federal listed threatened species, was found during the 1991/92 field surveys and included two nesting pairs located along the northern end of Alternative E3 and near the designated borrow site. The project site is not within an area that is designated as critical habitat for northern spotted owl in the *Final Draft: Recovery Plan for the Northern Spotted Owl* (dated December 1992).
- California yellow warbler, a state species of special concern, was found on the valley floor during the field surveys and included at least four potential breeding territories. Warblers and their breeding territories were found along Davis, Haehl, and Outlet Creeks near Alternative C1T.
- Yellow-breasted chat, a state special concern species, was found during the field surveys and included at least ten potential breeding territories. Chats were found along the riparian corridors of Davis, Haehl, Baechtel, Broaddus, and Outlet Creeks near Alternatives C1T, J1T and LT.
- Red tree vole, a state special concern species, was not observed during the field surveys; however, the remains of one red tree vole were found in a spotted owl pellet (regurgitated prey remains) recovered in the study area, indicating that this species could occur in the project area. Suitable habitat for red tree voles was found along the northern portion of Alternatives E3 and in the designated borrow site area.
- Foothill yellow-legged frog, a federal species of concern and a state special concern species, was found during field surveys in three streams on Alternative E3, and could be found in all of the streams in the project area.
- Northwestern pond turtle, a federal species of concern and a state special concern species, was observed at the Willits sewage disposal ponds and in Outlet Creek within all of the alternative alignments. Western pond turtles could occur in all of the streams and ponds in the project area.
- White-tailed kite, a state fully-protected species under the California Fish and Game Code, were found during the field survey and included two nesting pairs. Both pairs was found on the valley floor with one pair found near Alternative J1T.
- Townsend's western big-eared bat (*Plecotus townsendii townsendii*), a federal species of concern and a state special concern species, was not surveyed for as part of this project, although the species may occur in the project area. This species roosts in caves, tunnels, and bridges. None of the alternatives of the proposed project are anticipated to remove or impact potential roosting sites such as bridges.

The locations of special-status wildlife observed in the project study area are provided in Maps 16 and 17.

Special-Status Fish Species

Outlet Creek, a tributary to the Eel River, receives inflow from several tributaries in the study area, including Davis, Mill, Baechtel, Broaddus, Berry, and Haehl Creeks. These tributary streams originate in the Little Lake Valley watershed surrounding the City of Willits and flow north into Outlet Creek. Three special-status anadromous fish that are listed as threatened or endangered use these streams for migration, spawning, and rearing: coho salmon, fall-run chinook salmon, and steelhead; these would be potentially affected by all the alternatives. Special-status fish species known or having potential to occur in the region are listed in Table 4-17.

Fish habitat types in the Little Lake Valley basin vary and are largely dependent on stream gradient. Above the valley floor, stream gradients are generally steeper, stream channels narrower, water velocities greater, and substrate coarser than in stream reaches on the valley floor. Consequently, streams above the valley floor have a greater variety of depths and water velocities, midstream cover, and range of substrate particle sizes, providing a diversity of microhabitats. Map 20 shows stream sub-reaches identified in the study area that have habitat characteristics relevant to the salmonid populations, including the length, location (valley or foothill), habitat conditions, substrate composition, and record of historical spawning activity.

Table 4-17. Special-Status Fish Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species	Status* Federal/State	California Distribution	Habitats	Potential to Occur within the Project Area
Federal Listed Species				
Tidewater goby ***Eucyclogobius newberryi***	E/SCS	From San Diego County north to the Smith River, along coastal California	Shallow coastal lagoons and lower stream reaches with brackish water utilizing marshy habitats where they can avoid high winter flows	Tidewater goby would not occur since project area lacks coastal lagoon habitat type, which is necessary to support this species
Central California Coast coho salmon ***Oncorhynchus kisutch***	T/SCS	From Punta Gorda, California, south to San Lorenzo River, California and is a distinct Evolutionarily Significant Unit	Low gradient coastal streams with cool water temperatures; juveniles utilize deep pools with woody debris and after 1 year in freshwater, juveniles migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species would not occur in project area since the Eel River drainage is north of Punta Gorda, California
Southern Oregon/Northern California coho salmon ***Oncorhynchus kisutch***	T/SCS	From Cape Blanco, Oregon south to Punta Gorda, California and is a distinct Evolutionarily Significant Unit	Coastal rivers with cool water temperatures; juveniles spend up to 15 months in fresh water utilizing deep pools with woody debris and migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species historically observed in the project area
Central California steelhead ***Oncorhynchus mykiss***	T/SCS	From Russian River in Mendocino County south to Soquel Creek in Santa Cruz County	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species would not occur in project area since the Eel River drainage is north of Russian River
Southern Oregon/ California Coast chinook salmon ***Oncorhynchus tshawytscha***	T/--	From Cape Blanco, Oregon south to Punta Gorda, California	Cold, clear water with clean gravel of appropriate sizes for spawning; migrate to ocean after spending one growing season in freshwater	Species observed in the project area

Federal Candidate Species				
Coastal cutthroat trout ***Oncorhynchus clarki clarki***	C/SCS	Coastal streams from Seward, Alaska to the Eel River, California; in the Eel River, they occur upstream to Fortuna, California	Small, low gradient coastal streams and estuarine habitats utilizing pools with fallen logs, undercut banks, and boulders for cover; some juveniles migrate to ocean their first year while others spend up to 5 years in freshwater	Species would not occur in project area since Little Lake Valley is more than 60 mi upstream of Fortuna, California
Northern California steelhead ***Oncorhynchus mykiss***	C/SCS	From Redwood Creek in Humboldt County south to the Gualala River in Sonoma and Mendocino Counties	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species observed in the project area

*Status explanations:

Federal
E = listed as endangered under the Endangered Species Act (federal)
T = listed as threatened under the Endangered Species Act (federal)
PT = proposed threatened under the Endangered Species Act (federal)
C = federal candidate species

State
SCS = special concern species

Source: Supplemental Natural Environmental Study, Caltrans, 2000

***Bolded text** is meant to emphasize species with federal protection.*

4.9.3 Invasive Plant Species

Because FHWA has not yet developed a list of invasive plant species to be considered in the analysis of transportation projects, the California Department of Food and Agriculture (CDFA) list of invasive weeds was used for the analysis of invasive species at the project site. Table 4-18 identifies species from the list of invasive plants that were located within the Willits Bypass Project area. The CDFA assigns ratings to each species on its list, which is shown on Table 4-18, below. These ratings reflect CDFA's view of the statewide importance of the invasive species, the likelihood that eradication or control efforts would be successful, and the present distribution of the invasive species in the state. These ratings are guidelines that indicate the most appropriate action to take against an invasive plant species.

Table 4-18. List of California Department of Food and Agriculture Noxious Weeds for the Willits Bypass Project

Scientific Name (1)	Common Name	Pest Rating (2)	Plant Family
Carduus pycnocephalus (e)	Italian thistle	C	Asteraceae
Centaurea calcitrapa (e)	Purple star-thistle	B	Asteraceae
C. solstitialis (e)	Yellow star-thistle	C	Asteraceae
Convolvulus arvensis (e)	Bind weed	C	Convolvulacea
Cytisus scoparius (e)	Scots broom	C	Fabaceae
Genistus monspessulana (e)	French broom	C	Fabaceae
Hypericum perforatum (e)	Klamath weed	C	Hypericaceae
Senecio jacobaea (e)	Tansy ragwort	B	Asteraceae
Taeniatherum caput-medusae (e)	Medusa head	C	Poaceae

Notes:
(1) Scientific names follow Hickman (1993); (e) = exotic, non-native species. [Hickman, J. C., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California. 1,400 pp.]
(2) Pest rating based on California Department of Food and Agriculture (CDFA):
A = An organism of known economic importance subject to state (or commissioner when acting as a state agent) enforced action involving eradication, quarantine, containment, rejection, or other holding action.
B = An organism of known economic importance subject to: eradication, containment, control or other holding action at the discretion of the individual County Agricultural Commissioner or an organism of known economic importance subject to state-endorsed holding action and eradication only when found in a nursery.
C = An organism subject to no state-enforced action outside of nurseries except to retard spread or except to provide for pest cleanliness in nurseries.

4.9.4 Wetlands and Other Waters of the United States

Under Section 404 of the Clean Water Act the U.S. Army Corps of Engineers (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. Any fill or adverse modifications of wetlands or other waters may require a permit from the ACOE prior to the start of work. Typically, the ACOE requires mitigation to offset unavoidable impacts to wetlands and other waters, in a manner that achieves the goal of no net loss of wetland acres or values.

The cumulative total of jurisdictional wetlands and other waters of the U.S., identified for the proposed project alternatives, consists of: 52.3 ha (129.1 ac) in Alternative C1T; 6.1 ha (15.1 ac) in Alternative E3; 21.1 ha (52.4 ac) in Alternative J1T; and 29.4 ha (72.8 ac) in Alternative LT. There are no wetlands or other waters present in the Designated Borrow Site. Table 5-18, in Chapter 5, provides a summary of jurisdictional wetlands and waters of the U.S.

4.10 Historic and Archaeological Resources

4.10.1 Ethnography and Archaeology

Ethnographic and historic literature place the Little Lake Valley in the territory of the northern Pomo (Mitom). During the course of the consultation for this project, representatives of the Pomo (Sherwood Tribe) reiterated that their group maintains a personal interest in the cultural resources of the Willits Bypass study area. Ethnographic research suggests that there are seven Pomo language families that are collectively part of the Hokan stock including Northern, Central, Eastern, Southern, Southwestern, Southeastern, and Northeastern. Traditionally, the Northern Pomo were comprised of various tribelets. Tribal boundaries evolved around the exploitation of specific resources and geographical areas. Often the resources were exploited seasonally on a yearly basis creating resource procurement boundaries without physical demarcations. Therefore, it is likely that tribal boundaries changed over time on the basis of environmental criteria.

As with many other California groups, the basic subsistence strategy of the Pomo was that of seasonal transhumance, where movements from one ecological zone to another were carried out on a seasonal rotation. The objective of this strategy was to be at the particular resource during its peak of productivity for ease of procurement; therefore,

a series of base camps among or adjacent to a desired resource were necessary for success of this strategy. Accordingly, this round of subsistence activities resulted in locating permanent villages along riverbanks on high ground and valley edges during winter months where a reliance on stored foods, supplemented with game, formed the subsistence base.

From mid-winter on, until the arrival of spring, salmon and steelhead trout ran in the Eel River and its major tributaries. The Pomo took salmon in large quantities with long forked spears with bone points and/or with hemp nets. In addition to anadromous species, the Pomo caught perch and "hardmouth" by a variety of methods. Hunting resumed on a larger scale throughout spring and summer months with the acquisition of deer being the primary emphasis. Other game animals included elk, antelope, Grey squirrel, ground squirrel, rabbit, wildcat, raccoon, panther, and bear. Hunting methods varied and included tracking game, driving it into enclosures, clubbing (bears), spearing (seal and sea lions on the coast), and using low brush fences, nets, snares, and basketry traps for birds.

In addition to hunting and fishing, the women collected a wide variety of plant foods. The more significant included spring berries, clover and a variety of other greens. In late spring and early summer, women gathered wild oats. The seeds of wild oats were presumably transported back to the village, where they were singed or parched and then ground in hopper mortars.

With the onset of summer, grasses and tarweed matured and were harvested along with manzanita berries, elderberries, strawberries, raspberries, thimbleberries, and blackberries. Hunting of deer and other small animals continued during this time as well. From June through August, the Mitom Pomo also made regular trips to the Mendocino County coast in order to harvest marine resources such as seaweed, shellfish, marine fishes, seals, sea lions, and salt. Although the Mitom use of the coast extended from south of Fort Bragg to an area somewhat south of Mendocino City, they typically camped at specific localities year after year, such as Three Chop Village and Buldam.

With the arrival of fall, acorns began to ripen and procurement activities centered on collecting and processing this resource. During this time the Pomo moved from the coast back into the interior hills and valleys. All of the larger oaks in the valley were individually owned. However, the oaks in the hills, like the large manzanita, were

considered to be communal property. Seven species of acorns were harvested, the preferred species being tanoak. Other nut species gathered during this time included hazelnuts and nuts from buckeye, gray, ponderosa, and sugar pine. Toyon, bay and madrone berries were the last fruit to be harvested and hunting of small game and birds, especially quail, intensified during the autumn months. Following the acorn harvest, there was an increase once again in salmon fishing and a drop-off in hunting. With the approach of winter, the Pomo returned to their permanent villages along the major riverbanks and valley edges, thus marking an end to the yearly cycle.

As a result of nearly 50 years of archaeological and historical research, a cultural sequence has begun to emerge for the north coast range that is reflective of over 9,000 years of hunter-gatherer life in the region. The primary cultural assemblages identified in the general region include the Augustine Pattern, Gunther Pattern, Berkeley Pattern, Borax Lake Pattern, and the Mostin Pattern. These distinct patterns appear to reflect cultural, technological and possibly environmental changes and influences. The ethnographic, linguistic, and archaeological records suggest a succession of population movements, the spread of outside influences, and the development of many distinctive cultural styles.

4.10.2 History

The first Euro-Americans who came to the Willits-Little Lake Valley area traveled through the area in the early 1850s on their way north to the new settlement of Eureka and the mines of the Trinity Mountains. The first permanent settlement of the Willits region is credited to Samuel, Martin and Henry Baechtel. Hiram Willits patented the land in this area in the late 1850s, and by the early 1860s a store had been established on his land. In 1865, when Willits took over the store, the new community had a post office, and he became the area's first postmaster. Having a post office made Willits' store an attraction for all the settlers in the region, and Willits ran a prosperous business there. The new village was named Willitsville.

Willitsville grew slowly during the 1860s and 1870s and by 1880 it had only about 100 residents. However, the settlement was the commercial center for the general region, offering three stores, a blacksmith shop, hotel, restaurant, two saloons, livery stable, drug store, and other retail establishments for the ranchers and their families for miles around. In 1888, a ballot measure for incorporation of the town was

approved by a sizable margin. The newly incorporated town changed its name to Willits.

Construction on the Northwestern Pacific Railroad (NWP) began in the late 1890s. The Southern Pacific Railroad took full control of the NWP in 1900 with the first train arriving in Willits in 1902. The impact of the arrival of the railroad on Willits was substantial and immediate. The town's population quickly rose to 700. Another railroad important to Willits was the California Western Railroad, which was operated by C. R. Johnson, the owner of the Union Lumber Company in Fort Bragg. The first California Western train pulled into Willits in 1912. The new railroad opened markets on the coast to Willits suppliers, and it increased commercial activity in the town. By 1916 Willits considered itself a major transportation hub of the region; it had become a "railroad town." The prosperity brought about a residential building boom. By 1920 the town's population had grown to about 2,000; however, limited timber and the economic difficulties of the Great Depression had a large impact on the local economy.

By 1926 the Northwestern Redwood Company closed its sawmill. The mill was taken over by the Irvine and Muir Company in 1928, but did not reopen until after World War II. Irvine and Muir Company was already having troubles with its two other sawmills in Muir Canyon and at Irmulco, both west of Willits. Civic and business leaders sought some relief from these setbacks by trying to encourage tourism. Attracting vacationers and sightseers had been one of the motives of the Northwestern Pacific Railroad owners in extending the railroad to Willits. A few guest ranches were started in the 1920s. Although insufficient to pull the regional economy out of its doldrums, these early efforts at promoting tourism laid the basis for future expansion in this economic sector.

Figure 4-3. Skunk Train Depot in Willits

Photo courtesy of Northwest Pacific Railroad Historical Society

The lumber industry struggled considerably to the extent that only two sawmills (both on the coast) were operating in Mendocino County in the 1930s. With the onset of World War II there was a sudden demand for building material to support the war effort, and Willits' sawmills were back in operation. The abandoned former Northwestern Redwood mill was re-opened after the war, and with the expanded use of logging trucks, new stands of timber became available for logging in the area. Fairly recently, tourism has expanded, possibly encouraged by the California Western Railroad's excursion runs between Fort Bragg and Willits featuring the Skunk Train steam locomotives. The Willits Skunk Train depot, which has been nominated for the National Register of Historic Places, is shown in Figure 4-3.

4.10.3 Study Area and Surveys

A cultural resource inventory was conducted in accordance with state and federal requirements. The study included the maximum right of way for five proposed alternatives including J1, L, C, E3, and TSM. The cultural resource inventory involved architectural and archaeological research and field surveys, which included notification and coordination with Native American groups, historical societies,

museums, and other interested parties. A total of 22 architectural properties and 25 archaeological sites were identified. The 22 architectural properties were formally evaluated for their potential eligibility to the National Register of Historic Places (NRHP) and for their qualifications as historic resources under CEQA. Six architectural properties were found to be potentially eligible for the NRHP and include the Martin Baechtel house, the Samuel Baechtel house, a section of the Northwestern Pacific Railroad, a section of the California Western Railroad, the potential Willits historic district (Block 3), and a tee pee burner located at 101 Redwood, Inc. The State Historic Preservation Officer concurred with the determinations on August 17, 2000 (Appendix I). In addition to the potentially eligible properties in the Study Area, 183 properties were treated under the Memorandum of Understanding for post-1945 Buildings and Pre-1945 Altered or Moved Buildings, updated to include buildings from 1945 to 1950.

The project area changed when three of the alternatives (J1, L, and C1; currently J1T, LT, and C1T) were truncated and the TSM alternative was eliminated. As a result, only portions of two of the architectural properties and only 21 of the archaeological sites are currently within or adjacent to the study area boundaries (Alternatives E3, J1T, LT, and C1T). Of the 25 archaeological sites identified originally, 18 are within and three are adjacent to the more recently defined study area. The archaeological sites within the study area 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). Of the six historic properties found to be eligible, only two are within the current study area boundaries including contributing elements of the California Western Railroad and the Northwestern Pacific Railroad. Chapter 5, Environmental Consequences provides additional information about these sites and the project's potential impacts. In addition to the potentially eligible properties in the study area, 113 properties were treated under the Memorandum of Understanding for post-1945 Buildings and Pre-1945 Altered or Moved Buildings, updated to include buildings from 1945 to 1950.

4.11 Hazardous Waste

4.11.1 Potential Hazardous Waste Sites

An Initial Site Assessment (ISA) was performed for the four bypass alternatives. The ISA documents the properties that have a potential for containing hazardous wastes. Based on the results of site reconnaissance, historical research, and regulatory file reviews, four properties were identified as having potential hazardous waste issue impacts to the alternatives. The properties that have potential impacts are discussed in Section 5 Environmental Consequences, and sites that received a high or medium ranking are shown on Map 22 and Table 4-19.

Table 4-19. Hazardous Waste Spills and Potential Hazardous Waste Properties

	SITE NAME	ADDRESS	CONTAMINANTS OF CONCERN	AFFECTED MEDIA	RANKING
POTENTIAL HAZARDOUS WASTE PROPERTIES					
SOUTH SEGMENT					
Alternatives C1T, E3, LT: No hazardous waste properties identified					
Alternative J1T:					
Atlas MapLabel*					
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
NORTH SEGMENT					
Alternative C1T, E3, J1T, LT: No hazardous waste properties identified					
HAZARDOUS WASTE SPILLS (January 1, 1994 to present)					
Atlas MapLabel*					
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

4.11.2 Hazardous Waste Spills – U.S. 101

The following seven hazardous waste spills occurred along U.S. 101 within the project limits during the period of January 1994 to the present. Spill information prior to 1994 is not available. The approximate locations of the spills are presented on Table 4-19 and shown in Volume II, Atlas Map 22.

- KP 81.98 (PM 50.94) – Approximately 75 to 95 liters (20 to 25 gal) of diesel was released to the roadway on May 9, 2000, when a truck jackknifed and its fuel tanks leaked onto the highway. The spill was confined to the roadway pavement. (Location G, Atlas Map 22)
- KP 74.37 (PM 46.21) - Approximately 40 liters (10 gal) of diesel fuel were released to the storm drain, roadbed and creek bed in June 1998. An approximate 15 m (50 ft) area was affected. (Location E, Atlas Map 22)
- KP 78.05 (PM 48.50) - Approximately 130 to 265 liters (35 to 70 gal) of motor oil/diesel were released to the roadway and a storm drain from two 415 liter (110 gal) truck fuel tanks on December 10, 1998. An area approximately 1.8 m (6 ft) wide by 23 m (75 ft) long was affected. (Location F, Atlas Map 22)
- KP 74.46 (PM 46.27)/KP 103.0 (PM 64.0) - A trail of approximately 150 liters (40 gal) of diesel fuel was noted in the slow lane of southbound U.S. 101 on September 3, 1997. (Location D, Atlas Map 22)
- KP 70.65 (PM 43.90) - Approximately 40 liters (10 gallons) of diesel fuel were released to soil located on the shoulder of U.S. 101 on July 9, 1997. Approximately 8 sq m (10 sq yd) of soil were affected. (Location C, Atlas Map 22)
- KP 82.35 (PM 51.17) – Approximately 50 liters (15 gal) of diesel were released to the highway and shoulder when a truck overturned on January 23, 1995. Approximately 10 sq m (12 sq yd) of diesel-impacted soil were removed. (Location B, Atlas Map 22)
- KP 82.17 (Post Mile [PM] 51.0) - Approximately 60 liters (15 gal) of mixed motor oil/hydraulic oil/diesel fuel were released to the shoulder of U.S.101 in November 1994. An approximate 4.5 sq m (50 sq ft) area was affected when a cement mixer overturned. (Location A, Atlas Map 22)

4.12 Visual Resources

A description of the visual environment is necessary to determine and understand the extent of visual changes that may arise from implementation of any of the build alternatives.

Since the project area is large, there is not a single area or landform that defines visual quality in the Little Lake Valley. Visual quality varies depending on where in the project area visual quality is being assessed. To facilitate the visual impact assessment, the project area was divided into distinctive landscape assessment units (LAUs). The existing conditions within each LAU are described below and Map 23 shows the location of each. The resources discussed in Section 4.9, Biological Resources, and Section 4.4, Farmlands, may be consulted for supplementary information regarding the project area's visual setting. The following discussion focuses on the existing landscape, visually sensitive resources, and viewers in the study area.

4.12.1 South Valley Landscape Assessment Unit

The South Valley Landscape Assessment Unit (LAU) is located at the southerly entrance of the Little Lake Valley. The area is comprised of ranches, homes on large acreage and a mobile home park. Morris Dam and Centennial Reservoir are located on the east side of U.S. 101. The Northwestern Pacific Railroad winds through the hills of this area. On the east side of U.S. 101, Haehl Creek starts its path north towards Outlet Creek. To the west of the highway, Baechtel Creek meanders through Muir Canyon.

Topography consists of gently rolling terrain. Hills in this area have a natural appearance, even though some contain manufactured slopes due to grading that occurred in the late 1960s for improvements to U.S. 101. Muir Canyon Road defines the northwest side and Baechtel and East Hill Roads define the north side of the South Valley LAU. Ridges, which ultimately climb up to the Forsythe Ridge, define the southern boundary of this LAU.

Grasslands cover most of this area with oak woodlands at the higher elevations. Rolling hills create pleasant curved lines. The highway generally follows natural curves of the hills. Commercial-type signage is found along U.S. 101 as one

approaches the City. Textures in the area are generally coarse as trees and buildings contrast with the rolling grassy hills.

4.12.2 Miracle Mile Landscape Assessment Unit

The Miracle Mile LAU is the southerly entrance to the City. The boundaries are the native vegetated ridges on the west, Muir Canyon Road on the south, the Northwestern Pacific Railroad on the east, and S.R. 20 on the north.

Much of the existing development along U.S. 101 is commercial. West of U.S. 101 the predominant land use is single-family residential. Public buildings in this LAU include Blosser Lane and Baechtel Grove Elementary Schools, Frank Howard Hospital and Willits Senior Citizens Center.

Along the highway the land is relatively flat, which is conducive to development. However, there is a series of smaller hills further to the west. Native vegetation includes native redwood, douglas fir, pine, oak, California bay and madrone trees. Smaller trees in the area are toyon and dogwood. Shrubs include native buckeye and ceanothus. Developed areas contain ornamental plants and non-native grasses.

4.12.3 Historic District Landscape Assessment Unit

The boundaries of the Historic District LAU include Sherwood Road on the north, S.R. 20 to the south, Baechtel Creek on the east, and the city limits on the west. This is the most populated LAU. Manmade elements dominate the area, with a mix of residential, commercial and industrial buildings, and a variety of architectural styles. Some of the older structures are Victorian, bungalow, and English Tudor. Newer structures are a variety of contemporary styles. Native trees line the major creeks. Ornamental plantings occur in the commercial and residential landscapes.

The visual character of this landscape assessment unit is dominated by low-density residential structures. Major areas of public assembly include: historic downtown, Skunk Train Depot, City Hall, Old Library, Community Center, Justice Center, Willits High School, rodeo grounds, Mendocino County Museum, County Public Works and City Corporation Yard.

4.12.4 Brooktrails Landscape Assessment Unit

Oil Well Hill is located on the north end of the Brooktrails LAU. The ridgeline, near the airport, is located to the east. S.R. 20 on the south and a ridgeline on the west define the other boundaries of this LAU.

Brooktrails started as a recreational community in the 1960s but has evolved into a community with many fulltime residents. Currently, approximately 1,250 residential lots are developed along with limited commercial uses and public facilities to support the development. The landform in this area is dominated by rolling to steep foothill slopes and dense vegetation. There is a variety of native species of mixed conifer, stately madrone trees and chaparral interplanted with ornamental plants introduced by homeowners.

4.12.5 Little Lake Valley Landscape Assessment Unit

The Little Lake Valley LAU is bound to the north by Oil Well Hill, to the east by the eastern ridges surrounding the valley, to the south by East Hill Road and to the west by the boundaries of the Miracle Mile, Historic District and Brooktrails LAUs. Land uses in this area are mainly agricultural and ranching. There are low-density residential units with small pockets of industry between East Valley Street and East Commercial Street. Most of the lowlands in the valley are in the 100-year floodplain.

Outlet Creek drains the entire valley to the northwest creating a rich riparian corridor. Marsh and wetlands cover the valley floor. The dominant landforms in this landscape assessment unit are grassland in the valley and, in the hills to the east, oak woodlands and mixed conifers.

4.13 Noise

4.13.1 Existing Noise Sensitive Land Uses

Land use in the vicinity of Alternatives C1T, LT, and J1T varies from agricultural and rural uses to rural residential. Alternative J1T also includes suburban land uses near the vicinity of the little league ball fields. Land use along Alternative E3 includes pasture, woodlands and scattered suburban/rural residential uses. The potential for noise conflicts varies depending on the land uses surrounding each alternative. One school within the study area was evaluated for potential impacts. The Seventh Day

Adventist School (private) is located on Bray Road. Three parks and recreation areas are located within the study area: Lofling Little League and City Ball Fields, Recreation Grove Park, and Willits Rodeo Grounds. Other sensitive receptors in the project area include several mobile home parks and small subdivisions.

Map 24 shows the U.S. 101 study area and locations where existing noise levels were measured. The results of the short-term measurements indicate that existing noise levels at numerous residences adjacent to the existing U.S. 101 currently approach or exceed a peak hour Leq(h)[7] of 67 dBA[8]. Noise levels at rural residences away from the main county roads and state highways are very low (38-50 dBA).

4.14 Air Quality

The City of Willits is located in the North Coast Air Basin, which is under the jurisdiction of the Mendocino County Air Pollution Control District (District). Mendocino County meets all state and national ambient air standards except the state 24-hour standard for respirable particulate matter (PM_{10}). In general, air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, particulate matter standards are expressed as the microgram of particulate matter per cubic meter of air ($\mu g / m^3$). PM_{10} refers to particles with an aerodynamic diameter of 10 microns or smaller. $PM_{2.5}$ refers to particles with an aerodynamic diameter of 2.5 microns or smaller.

The District maintains an air monitoring station for ozone, nitrogen oxides, carbon monoxide, and PM_{10} in Willits. Since 1995, the District has had one exceedance of the state standard for PM_{10}, which occurred in 1997. The District is in "attainment" for all other standards; that is, it is in conformance with National and California Ambient Air Quality Standards, which is discussed further in Chapter 5. Table 4-20 shows historical monitoring data for the city of Willits. Please note that Willits area is in an attainment or unclassfied area for any federal criteria pollutant, therefore, transportation conformity does not apply.

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[7] ***L_{eq}(h)*– "**Sound level equivalent" averages the total acoustical energy over one hour. See Glossary.

[8] dBA – a noise measurement.

Mendocino County is in an Unclassified/Attainment area for PM_{10}, therefore a PM_{10} Hot Spot Analysis is not required. A Hot Spot Analysis concentrates on air quality impacts that may occur as a direct result of transportation facility operation and in the immediate vicinity of the facility. A Hot Spot Analysis is required if the project is located in a PM_{10} nonattainment or maintenance area. The PM_{10} Air Quality Summaries for the years 1993 through 1997 published by the Air Resources Board (ARB) and the Mendocino Air Quality Management District for the Willits PM_{10} monitor (located at the Willits firehouse) showed that no monitored violations occurred at or near the project locations, and documented PM_{10} concentrations are well below the standard. For example, ARB's 1997 data show a maximum 24-hour concentration of 66 ug/m3, approximately 44 percent of the federal standard.

Table 4-20. Historical Air Pollution Data for the City of Willits

Historical Air Pollutant Data Summary Table for the City of Willits (1995-1997)			
Pollutant	**1995**	**1996**	**1997**
Ozone[1]	**Units are in ppm**	**Units are in ppm**	**Units are in ppm**
Maximum 1-Hour Concentration	0.062	0.058	0.065
Maximum 8-Hour Concentration	0.049	0.049	0.058
Days > State Standard of 0.09 ppm	0	0	0
Days > Federal Standard of 0.12 ppm	0	0	0
Carbon Monoxide[1]	Units are in ppm	Units are in ppm	Units are in ppm
Maximum 1-Hour Concentration	3	3	4.2
Maximum 8-Hour Concentration	2	1.8	3.04
Days > State Standard of 9.0 ppm	0	0	0
Days > Federal Standard of 9.0 ppm	0	0	0
Particulate Matter (PM_{10})[2]	Units are in $\mu g/m^3$	Units are in $\mu g/m^3$	Units are in $\mu g/m^3$
Maximum 24 Hour Concentration	47	40	66
Maximum Annual Geometric Mean	16.4	17.5	17.8
Days > State Standard of 50 $\mu g/m^3$	0	0	1
Days > Federal Standard of 150 $\mu g/m^3$	0	0	0

Source: The 1999 California Almanac of Emissions & Air Quality. Published by The Air Resources Board, 1999.
Notes: 1 Monitoring station is located at 899 S Main Street in Willits
2 Monitoring station is located at the Firehouse in Willits

4.15 Section 4(f) Resources

Pursuant to Section 4(f) of the United States Department of Transportation Act (49 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) only if - (1) there is no prudent and feasible alternative to the 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)).

The review of resources that could incur Section 4(f) impacts resulted in the following list of park and recreation facilities (Table 4-21). These facilities are shown in Figure 5-14 Willits Long Range Park Facilities. As discussed in Section 5.8 Cultural Resources, there will be no use of significant historic resources by the project. The existence of eligible archaeological properties will not be known until further studies are conducted upon selection of a preferred alternative. (Refer to Section 5.8 for an explanation of eligibility).

Table 4-21. Park and Recreation Facilities That Could Be Affected by the Project

Name	Description
Lofling Little League and City Ball Fields	The facility consists of one little league field and two adult hard and softball fields. There are also dugouts, bleachers, a snack bar, restrooms and parking area. The city owns the property on which all three fields are located; however the little league facilities are owned by the Willits Little League. The fields are located on the south side of Commercial Street about 500 meters east of the Northwestern Pacific Rail Road and immediately west of Alternative J1.
Rodeo Grounds and Fair Grounds	The fair grounds are west of and adjacent to the Lofling ball fields. The rodeo grounds, which are inside the fair grounds, consist of a rodeo arena, stock pens and bleachers. The rodeo grounds host an annual Frontier Days celebration, which consists of a rodeo and parade during the week of July 4th.
Redwood Empire Railroad History Project, Mendocino County Museum and ballfields	The 10-acre parcel is owned by the City of Willits and is zoned Public Facility. It is occupied by the Mendocino County Museum and the Roots of Motive Power-Antique Steam Logging Railroad Display, which includes an outdoor display of authentic, working antique steam-powered logging equipment. Future plans: the construction of an exhibition and learning center, and construction of a loop track to demonstrate steam logging equipment to the public.

Source: CalTrans 2001

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	C1T		E3		J1T		LT		Designated Borrow Site
Segment	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[1]	$105	25.53%	0.002%	0.019%	0.009%	0.002%
City of Willits[2]	$ 4	14.68%	0.028%	0.31%	0.14%	0.038%
Willits Unified School District[3]	$ 15	33.87%	0.016%	0.18%	0.08%	0.022%

[1] Fiscal year 1998-99 receipts for Mendocino County, as presented in the California Statistical Abstract.

[2] Total revenue of funds receiving property tax revenue, Fiscal Year 2000 – 01.

[3] 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 Consevancy 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

Alternative	North Segment ha (ac)	South Segment ha (ac)	Total ha (ac)
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 candidates 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	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: 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).
Biostimulatory Substances	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.
Chemical Constituents	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.
Dissolved Oxygen	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: 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	Waters shall not contain floating materials, including solids, liquids, foams, and scum in concentrations that cause nuisance or adversely affect beneficial uses.
Oil and Grease	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.

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	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. 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: 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) @77º 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_3)	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 upon 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^2]; 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 C1T, 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 (CNDDB 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 CNDDB, 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 CNDDB (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 fragmention 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

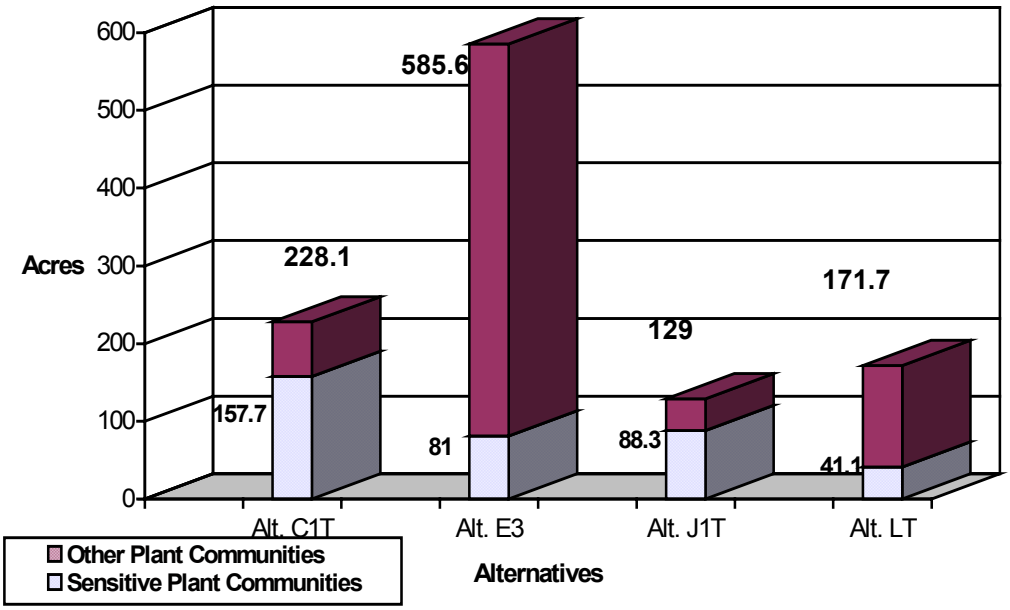
5.7.4.3 Impact Analysis

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:

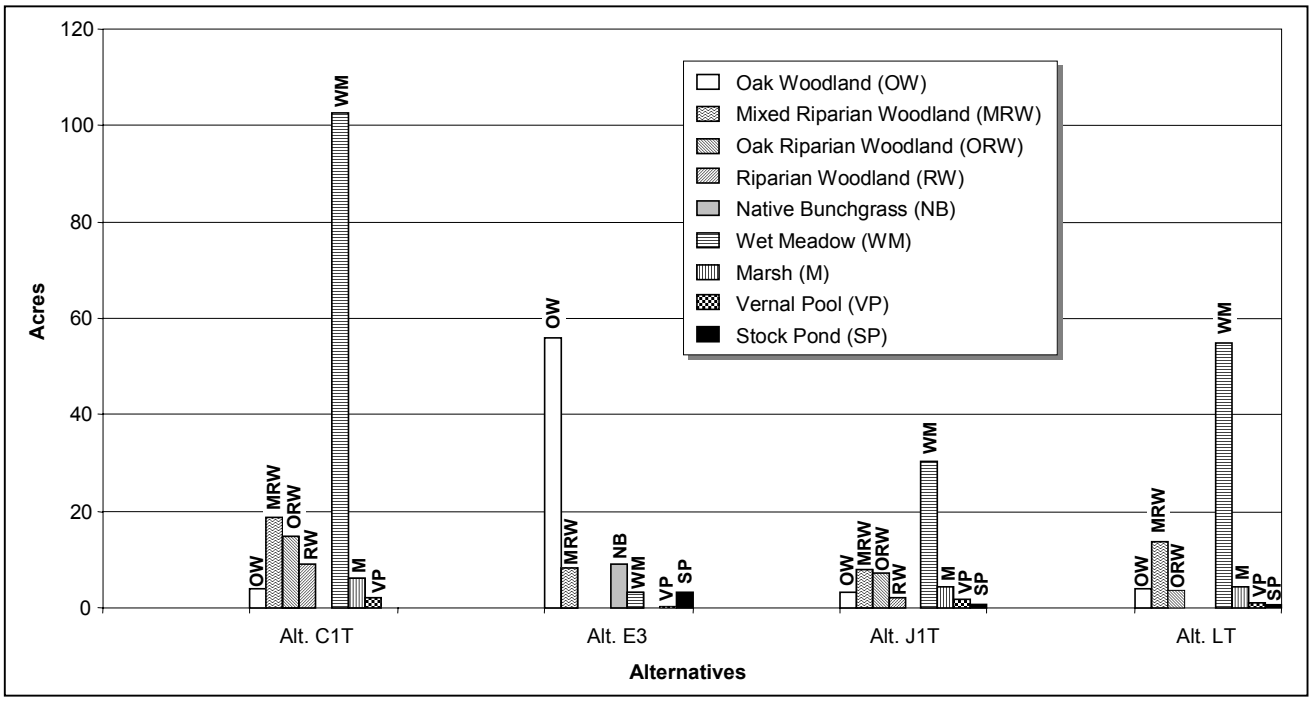
- Alternative C1T: 92.3 ha (228.1 ac)
- Alternative E3: 237 ha (585.6 ac)
- Alternative J1T: 52.2 ha (129 ac)
- Alternative LT: 69.5 ha (171.7 ac)

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:	C1T		E3		J1T		LT	
	Segment:	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.

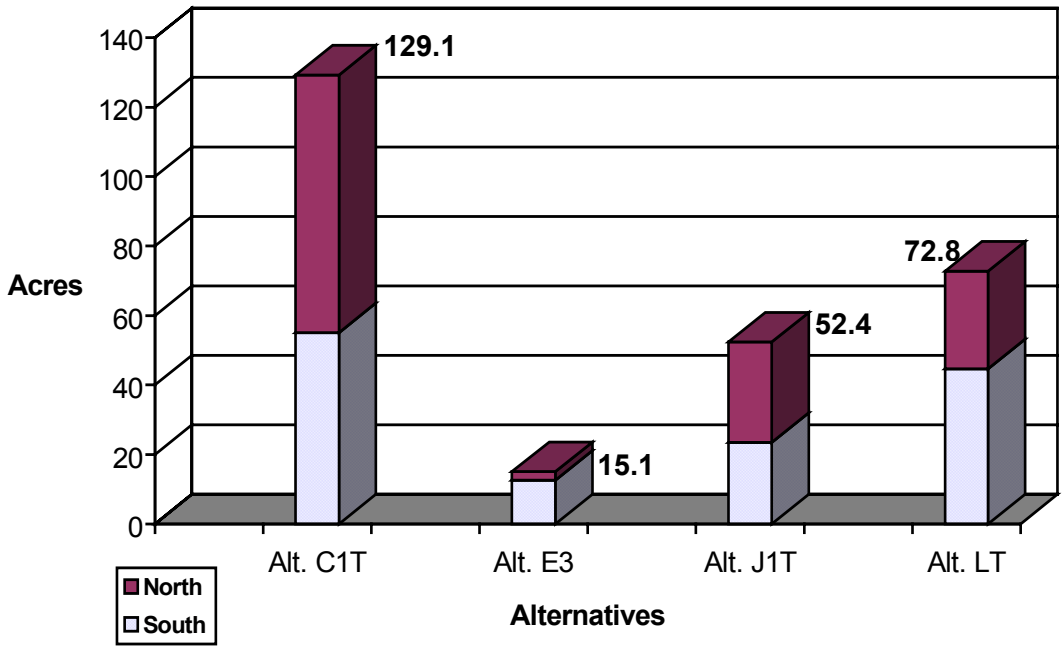
5.7.4.6 Impacts To Wetlands and Other Waters Of The United States (U.S.)

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, Beachtel, 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, decandent 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	-	-	-	-	-
TOTAL		**2**	**1**	**7**	**11**	**2**	**1**	**2**	**1**
		3		**18**		**3**		**3**	

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 Emmission 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
POTENTIAL HAZARDOUS WASTE PROPERTIES					
SOUTH SEGMENT					
Alternative C1T, E3, LT: No hazardous waste properties identified					
Alternative J1T:					
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
NORTH SEGMENT					
Alternative C1T, E3, J1T, LT: No hazardous waste properties identified					
HAZARDOUS WASTE SPILLS (January 1, 1994 to present)					
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 Architcture 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

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Existing	M/H	L/M	M	L	L/M	M/H	M/H	M	M/H	L/M	H	H	M	M	M	M/H
Alt. C1T	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
Alt. E3	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
Alt. J1T	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
Alt. LT	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, Leq(h).
- When predicted noise levels approach (within 1 dBA) or exceed the federal Noise Abatement Criteria (NAC). The NAC for residences is 67 dBA, Leq(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 (≥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

SOUND WALL I.D.: SW-1				
PREDICTED, W/O SOUND WALL				
Absolute Noise Level, L_{eq}(h), dBA*	**71**			
Build Vs. No-build, dBA*	**+8**			
PREDICTED, WITH SOUND WALL	**H=2.5 m**	**H=3.0 m**	**H=3.7 m**	**H=4.3 m**
Insertion Loss (Noise Reduction), dBA*	**7**	10	11	11
No. of Benefited Residences**	**6**	6	6	6
New Highway, or More Than 50% of Residences Predate 1978? (Yes or No)	**YES**	YES	YES	YES
Reasonable Allowance Per Benefitted Residence	**$37,000**	$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_{10} and $PM_{2.5}$) 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 $PM_{2.5}$ standards in 1997. However, the transition to the $PM_{2.5}$ 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_{10}) 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 looses 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

Alterna-tive	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**

Alterna-tive	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

Alterna-tive	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	VIS-1 – VIS-7, VIS-10, BIO-1 – BIO-12, WQ-1 – WQ-3	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

Alterna-tive	Environmental Impacts (Section Number)	Level of Impact under CEQA before Mitigation*	Mitigation Measures	Level of Impact under CEQA after Mitigation*
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

CHAPTER 6 Other Statutory Requirements

In addition to the analysis of impacts discussed in Chapter 5 (Environmental Consequences), CEQA and NEPA also require that the analysis of a project's growth-inducing impacts and its incremental contribution to related impacts caused by other projects (cumulative impacts).

6.1 Growth Inducement

6.1.1 Regulatory Framework

CEQA and NEPA require that the EIR/EIS examine the growth-inducing effects of a project [CEQA Guidelines, 15125(a); NEPA, 40 CFR 1508.8(b)]. The environmental document must include a discussion of the "changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, scenic quality, and public services."

6.1.2 Growth Inducement Analysis

This analysis is an estimation of direct or indirect ways in which the project may foster economic or population growth or the construction of additional housing in the surrounding area. The key consideration is whether the project would encourage growth, in the context of the region's plans, natural setting and growth patterns.

Growth inducement is difficult to measure since the impacts are generally indirect and occur over an extended period of time after the project is completed. The relationship is generally evaluated as either facilitating planned growth or inducing unplanned growth. A new roadway may create additional market pressure for growth because one constraint for development has been lifted. However, whether or not the project will induce unplanned growth depends on political, physical, and socioeconomic factors as well. The proposed project is intended to meet the existing and/or projected traffic demand based upon the local land use plans.

The analytical technique used for evaluating growth inducement of the Willits Bypass is called "factor analysis," which assesses the capacity for growth within this area

based upon the cost of land, local government plans and policies, the available labor pool, land use and terrain, commute time, access, and infrastructure. The factors are evaluated for their overall effect on promoting or restraining growth.

6.1.3 Factors

The cost of land in Willits and surrounding areas is inexpensive relative to the cities and vineyard-rich agricultural areas to the south. Additionally, local plans are not opposed to growth in Willits and in areas adjacent to Willits, given minor infrastructure modifications. The proposed project would also improve commute times along US 101 through the project area.

However, the proposed project is not expected to induce significant levels of growth in the project area because it would not remove some key constraints to development in this area. Growth that would be an indirect effect of the proposed project would be limited to travelers' services such as gasoline and fast-food providers at the interchange of Alternative E3 and S.R. 20. Terrain in this area is prone to landsliding, which constrains large-scale development.

Other constraints to development in this area are the floodplain north and east of Willits, infrastructure limitations in the Brooktrails area and the limited amount of available labor.

6.1.3.1 Cost of Land

The value of land within the City of Willits is low, relative to that in nearby cities. Farmland in Mendocino County is less expensive than that in several other nearby counties. Relatively inexpensive land is generally attractive to potential development.

Based on real estate transactions recorded by the Mendocino County Assessor's Office between January 1990 and December 2000, land in Willits is substantially less expensive than in two of the larger cities to the south along U.S. 101, Ukiah (population 15,000) and Cloverdale (population 6,425).

As Table 6-1 shows, the average value per square foot (not including the value of improvements) of residential and vacant land was worth far less in Willits than in the other two cities. The cost of commercial land was also less, but somewhat comparable to that in Cloverdale.

Table 6-1. 1990 - 2000 Property Sales Data (Dollar Value/Sq Ft)[9]

City	Residential	Commercial Land	Vacant Land
Cloverdale	$1.98	$1.76	$1.17
Ukiah	$1.80	$3.13	$1.30
Willits	$0.30	$1.13	$0.22

Source: Assessor's data for sales by land use type (County Assessor's data accessed via Experian)

As the data in Table 6-2 show, the per-acre value of farmland and structures in Mendocino County was higher than in Humboldt County to the north, and 67 percent of the value in nearby Lake County. Agricultural land was worth far less in Mendocino County in 1997 than in the vineyard-rich counties of Napa and Sonoma.

Table 6-2. Average Value of Farmland and Buildings per Acre (1997)

County	Average Value per Acre
Humboldt	$1,118
Lake	$2,563
Mendocino	$1,728
Napa	$11,629
Sonoma	$5,211

Source: US Department of Agriculture, 1997 Census of Agriculture

6.1.3.2 Local Government Plans and Policies

The Bypass would remove a barrier to Willits' plans for revitalizing its downtown. City representatives have stated their opposition to bypass features that could draw commercial activity away from downtown Willits. This attitude would minimize opportunities for growth adjacent to the bypass.

Willits General Plan

The Willits General Plan includes the Willits Bypass Project; it also includes a direct connection between downtown Willits and the bypass, which is not provided by the proposed project. Such an interchange could draw commercial development away from its current location (specifically, businesses located along the "Miracle Mile"

[9] These data exclude the value of improvements. Value is based on the value of a square foot of land. These data have not been adjusted for inflation. However, because the findings are based solely on transactions between 1989 and 2001, inflation is not expected to have an appreciable effect on findings.

along U.S. 101 south of S.R. 20). However, the project does not preclude construction of a direct connection in the future.

Willits is currently preparing a Downtown Specific Plan, which anticipates the removal of through traffic from Main Street (U.S. 101) through the city. It is hoped that removing through traffic from the heart of Willits will make this area more conducive to visitors and residents, thus drawing business activity to this area. The Willits Bypass is part of a planned regional transportation system and contributes to Willits' plans to promote economic growth.

The Willits General Plan anticipates growth at existing rates, until reaching build-out in 2020 at a population of 7,700. The valley alternatives would not foster growth or create capacity to accommodate growth above and beyond what has been permitted by the Willits General Plan and the Brooktrails Specific Plan. Growth at the local level is fundamentally controlled by the land use plans of Willits and Mendocino County.

Brooktrails Specific Plan

Residential development planned for by the Brooktrails Specific Plan would not be affected by the proposed alternatives. Currently, infrastructure constraints (including the need for an alternative access to Sherwood Road and the need for increased water capacity) limit the amount of housing that may be developed in this area. The proposed project would not remove these constraints to development.

Mendocino County Zoning Code

Mendocino County's plans for residential development discourage large-scale growth outside of the areas serviced by existing communities' infrastructures. Land uses conducive to population growth are generally found adjacent to existing communities.

The largest areas of land adjacent to the City of Willits are agricultural lands (to the east), rangelands (to the west) and several low-density rural residential areas. These land uses are not conducive to large increases in residential population. However, there are small areas of suburban residential zoning adjacent to Willits to the southeast, southwest, and to the north (the Brooktrails subdivision is also zoned for suburban residential development).

Suburban residential areas in Mendocino County allow lots sizes as small as 557.4 sq m (6,000 sq ft). The areas that the county has zoned for Suburban Residential use adjacent to Willits are the only areas in which growth outside of either Willits or Brooktrails would be expected within the project area. These areas are intended for population growth and the expansion of public services.

Terrain

The floodplain to the north and east of Willits is expected to restrict development at the northern end of Alternatives C1T, J1T, LT and, to a lesser extent, E3. Unstable slopes are expected to restrict development at the interchange between Alternative E3 and S.R. 20. These factors would not be problematic at the southern end of the build alternatives.

As seen in the portion of the "Environmental Consequences" discussion pertaining to Geology and Soils (Section 5.1), the area along the southern portion of Alternative E3 is highly prone to landsliding because of the high moisture content of the soil in this area. Conversations with Mendocino County's Planning Department indicated that the topography along Alternative E3 makes large-scale development of any kind in this area unlikely.

The northern termini of Alternatives C1T, J1T, and LT are all adjacent to the floodplain (Map 14). This condition would be expected to constrain development at the northern end of these alternatives.

The floodplain does not extend to the southern end of any of the bypass alternatives. The terrain in this area (where the proposed bypass alternatives diverge from the existing highway) would not present an obstacle to growth.

Labor Pool

The data in Table 6-3 indicate that wages are not higher, nor is the labor pool larger, in Willits than in other nearby communities. Labor pool characteristics would not be expected to either constrain or attract growth to this area.

The per-employee payroll in the Willits zip code area in 1997 was $19,650. In Mendocino County as a whole, the per-employee payroll (average wage) was $21,255.

Data from the Employment Development Department indicate that the available labor pool in Willits is less than 200 workers. The nearby community of Ukiah has almost three times the supply of unemployed workers.

Table 6-3. Labor Supply Characteristics for Willits and Surrounding Areas

Area	Labor Force	Employment	Unemployment Number	Unemployment Rate
Covelo	480	440	40	8.4%
Fort Bragg	3,300	3,120	180	5.5%
Point Arena	220	180	40	16.7%
Ukiah	7,320	6,860	460	6.3%
Willits	2,450	2,290	160	6.5%
Mendocino County	42,340	39,530	2,810	6.6%

Source: California Employment Development Department, 1999

Commute Time

The time savings for both commuters passing through the project area and those originating in or bound for Willits could increase this area's attractiveness to potential residents.

Travel time between geographic points may influence the redistribution of economic development and population. The current U.S. 101 alignment serves both local traffic and through traffic, whereas the Willits Bypass would divert through traffic from downtown Willits.

By re-routing U.S. 101 from downtown Willits, the bypass alternatives would alleviate traffic congestion problems within the city. This would reduce the amount of time commuters spend in Willits. The proposed project would not increase highway capacity between Willits and nearby cities, however.

According to the *Willits Bypass Traffic Report*, by 2028, travel time through the project area is expected to be over 30 minutes. Travel time through the project area

was estimated to be less than ten minutes for Alternative E3 and for the full Alternatives C1, J1, and L.[10]

The bypass alternatives would provide a fairly substantial reduction in commute times for workers who pass through the city to work. Similarly, the bypass alternatives would remove much of the through traffic that creates congestion within the city for workers utilizing city streets either to enter or exit the area.

Access

The proposed alternatives would increase accessibility only at the proposed interchange of Alternative E3 and S.R. 20. All of the other interchanges proposed as part of this project would be between the bypass alternatives and the existing route of U.S. 101. The valley alternatives would allow development in Willits to continue at essentially the same pace as currently anticipated. Alternatives J1T, C1T, and LT place restrictions on additional development beyond that envisioned in the Willits' General Plan by limiting freeway access to the city's street system.

The various alternatives share certain design characteristics that limit the possibility of future development adjacent to the bypass interchanges. The westerly E3 alternative would have restricted access interchanges at U.S. 101 north and south of Willits and an interchange with S.R. 20, which connects Fort Bragg and Willits. The valley alternatives (J1T, C1T, and LT) would have restricted access interchanges with U.S. 101 north and south of Willits only. There would not be any access points to these bypass alternatives except at the north and south interchanges with U.S. 101.

The access and interchange design of the alternatives would not be growth inducing in the vicinity of the interchange with the existing U.S. 101 because the limited/restricted access feature would ensure no access between the interchanges joining the bypass with the existing route.

Alternative E3 would be the only alternative with a direct link to S.R. 20 that would provide an interchange at S.R. 20. This area is currently accessible by way of S.R.

[10] Travel time estimates are for the *original* Alternatives C1, J1, and L as opposed to the truncated alternatives. Because the truncated modifications of these alternatives would have the effect of removing through traffic from within the most concentrated areas of the City, commute times on the truncated alternatives are likely to be similar to those on the "full" versions of these alternatives.

20. However, Alternative E3 would result in a considerable increase in the amount of traffic passing through this area and would provide an opportunity for this traffic to leave the highway and access local streets and roads by way of S.R. 20.

Local Infrastructure

Infrastructure is not expected to constrain development in Willits. Brooktrails' development is dependent upon the provision of some infrastructure improvements.

The most recent version of the Willits General Plan anticipated the need for only minor improvements in local infrastructure in order to meet the demands of population growth. The valley alternatives are not expected to adversely affect the city's planned infrastructure improvements.

Population growth in the Brooktrails subdivision, on the other hand, depends upon the provision of both additional water capacity and an alternative means of accessing the area.

Constraints

Mendocino County's Regional Transportation Plan (1990 Update) states that "On U.S. 101, traffic and control conditions inhibit traffic service at Hopland [south of the project area], Willits, and Laytonville [north of the project area]."[11] These areas of reduced traffic service present obstacles to traffic movement along the U.S. 101 corridor in this region of California. These areas increase commute times and make growth less likely to occur in areas adjacent to the highway corridor.

Other Factors

Within the City of Willits, the proposed project would not remove any of the constraints on housing development that have been identified in the Willits General Plan Housing Element. These constraints include market factors that have placed homeownership beyond the reach of Willits' residents and reductions in state and federal support for housing programs.

Additionally, there is currently no shortage of developable sites within the city with access to the highway. According to the Willits General Plan, there is sufficient

[11] *Regional Transportation Plan Mendocino County 1990 Update*, Mendocino Council of Governments, January 1992, page N-10.

developable land in Willits to accommodate over 1,600 new units. The vacancy rate and price of housing in this area currently are consistent with conditions that would seem to favor increased housing development, but the amount of residential construction in the project area has not been substantial. The Willits Bypass would not be expected to remove obstacles to development in this area. There is sufficient planned housing available within the city, as well as in other communities in the area where growth may occur.

Other than the short-term population and economic growth during the construction period, the bypass would not be expected to encourage or facilitate other activities that could adversely affect the environment.

6.2 Cumulative Impacts Analysis

6.2.1 Regulatory Framework

Evidence is increasing that the most disturbing environmental effects may result not from the direct effects of individual projects, but from the cumulative effects of individually minor projects over time. The cumulative impact from two or more projects is the change in the environment that results from the incremental impact of the proposed project when added to other closely related past, present, and reasonably foreseeable future projects. Environmental cumulative effects accumulate when the environment does not have enough time to recover to its original condition before another outside action takes place to affect the environment.

Both the CEQA Guidelines [Section 15130(a)] and NEPA (40 CFR 1508.7, 1508.8) require a discussion of cumulative impacts of a project when a project's incremental effect is cumulatively considerable.

Identifying the major cumulative effects involves defining the impacts of the proposed action and other projects; which resources are affected; and which effects on these resources are important from a cumulative impact perspective. The resources primarily affected by this project would be wildlife habitat (fisheries and Northern spotted owl), Baker's meadowfoam, wetlands, prime farmland, and visual quality. These resources are described in detail in Chapter 5, Affected Environment, so this chapter will focus only on the cumulative effects to these resources.

The probable future projects considered can consist of a list of specific projects or a summary of projections contained in an adopted general plan designated to evaluate regional or area-wide conditions. The approach used to analyze cumulative impacts follows the "list" approach (Figure 6-1).

6.2.2 Cumulative Impacts Analysis

As part of the environmental review of the proposed bypass project, this report examines the project's contribution to cumulative impacts. This information will be used to consider project alternatives and, if necessary, mitigation.

The proposed project affects primarily wetlands; Baker's meadowfoam; upland forests, riparian woodland, and oak woodland; and visual resources. The discussion below discusses how the proposed project would provide an incremental contribution to cumulative impacts to these resources.

The geographic scope of cumulative impacts varies by technical area. For example, the boundaries for cumulative impacts for farmland are the state, county, and project area for comparison purposes; while the boundary for Baker's meadowfoam includes all of its known areas of occurrance. The boundaries are defined under each issue area, below.

Temporally, the scope of this cumulative analysis is the existing conditions and future actions that are reasonably foreseeable to the year 2028. This timeframe also includes the Willits' General Plan Revision period, which is effective through 2020. The temporal scope also includes past actions that have affected the resources addressed here.

Cumulative impacts analysis is difficult to assess thoroughly because of a lack of definitive information on future development projects. This analysis uses the best available information to estimate the proposed project's potential contribution to cumulative effects on the general project area and on the region. Included in this analysis are the proposed bypass alternatives and other reasonably foreseeable future projects (Figure 6-1). Except for the Willits Bypass, which is proposed for construction in 2005, the only other foreseeable projects with known construction dates are the Holly Street signal project (6/2003) and the wastewater treatment expansion (11/2004). No construction dates have been established for the other projects; however, they are expected to be implemented by the year 2028.

Figure 6-1. Past, Present, and Reasonably Foreseeable Future Projects

- The proposed Willits Bypass Project (start of construction - 2005)
- Willits wastewater treatment expansion to accommodate projected growth in Willits and Brooktrails (construction start - 11/2004; completion 6/2006)
- A second access to the Brooktrails subdivision
- Traffic signal at Holly and Main (U.S. 101) Street (construction 6/2003)
- Improvements to Northwestern Pacific Railroad, including slide restoration that will open the railroad north of Willits
- Land use changes in Willits, including a zoning change in the City's southeastern corner from residential estate to manufacturing (circa 1997) and the adoption of a specific plan for the redevelopment of downtown Willits (planned for 2003)
- Enhanced pedestrian, bicycle, and hiking trail facilities within Willits
- Expansion of the Mendocino County Museum at Commercial Street

Source: Willits Bypass Community Impact Assessment (Caltrans 2001).

6.2.2.1 Build-out in Brooktrails and Willits

The community of Brooktrails would provide for up to 4,000 single-family residences at build-out. However, continued build-out is not possible until the existing infrastructure is expanded. Ultimate build-out of this area is anticipated to require forty to eighty years. Thus, it appears unlikely that unplanned-for growth in the Brooktrails area is possible within the given 20-year timeframe, and so is beyond the scope of this cumulative analysis.

The city's preferred growth scenario, as presented in its General Plan, provides for 830 additional residences by 2020, as well as increased commercial and industrial activity. In addition, while the existing water capacity would provide for 1,840 additional residences, the General Plan suggests that it is more reasonable to restrict

this number to 900 to 1,000 additional residences, given current water storage facilities. Therefore, this moderate growth scenario would not be a major contributor to cumulative impacts.

6.2.2.2 Wastewater Treatment Facility

Willits is proposing expansion of its wastewater treatment facility to accommodate both Brooktrails and Willits growth. The city has purchased 160 acres next to its existing facility for the expansion.

6.2.2.3 Mendocino County Railroad History Project

The county created three acres of wetlands to mitigate for an equal amount of wetlands filled by the museum expansion project. Therefore, the project resulted in no net loss of wetlands and does not contribute to cumulative impacts.

6.2.2.4 Expansion of Multi-modal Facilities

Expansion of public transit and bicycle/pedestrian facilities are an overall benefit to the community and region and would not contribute to cumulative impacts. Repairs to the Northwestern Pacific Railroad facilities will allow the railroad to expand freight services; its future goals are to establish passenger excursion trains and eventually to provide regular passenger commute service.

6.2.2.5 Proposed Willits Bypass

As noted previously, because most of the Willits Bypass alternatives are proposed as controlled access freeways, there would be minimal growth-inducing effects, with the exception of Alternative E3. Alternative E3 is the only alternative that would provide an interchange at S.R. 20. Access at S.R. 20 and an interchange west of Willits could create the potential for growth inducement (e.g., service station, restaurants, etc.) around that interchange location. The incremental contribution to cumulative impacts of interchange-type growth would be minimal if each project implemented mitigation measures to minimize project impacts. However, commercial development at that location could result in an adverse impact since it would be a change in land use from rural to urban uses. Resources that might be adversely impacted include visual/open space and biological resources.

6.2.2.6 Second Access at Brooktrails

A second access road to Brooktrails residential development has been proposed near Wild Oat Canyon (near the northern Willits city limits).

6.2.2.7 Proposed Hopland Bypass

Caltrans is proposing to construct a four-lane freeway or expressway bypass of the community of Hopland, on U.S. 101 in southern Mendocino County (from KP 14.2-28.3 / PM 8.8-17.6). The project is being proposed to reduce operational conflicts, accommodate existing and future traffic demand, reduce travel time, increase safety, improve air quality, reduce noise in Hopland, and provide the facility concept identified in the "Interregional Transportation Strategic Plan." All of the proposed alignments potentially would affect oak woodlands, riparian forest and pre-historic cultural resources. Eenvironmental studies have begun recently, however, results of these studies will not be available until some time in 2003.

6.2.3 Biological Resources

6.2.3.1 Study Boundary

The evaluation area for cumulative effects for biological resources is the immediate Willits area, the Little Lake Valley, and the surrounding foothills. This boundary was selected for biological resources because this area would be most influenced by the bypass and is within the same watershed of upper Outlet Creek. An exception to this geographic boundary is in considering cumulative impacts to Baker's meadowfoam, because of the rarity of this plant species. In this instance, cumulative impacts to Baker's meadowfoam include the Willits area, where the largest population of the plant occurs; the Laytonville population; the Summit Valley population; and the Hulls Valley population.

6.2.3.2 Cumulative Impacts to Upland Forests, Riparian Woodland, and Oak Woodland

Of the foreseeable projects listed, those that would contribute to cumulative impacts to upland forests, riparian woodland, and oak woodland, would be the second access to Brooktrails, removal of borrow material at Oil Well Hill for the proposed bypass, and construction of any of the bypass alternatives (particularly Alternative E3). Adding to these impacts are past activities in the project area, such as timber harvesting and clearing for agriculture, which have removed these habitat types. Woodlands have been cleared to enhance rangeland productivity or to convert natural habitat into land for hay production. Under natural conditions, Little Lake Valley would support more extensive riparian woodlands than exist today. With implementation of proposed mitigation measures, it is expected that, in the long term, upland forests and oak woodland will be approximately the same or improved over

the existing condition. It is expected that riparian forests will be improved over the existing condition, with implementation of the proposed mitigation measures.

6.2.3.3 Cumulative Impacts to Wetlands

Past activities in the project area have changed the hydrology of portions of the Little Lake Valley. Property owners have constructed irrigation ditches, rechannelized creeks, and blocked storm drains to control the flow of water in the Little Lake Valley to grow crops and manage rangeland. Before wood chips were a valuable commodity, area lumber mills were known to dispose of wood chips in the valley east of U.S. 101.

Proposed expansion of the Willits wastewater treatment facility would directly impact wetland resources because of its location on the valley floor. The 160 acres of land, which the city has purchased next to the existing facility for the proposed expansion, is composed nearly entirely of wetlands. When ACOE determines the extent of wetland impact the expansion would have, the agency will coordinate with the city on appropriate mitigation.

The proposed bypass would impact from approximately 15 acres to 129 acres of wetlands, depending on the alternative. Mitigation in the form of wetlands creation to achieve ACOE's no net loss requirement is discussed in Chapter 5.

As identified in the Willits General Plan, industrial development is zoned in the area of East Hill Road in Willits. Other existing industrial development occurs in this area and development would continue to occur in this portion of Willits. This development would have potential impacts to wetland resources in the immediate vicinity.

It is ACOE's policy that mitigation achieves no net loss of wetlands and that mitigation is on-site if feasible; therefore, taken together, the above projects would not contribute to cumulative wetland losses in Mendocino County.

6.2.3.4 Cumulative Impacts to Baker's Meadowfoam

Baker's meadowfoam is found only in Mendocino County, with several populations in Little Lake Valley, and one population each in the Laytonville area north of Willits and the Summit Valley and Hulls Valley areas north of Covelo (northeast of Willits). There are 31 populations in Little Lake Valley, ranging in size from thousands to

many millions of plants. Baker's meadowfoam presently occupies portions of Little Lake Valley where it was probably historically absent. The new occurrences are probably a result of valley-wide drainage projects that converted extensive areas of marshland into meadows and the clearing of riparian woodlands that exposed new areas for meadow habitat to establish. Large Baker's meadowfoam populations occur in areas with the landscape position, soil, and hydrology that would have supported a riparian woodland. Further, Baker's meadowfoam occurs in areas today that were marshlands prior to enhanced drainage of the valley. The plant's current distribution, due to agricultural practices in Little Lake Valley and the growth of non-native perrenials, suggests that the species has the potential for wider distribution. However, the species is absent from large areas with soil, hydrology, and vegetation conditions similar to those at known occupied sites, and a valley wide analysis would be required to assess whether its net distribution has increased or decreased as a result of changes induced by human land use practices.

Land conversion near Willits, Laytonville, and Covelo has likely extirpated populations that occurred there. In addition, drainage improvements in Little Lake Valley, and possible elsewhere within its range, have converted wet meadows to nonwetlands, but this loss may have been compensated by conversion of marsh to wet meadow.

Currently, the only land development projects that would contribute to impacts to Baker's meadowfoam populations are the proposed Willits bypass project and the city's wastewater treatment expansion project. The wastewater treatment expansion project would remove from one-half to three-quarters of an acre of Baker's meadowfoam, depending on final project design. The city has requested authorization from CDFG to establish additional populations of Baker's meadowfoam through a seed collecting and transplanting program, within a 15-acre on-site mitigation area. While Baker's meadowfoam is very adaptable to disturbed conditions, CDFG and others have found that transplanting was effective in only 15 percent of cases studied. A population located in the Little Lake Valley on the Rust Ranch is under a conservation easement and is being monitored by the rare plant coordinator for the California Native Plant Society (CNPS) for the Mendocino Chapter. With successful mitigation for Baker's meadowfoam, there will be no cumulative impact to the sustainability of the species.

6.2.3.5 Cumulative Impacts to Wildlife Habitat (Fisheries and Northern Spotted Owl)

Past activities in the project area, such as timber harvesting and clearing for agriculture, have removed riparian and woodland habitat types that can support fisheries and Northern spotted owl. Woodlands have been cleared to enhance rangeland productivity or to convert natural habitat into land for hay production. Under natural conditions, Little Lake Valley would support more extensive riparian woodlands than exist today. These past activities along with reasonably foreseeable projects, including the proposed Willits Bypass, are not expected to impact the long-term sustainability of wildlife habitat. The successful implementation of mitigation measures for the proposed project are expected to provide desirable habitat for these species.

6.2.4 Hydrology and Water Quality

The 194 sq km (75 sq mi) Little Lake Valley watershed is contained within the Outlet Creek Hydrologic Shed Area. This 422 sq km (163 sq mi) area in turn is a subshed of the Eel River Hydrologic Unit, with an area of over 9,000 sq km (3,500 sq mi). All surface waters from the project area enter into Outlet Creek, a major tributary to the Eel River. The Eel River flows northward through Humboldt County, where it discharges to the Pacific Ocean. For this analysis, the boundary for the cumulative impacts analysis for water quality is the Little Lake Valley watershed.

Planned and foreseeable future development in the project vicinity could result in temporary degradation of water quality in the Little Lake Valley watershed due to ground disturbance and construction activities. The proposed bypass project would incrementally contribute to short-term water quality impacts. Applying erosion control measures required by local, state, and federal agencies would ensure that the project's incremental contribution to cumulative impacts would be minimized because it would be implementing its fair share of protective measures. If implemented as part of each planned development project, these measures would also reduce the additive impacts caused by cumulative development.

Existing and future development in the project vicinity could result in degradation of water quality in the Little Lake Valley watershed over the long-term due to urban runoff. However, implementation of the bypass project would improve the level of service along Main Street and provide an acceptable level of service on the new project corridor. Reducing congestion means less braking, shifting, and accelerating,

which in turn reduces the quantities of brake and clutch dust, exhaust particles, and oil drips that accumulate on the roadway. In addition, the final project design and construction would be in conformance with all conditions and requirements set forth in the NPDES storm water permit adopted by the RWQCB, North Coast Region, which would further reduce urban pollutant loading.

None of the proposed valley alternatives would have an adverse effect on the base floodplain elevation. If a build alternative were selected, detailed studies would be performed to determine additional design features needed to minimize flood-related impacts such as runoff rates. Cumulatively, future development in the project vicinity (adding pavement in the base floodplain or in the hills west of Willits) could result in adverse flood-related impacts. The extent, frequency, and duration of flooding would require extensive hydrologic and hydraulic modeling that is impossible at this time because data essential to running those models, such as the location and areal extent of paved surfaces in future probable projects, do not exist presently. Therefore, any models or projections would be wholly speculative. The lead agency should require developers to analyze the hydrologic and hydraulic impacts of any future proposed developments and to minimize and/or mitigate impacts to a level of acceptance.

6.2.5 Prime Farmland

The cumulative analysis for farmland is the entire county of Mendocino, because of the rapid rate of loss of this important resource. The State Department of Conservation's Farmland Mapping and Monitoring program has not mapped Mendocino County yet, so exact farmland conversion and other pertinent information, are not available; however, close estimates were provided by the Mendocino County Agricultural Commissioner.

Out of 2,246,400 acres of land in Mendocino County, 94,039 acres or 4.19 percent is considered prime agricultural soils (NRCS-USDA figures). Of that amount, much is unavailable and covered by roads, highways, cities, parks, and other land uses. While growth is very slow in Mendocino County, settlement patterns have tended to occurr in areas dominated by prime soils. Only one-third, or approximately 35,000 acres, of prime farmland remain available for agricultural use. Besides the unavailability of prime farmland, changes in hydrology as a result of agricultural and other human uses have affected the quality and use of prime farmland.

The build alternatives for the Willits bypass project either approach or exceed the 1984 Farmland Protection and Policy Act 160-point threshold in their conversion of prime and unique farmland to other uses. Biological conservation easements that would be implemented for construction of the build alternatives would help to mitigate for impacts to farmlands in the project area. This proposed mitigation would reduce the project's incremental contribution to cumulative farmland impacts.

6.3 Irreversible Environmental Impacts

The CEQA Guidelines (Section 15126.2) require that an EIR address any irreversible environmental changes that would be involved in the proposed action. The proposed project would result in irreversible environmental changes if key resources would be degraded or destroyed to the degree that they could not be restored. The proposed project would not result in an irreversible commitment of natural resources, nor would the construction of the proposed project require a substantial commitment of energy resources (i.e., fossil fuels). The proposed project would accommodate an existing population in the area and region.

6.4 Environmental Effects That Cannot Be Avoided If The Project Is Implemented

An EIR must include a description of those impacts identified as significant and unavoidable if the proposed project were constructed [CEQA Guidelines, Section 15126.2(b)]. A project results in unavoidable impacts if mitigation does not reduce the impact to a less-than-significant level or if no mitigation or only partial mitigation is feasible. Depending on the alternative, the project was found to have unavoidable impacts related to biological resources, geological hazards, community impact, and potentially, to hazardous waste sites.

Landsliding and Seismicity

- Even with specialized foundation treatments, specialized cut slope and fill slope design, mechanically reinforced embankments, stabilization trenches, catchment areas, and specialized subsurface drainage techniques, the ***potential for landslides*** would remain high for Alternative E3.

Community Impacts

- Alternative E3 would require 114 ***residential displacements.***

- Alternative E3: Based on the adverse impacts associated with disruptions of community cohesion and with the relocation and provision of replacement housing, Alternative E3 would cause disproportionately high and adverse impacts ***to minority or low-income populations***.

Biological Resources: Special Status Fish Species

- Alternatives C1T (north segment) and E3: Where extensive riparian vegetation would be removed by large channel realignments, particularly in ***critical salmonid habitat*** areas, there may be severe consequences to the habitat quality by ***increased stream temperatures***.

Biological Resources: Waters of the U.S.

- Alternative C1T: The greatest impact of this alternative would be the removal of ***wetlands and other waters of the U.S.*** (52.3 ha [129.1 ac]). Alternative C1T (north segment) would also require the realignment of approximately 400 m (1,300 ft) of Mill Creek and 1,600 m (5,250 ft) of Outlet Creek.

Biological Resources: Special Status Wildlife

- Alternative E3: The direct and indirect impact to intermittent streams resulting from culvert construction on the smaller drainages within this alignment could have the greatest impacts on ***foothill yellow-legged frog and northwestern pond turtle*** and their habitats.
- Alternative E3: The magnitude of impacts resulting from construction of Alternative E3 and the difficulty of reestablishing mid- and old-growth forested habitat that provide optimal habitat for ***Northern spotted owl and red tree vole***.

Biological Resources: Sensitive Plant Communities

- Alternative E3: Would impact 32.8 ha (81 ac) of ***sensitive plant communities.*** The loss of 22.7 ha (56.1 ac) of oak woodlands, in particular, would be adverse, because of the length of time required for oak trees to grow into stands of mature trees that could provide the functions and values required by cavity nesting birds, raptors, and other wildlife. Other plant communities affected by the Alternative E3 alignment would include approximately 97.8 ha (241.6 ac) of mixed north-slope forest and 67.6 ha (167.0 ac) of annual grassland.

Hazardous Waste Sites

- 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. Under CEQA, this potentially significant impact is considered significant.

6.5 Relationship Between Short-term Uses of the Environment and the Maintenance and Enhancement of Long-term Productivity

This project is consistent with the Regional Transportation Plan, which outlines the ultimate transportation plan for the region, including local road and highway improvements. This Plan was developed to accommodate current and proposed land uses and the associated projected traffic. Depending on the selected alternative, construction of the project would result in long-term environmental impacts such as:

- Removing large amounts of oak woodland
- Disturbing fisheries habitat
- Removing special-status plant species and special status wildlife habitat
- Disturbing wetlands and waters of the U.S.

Conversely, the project would result in two transportation systems (U.S. 101 and Willits' Main Street) operating more efficiently for their intended purposes. The long-term productivity of the project for Willits would include:

- Decreased congestion and improved safety within the downtown core.
- Ability for the city to implement its economic development plan downtown, which includes expanding its pedestrian and bicycle facilities.

The long-term productivity of the project for the region would include:

- Efficient inter-regional movement of goods, services and people would be enhanced with a bypass around Willits
- Mitigation for the bypass would contribute to the preservation on-site and off-site of some agricultural lands and of wetland habitat and sensitive plant communities, in perpetuity.

CHAPTER 7 Permits Required For This Project

Section 404 Individual Permit

An Individual Permit (Clean Water Act Section 404) will be required from ACOE for impacts on wetlands and waters of the U.S. ACOE issues the permit; however, USEPA has oversight and override authority over the permit. The NEPA/404 Integration Process that is associated with this permit is described in Appendices G and H.

National Pollutant Discharge Elimination System (NPDES) Permit

On behalf of USEPA, the SWRCB has issued a statewide general NPDES storm water permit to Caltrans for all construction activities having greater than two ha (five ac) of ground disturbance. The general permit will apply to the proposed project and Caltrans will file a Notice of Intent with SWRCB to comply with the statewide permit. 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.

Endangered Species Act (Incidental Take Permit)

FHWA and Caltrans currently are in informal consultation with USFWS and NMFS under Section 7 of the ESA. Following selection of a preferred alternative, after public circulation of the Draft EIR/EIS, FHWA and Caltrans will enter into formal consultation with USFWS and NMFS. At this time also, biological assessments on Northern spotted owl, coho salmon, Northern California steelhead, and California coastal chinook salmon will be prepared, which will identify impacts of the selected project alternative and proposed mitigation for each affected species. USFWS and NMFS have authority to issue opinions and permits that may affect federally listed species. Consultation will result in a Biological Opinion, which may include reasonable mitigation measures and may include an Incidental Take Statement if there is a No-Jeopardy opinion.

Section 401 Water Quality Certification

Projects that require a Section 404 permit from ACOE are also required to obtain a Section 401 Water Quality Certification or Waiver from the RWQCB.

Streambed Alteration Permit

Pursuant to Fish and Game Code Section 1601, a Streambed Alteration Permit will need to be obtained from the California Department of Fish and Game, for any of the build alternatives selected as the result of work that would occur within the natural flow or bed, channel or bank of streams in the project area.

National Emission Standards for Hazardous Air Pollutants

For alternatives that require acquisition of structures, an asbestos survey will be completed prior to demolition activities. Mendocino County AQMD permits (National Emission Standards for Hazardous Air Pollutants - NESHAP) are required for demolition.

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 the NESHAP permit. All RACM is abated by licensed asbestos contractors prior to demolition.

Surface Mining and Reclamation Act Permit

Any of the valley alternatives would require a SMARA permit before excavating embankment material at the designated borrow site. A permit application, an approved Reclamation Plan, and financial assurance would be submitted to the California Department of Conservation, which issues the permit.

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CHAPTER 10 Comments and Coordination

Since 1987, Caltrans has conducted considerable public outreach on this project. This chapter discusses coordination with the public and with federal, state, and local agencies. The NEPA/404 coordination effort is discussed in a separate section (Appendices G and H).

10.1 Responsible Agencies

Because of their jurisdiction by law, the following agencies will issue permits for the project:

- U.S. Army Corps of Engineers (ACOE)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)

In 1995, and again in 1999, each of the cooperating agencies and the trustee agency agreed on the Purpose and Need Statement, the modal choice, and the alternatives that are studied in this DEIR/EIS. Letters from these agencies documenting their participation in the environmental review process and their formal concurrence are located in Appendix G.

10.2 Trustee Agency

The California Department of Fish and Game (CDFG) is considered a Trustee Agency (CEQA Guidelines Sec. 15386), because it has jurisdiction by law over natural resources, that could be affected by the project, that are held in trust for the people of the State of California. CDFG has participated since the 1989 Scoping process and establishment of the Technical Advisory Groups in the review and development of this project.

10.3 Coordination with Agencies

Coordination with interested resource agencies is ongoing. These agencies have been involved in the development of the proposed project since 1989 when they became members of a Technical Advisory Group (discussed below) for the project. The resource agency representatives remained members on the Technical Advisory Group through the 1995 NEPA/404 concurrence meeting. When studies resumed in 1998 after a three-year hiatus due to funding shortages and resource redirection these agencies were invited to participate on the PDT. They have participated in PDT meetings, focused team meetings, field reviews, a second NEPA/404 concurrence meeting, and they have provided ongoing review and comment on technical studies for this project.

Since 1991, ACOE, USEPA, USFWS, and NMFS have been acting as cooperating agencies. These agencies approved the project's Purpose and Need Statement and modal choice, they participated in the selection of a range of alternatives and certain project design elements, and they agreed to the elimination of certain alternatives from further study. Letters from these agencies are located in Appendix G.

10.4 Notice of Preparation and Notice of Intent

A Notice of Intent (to prepare an EIS) was published in the Federal Register on December 7, 1989 and a Notice of Preparation (of an EIR) was submitted to the Office of Planning and Research (OPR) on December 15, 1989. A list of interested agencies, groups, and individuals to whom Caltrans and OPR sent a Notice of Preparation (NOP) is included in Appendix D.

The following agencies responded to the NOP and NOI. Their letters are included in Appendix E.

Agency	Date	Issues/Concerns
U.S. Dept of the Interior, Bureau of Mines	1/16/90	Possible impact to mineral properties that might exist in project area.
Mendocino County Museum	12/21/89	Highway markers that designate location of Museum.

Agency	Date	Issues/Concerns
California Department of Food and Agriculture	1/5/90	Requested discussion in DEIR/EIS of the following: farmland impact assessment; Williamson Act contract land; mitigation measures for ag land; cumulative and growth-inducing impacts to ag land. Suggested coordination with certain ag-related agencies.
Mendocino County Water Agency	1/8/90	Depletion of aggregate resource to build project and resulting impact to fisheries.
California Regional Water Quality Control Board, North Coast Region	1/16/90	Compliance with Water Quality Control Plan for North Coast Region, erosion control measures, response to hazardous material spills.
County of Mendocino Department of Planning and Building Services	1/16/90	Impacts to water and air quality, biological resources, traffic, inconsistencies with General Plan.
Sherwood Valley Band of Pomo Indians	1/16/90	Possible impacts of western alignment to the Sherwood Valley Rancheria.
California Department of Fish and Game	2/9/90	Wetlands, streams and creeks; animal crossings; scope and content of DEIR/EIS.
City of Willits	12/15/89	Supports a bypass.
USEPA	2/2/90	Water quality and riparian/wetland habitat.
USFWS	1/16/90	Streams and wetland areas, including riparian wetlands; fisheries and other wildlife; necessary studies; mitigation.

10.5 Public Outreach

A Willits Bypass Public Participation Plan, approved in August 1998, was prepared to guide the public participation process during the preparation of the Draft EIR/EIS and selection of a preferred alternative. The Plan is a guide for accomplishing the following objectives:

- Carry out the public participation requirements of CEQA and NEPA;
- Provide citizens with a role in the environmental and decision-making process;
- Communicate clearly the project's purpose and need;
- Instill confidence in the environmental review process;
- Allow all persons, regardless of their views, with an opportunity to express their opinions about the environmental/community effects of the bypass alternatives; and

- Allow individuals and interest groups to interact with public agencies to exchange information and ideas.

Public workshops on the proposed Willits bypass were held in Willits on April 6, 1988 and March 7, 1991 to discuss feasibility of constructing a four-lane bypass of the City and to solicit input from all interested parties. Public scoping meetings also took place in Willits December 15, 1987 and December 5, 1989. Attendance at the workshops has been good. For example, more than 360 people attended the March 1991 open house.

Six newsletters have been sent to Willits' residents from 1989 to the present: Fall 1989, Summer 1990, Summer 1991, Fall 1993, Fall 1999, Winter 1998/99, and Winter 2001. A copy of the latest newsletter is included in Appendix K. In addition to newsletters, Caltrans maintains a Willits Bypass website at http://www.dot.ca.gov/dist3/departments/planning/willits/willits.htm.

Since May 1991, Willits Bypass Project Development Team (PDT) meetings have been open to the interested public to attend. Caltrans and FHWA have been committed to notifying individuals and interested groups of scheduled PDT meetings, and to sending out meeting agenda information and minutes.

Since May 1992, Caltrans Project Management, Design, and Environmental representatives have regularly attended Willits City Council meetings to update the City Council and the Willits community on the Willits Bypass Project. Caltrans has also presented project updates to the Brooktrails Township Community Services District, the Mendocino County Panning Commission and the Mendocino County Board of Supervisors. Community member attendance and participation has been encouraged at all the meetings.

Early in the planning stages, Caltrans formed two technical advisory groups composed of representatives of special interest groups, state and Federal agencies, and local business. The TAGs represented regulatory and resource agencies, transportation-impacted agencies and business groups, citizen groups, and media representatives. Each TAG provided input and recommendations to the Project Development Team and TAG members, in turn, disseminated project information to the groups they represented. Following is a list of TAG participants:

Dan Matson, California Dept of Forestry and Fire Protection
Betsy and Jack Guggolz, Califorina Native Plant Society
Geri Hulse-Stephens, Califorina Native Plant Society
Albert Wellman, California Regional Water Quality Control Board
James Hamilton, California Trout
Wendy Squires, California Western Railroad
Assemblywoman Virginia Strom-Martin, State Assembly
(Field Representative Coleen Henderson)
Senator Wesley Chesbro, State Senate
(Field Representative Jennifer Puser)
Gordon Wagenet, 101 Redwood Incorporated
Gary Owen, Friends of the Valley
Christopher Johnson, Harwood Products
Kevin Erich, Howard Memorial Hospital
Larry Cox, Lousiana Pacific Corporation
David Bengston, Mendocino County Agricultural Commission
Tony Ortiz, Community Member
Phil Towle, Mendocino County Air Quality
Perry and Coleen Smith, Mendocino County Cattleman Association
Eugene Calvert, Mendocino County Department of Transportation
Helen Bartow, Mendocino County Farm Bureau
Mendocino County Historical Society
Kenneth Rich, Muir Mill Road Homeowners Association
Debbie Plias-Treadway, Native American Heritage Commission
North Coast Rail Authority
William Ray, Save All The Valley Eternally
Phil Shuster, Schuster's Transportation
Johanna Burkhardt, Sierra Club
Mason Cook, Willits Automotive
Lynn Kennelly, Willits Chamber of Commerce
Ellen and David Drell, Willits Environmental Center
Marsha Wilgis, Willits Farm Bureau
BG Hefflefinger, Willits News
Willits Revit-ED Committee
John Ford, Community Member
Ed & Erlyne Schmidbauer, Community Members

Willits Project Development Team

The current Willits Project Development Team is composed of the following members:

Caltrans Members:

Lena Ashley, Project Manager
Don Rushton, Design – Project Engineer
Andrew Brandt, Design Senior
Guy Luther, Transportation Planning
Ralph Martinelli, Traffic Safety
John Carson, Traffic Operations
Larry Brohman, Traffic Study/Transportation
Marsha Freese, Landscape Architect
Dennis Jagoda, Hydraulics
Rich Thompson, Construction
Dan Stiles, Construction*
Terry Davis, Maintenance
Steve Wiman, Structures
Cher Daniels, Environmental Senior
Nancy MacKenzie, Project Environmental Coordinator
Don Schmoldt, Project Biologist
Rich Weaver, Headquarters Environmental Management

External Members:

Bob Whitney, Brooktrails Township Community Services District
Michael Chapman, Brooktrails Township Community Services District*
Raymond Hall, Mendocino County Planning Director
Patti Campbell, Mendocino Coudny Board of Supervisors
Tom Lucier, Mendocino County Board of Supervisors*
Phil Dow, Mendocino Council of Governments
Supervisor Paul Kelley, North Coastal Counties Supervisory Association
Alan Falleri, Willits Planning Department
Bruce Burton, Willits City Council
Robin Phillips, Sherwood Valley Band of Pomo
Captain Kim King, California Highway Patrol
Sergeant Hersom, California Highway Patrol*
Carl Wilcox, California Dept. of Fish & Game*
Fred Botti, California Dept. of Fish & Game

Pete Straub, U.S. Army Corps of Enginees
Mike Monroe, U.S. Environmental Protection Agency
Randy Brown, U.S. Fish & Wildlife Service
Tom Daugherty, U.S. National Marine Fisheries Service

Alternate PDT Member

Appendix A Glossary and Index

ACRONYMS
AADT – Average Annual Daily Traffic
ASTs – Aboveground Storage Tanks
ACBM – Asbestos Containing Building Materials
ACC/MVM - Accidents per million vehicle miles
ACHP – Advisory Council on Historic Preservation
ACOE - United States Army Corps of Engineers
ADT - Average Daily Traffic
ARG – Agricultural Supply
BMP – Best Management Practice
CAAA – Federal Clean Air Act Amendments of 1990
CDFG – California Department of Fish and Game
CEQA – California Environmental Quality Act of 1970
CNDDB - California Natural Diversity Data Base
CNEL – Community Noise Equivalent Level
CNPS – California Native Plant Society
COD – Chemical Oxygen Demand
CTC – California Transportation Commission
CWA – Clean Water Act
dBA – Noise measurement
DRIR – Draft Relocation Impact Report
ESA – Environmentally Sensitive Area
FEMA - Federal Emergency Management Agency
FHWA - Federal Highway Administration
FIRM - Flood Insurance Rate Map
Ha – Hectare
HASR - Historic Architectural Survey Report
HOV - High Occupancy Vehicle
HPSR - Historic Property Survey Report
ISA – Initial Site Assessment
kph – Kilometers per hour
L_{dn} – Sound level, day and night
LEDPA – Least Environmentally Damaging Practicable Alternative.
$L_{eq}(h)$ – Sound level equivalent
LOS – Level of Service
m – meters
NEPA - National Environmental Policy Act, 1969
NMFS - National Marine Fisheries Service
NOD - Notice of Determination
NOI - Notice of Intent
NOP - Notice of Preparation
NRHP – National Register of Historic Places
NPDES - National Pollutant Discharge Elimination System
ROD - Record of Decision
RTP - Regional Transportation Plan

RWQCB - Regional Water Quality Control Board
SMARA – Surface Mining and Reclamation Act
SHPO - State Historic Preservation Officer
STIP - State Transportation Improvement Program
SWPPP - Storm Water Pollution Prevention Plan
TASAS - Traffic Accident Surveillance and Analysis System
TEA-21 - Transportation Equity Act for the 21st Century
TIP - Transportation Improvement Program
TSM - Transportation Systems Management
USEPA - United States Environmental Protection Agency
USFWS - United States Fish and Wildlife Service
USGS – United States Geological Survey
vph – vehicles per hour

DEFINITIONS
404 Permit – The Corps of Engineers requires this permit for all projects that involve dredging or filling of lakes, streams, tidelands, marshes, or low-lying areas behind dikes or levees, as well as for disposal of dredged materials to any waterway or ocean.
Aboveground Storage Tanks (ASTs) – These tanks typically contain motor vehicle fuel.
Agricultural Supply (ARG) – Includes crop, orchard, and pasture irrigation, stock watering support of vegetation for range grazing, and all uses in support of farming and ranching operations.
Anadromous – Migrating up rivers from the sea to breed in fresh water.
Asbestos Containing Building Materials (ACBM) – These are typically common building materials such as ceiling or floors tiles, mastics, wallboards or insulation manufactured prior to the 1970s.
Base Floodplain Elevation – The elevation shown on the Flood Insurance Rate Map for Zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30, and VE that indicates the water surface elevation resulting from a flood that has a one percent chance of equaling or exceeding that level in any given year.
Base Floodplain Development – To encourage, allow, serve, or otherwise facilitate additional development within the base floodplain, either directly or indirectly.
Basin Plan – A specific plan for control of water quality within one of the nine hydrologic basins of the State under the regulation of a Water Quality Control Board.
Beneficial Impact – A beneficial impact is one that would result in a positive contribution or improvement in environmental conditions. These types of impacts do not require mitigation measures.
Beneficial Use – A use of a natural water resource that enhances the social, economic, and environmental well-being of the user. Twenty-one beneficial uses are defined for the waters of California.

Best Management Practice (BMP) – Any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.
Bypass – An arterial highway that permits traffic to avoid all or part of a certain area such as an urban area or park.
California Native Plant Society (CNPS) – The CNPS produces an inventory of rare and endangered plants and vascular plants of California. The inventory includes five lists, which categorize the degree of concern for the plant, List 1A, 1B, 2, 3, and 4. Plants in List 1A, 1B and 2 are protected under Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 of the California Endangered Species Act and are eligible for State listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.
Caltrans – California Department of Transportation. Responsible, as owner/operator of the state highway system, for its safe operation and maintenance.
Chemical Oxygen Demand (COD) – A monitoring test that measures all the oxidizable matter found in a runoff sample, a portion of which could deplete dissolved oxygen in receiving waters.
Community Noise Equivalent Level (CNEL) – A noise level that takes into account all the noise energy measured in dBA from a source during 24 hours and adds 5 dBA to evening noise, and adds 10 dBA to night noise during the period.
Conventional Highway – A highway with no control of access (no control of access roads onto the highway) which may or may not be divided or have grade separations at intersections.
Cooperating Agency – Any federal agency other than the lead agency, which has jurisdiction by law or other expertise with respect to the environmental impacts expected to result from a proposed project. 40 CFR 150.5
Corridor – A strip of land between two termini within which traffic, topography, environment, and other characteristics are evaluated for transportation purposes.
Cumulative Effects – Effects that are the result of incremental impacts of an action, when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or nonfederal) or person undertakes such action. 40 CFR 1508.7.
Design Speed – A speed selected to establish specific minimum geometric design elements for a particular section of highway
Detention Basin – A basin, usually surrounded by a dike or levee, which holds stormwater runoff until the receiving waters are low enough for the contained water to be discharged.
Discharge – Instantaneous rate of flow expressed in terms of volume per unit time.
Draft EIR/EIS – Draft Environmental Impact Report (state), Environmental Impact Statement (federal)
Drainage Basin – The area in which all surface water will accumulate into one given stream.
Ecosystem – The total dynamic complex of a community of organisms and its controlling environment functioning as a unit.
Elevation(s) – All elevations are based on the National Geodetic Vertical Datum of 1929 (NGVD-29).

Encroachment, Floodplain – A floodplain encroachment is an action within the limits of the base floodplain. Any construction activity within a base floodplain constitutes an encroachment.
Endangered – Plant or animal species that are in danger of extinction throughout all or a significant portion of its range.
Environmentally Sensitive Area – Defines area to be avoided by project construction activities and by future facility maintenance activities.
Erosion – The wearing away of the land surface by running water, wind, ice, or other geological agents.
Expressway – An arterial highway with at least partial control of access, where limits are placed on number and types of intersecting streets, roads and driveways. An expressway may or may not be divided or have separations at intersections.
Feasibility (of noise abatement) – A minimum of 5 dBA noise reduction must be achieved at the impacted receivers in order for the proposed noise abatement measure to be considered *feasible*. The feasibility criterion is not necessarily a noise abatement design goal; greater noise reductions are encouraged if they can be achieved reasonably. Feasibility may be restricted by (1) topography; (2) access requirements for driveways, ramps, etc.; (3) the presence of local cross streets; (4) other noise sources in the area; and, (5) safety considerations.
Federal Register – A federal publication which provides official notice of federal administrative hearings and issuance of proposed and final federal administrative rules and regulations.
Fishery – A stream capable of supporting angling activities. Usually streams which show evidence of spawning and nursery grounds.
Flood Insurance Rate Map (FIRM) – The official map of the community on which FEMA has delineated both the special flood hazard areas and the risk premium zones applicable to the community.
Floodplain – Normally dry land areas subject to periodic temporary inundation by stream flow or tidal overflow. Land formed by deposition of sediment by water; alluvial land.
Floodway – The channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that a 100-year flood event can be carried without substantial increase in flood elevations. FEMA's minimum standards limit such increases in flood heights to 0.30 m (1.0 ft), provided hazardous velocities are not produced.
Freeway – A divided arterial highway with full control of access and with grade separations at intersecting roadways.
Fresh Water Replenishment (FRSH) – Provides a source of fresh water for replenishment of inland lakes and streams of varying salinity.
Grade Separation – Utilized when two roads intersect at different grades (vertical planes). Normally provided as part of an interchange; in lieu of an at-grade intersection.
Groundwater Recharge (GWR) - Includes natural or artificial recharge for future extraction for beneficial uses and to maintain salt balance or halt saltwater intrusion into freshwater aquifers.
Habitat - The place or type of site where a plant or animal naturally or normally lives

and grows.
Heavy Metals – These are metals such as lead and copper that are typically found as contaminants resulting from motor vehicle fluid (such as used motor oil) discharge.
Hectare (Ha) – A measure of area in the metric system similar to an acre. One hectare is equal to 10,000 square meters and 2.4711 acres.
High Occupancy Vehicle (HOV) – Refers to carpooling.
Hummocky – A rounded or conical knoll, mound, or hillock or other small elevation; a slight rise of ground above a level surface.
Hydric Soil – Inundated or saturated soil conditions resulting from permanent or periodic inundation by groundwater or surface water.
Initial Site Assessment (ISA) – This is a Caltrans term for a study that determines hazardous waste issues on a project.
Intermittent Stream – A stream, which flows only during part of the year, usually during wet weather.
L_{dn} – "Sound level, day and night" averages total acoustical energy over a 24-hour period. In addition, a 10 dBA "penalty" is added to L_{dn}, to take into consideration nighttime sleeping hours and this is factored into the 24-hour average.
Lead Agency – The agency or agencies preparing or having taken primary responsibility for preparing the environmental impact statement/report. 40 CFR 1508.16
Least Environmentally Damaging Practicable Alternative (LEDPA) – The Section 404(b)(1) Alternative Analysis is a specific evaluation to determine the LEDPA to waters of the U.S., including wetland, while meeting the project's purpose. A Section 404 Permit can only be issued for the LEDPA.
Less-than-Significant Impact - Under CEQA, a less-than-significant impact is one that would not result in a substantial detrimental change in the environment. This impact if below the threshold of significance, and therefore, does not require mitigation (see Threshold).
$L_{eq}(h)$ – "Sound level equivalent" averages the total acoustical energy over one hour. For example, the 50 dBA of a quiet residential area next to an airport and the 105 dBA of an aircraft taking off would be averaged over a one-hour period, so that the L_{eq} measurement would lie somewhere between 50 dBA and 105 dBA.
Level of Service (LOS) - a measurement of the capacity of the roadway.
Median - The portion of a divided highway separating the traveled ways for traffic in opposite directions.
Metric System – A decimal system of weights and measures in which the gram, the meter, and the liter are the basic units of weight, length, and volume, respectively. Names for the most common other units are formed by the addition of the following prefixes to these three terms: deca-, hecto-, kilo- (ten, hundred, thousand) and deci-, centi-, milli-, (tenth, hundredth, thousandth). This system is an internationally accepted system of weights and measures. Starting in 1994, Caltrans began the several year process of converting to the use of SI (the International System of Units) as metric is sometimes called.

Mitigation Measures - A change in a project designed to avoid, minimize, rectify, reduce, or compensate for an environmental impact. 40 CFR 1508.20. If impacts cannot be avoided, the next steps are to minimize, eliminate, or compensate for these effects. These actions, steps, procedures, or conditions (mitigation measures) may involve rectifying an impact by repairing, rehabilitating, or restoring the affected environment.
Municipal and Domestic Supply – Includes usual uses in community or military water systems and domestic uses from individual water supply systems.
National Pollutant Discharge Elimination System (NPDES) Construction Permit - A permit regulated by the Regional Water Quality Control Board required if more than 2 ha (5 ac) of original ground is graded. One condition of this permit is that the contractor submit a Storm Water Pollution Prevention Plan (SWPPP), which is similar to the Water Pollution Control Plan required by Caltrans Standard Specification 7-1.01G.
NEPA/404 Integration Process – The NEPA – Section 404 integration process is a Memorandum of Understanding (MOU) committed to integrating NEPA and section 404 of the Clean Water Act in the transportation planning, programming, and implementation stages. It is committed to ensuring the earliest possible consideration of environmental concerns pertaining to waters of the U.S., including wetlands, at each of these three stages. A high priority is placed on the avoidance of impacts to waters of the U.S. and associated sensitive species, including threatened and endangered species. Whenever avoidance of waters of the U.S. is not practicable, minimization of impacts will be achieved, and unavoidable impacts will be mitigated to the extent reasonable and practicable
Nodal Analysis – Nodal approach allows a segment of one alternative to be combined with a segment of another alternative so a new or "hybrid alternative" is created.
Nonpoint Source - A dispersed source of pollution that is not identifiable as to a specific location.
Notice of Determination (NOD) -- Part of the CEQA process. It indicates that a project has been approved subject to the requirements of CEQA. CEQA Guidelines Sec. 15094.
Notice of Intent (NOI) -- Part of the NEPA process. A notice placed in the Federal Register to advise the public that an environmental impact statement will be prepared for a project. 40 CFR 1508.22.
Notice of Preparation (NOP) -- Part of the CEQA process. Notice of intent to prepare an environmental impact report on a project. CEQA Guidelines Sec. 15082(a).
Perennial Stream - A stream with continuous year-round flow.
pH – A measure of acidity or alkalinity.
PM_{10} - Particulate matter less than 10 microns in diameter, small enough to enter human lungs during respiration.
Point Source - A source of pollution that is emitted at a singular location.
Polychlorinated biphenyls (PCBs) – Fire-resistant organic fluids used in making plastics and as insulation in heavy-duty electrical equipment.
Postmile (PM) - A method of identifying a location on the State Highway System using miles. When combined with the county and route, identifies unique locations along any State Route in terms of miles.

Potentially Significant Impact - Under CEQA, a potentially significant impact is one that, if it were to occur, would be considered a significant impact; however, the occurrence of the impact cannot be immediately determined. A potentially significant impact is treated (i.e., mitigated) as if it were a significant impact. (Refer to definitions for Significant Impact and Threshold of Significance, below.)
Practicable – Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Project Report - Report providing preprogramming project information. The PSR describes the project, its scope and limits, costs and delivery schedule.
PS&E - Plans, Specifications and Estimates are construction documents.
Reasonableness (of noise abatement) -- The determination of *reasonableness* of noise abatement is more subjective than the determination of its feasibility. It implies that common sense and good judgment have been applied in arriving at a decision. Noise abatement is only considered where noise impacts are predicted and where frequent human use occurs and a lowered noise level would be of benefit. Primary consideration is given to exterior areas. The overall reasonableness of noise abatement is determined by considering a multitude of factors.
Record of Decision (ROD) – A public document that reflects the agency's final decision, rationale behind that decision, and commitments to monitoring and mitigation. 40 CFR 1505.2
Regulatory agency - An agency which has jurisdiction by law.
Relinquishment – Section 73 of the Streets and Highways (S&H) Code requires that the "highway" must be placed in a "state of good repair" prior to relinquishment of routes superseded by relocation. Section 73 also specifies that Caltrans is not obligated for widening new construction, or for major reconstruction, unless specifically directed by the CTC.
Responsible Agency – Under CEQA, the term "responsible agency" includes all public agencies, other than the lead agency, which have discretionary approval power over the project. CEQA Guidelines, Sec. 15381.
Retention Basin - A basin that holds stormwater runoff without release except by means of evaporation, infiltration or emergency bypass.
Right-of-way (ROW) - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.
Riparian - Pertaining to the banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, estuaries, and surface-emergent aquifers (springs, seeps, oases) whose transported freshwater provides soil moisture sufficient in excess of that otherwise available through local precipitation to potentially support the growth of mesic vegetation.
Route Concept - Most likely facility on the route given present and future financial, planning and engineering factors.
Runoff - The storm water which is not absorbed into the ground.
Scoping - An activity of the lead agency in the environmental review process that ensures the inclusion of: (1) all significant issues; and (2) maximum participation for the development of the EIS/EIR.

Sensitive Species - Plant or animal species which are (1) Federal listed or proposed threatened or endangered species, or candidate species; (2) bird species protected under the Migratory Bird Treaty Act; (3) species protected under State endangered species laws and regulations, plant protection laws and regulations, Fish and Game codes, or species of special concern listings and policies, or (4) species recognized by national, state, or local environmental organizations (e.g., the California Native Plant Society).
Significant Impact –A significant impact is one that will result in a detrimental change in any of the physical or socioeconomic conditions affected by the project. Under CEQA, an impact is significant if it exceeds the threshold criteria for a particular resource (see Threshold) (CEQA Guidelines Sec. 15358). Under NEPA, the significance of an impact is determined by considering the context in which it will occur and the severity of the impact (40 CFR 1508.2).
Soffit – The low point on the underside of a bridge span or the uppermost point on the inside of a drainage structure (culvert).
Statewide Gateway - Major points of entry into California, including interstate routes, international routes, seaports, international airports, and intermodal transportation facilities.
Suspended Solids - The filterable fraction of the total solid present in water.
TEA-21 - The Transportation Equity Act for the 21st Century was enacted June 9, 1998 as public Law 105-178. TEA-21 authorizes Federal surface transportation programs for highways, highway safety, and transit for the 6-year period 1998-2003.
Threatened - Although not presently threatened with extinction, it is likely to become an endangered species in the foreseeable future in the absence of special protection.
Threshold of Significance – Under CEQA, a threshold is a criterion used to define the level at which an impact would be considered to be significant. Exceedance or non-compliance with a threshold is normally considered to be a significant impact. Compliance would normally be considered a less than significant impact. Thresholds usually are based on standards found in existing laws or regulations (for example noise control ordinances); however, in some instances they are based on scientific opinion and/or factual data. CEQA Guidelines Section 15064.7
Topology – The history of a region as indicated by its topography.
Total Dissolved Solids - The non-filterable fraction of the total solid present in water.
Transhumance – Seasonal movement of people from one ecological zone to another, organized around the migration of game and the seasonality of edible plants; the seasonal movement of livestock between upland and lowland pastures.
Truncated Valley Alternatives – Truncated valley alternatives are modifications of the original versions of Alternatives J1, L and C1.
Trustee Agency – A state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. CEQA Guidelines Sec. 15386.
Turbidity – Clouded with suspended sediment, for example, in a stream, river or lake. The measure of the resistance of water to the passage of light through it (Babbitt, Donald, p. 384).
Underground Storage Tanks (USTs) – These tanks typically contain motor vehicle fuel and are placed approximately three feet below the ground surface.

Undocumented Tanks – These can be above or below ground tanks that are not properly permitted. Typically no records for ownership, use, or integrity tests can be found.
Urban - An area is considered urban if it has a population of 5,000 or more for Federal-Aid purposes.
Viaduct - A long, high bridge that carries a railway or a road over a valley or other similar area at a low level.
Volatile Organic Compounds (VOCs) – These are organic compounds that are typically found in solvents used for degreasing.
Waters of the United States - As defined by the ACOE in 33 CFR §328.3(a): 1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; 2. All interstate waters including interstate wetlands; 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purposes by industries in interstate commerce; 4. All impoundment of waters otherwise defined as waters of the United States under this definition; 5. Tributaries of waters identified in paragraphs (1)-(4); 6. The territorial seas; 7. Wetlands adjacent to waters (waters that are not wetlands themselves) identified in paragraphs (1)-(6).
Watershed – The drainage basin contributing water, organic matter, dissolved nutrients, and sediments to a stream, estuary, or lake.
Wetlands – Those 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. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR §328.3 (b)).

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Appendix C Biological Resources Mitigation Measures

All mitigation measures listed in Section 5.7 Biological Resources are repeated here with a matrix showing the mitigation measures required for each impacted biological resource by alternative. The matrix is included on every other page for ease of use.

Appendix C. Summary of Biological Resources Mitigation Measures

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.

SUMMARY OF BIOLOGY MITIGATION MEASURES					
	Build Alternatives				
	C1T	E3	J1T	LT	Designated Borrow Site
Sensitive plant communities	1-6,8,9,13	1-6,8,10,13	1-6,8,9,13	1-6,8,9,13	NA
Special status plants	1-6,11	1-6,12	1-6,11	1-6,11	NA
Waters of the U.S.	1-6,13	1-6,13	1-6,13	1-6,13	NA
Special status wildlife	1-6,9,14	1-6,9,13,15,17	1-6,8,9,19	1-6,9,20	15-17
Other wildlife	8,9,13,21	8,9,13,21	8,9,13,21	8,9,13,21	15
Special status fish	1-7,9,22	1-7,9,22	1-7,9,22	1-7,9,22	22
Invasive plant species	23	23	23	23	23

NA – The designated borrow site does not require biological mitigation measures for this impact area.

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.) 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 are being investigated. 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).

These sites are being considered and conceptually evaluated and will be explored more fully once the final mitigation requirements have been determined. A final mitigation plan will be adopted before the Final EIR/EIS is distributed. Mitigation for wetland impacts will occur in the valley to the extent feasible. A combination of preservation, creation, and enhancement will be pursued 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.

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

SUMMARY OF BIOLOGY MITIGATION MEASURES					
	Build Alternatives				
	C1T	E3	J1T	LT	Designated Borrow Site
Sensitive plant communities	1-6,8,9,13	1-6,8,10,13	1-6,8,9,13	1-6,8,9,13	NA
Special status plants	1-6,11	1-6,12	1-6,11	1-6,11	NA
Waters of the U.S.	1-6,13	1-6,13	1-6,13	1-6,13	NA
Special status wildlife	1-6,9,14	1-6,9,13,15,17	1-6,8,9,19	1-6,9,20	15-17
Other wildlife	8,9,13,21	8,9,13,21	8,9,13,21	8,9,13,21	15
Special status fish	1-7,9,22	1-7,9,22	1-7,9,22	1-7,9,22	22
Invasive plant species	23	23	23	23	23

NA – The designated borrow site does not require biological mitigation measures for this impact area.

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

SUMMARY OF BIOLOGY MITIGATION MEASURES					
	Build Alternatives				
	C1T	E3	J1T	LT	Designated Borrow Site
Sensitive plant communities	1-6,8,9,13	1-6,8,10,13	1-6,8,9,13	1-6,8,9,13	NA
Special status plants	1-6,11	1-6,12	1-6,11	1-6,11	NA
Waters of the U.S.	1-6,13	1-6,13	1-6,13	1-6,13	NA
Special status wildlife	1-6,9,14	1-6,9,13,15,17	1-6,8,9,19	1-6,9,20	15-17
Other wildlife	8,9,13,21	8,9,13,21	8,9,13,21	8,9,13,21	15
Special status fish	1-7,9,22	1-7,9,22	1-7,9,22	1-7,9,22	22
Invasive plant species	23	23	23	23	23

NA – The designated borrow site does not require biological mitigation measures for this impact area.

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.

SUMMARY OF BIOLOGY MITIGATION MEASURES					
	Build Alternatives				
	C1T	E3	J1T	LT	Designated Borrow Site
Sensitive plant communities	1-6,8,9,13	1-6,8,10,13	1-6,8,9,13	1-6,8,9,13	NA
Special status plants	1-6,11	1-6,12	1-6,11	1-6,11	NA
Waters of the U.S.	1-6,13	1-6,13	1-6,13	1-6,13	NA
Special status wildlife	1-6,9,14	1-6,9,13,15,17	1-6,8,9,19	1-6,9,20	15-17
Other wildlife	8,9,13,21	8,9,13,21	8,9,13,21	8,9,13,21	15
Special status fish	1-7,9,22	1-7,9,22	1-7,9,22	1-7,9,22	22
Invasive plant species	23	23	23	23	23

NA – The designated borrow site does not require biological mitigation measures for this impact area.

BIO-20: If 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 shall implement the following measures to minimize disturbances of aquatic resources:

- All construction-related materials shall be stored in designated staging areas at least 100 feet from perennial waterways and drainages.
- Refueling and vehicle maintenance shall be performed at least 100 feet from creeks and other water bodies.

- Operation of heavy equipment shall be minimized in perennial creeks (to the greatest extent possible).
- 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.
- 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, the project will include the following protection measures to comply with Executive Order (EO) 13112:

- Prior to construction, surveys will be conducted in the construction corridor (NEPA 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.
- Disposal of soil and plant materials from any areas that supports invasive species will not be allowed 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 was 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.

SUMMARY OF BIOLOGY MITIGATION MEASURES					
	Build Alternatives				
	C1T	E3	J1T	LT	Designated Borrow Site
Sensitive plant communities	1-6,8,9,13	1-6,8,10,13	1-6,8,9,13	1-6,8,9,13	NA
Special status plants	1-6,11	1-6,12	1-6,11	1-6,11	NA
Waters of the U.S.	1-6,13	1-6,13	1-6,13	1-6,13	NA
Special status wildlife	1-6,9,14	1-6,9,13,15,17	1-6,8,9,19	1-6,9,20	15-17
Other wildlife	8,9,13,21	8,9,13,21	8,9,13,21	8,9,13,21	15
Special status fish	1-7,9,22	1-7,9,22	1-7,9,22	1-7,9,22	22
Invasive plant species	23	23	23	23	23

NA – The designated borrow site does not require biological mitigation measures for this impact area.

- 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.

Appendix D Notice of Preparation Distribution List

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 1, P.O. BOX 3700
EUREKA, CA 95502-3700
TDD PHONE 707/445-6463
(707) 445-6416

December 15, 1989

1-Men-101-43.5/51.3
01101 262000
Const. 4-Lane
Freeway

On December 15, 1989 the groups and individuals on the attached list received a Notice of Preparation, environmental checklist and discussion of potential impacts.

Attachment

TAA:bsb

Aerospace Indus. 60-24 Tasktr.
Lockheed Aircraft Corporation
P. O. Box 551
Burbank, CA 91503
13
5

Aerospace Indus. 60-24 Tasktr.
Northrop Aerospace
3901 West Broadway
Hawthorne, CA 90250
13
5

Aerospace Indus. 60-24 TaskFr.
Rohr Corporation
P. O. Box 878
Chula Vista, CA 92012
13
5

Area Director, Sac. Area
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, CA 95825
13
4

Assit. Vice President
Budget, Analysis, & Planning
247 University Hall
Berkeley, CA 94720
13
5

Budget, Analysis, and Plan.
University of California
247 University Hall
Berkeley, CA 94720
13
4

Business Manager
Oper. Eng. Local #3
474 Valencia Street
San Francisco, CA 94103
13
4

Calif. Inst. of Public Trans.
42 Camino Enginas
Orinda, CA 94563
13

California Highway Patrol
Commander
540 Orchard Ave.
Ukiah, CA 95482
13
4

California Research
Suite 300
1024 10th Street
Sacramento, CA 95814
13
5

California West. Rail.
Foot of Laurel

Chamber of Commerce
15 South Main

4
8

Chief, Airports Branch
Fed. Aviation Admin.
831 Mitten Road
Burlingame, CA 94010
13
4

Chief, Envir. Impact Asses.
U.S. Geo. Survey; MS-104
Reston, VA 22092
13

Chief, West. Field Oper. Cen.
Bureau of Mines
East 315 Montgomery
Spokane, WA 99207
13

Dept. of Forestry
17501 North Highway 101
Willits, CA 95490
123
4
8

Dept. of Parks & Rec.
Office of Hist. Preserv.
P. O. Box 94296
Sacramento, CA 94296-0001
13
4

4
8

Chief, Bur. of School Fac.
Dept. of Education
721 Capitol Mall
Sacramento, CA 95814
13
5

Chief, Office of Fac.
Dept. of General Services
1015 L Street
Sacramento, CA 95814
13
5

Commander
12th Coast Guard District
Government Island
Alameda, CA 94501
13

Dept. of Health & Human Serv.
Special Programs Group
Cen. for Env. Health
Atlanta, GA 30333
13
4

Dir., Office of Ecol. & Con.
U.S. Dept. of Commer., Rm 6800
Nat. Ocean. & Atmos. Admin.
Washington, DC 20230
13
4

Director
Dept. of Boating & Waterways
1416 Ninth St., Rm. 1336
Sacramento, CA 95814
13
5

Director
Dept. of Food & Agric.
1220 N Street
Sacramento, CA 95814
13
5

Director
Dept. of Health Services
744 P Street
Sacramento, CA 95814
13
5

Director
Dept. of Water Resources
1416 Ninth St.
Sacramento, CA 95814
13
5

Director
Dept. of Health Services
744 P Street
Sacramento, CA 95814
13
4

Envi. Clearance Dfficer
Dept. of HUD
P. O. Box 36003
San Francisco, CA 94102
13
4

Executive Director
Energy Commission
1516 Ninth Street
Sacramento, CA 95814
13
4

Executive Director
Public Utilities Comm.
350 McAllister Street
San Francisco, CA 94102
13
4

Executive Sec.
Calif. Natural Areas
1505 Sobre Vista Way
Sonoma, CA 95476
13

Greyhound Lines, Inc.
Greyhound Tower
Phoenix, AZ 85077
13
4
8

Honorable Alan Cranston
United States Senator
[illegible]

Honorable Alan Cranston
United States Senator
1700 Market Street #818

13
45

13
45

Honorable Barry Keene
Member of the Senate
317 3rd Street, Suite 6
Eureka, CA 95501
13
45

Honorable Barry Keene
Member of the Senate
State Capitol, Room 313
Sacramento, CA 95814
13
45

Honorable Barry Keene
Member of the Senate
631 Tennessee Street
Vallejo, CA 94590
13
45

Honorable Dan Hauser
Member of the Assembly
216 W. Perkins, Suite 104
Ukiah, CA 95482
13
45

Honorable Dan Hauser
Member of the Assembly
State Capitol, Room 4135
Sacramento, CA 95814
13
45

Honorable Dan Hauser
Member of the Assembly
510 "O" Street, Suite 6
Eureka, CA 95501
13
45

Honorable Douglas H. Bosco
Represent. in Congress
777 Sonoma Ave., #329
Santa Rosa, CA 95404
13
45

Honorable Douglas H. Bosco
Represent. in Congress
The Eureka Inn, 7th & F
Eureka, CA 95501
13
45

Honorable Pete Wilson
United States Senator
613 Dirksen
Washington, DC 20510
13
45

Honorable Pete Wilson
United States Senator
2040 Ferry Bldg.
San Francisco, CA 94111
13
45

Lillian Brown
c/o Willits News
P. O. Box 628
Willits, CA 95490
13
4

Linda Bailey
Men. Co. Water Agency
Courthouse
Ukiah, CA 95482
13
4

Local Agency Form. Comm.
Courthouse
Ukiah, CA 95482
13
4

Manager, Dist. & Traffic
D/151,CB01 Space Div.
12214 Lakewood Boulevard
Downey, CA 90241
13
5

Manager, Transportation
Douglas Aircraft Company
3855 Lakewood Boulevard
Long Beach, CA 90801
13
5

Men. Co. Bd. of Realtors
406 North School
Ukiah, CA 95482
13
4

Men. County Hist. Soc.
603 West Perkins
Ukiah, CA 95482
13
4
9

Mendocino County Museum
400 E. Commercial Street
Willits, CA 95490
13
4

Mr. Mike Knight
Sherwood Valley Rancheria
1737 South State Street
Ukiah, CA 95482
13
7

Mr. Steven W. Rugg
Rugg's Planning Services
P. O. Box 739
Redwood Valley, CA 95470
13

Mrs. Marge Young
88 W. Oak Street
Willits, CA 95490

Ms. Judy Armstrong
P. O. Box 804
Willits, CA 95490

Ms. Lynn Lozier
The Nature Conservancy
785 Market Street, 3rd Floor
San Francisco, CA 94103
13
4

Ms. Pat Deltrami
c/o Beverly Sanders Realty
413 Talmage Rd.
Ukiah, CA 95482
13

Ms. Priscilla Hunter, Comm.
Native American Heritage Comm.
P. O. Box 39
Redwood Valley, CA 95470
13
4

Museum of Vertebrate Zoology
2593 Life Sciences Building
Berkeley, CA 94720
13
4

Museum of Vertebrate Zoology
2593 Life Sciences Building
Berkeley, CA 94720
13

National Audubon Society
Peregrine Chapter
P. O. Box 311
Ukiah, CA 95482
13
4

National Park Service
P. O. Box 36063
450 Golden Gate Avenue
San Francisco, CA 94102
13
4

Northwestern Pac. Rail. Co.
One Market Plaza
San Francisco, CA 94105
13
5
8

Office of Envir. Compliance
U. S. Dept. of Energy
1000 Independ. Av SW RM 4G-064
Washington, DC 20585
13
5

Office of Envir. Proj. Review
U. S. Dept. of Interior
18th & "C" Streets, NW
Washington, DC 20240
13
4

Paul Clark, Proj. Engin.
Ultramar
525 West 3rd Street
Hartford, CA 93230
13
5

Reg. Administrator
Dept. of HUD
450 Golden Gate Avenue
San Francisco, CA 94102
13

Reg. Director
Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825
13

Reg. Director
National Park Service
P. O. Box 36063
San Francisco, CA 94102
13

Reg. Director
U.S. Dept. of Health & Ed.
50 Fulton Street
San Francisco, CA 94102
13

Regional Director
Bureau of Reclamation
P. O. BOx 427
Boulder City, NV 89005
13

Regional Director
Fed. Emer. Mang. Agency
Region 9, Bldg. 105
Presidio, CA 94129
13
4

Regional Forester
U. S. Forest Service
630 Sansome Street
San Francisco, CA 94111
13

Sierra Club
6014 College Avenue
Oakland, CA 94618
13
4
9

Sonoma State Univ.
School of Environmental
Studies and Planning
Rohnert Park, CA 94928
13

State Cemetery Board
Suite 88
1470 Howe Avenue

U. S. Dept. of Interior
Spec. Assit. to the Sec.
450 Golden Gate Avenue

U.S. Fish & Wild. Serv.
2800 Cottage Way, Room 1803
Sacramento, CA 95825
13
4
7

Vice Chancellor
Phys. Plan. & Develop.
400 Golden Shore Blvd.
Long Beach, CA 90802
13
4

Appendix E Responses to NOP/NOI

United States Department of the Interior

BUREAU OF MINES

WESTERN FIELD OPERATIONS CENTER
EAST 360 3RD AVENUE
SPOKANE, WASHINGTON 99202-1413

TAKE PRIDE IN AMERICA

January 16, 1990

Ms. Deborah L. Harmon, Chief
Environmental Planning Branch
California Department of Transportation
P.O. Box 3700
Eureka, California 95502-3700

Dear Ms. Harmon:

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT/STATEMENT FOR WILLITS BYPASS, ROUTE 101, MENDOCINO COUNTY (References: Division 13, Public Resources Code, Section 21080.4 (State); 40 C.F.R. 1501.7 and 1508.22 (Federal))

The checklist used to identify factors which might be impacted by the proposed project did not include natural mineral resources. In a previous letter dated December 4, 1989 (copy enclosed), we indicated mineral properties may be located in the project area. As part of the study, we suggest an assessment be made of possible negative impacts on the development and continued utilization of these resources.

Thank you for the opportunity to comment on this project.

Sincerely,

C. Thomas Hillman

C. Thomas Hillman, Supervisor
Mineral Investigation

Enclosure

United States Department of the Interior

BUREAU OF MINES

WESTERN FIELD OPERATIONS CENTER
EAST 360 3RD AVENUE
SPOKANE, WASHINGTON 99202-1413

TAKE PRIDE IN AMERICA

December 4, 1989

CALTRANS
Environmental Planning Branch
ATTENTION: Willits Freeway
P.O. Box 3700
Eureka, California 95502

Gentlemen:

SUBJECT: ROUTE 101, WILLITS BYPASS, MENDOCINO COUNTY, CALIFORNIA

The Bureau of Mines Mineral Industry Location System (MILS) database shows two mineral properties in T. 18 N., R. 13 W.

1. Southard Ranch - a manganese prospect in section 20.

2. Willits Ready Mix - a sand and gravel producer in the SW1/4 of section 17

Detailed information on these properties is not readily available. As part of the freeway study, an assessment should be made of possible negative impacts on the development and continued utilization of these resources.

Thank you for the opportunity to comment on this proposed project.

Sincerely,

C. Thomas Hillman

C. Thomas Hillman, Supervisor
Mineral Investigation

DANIEL TAYLOR
Museum Director

DOT BROVARNEY
Museum Curator

BOBBIE YOKUM
Museum Clerk

COUNTY OF MENDOCINO
MENDOCINO COUNTY MUSEUM
400 E. Commercial Street
Willits, CA 95490
(707) 459-2736

21 December 1989

Deborah L. Harmon
Chief, Environmental Planning Branch
Department of Transportation
District 1
PO Box 3700
Eureka, CA 95502-3700

Dear Ms. Harmon:

Thank you for the information regarding the environmental review process for the proposed Willits Bypass of the City of Willits in Mendocino County on Route 101.

At this time, I would like to recommend that during the design phase of the project CALTRANS consider approving highway markers that designate the location of the Museum. As a department of local County government, the Mendocino County Museum functions as a cultural and educational facility providing service to both residents of and visitors to Mendocino County.

Please keep me informed as to the design process and the appropriate time when a formal request for this marker can be made by the County of Mendocino.

Sincerely,

Dan Taylor

Dan Taylor
Director

by

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF FOOD AND AGRICULTURE
1220 N Street
Sacramento, CA 95814

January 5, 1990

Deborah Harmon
Department of Transportation
District 1, P.O. Box 3700
Eureka, California 95502-3700

Dear Ms. Harmon,

Thank you for the opportunity to comment on the forthcoming Draft Environmental Impact Report (DEIR) for a proposed freeway project on new alignment in Mendocino County.

The California Department of Food and Agriculture (CDFA) would appreciate a discussion of the following issues in the DEIR.

1. A complete description of the planning area. This should include current and planned land use designations, the number of acres in agricultural production, soil classifications, cropping history, number of acres of prime farmland, and economic benefit from land in present use.

2. Whether any land under a Williamson Act contract or in an Agricultural preserve is part of, or near to the planning area. How development will affect these designations?

3. The possible mitigation measures to ensure that agricultural land is not prematurely or unnecessarily converted to non-agricultural uses. Will the freeway create agricultural parcels too small to support commercial agricultural operations?

4. The pressure this project could create to convert surrounding agricultural land to urban uses. Can the project be considered precedent setting?

5. What is the cumulative impact of this and other projects in the region?

The lead agency should also solicit comments from concerned local agencies such as the agricultural commissioner's office, the USDA Soil Conservation Service office, and the county Farm Bureau Federation office, since the above issues are not necessarily comprehensive.

The CDFA supports the right of local agencies to develop and implement land-use policy in its area of influence, but also wants to assure that agricultural land is not prematurely and irreversibly lost due to development which is not accurately

assessed for environmental impact.

Sincerely,

Donna McIntosh

Donna McIntosh
Graduate Student Assistant
Agricultural Resources Branch
(916) 322-5227

cc: Office of Planning and Research
Mendocino County Agricultural Commissioner
California Association of Resource Conservation Districts

MENDOCINO COUNTY WATER AGENCY
COURTHOUSE
UKIAH, CALIFORNIA 95482
(707) 463-4589

January 8, 1990

Deborah Harmon
Department of Transportation
District 1
P.O. Box 3700
Eureka, CA 95502-3700

Dear Ms. Harmon;

The staff of the Mendocino County Water Agency would like to offer the following comments in regard to the proposed Willits bypass.

Items 6 and 7 of the Environmental Significance Checklist indicate that there would be no significant increase in the rate of use or depletion of a nonrenewable resource, respectively. We disagree with that assessment.

Large amounts of gravel and sand are required to build freeways. Construction of a Willits bypass will significantly increase the rate of use of gravel and sand in the Willits area.

Gravel has become a scarce resource in the Willits-Ukiah area. Historically, aggregate for road construction has been removed from creekbeds. The Russian River and its tributaries has been seriously depleted of its gravel. In particular, Forsythe Creek has been changed from a gravel bed stream to a clay bed stream.

Tomki Creek, to the east of Willits, is a prime salmon and steelhead spawning area. This watershed has received extensive treatment to stabilize its bed. The Soil Conservation Service (SCS) and California Department of Fish and Game have both invested large sums of money in the process. One use permit to extract gravel has already been granted on Tomki Creek. This permit allows the removal of 15,000 cubic yards of material per year. This is the volume of material that is transported through the reach by SCS estimates. Therefore, we feel that no additional material be removed from Tomki Creek.

Outlet Creek, to the north of Willits, is already being harvested at a substantial rate. It might be expected that by the time the Willits bypass is ready for construction no additional gravel will be available from Outlet Creek.

will not be able to meet the needs of the Willits bypass project in addition to the normal aggregate demand.

We believe that it is appropriate to identify potential sources of aggregate for the bypass and include the effects of the gravel extraction operations on the identified sites.

The staff of MCWA also disagrees with Mandatory Finding of Significance 55. The procurement of gravel from stream channels can produce significant cumulative effects. The deteriorated condition of Forsythe Creek and the Russian River demonstrate this potential.

If you have any questions about this matter please contact Dennis Jackson at (707) 463-4589.

Sincerely,

Dennis Jackson

Dennis Jackson
Hydrologist

cc: Alan Falleri, Planning and Building Services
Weldon Jones, California Department of Fish and Game
Tom Schott, Soil Conservation Service

E OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

ALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
NORTH COAST REGION
1440 GUERNEVILLE ROAD
TA ROSA, CA 95403
576-2220

January 16, 1990

Ms. Deborah L. Harmon, Chief
Environmental Planning Branch
California Department of Transportation
District 1, P.O. Box 3700
Eureka, CA 95502-3700

Dear Ms. Harmon:

Subject: Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for Willits Bypass Project

We have received and reviewed the NOP and additional information describing the proposed Willits Bypass Project in Mendocino County. After review of the project description, we have the following comments regarding preparation of an EIR and water quality impacts:

1. We will require a Report of Waste Discharge (ROWD) for the Bypass project. After review of the ROWD, which should include the final EIR, we will issue Waste Discharge Requirements (WDR) or waive WDR with conditions;

2. The EIR should contain sufficient information to demonstrate that the Bypass project will comply with the Water Quality Control Plan for the North Coast Region. Specifically, the environmental document must include demonstration of compliance with the following waste discharge prohibitions regarding construction activities:

   a. The discharge of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

   b. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin which would be deleterious to fish, wildlife, or other beneficial uses is prohibited.

   The prohibitions against discharge are applicable to any construction work and erosion control facilities proposed at this project. The prohibitions should be understood as guidance in the preparation of project specifications and contract provisions.

3. Each alignment alternative will include disturbance of readily erodible soils and instream work which may impact water quality. The EIR should recognize this problem and indicate specific measures for controlling discharges of soil and silt to surface waters. Extraordinary soil, slope, creek crossings, and/or wetland features may require extraordinary erosion control and water quality protective measures;

4. Experience gained by CALTRANS from the Redwood Park Bypass Project (RPBP) should be employed within this project as follows:

   a. The EIR should include a description of those erosion control and water quality protection measures which were effective in the RPBP that will also be implemented in this project; and

   b. The EIR should acknowledge problems which occurred during the RPBP, the impacts to water quality, and how similar impacts will be avoided with this project.

   The success of the proposed measures is contingent on conscientious control of the day-to-day construction work and site conditions prior to wet weather.

5. Preventive measures, response, cleanup methods and impacts to water quality due to hazardous substance spills (specifically, petroleum products) should be addressed in the EIR. This subject should include transportation and storage of these materials.

Thank for this opportunity to comment. If you have any questions, please feel free to call me at (707) 576-2220.

Sincerely,

Cecile N. Bryant

Cecile N. Bryant
Water Resource Control Engineer

CNB:pcg/bypass2

OND HALL
IRECTOR

TELEPHONE
707-463-4281

COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES
MAILING ADDRESS: COURTHOUSE
UKIAH, CALIFORNIA 95482

January 16, 1990

Deborah L. Harmon
Department of Transportation
District 1, P.O. box 3700
Eureka, CA 95502-3700

Re: Freeway Bypass of the City of Willits, Route 101
Notice of Preparation

Dear Ms. Harmon:

In response to your request for comments, the Mendocino County Department of Planning and Building Services has reviewed the Project Study Report and the Notice of Preparation for the proposed construction of the Route 101 Freeway bypass of the City of Willits. In reviewing the environmental significance checklist and preliminary discussion of potential impacts this office has prepared responses to the checklist. Please note that the following comments correspond to the environmental significance checklist provided by your office. The responses provided below are numbered to coincide to the appropriate number in the checklist as follows:

PHYSICAL

1. The valley alternatives (A, B, & C) would involve areas of fill for the proposed interchanges as well as any fill involving the elevation of the proposed freeway bypass above the flood plain. The topography of the area west of Willits under alternatives D & E may be expected to change as a result of extensive cuts and fills due to slope of the topography. The construction of either of these two alternatives may create problems with existing drainage facilities.

4. Sedimentation and siltation of streams may result from erosion of exposed soils in cuts and fills. This would especially be a concern with alternatives D & E.

9. As in number 4 above, streams which drain into the Little Lake Valley may be affected by any of the alternatives. Appropriate mitigation measures should be taken to minimize the impacts upon the streams.

10. All alternatives (A, B, C, D, & E) have the potential to encroach upon the flood plain. Cuts and fills associated with the proposed project may have the potential to affect base flood elevations within the Little Lake Valley. Appropriate mitigation measures should be taken to ensure that impacts upon the flood plain are addressed. The Federal Emergency Management Agency (FEMA) should also be notified of the proposed project.

11. As mentioned under Item 4, erosion and siltation may occur which could potentially affect surface water resources in the valley. Appropriate mitigation measures should be developed to minimize the impacts.

16, 17, 18 Temporary construction activities may result in degradation of air quality within the valley; i.e., dust generated from the movement and excavation of earth and emissions from any asphalt plant(s) utilized for the construction. The Mendocino County Air Pollution Control District should also be consulted to ensure compliance with the standards established by the Air Pollution Control District.

The California Department of Transportation (Caltrans) has indicated in the discussion of potential impacts that overall air quality may benefit with the reduction of congestion.

11 Yeah That'

However, the long term impacts on air quality should also be evaluated, in that the proposed project will allow for increased traffic volumes to traverse the area thereby possibly resulting additional air quality degradation.

19. The proposed project may result in increased noise levels within the project area which could adversely affect existing residential areas (more specifically alternatives D & E). Appropriate mitigation measures should be examined and incorporated into the project to reduce the impacts on residential areas (i.e., utilization of earth berms, noise walls etc.). Further, impacts of increased noise levels may affect wildlife in the Little Lake Valley should alternative A, B, or C are implemented. Further study and coordination with the Department of Fish and Game should be done addressing this issue.

BIOLOGICAL Items 22-29

Further biological and botanical study will need to be conducted to determine the presence of any rare or endangered botanical species or wildlife including any migratory wildlife which utilizes the Little Lake Valley drainage basin.

With regards to Item Number 26, the sources of the necessary aggregate materials for road base and construction will need to be identified. Any new or expanded surface mining operations necessary to supply materials for the project would themselves create significant environmental impacts.

SOCIAL AND ECONOMIC

43. The proposed project would accommodate additional traffic within the region as the area becomes more accessible.

In examining alternatives D & E, they do not appear to have considered the traffic flows from the Brooktrails Subdivision. Under both of these alternatives, traffic will still have to utilize Sherwood Road into the city of Willits and travel north or south through the city to access onto any of the proposed interchanges. The Department of Transportation should examine the possibility for an interchange at Sherwood Road which would directly benefit those living in the Brooktrails subdivision and vicinity. Considering this as a modification, traffic flows may be considerably alleviated between the Brooktrails subdivision and

the City of Willits. Alternatives A, B, & C have not considered the issue of traffic flows from the Brooktrails Subdivision. The long-term impacts of complete build out of the Brooktrails Subdivision should further be examined. Traffic generated from alternatives A, B, & C may have the potential to create additional traffic in the vicinity of the proposed Highway 20 interchange/extension. Further study may be required.

H. cont. G. e

46. Alternatives C, D, & E may have the potential to affect the California Western Railroad and The Eureka Southern Railroad. The two railroad companies should be consulted for potential impacts and concerns.

30, 31, 47 In evaluating the long term result of the proposed project, consideration for potential commercial as well as residential developments should be examined. Regardless of which alternative is chosen, the proposed project can be considered "growth inducing". The potential for residential and commercial development within close proximity of the proposed freeway access points is likely to occur. Further study is necessary pertaining to potential inconsistencies with the Mendocino County General Plan Land Use Amendment.

51. Dust generated from the construction phase of the project may have significant environmental impacts upon the air quality of the area. The Mendocino County Air Pollution Control District should be consulted for specific applicable standards and regulations. Grading should be done in accordance with good engineering practices and in such a manner to minimize impacts on existing drainage facilities.

53, 55 As previously mentioned, sources of aggregate materials to be utilized for the proposed project should be clearly identified. Potential impacts may occur on the area's streams and channels as a result of aggregate mining. Such impacts may have significant adverse environmental impacts on the fisheries resources including but not limited to vegetation and water quality.

I certainly hope that these comments will aid you in the preparation of you environmental documents. If you should have any further questions or wish further input from this office, please feel free to contact me at (707) 463-4281.

Further, I would like to thank you for the opportunity to review and comment on this proposal.

Sincerely,

Ignacio Gonzalez

Ignacio Gonzalez
Planner II

IG:cec

SHERWOOD VALLEY BAND OF POMO INDIANS

Ms. Deborah L. Harmon, Chief
Environmental Planning Branch
Department of Transportation
District 1, P.O. Box 3700
Eureka, CA 95502-3700

January 16, 1990

Dear Ms. Harmon,

I take this opportunity to officially comment on the Notice of Preparation of Environmental Impact Report/Statement that has been issued by your agency regarding the proposed freeway bypass of the City of Willits in Mendocino County on Route 101. Our Tribal Council has reviewed the environmental significance checklist and Notice of Preparation distributed by your office on December 15, 1989, and we have had representatives present at the public meetings held to discuss this project.

Our Tribe has no comment or objection to the construction of Route "A", which we understand to be the preferred route. However, your environmental significance checklist fails to identify several significant impacts that will occur to our community and to the community of southeastern Willits should alternatives "D" or "E" be chosen. Specifically, alternatives "D" or "E" will significantly impact the social, economic, cultural and physical environment of the new Sherwood Valley Rancheria, which is located directly west of the Meadowbrook subdivision (please refer to attached map). Our Tribe is currently in the process of constructing 35 housing units, a community center and a Tribal Arts and Crafts Store on this 58 acre site. The site is to become a new residential community to benefit our membership and has been the focus of our development efforts since its acquisition by the United States of America for this purpose in 1988.

The construction of Alternatives "D" or "E" would occur directly adjacent to our new Rancheria and would be disastrous to our plans for development of the site. High levels of noise that would result from the freeway would be excessive throughout the site and would render the site uninhabitable for the families identified to live in the 35 units of housing. The aesthetic sanctity of the site would be damaged irreversibly by construction of a freeway and would change forever the rural sense of privacy the site now possesses. Air quality in the area will undoubtably deteriorate as well, subjecting visitors and future residents of the site to an unhealthy living environment. Major cuts and fills of soils would be required to construct the freeway in this area, and although your plans for drainage are not presently known to us, it may be prudently anticipated that the freeway's impervious surface and soil disruptions will cause a substantial increase in runoff onto our property, where off-site discharge is already a serious consideration and a potential impact for downstream properties. Additionally, there are historic and archeological resources and sites in the area of your proposed construction that this Tribe desires to protect, and would not want to see

2141 South State Street - Ukiah, California 95482
(707) 468-1337

disrupted in any way.

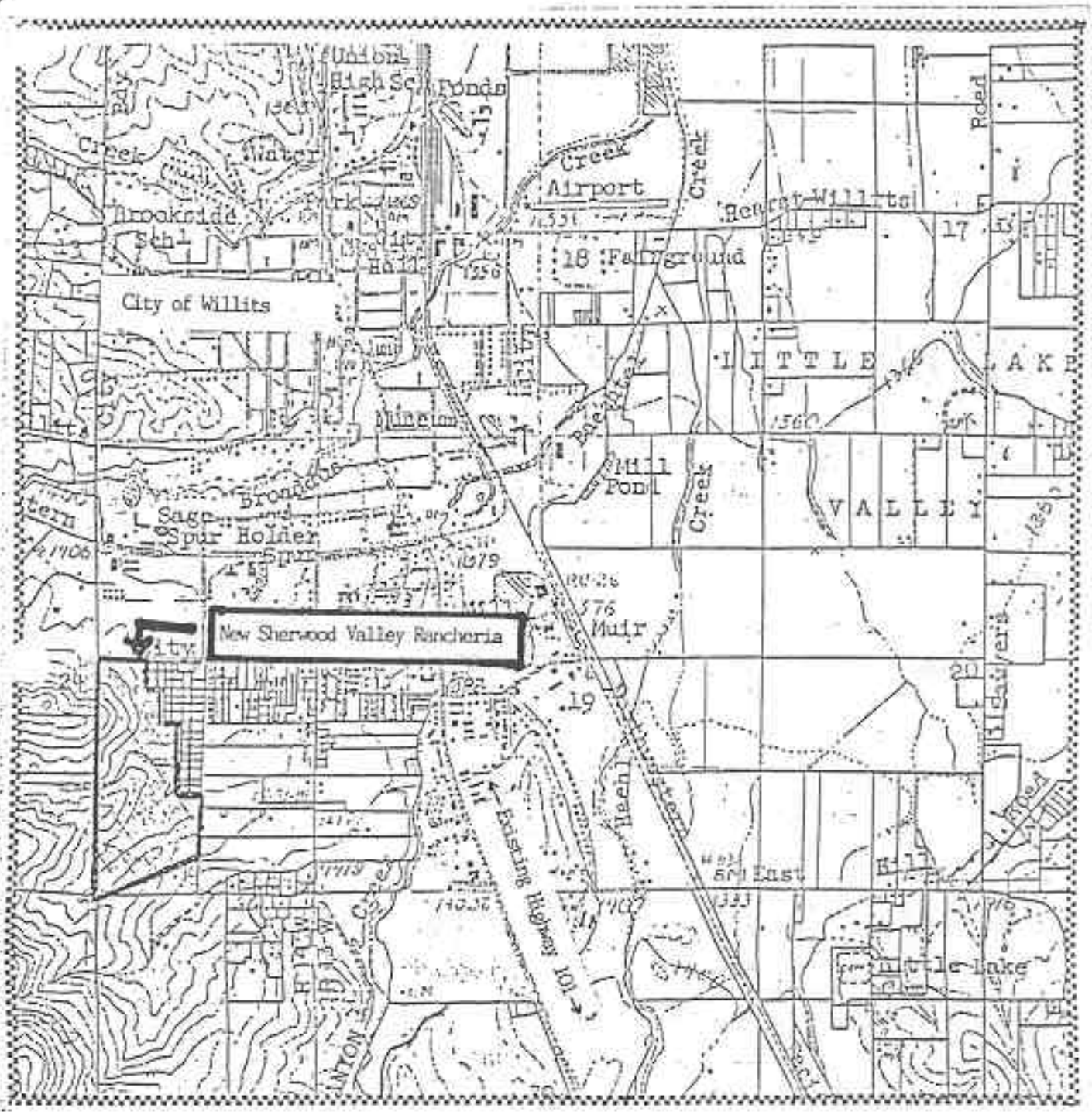
In summary, the Sherwood Valley Band of Pomo Indians is firmly against the construction of the Willits by-pass along alternative routes "D" or "E". We believe that it would not be possible to mitigate the impacts to our community that would result from construction of the project in that location and will do everything within our power to prevent your proceeding along either of those alignments. However, our Tribe has no objection to CALTRANS proceeding along the presently preferred route of alternative "A".

I would appreciate a direct response to this letter, and also expect to be kept informed of all progress CALTRANS makes with regard to this project.

Respectfully,

Mike Knight

Mike Knight
Tribal Chairperson


Union High Sch
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18 Fairground
City of Willits
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Hill Pond
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Existing Highway 101
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Little Lake
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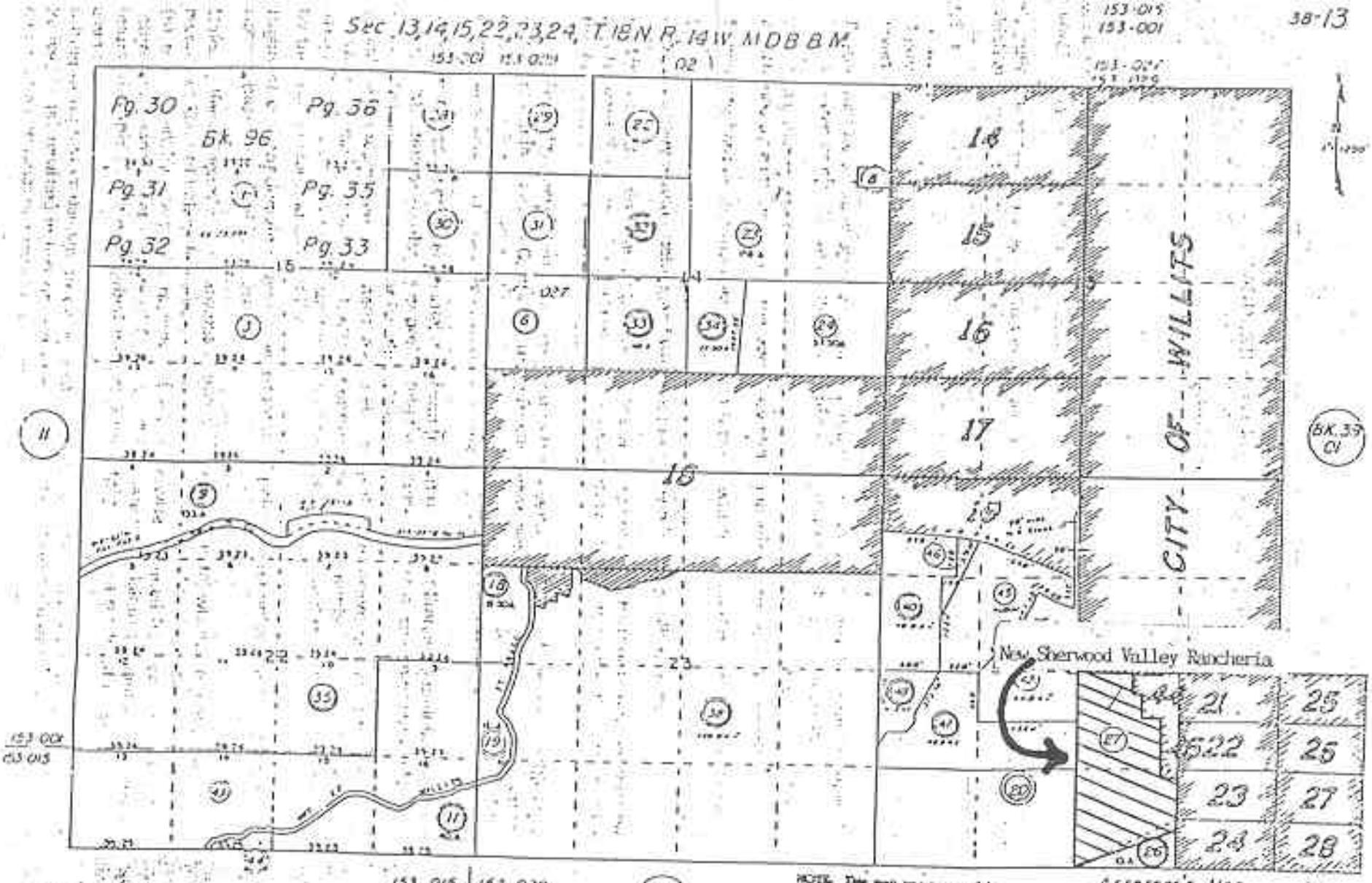

WESTERN TITLE INSURANCE COMPANY
MENDOCINO COUNTY OFFICE

THIS IS NOT A SURVEY OF THE LAND
BUT IS COMPILED FROM DATA SHOWN
BY THE PUBLIC RECORDS.

NOTE: This map was prepared for assessment purposes only. No liability is assumed for the data delineated.

Assessor's Map
County of Mendocino, Calif.
REVISED 1-17-86

Memorandum

To : Ms. Deborah L. Harmon
Chief, Environmental Planning Branch
Department of Transportation, District 1
P. O. Box 3700
Eureka, CA 95502-3700

Date : February 9, 1990

From : Department of Fish and Game

Subject: Notice of Preparation (NOP) of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) Regarding the Proposed Highway 101 Willits Bypass, Mendocino County, SCH 90030006

Department of Fish and Game personnel have reviewed the Notice of Preparation (NOP) of a (DEIR/DEIS) for the proposed Highway 101 Bypass for the City of Willits. In addition, Department personnel have visited the project site and attended a scoping meeting held at Willits on December 5, 1989.

CalTrans has identified a number of alternatives regarding new alignments. Depending upon a given alternative, wetland, coniferous woodland and/or oak woodland habitats may be adversely impacted. While all of these habitat types are important to fish and wildlife species, we are particularly concerned over any alternative that would adversely impact existing wetlands. It is the policy of our Department to seek to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California. Further, it is the policy of our Department to strongly discourage development in our conversion of wetlands.

As currently proposed, Alternatives A, B, C, and D, will impact wetland habitats within Little Lake Valley. Baker's Meadowfoam (Limnanthes bakeri), and North Coast Semaphore Grass (Pleuropogon hooverianus), are State listed rare plants and are Federal Candidate 2 species. Both are found within Little Lake Valley.

Little Lake Valley is an important foraging area for peregrine falcons, wintering bald eagles, and a variety of waterfowl. Tule elk are found to the east, and can be expected to use the valley in the future as their territory expands. It is likely that elk will frequently cross Alternative Route B. This could present a substantial traffic hazard.

Several alternative routes will require various creek crossings. Many of these streams provide valuable spawning and rearing habitat for chinook salmon, steelhead trout, and other non-game fish species. In addition to supporting viable fish populations, these streams maintain lush riparian corridors which are important to many species of wildlife. Our Department, in conjunction with other government agencies and private groups, has worked diligently on maintaining and rehabilitating streams in the Willit's vicinity for benefit of fish and wildlife. We discourage any alternative which would cause long-term detriment to these streams.

The Department has the following comments regarding the scope and content of the proposed DEIR:

1. Create transparent overlays for purposes of identifying locations of streams, wetlands, State/Federal listed plants and alternative routes. Overlays will be useful in assessing various impacts associated with each alternative route. Biotic impacts for each alternative should be quantified in the text, as well as in a summary table.

2. A complete biological survey shall be conducted for purposes of updating the distribution of all sensitive plants, birds and mammals listed in the Natural Diversity Data Base, as well as other fish and wildlife species which may be adversely impacted as result of this project. Surveys should document seasonal use patterns and provide estimates of relative abundance of species affected by the project.

3. A mitigation plan should be developed for each alternative with the objective of identifying specific measures for mitigation losses of plant, fish and/or wildlife species and their habitats. Our Department is available for consultation regarding the scope and content of the mitigation plans.

4. If cost analyses are to be included with the DEIR/DEIS, said analyses should incorporate mitigation costs into the final figure. By doing so, less environmentally damaging alternatives may transpire as being more fiscally competitive.

5. The cumulative impact section of the document should assess the overall effects of Highway 101 improvements on fish and wildlife resources.

In addition, CalTrans should be aware that a streambed alteration agreement pursuant to Fish and Game Code Section 1601 may be required prior to any work within the bed or banks of any stream affected by this project. This agreement process will be administered through our Region 3 Office in Yountville and can be initiated by contacting the Environmental Services section at the telephone number provided below. Notification should not be initiated until the CEQA/NEPA process has been completed and a Corps of Engineers permit has been obtained.

If you have any questions regarding our comments, please contact Mr. Rick Macedo, Fishery Biologist, at (707) 279-2904; or Mr. Carl Wilcox, Associate Wildlife Biologist, at (707) 944-5525.

Sincerely,

Brian Hunter

Brian Hunter
Regional Manager
Region 3

cc: Mr. Mike Long, U. S. Fish and Wildlife Service
National Marine Fisheries Service
Ms. Nancy Dubbs, Environmental Protection Agency

Appendix F Corps of Engineers Wetlands Delineation

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

REPLY TO
ATTENTION OF:

APR 06 1996

Regulatory Branch

SUBJECT: File Number 19474N

Ms. Deborah Harmon
State of California
Department of Transportation
P.O. Box 3700
Eureka, California 95502

Dear Ms. Harmon:

Thank you for your submittal of revised maps dated February 12, 1996, requesting confirmation of the extent of Corps of Engineers jurisdiction for the California Department of Transportation Highway 101/Willits Bypass Project including the K-2 Alternative.

Enclosed is a map showing the extent and location of Corps of Engineers jurisdiction titled, "Willits Bypass Proposed Alignments, Mendocino, Willits, California" on eight sheets dated April 15, 1996.

We have based this jurisdictional delineation on the current conditions of the site. A change in those conditions may also change the extent of our jurisdiction. This jurisdictional delineation will expire in five years from the date of this letter. However, if there has been a change in circumstances which effects the extent of Corps jurisdiction, a revision may be done before that date.

All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.

If you propose work within our jurisdiction, a permit may be required. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the file number at the top of this letter into Item No. 1. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a public notice for a period of 30 days.

If an individual permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternative analysis.

If you have any questions, please call Jane Hicks of our Regulatory Branch at (415) 977-8440. Please address correspondence to the District Engineer, Attention: Regulatory Branch, and refer to the file number at the head of this letter.

Sincerely,

Edward A. Vigi

for Calvin C. Fong
Chief, Regulatory Branch

Enclosures

Appendix G NEPA/404 Memorandum of Understanding and Interagency Coordination

Appendix G contains the following concurrence letters:

Robert W. Floerke, Regional Manger California Department of Fish and Game, Central Coast Region	May 30, 2001
John Webb, Chief, Office of Environmental Services California Department of Transportation, North Region	April 6, 2001
Patrick J. Rutten U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services	August 14, 2000
Rick Knapp, Director, District 1 California Department of Transportation – North Region	May 25, 1999
Patrick J. Rutten U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services	May 14, 1999
Bruce G. Halstead U. S. Department of the Interior Fish and Wildlife Service, Arcata Fish and Wildlife Office	May 6, 1999
David Farrel, Chief, Federal Activities Office, U.S. Environmental Protection Agency, Region IX	April 27, 1999
Calvin C. Fong, Chief, Regulatory Branch, San Francisco Department of the Army, Corps of Engineers	April 19, 1999
Brian Hunter, Regional Manager Department of Fish and Game, Central Coast Region	April 14, 1999
David J. Farrel, Chief Office of Federal Activities United States Environmental Protection Agency, Region IX	April 13, 1995
Joel A. Medlin, Field Supervisor United States Department of Interior Fish and Wildlife Services, Sacramento Field Office	March 24, 1995
Calvin C. Fong, Chief, Regulatory Branch, San Francisco Department of the Army, Corps of Engineers	March 20, 1995
James R. Bybee, Environmental Coordinator United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Services	March 15, 1995

NEPA/404 Memorandum of Understanding and Interagency Coordination

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 that depend 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 Memorandum of Understanding 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. The agency concurrence letters follow.

In coordination with public circulation of the Draft EIR/EIS, ACOE issues a Section 404 public notice of the Draft EIR/EIS. FHWA and Caltrans evaluate the Draft EIR/EIS comments received, and ACOE evaluates comments received on the Section 404 public notice. Following comments received on the Draft EIR/EIS and the Section 404 public notice, Caltrans/FHWA, ACOE and USEPA are required to concur with the NEPA-preferred/Section 404 LEDPA, which will be documented in the Final EIR/EIS for final approval. Written agreement that the preferred alternative is the LEDPA will be required from ACOE and USEPA. Agreement that the project mitigation plan and implementation schedule is adequate will be required after circulation of the Draft EIR/EIS, as well.

After circulation of the Draft EIR/EIS and identification of the LEDPA, a preliminary agreement with USFWS on project mitigation will be required. A "Non-Jeopardy" Biological Opinion pursuant to the Endangered Species Act (federal) also will be required from USFWS at that time. After Final EIR/EIS approval, the document is circulated and ACOE issues a Section 404 public notice of the proposed Individual Permit.

The following documents will be included in the Final EIR/EIS as a preliminary agreement of Section 404(b)(1) compliance:

- Written USFWS preliminary agreement in the project mitigation plan as a result of earlier Fish and Wildlife Coordination Act consultation,
- Written USFWS/NMFS Non-Jeopardy documentation,
- Section 401 certification from State Water Quality Control Board, and
- Written ACOE and USEPA preliminary agreement on the following:
  - the final EIS NEPA preferred/Section 404 LEDPA,
  - that the project will not significantly degrade the aquatic environment, and
  - that the project mitigation plan and implementation schedule are adequate.

State of California

Business, Transportation and Housing Agency

Memorandum

To : RICK KNAPP
District 1 Director

JODY LONERGAN
Acting District 3 Director

Date: June 4, 2001

File: 01-MEN-101-T 70.0/82.6 (PMT43.5/51.3)
01-262000
Willits Bypass

From : **DEPARTMENT OF TRANSPORTATION**
LENA R. ASHLEY – Project Manager

Subject: PROJECT ACTION – TSM Alternative Elimination Concurrence

Your concurrence with the elimination of the TSM Alternative is requested. The TSM Alternative has been fully studied and every technical study prepared to analyze impacts of the proposed project includes assessing impacts of the TSM Alternative. Community members with environmental concerns initially supported the TSM alternative. Changes were made to meet City of Willits concerns and Caltrans design standards. Due primarily to high cost and severe environmental impacts, there is no public support for the current TSM alternative.

During final preparation of the Draft EIR/EIS, members of the Willits Bypass study team and Caltrans Management considered but rejected the TSM alternative because it does not meet the project purpose and need. The TSM alternative would operate similar to a parallel arterial to existing Route 101 and would provide the least delay reduction of all the alternatives. In addition, the collision rate for the combination of the TSM Alternative and Main Street will not improve with construction of this alternative. The freeway study alternatives, however, are expected to provide a significant collision rate reduction, approximately 18% for the valley alternatives and 30% for Alternative E3, when combined with Main Street. Finally, the level of service provided by the TSM alternative is not consistent with the level of service provided by the freeway alternatives. In addition the TSM Alternative would result in a large number of residential and business relocations and adverse impacts to several eligible historic architectural properties. The alternative also has the potential to physically divide the community of Willits and conflicts with the City's goal to provide a "livable, walkable" community.

Thus members of Caltrans Management suggested the TSM alternative should be included in the Draft EIR/EIS as one of the alternatives considered, but eliminated from further study. On April 5, 2001, the attached letter was sent to our NEPA/404 and PDT representatives from US Environmental Protection Agency, US Army Corps of Engineers, National Marine Fisheries Service, US Fish and Wildlife Service, California Department of Fish and Game, and the Federal Highway Administration informing them of our decision to eliminate the TSM alternative from further analysis. In addition to the letter, the Project Manager phoned each of the resource agency PDT representatives to inform them of our decision and to offer to discuss concerns they may have. None of the five NEPA/404 resource agency representatives expressed concern over the elimination of the TSM alternative from further analysis.

Please sign below to show your concurrence with the decision to eliminate the TSM Alternative from further analysis.

Approval Recommended by:

LENA R. ASHLEY
Project Manager

Approved:

RICK KNAPP
District 1 Director

6/4/01
Date

JODY E. LONERGAN
Acting District 3 Director

6/11/01
Date

LRA: lra c: 1-KAjise 2-CDaniels 3-NMacKenzie DMcElhaney
1-JCaputo 2-ABrandt 3-DRushton

Memorandum

To : Ms. Lena Ashley
Project Manager
California Department of Transportation
Post Office Box 3700
Eureka, CA 95502

Date: May 30, 2001

From : Robert W. Floerke, Regional Manager
Department of Fish and Game - Central Coast Region, Post Office Box 47, Yountville, California 94599

Subject: Willits Bypass Project Draft Conceptual Biological Mitigation Plan

Department of Fish and Game personnel have reviewed the Willits Bypass Draft Conceptual Biological Mitigation Plan and have visited the site with Caltrans personnel to review project impacts. It is our intention to alert Caltrans to a number of general biological mitigation criteria during early planning for this project. The following strategies should provide a baseline for determining mitigation costs and necessary time frames for adequate mitigation development. The Department will be anticipating this level of mitigation for permits (1601 and/or 2081 take permits) issued for this project.

Listed Plant Species:

Alternatives where take of State-listed plant species will result require a three-pronged approach to fully mitigate the impacts as required under Fish and Game Code Section 2081.

1. The Department will require the collection and the deposition in a certified long-term seed storage facility of seeds of the listed plants from the site to be destroyed. There is usually an endowment required by the facility to clean, count, process, and maintain the seeds. This is a one-time fee.

2. The Department will require a minimum 3:1 functional rare plant habitat preservation ratio. Generally on an acreage basis, three acres of existing rare plant habitat should be purchased and protected for every acre impacted. However, the functional quality of the habitat impacted and the habitat protected must be considered. If excellent quality

habitat will be destroyed and marginal quality habitat protected, higher mitigation ratios may be required. The protected land should be transferred to the Department in fee title ownership. In addition to the purchase and transfer of occupied habitat, the Department will require an adequate management endowment for the protected site. The amount of the endowment will be determined based upon site characteristics, surrounding land uses and the needs of the plant species protected. The endowment goes into a dedicated Department mitigation account and the interest generated is used for management (fencing, weed control, monitoring, etc.).

3. The Department will require a minimum 2:1 rare plant habitat creation ratio, measured on an acreage basis relative to the area impacted. The created habitat shall be functioning at least one year prior to impacting the listed plant species. After three years a minimum of at least 50 percent of the newly created rare plant habitat must support a viable population of the listed plant species. If less than 50 percent of the habitat supports the listed plant, additional acreage shall be developed and/or the initial site reevaluated and modified to achieve a 50 percent success rate.

Impacts to Salmonid Steams:

Several alternatives will directly fill portions of streams that bear salmon and/or steelhead. In order to reduce impacts to these sensitive species, the following mitigation strategy will be employed by the Department on any stream or portion of a stream that will be filled.

1. At a point above and to a point below the portion of the stream to be filled, a new channel shall be created with sufficient room to allow for a meandering channel and an extensive riparian gallery. Said channel shall be created at least two years prior to filling the existing channel and shall be planted with native riparian species appropriate to the valley. The new channel shall be designed to accommodate fish passage in both directions. One year prior to filling the existing channel, all water from the existing stream shall be diverted into the new channel and the new channel sampled to evaluate the effectiveness of the mitigation. Provided the new stream is functioning properly

and being used for passage by salmonids, the Streambed Alteration Permit for filling the old channel shall be issued. All vegetation planted along the new channel shall be maintained for a period of not less than three years. Annual monitoring reports shall be provided to the Department for review and concurrence.

2. On all salmonid bearing streams, the existing culverts under Highway 101 shall be upgraded to provide for fish passage with no impediment to upstream movement of adults nor downstream movement of juveniles.

The above measure is designed to reduce impacts to salmonid species. To mitigate for impacts to riparian habitat, amphibians, reptiles, and birds, the following measure will be required.

Caltrans shall work with private landowners to fence all existing streams within the project area.

In order to fully mitigate for possible take of listed salmonids, amphibians, and avian species, we recommend that the following be incorporated into project design.

Fully evaluate a creek with salmonids present (e.g., Haehl Creek) and rehabilitate its entire length within the project area. Examples of rehabilitation might include reducing sediment loading, enhancing riparian vegetation, removing movement barriers, restoring appropriate instream habitat, etc. A plan that incorporates appropriate enhancements would be approved by the Department and incorporated into the Bypass project as required mitigation.

Impacts to Wetlands:

Several of the alternatives will result in the loss of wetland acreage and wetland values. In order to comply with the Resources Agency policy of no net loss of wetland acreage or of wetland values, the Department will request a minimum 2:1 acreage replacement ratio. This ratio will apply to all high quality wetlands such as those in the Little Lake Valley area. All created wetlands will require maintenance and monitoring for a

minimum of five years. Sufficient funding shall be provided for this maintenance and monitoring over the five-year period and an endowment for annual maintenance and protection beyond the five-year period shall also be required.

Impacted disturbed wetlands, i.e., residential and/or hayfield wetlands, will require a 1:1 mitigation ratio provided the new wetlands are of high quality. Impacts to riparian areas are generally mitigated by creating an equal or greater length of stream with sufficient room for channel movement and riparian gallery.

Purchase and preservation of existing wetlands is generally not acceptable as mitigation for loss of wetlands. Such a strategy could result in a net loss of wetland acreage contrary to Resources Agency policy. However, a combination of preservation/enhancement and creation might provide a large sustainable wetland complex in perpetuity that would reduce overall impacts and have long-term benefits for fish and wildlife resources.

The above measures may not mitigate all impacts of the proposed Bypass but they do address our most significant concerns. Site specific impacts and mitigation measures can be dealt with during the environmental review process. We recommend that the above measures be incorporated as mitigation measures into project design and included in the environmental document for public and agency review.

We appreciate the opportunity to assist Caltrans in addressing these biological issues. If you have any questions regarding these comments, please contact Fred Botti, Environmental Specialist, at (707) 944-5571; or Scott Wilson, Habitat Conservation Supervisor, at (707) 944-5584.

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
NORTH REGION – OFFICE OF ENVIRONMENTAL PLANNING – MS19
2800 Gateway Oaks, STE 100
Sacramento, CA 95833
TDD Telephone (530) 741-4509
FAX (916) 274-6110
Telephone (916) 274-6851

April 6, 2001

U.S. National Marine Fisheries Service
Attn: Tom Daugherty
2550 North State Street
Ukiah CA 95482

RE: SELECTION OF ALTERNATIVES FOR ANALYSIS IN WILLITS BYPASS ENVIRONMENTAL DOCUMENT

Dear Mr. Daugherty:

Caltrans is preparing the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the State Route 101 Willits Bypass Project. The purpose of this letter is to inform your agency that Caltrans proposes to eliminate the Transportation System Management (TSM) Alternative from further analysis in the Draft EIR/EIS. The Project Development Team has approved five build alternatives for analysis in the Draft EIS/EIR. Four of the alternatives are four lane freeways while the fifth, (TSM) is a combination of two and four lane highway with some access control. The TSM alternative runs through town on a combination of improved existing and new roadways. The No Build Alternative remains under consideration.

After further engineering and environmental investigations, Caltrans has determined the TSM Alternative no longer appears prudent or feasible. The Draft EIR/EIS will indicate that the TSM Alternative was considered but eliminated from further discussion for the reasons outlined below:

- The TSM Alternative does not attain the project purpose and need of reducing delay, or improving safety for interregional traffic.

- The Draft EIR/EIS will still consider all reasonable build alternatives, plus a no-build alternative.

- The TSM Alternative is the only alternative that results in unavoidable adverse impacts to six eligible historic architectural properties. The six properties include the Martin Baechtel house; the Samuel Baechtel house; a section of the Northwestern Pacific Railroad; a section of the California Western Railroad; a tee pee burner at 101 Redwood, Inc,; and block 3 of the Willits Historic District.

- The accident rate for the combination of the TSM Alternative and Main Street will not improve. The freeway alternatives, however, are expected to provide a significant accident rate reduction, approximately 18 % for the valley alternatives and 30% for Alternative E3, when combined with Main Street.

- There appears to be no public support for the TSM Alternative.

- The TSM alternative would result in the removal of 140 residential units, including 104 single-family homes, 15 multi-family units and 21 mobile homes. In addition, 28 commercial and industrial business would be relocated.

- The TSM alternative has the greatest impact on community housing stock. There is not sufficient housing in Willits for the large number of residents who would be displaced by the TSM alternative.

- The TSM Alternative would have direct impacts to those land uses in close proximity to the TSM alignment. Possible impacts could include increased noise, increased traffic volumes, reduction in parking supply and reduced access in the vicinity. These impacts would likely modify the existing character of the area.

- The TSM Alternative has the potential to physically divide the community of Willits.

- The TSM Alternative conflicts with the City's goal to provide a "livable, walkable" community.

As you are aware, the valley alternatives were modified to produce the truncated alternatives, C1T, J1T and LT. The E3 alternative has not changed. Therefore, four alternative alignments along with the No-Build Alternative will be described and evaluated in the Draft EIR/EIS. Figure 1 shows a map of the alternatives and project vicinity.

Caltrans is currently modifying the Administrative Draft EIR/EIS to eliminate the TSM alternative from further analysis. If you require additional information related to this correspondence, please contact me at (916) 274-5800 or Nancy MacKenzie, Associate Environmental Planner at (916) 274-5809.

Sincerely,

Chen Daniels for

JOHN D. WEBB
Chief, Office of Environmental Services

Enclosure

Cc: R.C. Solvensky, FHWA
Glen Clinton, FHWA
Fred Botti, CDFG
Carl Wilcox, CDFG
Pete Straub, USACOE
Mike Monroe, EPA
Randy Brown, USFWS
Ray Bosch, USFWS
Tom Daugherty, NMFS
John Webb, Caltrans
Lena Ashely, Caltrans
Andrew Brandt, Caltrans

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

August 14, 2000 SWR3/TKD

RECEIVED
AUG 17 2000
CALTRANS OEM, M-3

Henry O. Bass, Chief
Office of Environmental Management
Department of Transportation
P.O. Box 911
Marysville, California 95901

Dear Mr. Bass,

Thank for the opportunity to review and comment on the Draft Conceptual Mitigation Plan (Plan) for the Willits Bypass, dated June 26, 2000. National Marine Fisheries Service (NMFS) has reviewed the document and has the following comments.

Section 2.1 Summary of Project Impacts should include impacts or disturbance to spawning and rearing habitat for salmonids. Figure 2.1 should reflect the correct listed species names. West coast chinook salmon should be California Coastal chinook salmon and West coast steelhead should be listed as threatened Northern California steelhead.

Section 2.2.2, must analyze impacts to juvenile salmonids and associated habitat that may be impacted by the construction and post construction activities. This section should also include the use of NMFS screen criteria for dewatering activities and coordination with NMFS fish passage engineers and biologists to minimize impacts of the proposed project on adult and juvenile salmonid lifestages.

Section 2.2.2 states that removal of large stretches of riparian vegetation would increase stream temperatures and affect fish migration. While it is true that stream temperatures will be affected, juvenile salmonid lifestage will likely be affected to a greater degree than migrating adult fish. Loss of large woody debris (LWD) must also be considered when analyzing the removal of riparian vegetation. Again NMFS would like to stress the importance of avoiding and minimizing impacts to riparian vegetation given the fact that LWD and mature riparian vegetation will take many years or decades to recover or restore.

Mitigation approaches (3.2) discussed in the Plan refer to Creation and Restoration, Enhancement and Preservation. With exception to the riparian community salmonid habitat is not mentioned in this section but is included later in the Plan. Preserving Mill and Outlet Creeks for the purpose of maintaining adult migration is included in the Plan and must be considered for other affected streams within the proposed project area. Creation of pools /riffles is discussed

with respect to the Upper Haehl Creek Mitigation Area section of the Plan. Salmonid rearing habitat is not discussed with respect to restoration efforts that may take place in Haehl Creek or other important stream reaches.

Monitoring and Performance Standards should reflect any fisheries surveys that may be conducted. Section 4.3.7 refers to coordination with the California Department of Fish and Game to develop monitoring mitigation areas. NMFS is responsible for the protection of federally listed fisheries resources and must be included in this effort.

If you have questions concerning these comments, please contact Mr. Thomas Daugherty at (707) 575-6069.

Sincerely,

Patrick J. Rutten
Supervisor, Northern California
Protected Resources Division

CC: Jim Lecky - NMFS, Long Beach, Ca.

State of California

Memorandum

Business, Transportation and Housing Agency

To: RICK KNAPP
District 1 Director

IRENE T. ITAMURA
District 3 Director

Date: May 25, 1999

File: 01-MEN-101-T70.0/82.6
(T43.551.3 PM)
01-262000
Willits Bypass

From: **DEPARTMENT OF TRANSPORTATION-North Region**
LENA R. ASHLEY – Project Manager

Subject: ALTERNATIVES K and K2 ELIMINATION CONCURRENCE

Your concurrence with the elimination of Alternatives K and K2 from further study is requested.

The Willits Bypass study team has prepared an issue paper identifying environmental problems with these alternatives and a design evaluation describing constructability reasons for their elimination.

At the January 21,1999 Project Development Team (PDT) meeting, we indicated we would meet with our resource agency partners to determine if they would consider dropping these alternatives. In early April, the project study team met with representatives from US Environmental Protection Agency, Army Corps of Engineers, National Marine Fisheries Service, and the CA Department of Fish and Game and briefed them on the status of these alternatives including their cost, environmental impacts and engineering feasibility. (The US Fish and Wildlife representative was not able to attend the meeting.) At the meeting, we requested each agency concur with our request.

Elimination of the two eastern alternatives was proposed to the Willits Bypass Technical Advisory Group on April 21, 1999, and received unanimous support. Both City representatives and members of the local environmental community expressed support for the elimination of Alternatives K and K2. The Project Development Team was presented with the proposal on April 22, 1999. During discussion of the proposal to eliminate Alternatives K and K2, the US Fish and Wildlife Service PDT representative requested we examine the remaining alternatives using a "nodal" approach. The nodal approach involves dividing alternatives into parts and evaluating the environmental impacts of each part or node. The advantage of this approach is it allows the alternatives to be considered separately or allows combinations of alternatives to be considered. The TSM alternative will be unaffected.

Over the last several weeks, we received concurrence letters from all of our resource agency partners. I have attached them for your review. Finally, we reviewed this process with Federal Highway Administration representatives and they endorse our effort to amend the initial 1992 NEPA/Section 404 Memorandum of Understanding integration process.

Approval Recommended By:

LENA R. ASHLEY
Project Manager

Approved:

RICK KNAPP
District 1 Director

5/26/99
Date

IRENE T. ITAMURA
District 3 Director

6/1/99
Date

Attachment

c:	1-JLonergan	1-DMelim	SKirkpatrick
	2-HBass	2-ABrandt	Project Development Team Members
	3-DCastrillo	3-DRushton	Technical Advisory Group Members

LRA/lra

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

CALTRANS

1999 MAY 19 PM 1:45

May 14, 1999 F/SWR3:TKD

Department of Transportation
1656 Union Street
Eureka, CA 95501
Attn: Lena Ashley, Project Management

Dear Ms. Ashley:

In response to your request for formal concurrence pursuant to the NEPA/404 Memorandum of Understanding on Integration of the National Environmental Policy Act and the Clean Water Act Section 404 Procedures for Surface Transportation Projects, the National Marine Fisheries Service (NMFS) submits the following:

NMFS has reviewed the information provided by Caltrans supporting elimination of Alternatives K and K2, and others, and concurs with the elimination of these alternatives. In addition, NMFS concurs with the modified range of alternatives to be addressed in the Willits Bypass Draft Environmental Document.

If you have questions concerning these comments, please contact Mr. Thomas Daugherty at (707) 575-6069.

Sincerely,

Patrick J. Rutten
Supervisor, Northern California
Protected Resources Division

United States Department of the Interior

CALTRANS

FISH AND WILDLIFE SERVICE

1999 MAY -6 AM 10

Arcata Fish and Wildlife Office
1125 16th Street, Room 209
Arcata, California 95521
(707) 822-7201 FAX: (707) 822-8136

In Reply Refer To:
1-14-1998-95

Ms. Lena Ashley
Project Manager
California Department of Transportation
1656 Union Street, PO Box 3700
Eureka, CA 95502-3700

Subject: Concurrence with proposal to eliminate Alternatives K and K2 from further consideration in the Willits Bypass EIR/EIS.

Dear Ms. Ashley:

On April 22, 1999 Ray Bosch of the U.S. Fish and Wildlife Service's (Service) Arcata office attended a meeting of the project development team for the Willits Bypass project. The primary purpose of that meeting was to discuss the proposed elimination of two route alternatives from the project, Alternatives K and K2. Previous discussions of this proposal had occurred at an interagency meeting in San Francisco on April 8, 1999, which we were unfortunately unable to attend. However, you transmitted to us information presented at that meeting, and summary documents prepared following that meeting.

During the April 22 meeting, a great deal of discussion occurred regarding the reasons for eliminating Alternatives K and K2 from further analysis. Your agency prepared substantial documentation as to the anticipated environmental, social and economic impacts likely to occur from implementation of either these two alternative routes.. Of special significance are the excess fill material generated from either of these two alternatives (especially Alternative K), and the severe impacts to sensitive plant species and wildlife habitats.

Concerns were raised during the discussion that elimination of Alternatives K and K2 could preclude some options under consideration in project planning. Specifically, a concern was raised that since Alternative E3 is projected to be substantially above the allocated budget for the project (which is also true of some other alternatives as well), there would effectively be no practicable "wetlands avoidance" alternative remaining in the project's environmental review stage. This could result in undue pressure to adopt one of the alternatives that significantly impacts wetlands, to the detriment of fish and wildlife resources dependent upon wetland habitats.

To address these concerns, it was suggested that Caltrans adopt an approach to the environmental analysis that would allow an environmental review of the six other alternatives (C1, E3, J1, L, TSM, and

No Build) using a "nodal approach". That is, each of the build alternatives would be analyzed in segments, and environmental impacts reported for each segment, as possible, so that a preferred alternative/proposed action can be developed for the final EIR/EIS from the results of this segmented analysis. This approach would facilitate the development of a preferred alternative that is the least environmentally damaging and practicable, yet consistent with the overall purpose and need of the project. This approach would also be consistent with NEPA requirements for full disclosure of expected environmental impacts. It was further suggested that the selection of analysis segments be drafted by Caltrans, and reviewed by the project development team.

On April 29, 1999, Caltrans sent a letter to this office in which it formalized this agreement to conduct a segmented analysis of the build alternatives in the draft EIR/EIS . The Service concludes, based upon the information that you have shared with us, that alternatives K and K2 are likely to have severe environmental impacts which would be very difficult to mitigate, and have significant engineering and geotechnical problems that make these alternatives infeasible. The Service therefore concurs with your proposal to eliminate Alternatives K and K2 from further detailed analysis in the Willits Bypass draft EIR/EIS, contingent upon the agreed to nodal analysis of the remaining build alternatives (C1, E3, J1, L and TSM). This approach will still meet the needs for a full range of practicable alternatives to be considered in the environmental document, and provide for a thorough analysis of each segment of potential highway routing. This more flexible approach will provide a means whereby a hybrid preferred alternative can be developed for the Final EIR/EIS as the NEPA/Section 404 least environmentally damaging practicable alternative.

The Service thanks you for your efforts to minimize adverse effects to fish and wildlife resources. We look forward to continued participation with Caltrans in the design and analysis of the Willits Bypass project.

Any questions regarding this matter may be directed to Ray Bosch of our staff, (707) 822-7201.

Sincerely,

Bruce G. Halstead
Project Leader

cc: CDFG, ATTN: J. Wakeman, Yountville
NMFS, ATTN: T. Daugherty, Santa Rosa
USACE, ATTN: P. Straub, San Francisco
EPA, ATTN: M. Monroe, San Francisco
FHWA, ATTN: D. Harris, San Francisco

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

CALTRANS
1999 APR 30 PM 1:07

April 27, 1999

Ms. Lena Ashley
Project Manager
California Department of Transportation
1656 Union Street
Eureka, CA 95501

Subject: Willits Bypass Project, Mendocino County, California. NEPA/404 Coordination.

Dear Ms. Ashley:

On April 13, 1995, we provided a letter to your agency regarding the proposed Willits Bypass Project. In that letter, which was written in accordance with the NEPA/404 Memorandum of Understanding, we concurred with several Project elements. These included the: 1) project purpose and need, 2) range of alternatives to be considered under NEPA, 3) range of alternatives to be considered under Section 404 of the Clean Water Act, and 4) criteria for considering these alternatives.

On April 8 and 22, 1999, Michael Monroe of EPA's Wetlands and Sediment Management Section met with you, other Caltrans staff, and representatives of other resource agencies to discuss the proposed Project. The purpose of these discussions was to consider eliminating Alternatives K and K2 from further analysis. Based on the written and verbal information that you provided at these meetings, and in response to your April 9 letter to Mr. Monroe, we hereby concur that it is appropriate to eliminate Alternatives K and K2. We believe the remaining six alternatives — C1, E3, J1, L, TSM, and No Build — should be carried forward and analyzed fully in the Draft EIS.

As discussed, we encourage you to divide each of the remaining alternative alignments into several segments (the "nodal approach") so that one can better analyze the environmental impacts associated with each segment. This analysis may prove to be useful in developing a hybrid alternative that is presented in the Final EIS as the NEPA preferred/Section 404 least environmentally damaging practicable alternative.

We look forward to working with Caltrans and the other agencies throughout the development process for this project. If you have questions regarding these comments or need more information regarding the NEPA/404 integration process, please contact Mr. David Tomsovic at (415) 744-1575. If you have questions regarding the Section 404 aspects of the Project, please contact Mr. Michael Monroe at (415) 744-1963.

Sincerely,

FOR

David Farrel, Chief
Federal Activities Office

cc: CDFG, J. Wakeman, Yountville
FHWA, D. Harris, San Francisco
NMFS, T. Daugherty, Santa Rosa
USACE, P. Straub, San Francisco
USFWS, R. Boesch, Arcata

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

REPLY TO
ATTENTION OF:
Regulatory Branch

APR 19 1999

SUBJECT: File No. 19474N

Ms. Lena R. Ashley
California Department of Transportation
District 1
P.O. Box 3700
Eureka, California 95502-3700

Dear Ms. Ashley:

This is in reply to your letters of April 2 and 9, 1999, which seek concurrence from the U.S. Army Corps of Engineers to eliminate Alternatives K and K2 from the Willits Bypass Study, pursuant to the NEPA/Section 404 Memorandum of Understanding for Surface Transportation Projects in California.

The Corps has reviewed the information provided by your agency and concurs that further analyses of Alternatives K and K2 are not warranted in light of the practicability of the remaining alternatives to be addressed in the Willits Bypass Environmental Document. Alternatives K and K2 would generate excess fill material for which no disposal site reasonably exists, could not be staged to spread construction costs over several funding cycles, and would degrade relatively pristine wildlife habitat prevalent along the eastern side of Little Lake Valley.

You may refer any questions on this matter to Mr. Peter Straub of my staff at telephone 415-977-8443. All correspondence should be addressed to the Regulatory Branch, North Section, referencing the file number at the head of this letter.

Sincerely,

Calvin C. Fong
Chief, Regulatory Branch

State of California

The Resources Ag

Memorandum

CALTRANS

To : Ms. Lena Ashley, Project Management
CalTrans
1656 Union Street
Eureka, California 95501

1999 APR 16 PM 1:38

Date: April 14, 1999

From : Department of Fish and Game - Post Office Box 47, Yountville, California 94599

Subject: Willits Bypass Draft Environmental Impact Report

In response to your request for formal concurrence pursuant to the NEPA/404 Memorandum of Understanding on Integration of the National Environmental Policy Act and Clean Water Act Section 404 Procedures for Surface Transportation Projects, the Department of Fish and Game submits the following:

The Department has reviewed the information provided by Caltrans supporting elimination of Alternatives K and K2 and concurs with the elimination of these alternatives, and the modified range of alternatives to be addressed in the Willits Bypass Draft Environmental Document.

If you have any questions, please contact John Waithman, Environmental Specialist, (707) 944-5525, or Carl Wilcox, Environmental Services Supervisor, (707) 944-5525.

[illegible]
Environmental Services
Central Coast Region

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R/W APPR/COORDINATOR
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Conserving California's Wildlife Since 1870

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CALTRANS REGION IX
75 Hawthorne Street
'95 APR San Francisco, CA 94105-3901

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ENV PLNG
PROG MGMT
TRANS PLNG
ICB
GEN FILES

April 13, 1995

Deborah L. Harmon, Chief
Environmental Management Office
P.O. Box 3700
District 1
California Department of Transportation
Eureka, CA 95502

Dear Ms. Harmon:

The Environmental Protection Agency has reviewed the information concerning the proposed Route 101 Willits Bypass received in our office on February 27, 1995. Based upon the information provided, our involvement in the concurrent process is appropriate in accordance with the NEPA/404 Memorandum of Understanding (MOU), particularly since there are projected wetlands impacts identified in the documents.

We are pleased to offer our initial concurrence on several elements of the project. We concur that: 1) the purpose and need for the project is adequately defined; 2) the project document discusses a range of alternatives pursuant to NEPA and the Guidelines for implementing Clean Water Act (CWA), Section 404; 3) the range of alternatives presented appears to meet the requirements of Section 404; and 4) the project document has adequately included the criteria for considering the alternatives presented. However, there are several other elements that we believe warrant further refinement before proceeding to the next stage in the NEPA/404 process. We've listed the applicable elements from the MOU below and provided comments which relate to each element.

1. Does the information provided identify the (Section 404) least environmentally damaging practicable alternative and is it described as such? Of the 6 alternatives that are suggested to be carried through to the Environmental Document there are three that are described as wetland avoidance alternatives, including the TSM alternative. Identifying the least environmentally damaging alternative is a major issue that should be addressed in the next stage of the NEPA/404 documentation process.

In reviewing the information provided, we also note that there is a request for concurrence for Caltrans to drop the TSM alternative. We suggest retaining the TSM alternative in the list of alternatives. If there is a decision to drop the TSM

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alternative from further consideration, due to the fact that the TSM alternative does not meet the scope of the purpose and need statement, provide detailed reasons for dropping the TSM alternative from consideration in future environmental documents. Please refer to the Alternatives Analysis Section of Appendix A of the MOU, for further guidance on discussing the criteria for alternative selection.

2. Does the project mitigation plan and implementation schedule adequately accommodate the intent of the NEPA/404 Concurrent Process?

3. Once implemented, would the proposed mitigation plan prevent significant degradation of the aquatic environment from the project? Both of these issues should be addressed in the next stage of project development and considered thoroughly in the next round of NEPA/404 concurrent process documentation. Please refer to the Compensatory Mitigation Section of the NEPA/404 MOU guidance papers.

We appreciate your efforts in providing information in keeping with the NEPA/404 MOU. Should you have any questions regarding our comments, please contact me at (415) 744-1584 or David Carlson of my staff at (415) 744-1577. If you have any questions regarding Section 404 issues, you may contact Mike Monroe in our Wetlands and Sediment Management section at (415) 744-1963.

Sincerely,

Carolyn Yale (for DF)

David J. Farrel, Chief
Office of Federal Activities

cc: FHWA (D. Harris)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Sacramento Field Office
2800 Cottage Way, Room E-1803
Sacramento, California 95825-1846

In Reply Refer To:
PPN 1529

March 24, 1995

Deborah L. Harmon
Chief Environmental Management Office
State of California Department of Transportation
District 1
P.O. Box 3700
Eureka, California 95502-3700

Subject: Willits Bypass, NEPA/404 Integration, Davis Creek, City of Willits, Mendocino County, California

Dear Ms. Harmon,

This letter is in response to a Caltrans request for the U.S. Fish and Wildlife Service's (Service) concurrence on the purpose and need statement, modal choice analysis and the list of alternatives which will be analyzed in the draft Environmental Impact Statement (DEIS). Our response is made pursuant to the 1994 Memorandum of Understanding on Integration of the National Environmental Policy Act and Clean Water Act Section 404 Procedures for Surface Transportation Projects and is not intended to take the place of any formal comments that may be required under the Fish and Wildlife Coordination Act or the Endangered Species Act of 1973 as amended.

The Service has reviewed information provided by Caltrans on February 21, 1995, and concurs with the purpose and need statements for the Willits Bypass Project. The Service agrees with Caltrans that the roadway improvement modal choice is the most feasible and practical method of reducing traffic volumes within the community of Willits. The Service also concurs with the range of alternatives which have been selected for continued analysis in the DEIS.

If you have any questions concerning this project, please contact Mark Littlefield (Wetlands Branch) at (916) 979-2113.

Sincerely,

for Joel A. Medlin
Field Supervisor

cc: Reg. Dir., (ARD-ES), Portland, OR
Coastal California Fishery Resource Office
Attention: Bruce Halstead
EPA, San Francisco

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

REPLY TO
ATTENTION OF:
Regulatory Branch

APR 19 1999

SUBJECT: File No. 19474N

Ms. Lena R. Ashley
California Department of Transportation
District 1
P.O. Box 3700
Eureka, California 95502-3700

Dear Ms. Ashley:

This is in reply to your letters of April 2 and 9, 1999, which seek concurrence from the U.S. Army Corps of Engineers to eliminate Alternatives K and K2 from the Willits Bypass Study, pursuant to the NEPA/Section 404 Memorandum of Understanding for Surface Transportation Projects in California.

The Corps has reviewed the information provided by your agency and concurs that further analyses of Alternatives K and K2 are not warranted in light of the practicability of the remaining alternatives to be addressed in the Willits Bypass Environmental Document. Alternatives K and K2 would generate excess fill material for which no disposal site reasonably exists, could not be staged to spread construction costs over several funding cycles, and would degrade relatively pristine wildlife habitat prevalent along the eastern side of Little Lake Valley.

You may refer any questions on this matter to Mr. Peter Straub of my staff at telephone 415-977-8443. All correspondence should be addressed to the Regulatory Branch, North Section, referencing the file number at the head of this letter.

Sincerely,

Calvin C. Fong
Chief, Regulatory Branch

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region, RCD
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

March 15, 1995 F/SW02

Deborah L. Harmon
Chief, Environmental Management Office
Department of Transportation
District 1, P.O. Box 3700
Eureka, California 95502-3700

Dear Ms. Harmon:

Pursuant to the NEPA/Clean Water Act Integration Progress Memorandum of Understanding, I have reviewed and concur with the Purpose and Need statement, the modal choice analysis, and the range of alternatives that will be considered, as well as those that have been dropped, for the Willits Bypass Draft Environmental Impact Statement.

If you have questions concerning these comments or wish to discuss the project further, please contact Mr. David Mattens at: 777 Sonoma Avenue, Room 325, Santa Rosa, California 95404; telephone (707) 578-7513.

Sincerely,

James R. Bybee

James R. Bybee
Environmental Coordinator
Northern California

cc: C. Morris, EPA
J. Medlin, FWS

WILLITS BYPASS

Purpose of the Project

The purpose of the project is to reduce delays, improve safety and achieve a level of service (LOS) of at least "C" for interregional traffic on Route 101 within the project limits in the vicinity of the City of Willits in Mendocino County. (A definition of the various levels of service can be found in the adjoining box on this page.) This project is proposed due to a recognition that increased congestion, delay and accidents will occur as traffic volumes increase over time as a result of local development and increased interregional traffic volumes, if the project is not built.

Need for the Project

1. Improve Level of Service for Interregional Traffic

Route 101 is a principal arterial route and has been recommended by the State and the Federal Highway Administration to be included in the National Highway System, one of only six routes on the North Coast with such a designation.

Recognizing the importance of Route 101 for the interregional movement of people and goods, Caltrans has established a concept level of service (LOS) of "C" for the route in the Route Concept Report. The Regional Transportation Plan adopted by the Mendocino Council of Governments (MCOG) recommends that new facilities provide a level of service of at least "C" through the year 2010. In addition, the MCOG considers the Willits Bypass project to be its number one priority project, as does the North Coastal County Supervisor's Association. For the traffic volumes that exist and are projected for Route 101, a "C" level of service can only be achieved by construction of a four-lane highway. A two-lane facility would not provide better than an "E" level of service in the short term, and could not begin to adequately accommodate future traffic growth which is expected to increase by approximately 60% over the next 20 years.

Signalized intersections, parking maneuvers, pedestrians, turning movements, and speed limits reduce peak hour speeds to less than 15 kilometers per hour (10 mph) between the north Willits city limit and the Route 20/101 intersection; queues and a level of service "F" has been observed within the project limits north of the city limit. At times Caltrans Maintenance forces have been required to warn traffic that they are approaching a queue to avoid accidents.

Reaches of the highway located within the city limits are classified as urban arterial. Urban arterials have level of service definitions that differ from those of rural highways. If these reaches of highway were elavuated using rural highway criteria, their level of service would be "F". This situation falls far short of the target level of service "C" articulated in the Route Concept Report at completion of construction. Conditions in twenty years, with the projected increase in traffic volumes, would be even worse.

LOS "A": Complete unimpeded ability to maneuver vehicle, high level of physical and psychological comfort.

LOS "B": Stable traffic flow, other motorists in traffic stream noticeable, little restriction to vehicle maneuverability.

LOS "C": Stable flow but small traffic increases causes noticeable deterioration in service, freedom to maneuver restricted and lane changes require additional care and driver vigilance.

LOS "D": Traffic flow borders on unstable, small increases in flow causes substantial service deterioration, maneuvering and lane changes are severely limited.

LOS "E": Unstable operations with no usable gaps in the traffic stream, vehicles spaced at roughly four car lengths, very poor physical and psychological comfort.

LOS "F": Forced or breakdowns of traffic flow, recurring points of congestion, peak hour flow rates are at highway capacity.

SOURCE: Highway Capacity Manual (Transportation Research Board, Special Report #209, 1985)

Level of Service Descriptions

Route 101 is the major north/south route connecting southern and central California with the communities along California's north coast and Oregon's southern and central coasts. Travel times and the costs of transporting goods to and from the communities along Route 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays at Willits and other locations where Route 101 passes through developed areas on surface streets.

When traffic volumes were lower, many more communities north of San Francisco had Route 101 passing through the middle of town on surface streets. Over time, most of those communities such as Novato, San Rafael, Petaluma, Santa Rosa, Cloverdale, Ukiah, Garberville, Rio Dell, Fortuna, Arcata, and McKinleyville have been bypassed or had controlled access highways or freeways built through the community. Willits is the only city between San Francisco and Eureka a distance of 435 kilometers (270 miles), which continues to have Route 101 traversing the city on surface streets.

The Caltrans Route Concept Report (RCR) for Route 101, north from San Francisco to the Oregon border calls for the ultimate construction of a four-lane freeway or expressway[1] to minimize congestion, delays and to improve traffic safety. This would result in the bypass of several additional communities such as Hopland, Laytonville, Eureka and Crescent City. Individually, delays at locations that have already been bypassed probably would be measured in fractions of hours had the bypasses not been built; however, measured cumulatively in conjunction with all the other congested developed areas, the delays would be significant and measured in hours, particularly during peak traffic periods.

As previously indicated, interregional traffic on Route 101 through Willits experiences congestion and delays due to signals, pedestrian and motorist cross-traffic and turning movements. In off-peak periods, delays result from reduced speed limits within the urban limits, a distance of 4.3 kilometers (2.6 miles). During peak periods, the conflicting movements listed above, in conjunction with high traffic volumes, cause significant delays and queuing, and result in average speeds under 15 kilometers per hour (10 mph) for southbound traffic approaching the Route 101/20 intersection. Queues extending approximately 3.2 kilometers (2 miles) north of the city limit has been observed.

The following table (Table 1) contrasts travel times during the year 1993 with projected times for the construction year (2001) and a planning year 20 years after construction (2021) and with projected travel times on freeway alternatives. The table also projects travel times on existing Route 101 if the TSM alternative were constructed.

The travel time projections are based on growth projections prepared by Caltrans. Traffic volumes are expected to increase 60% by 2012, 20 years beyond the base year (1992); traffic is expected to increase 84% over the base year at 20 years after construction, (2021). (Traffic volumes in the base year ranged from 8,500 to 16,000 Average Daily Traffic (ADT) on Route 101 in Willits. Volumes are projected to range from 16,000 to 38,000 ADT in 2021 if no project is constructed.)

TABLE 1
Travel Time Through Willits (PM 42.54/52.17)

ALTERNATIVE	1993 TRAVEL TIME OFF PEAK HOUR* (MINUTES)	1993 PEAK HOUR (MINUTES)	2001 CONST. YEAR X OFF PEAK HOUR (MINUTES)	2001 CONST YEAR PEAK HOUR (MINUTES)	2021 20 YEARS AFTER CONSTRUCTION PEAK HOUR (MINUTES)
No Project	12	15	13	16	41
Route 101 with TSM Route Operational	N/A	N/A	13	15	25
Freeway Alternative (Range)	N/A	N/A	10-11	10-11	10-11

* Off peak hour represents traffic volumes for an average daylight hour. These delay estimates are conservative since they are not based on a model that would quantify the extent to which the system would break down as lengthening queues at one intersection backup and exacerbate delays at the preceding intersection. These figures also represent an average of travel time for northbound and southbound traffic. Peak traffic volumes are typically much worse in one direction than the other, so delays in one direction are greater than those shown in this table.

[1] The RCR has currently been revised to a lower concept for two segments between Eureka and Crescent City reflecting constraints imposed by the adjacency of State and National park lands and the presence of protected species. The concept LOS for Route 101 at Willits was changed during that revision from "B" to "C". Under no circumstances will the projected LOS for Willits be acceptable.

These delays are significant both when viewing Willits in isolation, and when the delays and congestion are considered cumulatively as congestion worsens at each of the communities along Route 101 that have not been bypassed. It is important to note that, although this discussion analyzes delays at 20 years after construction, the proposed facility will accommodate growth for many years beyond that time.

2. **Safety**

The current facility consists of a number of differing widths and lane configurations and numerous at-grade intersections. Starting at the southerly project limits, the existing facility is two-lane conventional highway until, at the southerly city limits, it transitions to four lanes; then to three-lanes as it approaches the intersection of Route 20; finally it reverts to a two-lane undivided conventional highway at the northerly city limits and continues for 8.36 kilometers (5.2 miles) to the northerly study limits at Oil Well Hill (Post Mile 52.17). Non-standard widths, lack of traffic separation, congestion and numerous conflicting traffic movements due to turns and cross-traffic contribute to an accident rate that approximates the statewide average of 1.55 accidents per million vehicle kilometers (621,388 miles) traveled for similar facilities. The statewide average for a rural four-lane freeway is 0.22 accidents per million vehicle kilometers (621,388 miles) traveled. Over the past three years there have been 242 accidents on Route 101 within the project limits; 8 fatalities and 157 injuries resulted from those accidents.[2] This number of accidents is more than 7 times higher than what would be expected on a rural four-lane freeway. The number of fatalities and injuries are 2.6 times higher and more than 9 times higher on the existing facility than is expected on a rural four-lane freeway.

3. **Interregional Auto and Truck Traffic Interference with Local Travel**

Approximately 4,000 vehicles with interregional origins and destinations travel daily on the only continuous north/south city street in the City of Willits, Route 101. Of the 4,000 vehicles, approximately 1,000 are trucks, many of which are large, noisy five-axle trucks commonly used for long haul goods transport. Local residents must adjust to significant congestion and inconvenience due to interregional traffic using the same streets local residents must use for routine trips to work places, shops, and schools. Removal of interregional traffic from Main Street would reduce this congestion.

The use of Main Street/Route 101 by interregional commercial vehicles results in a high number of vehicles carrying hazardous materials traveling through the City near businesses, high density residential areas and schools. This is of particular concern because of the number of accidents that are expected on a facility passing through a city with a large number of at-grade intersections. A new freeway or controlled-access facility located in a less densely populated area would have a lower level of risk for accidents related to the spill and dispersal of hazardous materials.

4. **Noise and Vibration**

The interregional auto and truck traffic described above generates substantial noise and vibration impacts along existing Route 101 in Willits. By removing a significant percentage of interregional traffic from the more densely developed areas, a bypass would reduce the amount of noise and vibration experienced by nearby homes, businesses, schools and other community facilities. Obviously, these proximity impacts will occur wherever the highway facility is located; where feasible, though, they should be removed from densely developed community centers.

5. **Conditions for Bicyclists and Pedestrians**

Substantial numbers of autos and large trucks with interregional origins and destinations add to the traffic volumes in the City of Willits. The removal of interregional traffic, including trucks and

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[2]Caltrans accident data is based on reported accidents. Our analysis indicates that 100% of fatal accidents, 90% of injury accidents, and 40% of property damage accidents are reported.

autos, from Willits' main street will improve conditions for both bicyclists and pedestrians. Narrow shoulders, wide roadways and infrequent crosswalks make traveling along or crossing Route 101 difficult. In particular, these deficiencies make access within Willits difficult for less mobile groups such as the young, disabled, and elderly.

TAA:lr

Appendix H NEPA/404 Alternatives Analysis

1 Introduction

The California Department of Transportation (Caltrans) with aid from the Federal Highway Administration (FHWA) is proposing a highway bypass around the City of Willits in Mendocino County. The project is being proposed to address operational problems due to the current facility being used as both an interregional through route and a local main street in Willits. Several alternatives have been considered for the project, including five alternatives that are examined in the Draft EIR/EIS. Four of the alternatives, C1T, E3, J1T, and LT, would involve the construction of a four-lane freeway (freeway alternatives). The fifth alternative, is the No Build alternative, which is an alternative in which no new freeway or highway construction would take place.

In addition, the project would require the placement of from 2.4 million cubic yards to 3.1 million cubic yards of fill material for construction of Alternatives C1T, J1T or LT. One proposed optional "borrow" site (referred to as the "designated borrow site") for the excavation of this fill material would be located at Oil Well Hill at the northern terminus of the project. Excavation activities would affect between 12 ha and 16 ha (30 ac to 40 ac) of the designated borrow site, and would occur along a 1,300 m (4,250 ft) section of Caltrans right-of-way (ROW) along Highway 101 north of Outlet Creek.

Each of the proposed build alternatives would require a U.S. Army Corps of Engineers (ACOE) Section 404 individual permit under the Clean Water Act for discharging or placing fill material into waters of the United States (U.S.). Impacts to waters of the U.S., including wetlands, by the proposed project range from 6.1 ha (15.1 ac) for Alternative E3 to 52.2 ha (129.1 ac) for Alternative C1T.

This Section 404(b)(1) Alternatives Analysis is a specific evaluation to determine the least environmentally damaging practicable alternative (LEDPA) to wetlands and other waters of the U.S., while meeting the project's purpose. Because selection of any of the proposed build alternatives as the preferred alternative would require an ACOE Section 404 Individual Permit, an analysis of impacts to aquatic resources and associated sensitive species for each alternative is required to comply with the Section 404 (b)(1) Guidelines. The U.S. Environmental Protection Agency (USEPA)(40 CFR Part 230, December 24, 1980) published these Guidelines to ensure that where projects would adversely affect aquatic resources that 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 avoid or would have less adverse impacts to aquatic resources.

This report provides an analysis of alternatives that is based on the proposed alternatives and identifies a LEDPA (least environmentally damaging practicable alternative). This analysis will be circulated concurrently with the Draft EIR/EIS, which is required for compliance with the National Environmental Policy Act (NEPA). Following receipt of comments on the Draft EIR/EIS, Caltrans/FHWA, ACOE and the USEPA are required to agree to the NEPA preferred/ Section 404 LEDPA, which will be documented in the Final EIR/EIS for final approval.

2 Proposed Action

2.1 Project Description

The project area is located in and adjacent to Willits in Mendocino County. The project is being proposed to reduce delays, improve safety and achieve a level of service (LOS) of at least "C." To address operational problems caused by the facility's use as both an interregional through route and the main street of Willits, the project proposes construction of a new segment of U.S. 101 that would bypass Willits.

Many bypass alternatives were considered during the project's history. The earliest alternative, referred to as Alternative A, was formally adopted by the California Transportation Commission (CTC) in 1962, prior to federal and state environmental laws. Alternative A involved building a new freeway segment across the Little Lake Valley and would have consisted of a straight-line route that was the shortest possible route between the beginning and ending points for the bypass. This alternative was dropped in 1994 because of its unacceptable environmental impacts. Since 1962, approximately 30 alternatives have been considered as a result of public and governmental agency input and independent investigation by Caltrans staff. Chapter 2 (Purpose and Need for Project) of the Draft EIR/EIS provides a history and chronology of the project's concept.

The Willits Bypass project was funded in the 1992 State Transportation Improvement Plan (STIP) and later supplemented and programmed in the 2002 STIP for $116

million by the CTC. The Mendocino Council of Governments (MCOG) included its entire $17.3 million share of Regional Improvement Program funds to show strong local support for the project.

Alternatives C1T, J1T and LT were formerly referred to as C1, J1 and L, before they were shortened recently, and are referred to as the Truncated Alternatives. Prior to being shortened, Alternatives C1, J1 and L ended at Oil Well Hill. During the Spring of 2001, the PDT agreed to study the shortened alternatives for the purpose of reducing costs, while meeting the project's purpose and need. A truncated Alternative E3 was not considered because its location as a western bypass alternative and the geography along its alignment do not lend themselves to shortening or combining with other truncated valley alternatives.

The revised alternatives and Alternative E3 would result in the construction of a four-lane freeway. Alternatives C1T, J1T and LT would cross Little Lake Valley east of the City of Willits, and Alternative E3 would traverse the hills west of Willits.

In addition, a No-Build Alternative is being considered. Under the No-Build Alternative, no changes would occur, and vehicles would continue to use the existing U.S. 101.

2.2 Purpose Of Project

Recognizing the importance of U.S. 101 for the interregional movement of people and commercial products, the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) propose to construct a new segment of U.S. 101 that would bypass Willits. Caltrans and FHWA propose this bypass project to reduce delays, improve safety and achieve a level of service (LOS) of at least "C" for interregional traffic within the project limits.

2.3 Need For Project

U.S. 101 is an important route for interstate and interregional travel and is considered the economic lifeline of California's North Coast. It is the main route for people and commercial products between the San Francisco Bay Area and the greater Eureka-Arcata area. Travel times and the costs of transporting products to and from the

communities along U.S. 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays at Willits, where U.S. 101 passes through developed areas on surface streets.

The proposed bypass project is a function of Caltrans' recognition that increases in congestion and delays due to existing traffic controls (e.g., traffic signals), pedestrian and vehicle cross-traffic, and turning movements, will occur as future traffic volumes increase due to local development and increased interregional traffic if the project is not constructed.

The proposed project is needed to correct these and other problems. These problems are discussed in detail in Chapter 2 (Purpose and Need) of the Draft EIR/EIS, and include:

- Existing facility is the principle north-south arterial through Willits;
- Unsatisfactory level of service for interregional traffic;
- Traffic safety concerns;
- Interregional automobile and truck traffic interference with local travel;
- Levels of noise and vibration in downtown Willits, and;
- Undesirable conditions for bicyclists and pedestrians.

2.4 Objectives Of The Proposed Action

The proposed project would accomplish the following objectives:

- Improve level of service, to LOS "C", for interregional/interstate traffic by minimizing congestion and delays;
- Improve traffic safety;
- Minimize interregional commercial and other through traffic vehicle interference with local traffic;
- Reduce noise and vibration experienced by nearby homes, businesses, schools and other community facilities due to interregional commercial truck and other through traffic, and;
- Improve conditions for bicyclists, pedestrians, and less mobile individuals, including the disabled and elderly.

3 Resource Identification

3.1 Wetland Resources and Other Waters of The U.S.

A delineation of jurisdictional wetlands and other waters of the United States for all alternatives was prepared following the 1987 U.S. Army Corps of Engineers (ACOE) wetlands delineation manual (Environmental Laboratory 1987) and submitted to the ACOE (JSA 1991). The wetland delineation was verified by the ACOE (letter dated April 8, 1998; see Appendix F). The following provides descriptions of the jurisdictional wetlands within the project limits.

Table H-3-1 summarizes the communities that are jurisdictional under Section 404 of the Clean Water Act. Table H-3-2 summarizes the approximate areas of wetland and upland habitats on the floor of Little Lake Valley excluding foothill habitat areas that surround the valley floor.

3.1.1 Riparian Communities

Riparian communities are found along creeks, rivers, drainages, and at other scattered locations throughout the Little Lake Valley floor. Several plant communities ranging from multi-layered woodlands to dense scrub thickets characterize riparian communities in the study area. Riparian woodland communities may have once occupied extensive portions of Little Lake Valley before it was converted to pasture and agricultural uses. Remnant riparian woodlands are found in swamp-like areas that could be interpreted as climax communities on the hydric soils of creek levees and terraces in the central and northern portions of the valley.

Several riparian woodland types occur in the project area. Although most of the riparian types qualify as jurisdictional wetlands (Table H-3-1), each of the riparian types includes areas that would not be considered as jurisdictional due to the absence of wetland soil and hydrology characteristics, although hydrophytic plant species composition remains the same.

Table H-3-1. Wetland/Waters of U.S. in the U.S. 101/Willits Bypass Project Area

Formation	Plant Community	Section 404 Jurisdiction [a]	Sensitive Natural Community [b]
Wooded riparian	Mixed riparian woodland	X	X
	Ash riparian woodland	X	X
	Valley oak riparian woodland	X	X
	Valley oak–ash riparian woodland	X	X
	Willow riparian scrub	X	X
	Mixed riparian scrub	X	X
	Montane riparian woodland	X	X
Marsh	Mixed marsh	X	X
	Cattail marsh	X	X
	Tule marsh	X	X
Meadow	Wet meadow	X	X
	Hay meadow	X	
	Residential meadow	X	
Vernal pool	Vernal pool	X	X
Swale	Swale	X	X
Stock pond	Stock pond/open water	X	
Other waters	Other waters (creeks/channels)	X	X

Notes:

[a] = Jurisdictional wetland communities

[b] = Communities that are either naturally rare, substantially diminished by human activities, have particularly high ecological and human amenity values, or are targeted for protection by state or federal laws and policies (e.g., wetland resources).

Table H-3-2. Habitat Areas on the Floor of Little Lake Valley

Habitat Formation	Approximate Area [ha (ac)]
Wooded riparian	320 (790)
Wet meadow	1050 (2,594)
Marsh	240 (593)
Grassland	650 (1,606)
Oak woodland	40 (99)
Total	2300 (5,682)

Note: Foothill habitats are not included in this table

Riparian habitats, in general, support the greatest diversity of bird species in northern California (Gaines 1974). The variety of plant species, multi-layered vegetation, perennial surface waters, and variety of foods makes riparian habitats especially

attractive to wildlife (Warner 1979). Mature willows, valley oaks, black oaks, and Oregon ash provide nesting habitat for raptors, such as red-tailed hawks, red-shouldered hawks, and white-tailed kites, and for cavity-nesting birds that require mature stands of trees, such as the Nuttall's woodpecker, downy woodpecker, northern flicker, oak (= plain) titmice, house wren and white-breasted nuthatch.

Scrub/shrub willows are dominated by low-stature plants and lacks the multi-layered vegetation of most other riparian types. Although scrub/shrub willow communities tend to support fewer wildlife species than mixed riparian woodland communities, they do provide important cover for deer and shelter and nesting habitat for a variety of resident and migratory birds, such as flycatchers, vireos, and warblers.

Riparian plants, including California grape, blackberry, elderberry, and valley oak provide an important food source for birds and mammals, as well as shelter and nesting habitat. Wildlife species that depend on the nectar, fruits, and seeds of these riparian plants include Anna's hummingbird, black-headed grosbeak, spotted (= rufous-sided) towhee, California towhee, raccoon, ringtail, striped skunk, gray fox, and western gray squirrel.

Riparian vegetation also supports an abundance of insects that feed on foliage and stems during the growing season. These insects, in turn, provide a food source for migratory and resident birds, including Pacific-slope (= western) flycatcher, western wood-pewee, yellow warbler, MacGillivray's warbler, Wilson's warbler, warbling vireo, bushtit, and house wren (Gaines 1974, Remsen 1978, Sanders and Flett 1989, Harris et al. 1988).

The following riparian communities occur in the study area: mixed riparian woodland, ash riparian woodland, valley oak riparian woodland, valley oak-ash riparian woodland, montane riparian woodland, willow riparian scrub, and mixed riparian scrub. A more complete description of specific riparian communities is provided in the Supplemental Natural Environmental Study (NES) (Caltrans 2000).

Because of the historic loss of many riparian communities in California and their importance as shelter, foraging and nesting habitat for many resident and migratory wildlife species, these communities are considered to be sensitive communities.

In the Willits Bypass study area, mixed riparian woodland is found along the major creeks and drainages throughout Little Lake Valley. Ash riparian woodland is common in the northern and central portions of Little Lake Valley. Valley oak riparian woodlands are scattered throughout Little Lake Valley, typically on the low and high terraces along creeks and drainages. Scattered individual valley oaks are common in open fields, while groves of valley oaks occur along creeks, fences, and roads on higher terraces. Montane riparian woodland is found in the foothills of Little Lake Valley, primarily in the western portion of the study area. Willow riparian scrub and mixed riparian scrub communities are found in scattered locations throughout Little Lake Valley.

3.1.2 Meadow Communities

Meadows are herbaceous plant communities dominated by mixtures of perennial grasses and forbs, with other grass-like species present, such as rushes and sedges. Some meadows include individual riparian shrubs and trees.

Three wetland meadow types were identified in the study area: wet meadow, hay meadow, and residential meadow. Each is distinguished by differences in hydrologic characteristics and plant species composition. These meadows typically have flat or concave surface relief, and are located in low-lying troughs and basins with clay soils. These site characteristics help maintain extended periods of soil saturation or flooding during the growing season. A more complete description of the wetland meadow communities is provided in the Supplemental NES (Caltrans 2000).

Wet meadows are found in both natural and artificial settings in Little Lake Valley and in foothill portions of the study area. They develop in areas where the soil and vegetation have remained undisturbed (or only minimally disturbed) for many years. Under natural conditions in the foothill and valley portions of the study area wet meadow vegetation is found in swales, drainages, in areas around springs and seeps, and along terraces and alluvial fans. In artificial settings, vegetation characteristic of wetland meadows is found in drainage ditches and in depressions created by excavation.

Sedges and rushes comprise approximately 40%–80% of the total hydrophytic vegetation in wet meadows. Other species include redtop, meadow-foxtail, California oatgrass, creeping ryegrass, Kentucky fescue, pennyroyal, Timothy grass, western

buttercup, curly dock, common velvet grass, and bird's-foot trefoil. In addition, ash and valley oak trees are found sporadically in some wet meadows. Baker's meadowfoam, a California rare species, is locally common in wet meadow areas.

Wet meadow communities receive water from various sources, including agricultural irrigation, shallow water tables, and flooding when creeks flow beyond their banks.

The presence of a mosaic of dry meadows, marshes, and open water near most of the wet meadows produces a diversity of habitats that enhances their value for wildlife.

Wet meadow habitats provide important foraging habitat for waterfowl species, including mallard, cinnamon teal, and other wetland wildlife species, such as great blue heron, American coot, killdeer, common snipe, black phoebe, cliff swallow, barn swallow, red-winged blackbird, striped skunk, Pacific tree-frog, common garter snake, and western terrestrial garter snake. In addition, wet meadows provide potential nesting habitat for mallards and cinnamon teal.

Because wet meadows provide habitat for a variety of wildlife and plant species; are relatively scarce in the region; and are threatened by agriculture and urban development, they are considered a sensitive community. The overall extent and value of this habitat has been greatly reduced in California by artificial drainage, land conversion, and overgrazing. The community's status as a sensitive habitat is supported by policies of CDFG and USFWS that call for "no net loss," a goal for all wetlands.

Hay meadows are similar to wet meadows, except that hay meadows consist of irrigated pastures that are dominated by non-native herbaceous plant species. The irrigation enhances the existing wetland hydrologic characteristics that occur on these sites. Hay meadows are common throughout valley portions of the study area.

Residential meadows are found in rural and urban locations in the Willits area. Residential meadows are man-made communities dominated by non-native ornamental and horticultural plant species. Residential meadows that occur in areas that historically consisted of wetland habitats usually retain their wetland hydrologic and soil characteristics, even though they have been developed.

3.1.3 Marsh Communities

Marsh communities qualify as jurisdictional wetlands by the ACOE and are dominated by perennial emergent plant species, consisting of varying numbers of herbs and grass-like plant species (rushes and sedges). The vegetative cover is often very dense. In contrast to meadow communities, which are seasonally saturated, marsh communities usually have soils that are saturated throughout most of the year. Floodwater from Outlet Creek and shallow groundwater are the principal sources of water for marshes in Little Lake Valley.

Three marsh communities were identified in the study area: mixed marsh, tule marsh, and cattail marsh. A more complete description on specific marsh communities is provided in the Supplemental NES (Caltrans 2000).

The tule, cattail, and mixed marshes in the study area provide shelter, foraging and breeding habitat for wildlife, including waterfowl, shorebirds, and wading birds. During winter, when sufficient water is present, freshwater marshes contain seeds and invertebrates that provide a food source for waterfowl, including wood duck, mallard, American wigeon, cinnamon teal, green-winged teal, bufflehead, and common goldeneye.

Tule, cattail, and mixed marsh vegetation also occurs in other wetland habitats, such as wet meadows, swales, and stock ponds. Marshes in the study area that support tall emergent vegetation provide nesting habitat and cover for wildlife species, including American bittern, green heron, Virginia rail, sora rail, marsh wren, common yellowthroat, song sparrow, and red-winged blackbird.

Because of its regional scarcity, threats to remaining marsh habitats, and importance to wetland-dependent plant and wildlife species, mixed, tule and cattail marshes are considered to be sensitive communities.

In the study area, mixed marsh and tule marshes are common in the northern portion of Little Lake Valley. Cattail marsh is restricted to the northern portion of Little Lake Valley.

3.1.4 Vernal Pools

Vernal pools are small basins that collect rainfall and surface runoff from a surrounding grassland watershed. The presence of an impervious layer of subsoil prevents water from infiltrating down into the soil profile, which causes water to remain in depressions for longer periods of time. The frequency and duration of ponding and saturation vary among vernal pools, depending on the size of the basin and its watershed, depth to the impervious subsoil layer, and patterns and amounts of rainfall.

In the central portion of Little Lake Valley, vernal pools are found throughout the meadow habitats. They are distinguished from meadow habitats by the difference in plant species composition, topography, and surface hydrologic characteristics. Vernal pool vegetation differs from meadow vegetation in that annual hydrophytic forbs are the typical dominants.

Characteristic annual hydrophytes include bracteate popcornflower, purslane, speedwell, downingia, Bolander's water-starwort, common toad rush, Baker's and Douglas' meadowfoam, semaphore grass, and field owl's clover. Herbaceous perennials include spreading rush, slender-beaked sedge, green-sheath sedge, meadow-foxtail, Timothy grass, pennyroyal, and curly dock.

Vernal pools provide foraging habitat, breeding habitat, and cover for a number of vernal pool-dependent animal species, including fairy shrimp. Due to their seasonal occurrence and limited area, vernal pools support few bird and mammal species.

Although vernal pools are ephemeral aquatic habitats, a number of invertebrate species and amphibians have adapted to, and are dependent on, this habitat. When standing water is available, vernal pools provide breeding habitat for Pacific tree frogs and a number of aquatic invertebrate species, including crustaceans such as clam shrimp (*Cyzicus*), and water flea (*Daphnia*).

In winter and spring, waterfowl, shorebirds, and wading birds, including mallard, cinnamon teal, killdeer, common snipe, and great blue heron may use vernal pools for resting or foraging.

Swales

Swales resemble vernal pools due to similarities in vegetation and soil conditions. However, swales are generally narrow linear drainage features that traverse uplands and convey surface runoff during and after rainfall. Swales in Little Lake Valley typically occur on alluvial fans and creek terrace surfaces.

In the project area, swale vegetation is similar to that described above for vernal pools except that the proportion of grass cover in swales is generally high.

Swales and vernal pools differ in their value as wildlife habitats because of differences in the duration of ponding, with vernal pools typically retaining water longer than swales. In winter and spring, swales can offer habitat to amphibians and waterfowl.

Most swales in the study area are degraded by livestock grazing, reducing their value as wildlife habitat. For most of the year, wildlife species that use swales are similar to those that use annual grasslands, because they are dry most of the year. Wildlife species that typically forage or breed in dry swales include western meadowlarks, striped skunks, black-tailed hares, coyotes, and gopher snakes.

In Little Lake Valley and in other regions of California, swales form under the same circumstances as vernal pools.

Stock Ponds/Open Water

Stock ponds are impoundments of water that are typically constructed within drainages to provide year-round water sources for livestock and irrigation. Water levels fluctuate throughout the year with fluctuations in precipitation, runoff, evapotranspiration rates, and groundwater levels.

Many stock ponds have both vegetated and unvegetated (open water) components. In Little Lake Valley, stock ponds support cattail, tule, or mixed marsh vegetation around the upper margins of the ponds, and hydrophytic plant species, such as watercress, slender hairgrass, western mannagrass, aquatic buttercup, water milfoil, spikerush and water dock, along the water edges and shallow water margins. Deeper water areas of stock ponds usually lack vegetation.

Stock ponds and other open water habitats can attract large numbers of wildlife, especially if they contain water year-round. Stock ponds provide drinking water for many wildlife species, including black-tailed deer, gray fox, raccoon, striped skunk, Virginia opossum, and western gray squirrel and provide important breeding habitat for amphibians, including western toad and Pacific treefrog, and western pond turtle. In the study area, however, livestock grazing has reduced the vegetative cover around most of the stock ponds.

Wildlife observed at stock ponds during the field surveys included Pacific tree-frog, common garter snake, northwestern pond turtle, great blue heron, green heron, wood duck, mallard, American wigeon, ring-necked duck, hooded merganser, and American coot. Stock ponds are found throughout Little Lake Valley.

Other Waters of the United States

Other jurisdictional waters of the United States include rocky, unvegetated intermittent and perennial creek channels, which are found in several settings not described above. These areas do not qualify as wetlands because they often lack hydrophytic vegetation or hydric soil conditions. However, “other waters” are subject to ACOE jurisdiction.

Because other waters of the U.S. provide habitat for aquatic wildlife, drinking water for terrestrial wildlife species, and ability to influence the quality of wildlife and fishery habitat in downstream reaches, other waters of the U.S. are considered sensitive natural communities.

3.2 Endangered, Threatened, And Other Special Concern Species

3.2.1 Special-Status Plant Species

Fourteen special-status plant species were identified as potentially occurring in the study area. Table 3-3 provides information on the plant species’ legal status, geographic range, habitat association, and their probability of inhabiting the study area. Three special-status plant species: Baker's meadowfoam, Baker’s navarretia, and glandular western flax, were observed within the study corridors.

3.2.2 Special-Status Wildlife Species

Special-status wildlife species occurring or potentially occurring in the Willits Bypass study area are listed in Table H-3-4, which summarizes their federal and state listing status, habitat requirements, geographic ranges, and potential to occur in the project area. Wildlife surveys detected the presence of four wildlife species that are listed federally and/or by the state as threatened or endangered: northern spotted owl, bald eagle, American peregrine falcon and willow flycatcher; and eleven wildlife species of special concern: osprey, golden eagle, Cooper's hawk, sharp-shinned hawk, northern harrier, California yellow warbler, yellow-breasted chat, red tree vole, foothill yellow-legged frog, white-tailed kite, and northwestern pond turtle.

3.2.3 Special-Status Fish Species

Surveys conducted in the project study area for special-status fish detected the presence of three federally listed threatened fish species: the coho salmon, chinook salmon, and steelhead. Special-status fish species occurring or potentially occurring in the study area are listed in Table H-3-5, which includes their legal status, habitat requirements, and geographic ranges.

Table H-3-3. Special-Status Plants Identified as Potentially Occurring in the U.S. 101/Willits Bypass Study Area

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
Federal and State Listed Species				
Roderick's fritillary *Fritillaria roderickii* *(F. biflora* var. *biflora)*	--/E/1B	Limited area in central Mendocino County	Grasslands and oak woodlands, generally near the coast	very low
Burke's goldfields *Lasthenia burkei*	E/E/1B	Lake, Mendocino, and Sonoma Counties	Wet meadows and vernal pools	very low
Baker's meadowfoam *Limnanthes bakeri*	SC/R/1B	Mendocino County, including Little Lake Valley and near Laytonville	Vernal pools, swales, other seasonal wetlands	present
Milo Baker's lupine *Lupinus milo-bakeri*	SC/T/1B	Colusa and Mendocino Counties; reported from Route 101 near Longvale [5 km (3 mi.) north of Little Lake Valley]	Oak and mixed evergreen-oak-conifer forests; frequents roadsides and similar disturbed areas	moderate
Hoover's semaphore grass *Pleuropogon hooverianus*	SC/R/1B	Mendocino, Marin, Sonoma Counties	Marshes, meadows, and other types of seasonal wetlands where water ponds during the wet season	low
Showy Indian clover *Trifolium amoenum*	E/--/1B	Historically in Coast Ranges from Santa Clara to Mendocino Counties; now known only in Sonoma County	Grassland, oak woodland	low
Other Special Status Species				
Livid sedge *Carex livida*	--/--/1A	Reported from coast of Mendocino County, Oregon, and Washington; last seen in California in 1866	Marshes and swamps	very low
Glandular western flax *Hesperolinon adenophyllum*	SC/--/1B	North and central Coast Ranges, especially Lake and Mendocino Counties	Serpentine soils in chaparral and grasslands	present
Thin-lobed horkelia *Horkelia tenuiloba*	SC/--/1B	Marin, Mendocino, and Sonoma Counties	Mesic openings in chaparral	low

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
Mendocino bush-mallow *Malacothamnus mendocinensis*	SC/--/1A	Known only from near Ukiah; last seen in 1938	Open banks in oak woodland	very low
Baker's navarretia *Navarretia leucocephala* ssp. *Bakeri*	--/--/1B	Interior north Coast Ranges and western Sacramento Valley	Oak woodlands, conifer forests, wet meadows, grasslands, vernal pools	present
Gairdner's yampah *Perideridia gairdneri ssp. gairdneri*	SC/--/4	Known from the coast from Kern to Mendocino County	Broadleaf forest, chaparral, grasslands, vernal pools	very low
Nuttall's pondweed *Potamogeton epihydrus* ssp. *Nuttallii*	--/--/2	Coast Ranges of Mendocino County, Several Sierra Nevada Counties; Oregon and Washington	Marshes, swamps, slow moving streams, ponds, lakes, and irrigation ditches	high
Beaked tracyina *Tracyina rostrata*	--/--/1B	Humboldt, Lake, and Sonoma Counties	Oak woodlands, hardwood forest, open grassy areas, probably areas where soil surface is visible (i.e., no thatch layer, bare sterile ground, and roadcuts)	low

* Status explanations:

Federal
E = listed as endangered under the federal Endangered Species Act.
SC = species of concern.

State
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act.

California Native Plant Society
List 1A = species presumed extinct in California.
List 1B = species rare, threatened, or endangered in California and elsewhere.
List 2 = species rare, threatened, or endangered in California but more common elsewhere.
List 3 = species about which more information is needed to determine their status.
List 4 = species of limited distribution.
**Probability based on information available after field surveys were conducted: proximity of nearest occurrences, the geographic extent of the species, and suitability of habitats in the Willits project area.

Table H-3-4. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Federal and State Listed Species				
Birds Marbled murrelet *Brachyramphus marmoratus*	T/E	Nesting sites from the Oregon border to Eureka and between Santa Cruz and Half Moon Bay; winters near shore and offshore along the entire California coastline	Mature, coastal coniferous forests for nesting; forages in nearby coastal water and nests in conifer stands greater than 150 years old and may be located up to 56 km inland	Species surveyed for but not observed in project area. No habitat present in the project area.
Marbled murrelet Critical Habitat			Critical Habitat is USFWS designated areas essential to marbled murrelet's survival and is concentrated on defined large, contiguous blocks of late-successional forest lands along the coastal Pacific Northwest.	Designated Critical Habitat does not occur in the project area
American peregrine falcon *Falco peregrinus anatum*	D/E	Permanent resident on the north and south Coast Ranges; may summer on the Cascade and Klamath Ranges south through the Sierra Nevada to Madera County; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area
Bald eagle *Haliaeetus leucocephalus*	PR/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe area; winter range over most of California except the southeastern deserts and high altitudes in the Sierras	In western North America, nests and roosts in coniferous forests within 1.5 km (0.9 miles) of a lake, reservoir, river, or the ocean	Species observed in project area
Northern spotted owl *Strix occidentalis caurina*	T/--	A permanent resident throughout its range; found in the north Coast, Klamath, and western Cascade Ranges, from Del Norte to Marin Counties	Dense, old-growth forests dominated by conifers, with topped trees or oaks available for nesting crevices	Species observed in project area
Northern spotted owl Critical Habitat			Critical Habitat is USFWS designated areas essential to the northern spotted owl's conservation and applies solely to the owl's habitat units on federal lands	Designated Critical Habitat does not occur in the project area
Little willow flycatcher *Empidonax traillii brewsteri*	SC/E	Central and northern California along the Coast Range from Santa Barbara County north to Oregon	Nests in riparian areas and often forages in adjacent open areas and meadows	Species observed in project area, as a migrant only

Species	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Other Special Status Species				
Birds				
Cooper's hawk *Accipiter cooperi*	--/SCS	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range; permanent residents occupy the rest of the state	Nests primarily in riparian forests dominated by deciduous species and in densely canopied forests and forages in open woodlands	Species observed in project area
Northern goshawk *Accipiter gentilis*	SC/SCS	Permanent resident on the Klamath and Cascade Ranges, the north Coast Ranges from Del Norte to Mendocino Counties, and in the Sierra Nevada south to Kern County; winters in Modoc, Lassen, Mono, and northern Inyo Counties; rare in southern California	Nests and roosts in red fir, Jeffrey pine, and lodgepole pine forests; hunts in forests and forest clearings and meadows	Species surveyed for but not observed in project area
Sharp-shinned hawk *Accipiter striatus*	--/SCS	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid-elevations, as well as along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties; winters over the rest of the state except very high elevations	Dense-canopy ponderosa pine or mixed conifer forest and riparian habitats	Species observed in project area
Golden eagle *Aquila chrysaetos*	PR/SCS,FP	Mountains and foothills throughout California	Cliffs and escarpments or tall trees for nesting; forages in grasslands, chaparral, and oak woodlands	Species observed in project area
Northern harrier *Circus cyaneus*	--/SCS	North and central coast, central valley, and northeastern California and has been recorded on the eastern side of the Sierra Nevada mountains during winter	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover	Species observed in project area
California yellow warbler *Dendroica petechia brewsteri*	--/SCS	Nests over most of California except the Central Valley, the Mojave Desert region, and high elevations in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders, or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Species observed in project area
White-tailed kite *Elanus caeruleus*	--/CP	Lowland areas west of Sierra Nevada from northern Sacramento Valley south and coastal valleys and foothills to western San Diego County	Low foothills or valley areas with valley or live oaks, riparian areas, and marshlands near open grasslands for foraging	Species observed in project area
Prairie falcon *Falco mexicanus*	--/SCS	Resident throughout California	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area
Yelow-breasted chat *Icterias virens*	--/SCS	Uncommon migrant in California; nests in a few locations with appropriate habitat such as Sweetwater Creek, El Dorado County; along the Russian River, Sonoma County; Little Lake Valley, Mendocino County; and Putah Creek, Yolo County	Nests in dense riparian habitats dominated by willows, tall weeds, blackberry vines, and grapevines	Species observed in project area

Species	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Osprey *Pandions haliaetus*	SC/SCS	Found in northern California primarily in the Coast Range and also in the Klamath and western Cascade Ranges	Found adjacent to lakes, rivers, coastal marine, and estuary habitats	Species observed in project area
Mammals				
Pacific fisher *Martes pennanti pacifica*	SC/SCS	Coastal mountains from Del Norte to Sonoma Counties; east through Cascades to Lassen County, south in Sierra Nevada to Kern County	Mixed conifer habitats with high overstory cover prefering riparian habitat	Species surveyed for but not observed in project area
Red tree vole *Arborimus pomo*	--/SCS	Occurs along the north Coast Range from Del Norte County south to Sonoma County, California	Inhabits old-growth forest of Douglas-fir, redwood, or montane hardwood-conifer forest	Species may occur in project area
Townsend's western big-eared bat *Plecotus townsendii townsendii*	SC/SCS	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; sensitive to disturbances and may abandon a roost after on-site visit	Species not surveyed for but may occur in project area
Amphibians				
Tailed frog *Ascaphus truei*	SC/SCS	Occurs in California from Del Norte county south to central Sonoma County	old, perennial, swift flowing streams and is associated with mature, old growth forest	Species surveyed for but not observed in project area
Northern red-legged frog *Rana aurora aurora*	SC/SCS	Found along the coast and coastal mountain ranges of California from Del Norte to Mendocino	Permanent and semi-permanent aquatic habitats such as creeks and cold water ponds bordered with grassy or shrubby vegetation; may estivate in rodent burrows or cracks during dry periods	Species surveyed for but not observed in project area
Foothill yellow-legged frog *Rana boylei*	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge usually found near riffles with rocks and sunny banks nearby	Species observed in project area
Olympic salamander *Rhyacotriton variegatus*	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge	Species surveyed for but not observed in project area

Species	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Reptiles				
Northwestern pond turtle *Clemmys marmorata marmorata*	SC/SCS	In California, range extends from Oregon border south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms	Species observed in project area

Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act
T = listed as threatened under the federal Endangered Species Act
PE = proposed endangered under the federal Endangered Species Act
D = delisted from the federal Endangered Species Act , monitored for 5 years
SC = species of concern

PR = protected under the "Bald Eagle Protection Act"

State

E = listed as endangered under the California Endangered Species Act
FP = fully protected under the California Fish and Game Code
SCS= special concern species
CP = fully protected species in California

Table H-3-5. Special Status Fish Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area

Species	Status %	California Distribution	Habitats	Potential to Occur within the Project Area
Federal Listed Species				
Tidewater goby *Eucyclogobius newberryi*	E/SCS	From San Diego County north to the Smith River, along coastal California	Shallow coastal lagoons and lower stream reaches with brackish water utilizing marshy habitats where they can avoid high winter flows	Tidewater goby would not occur since project area lacks coastal lagoon habitat type, which is necessary to support this species
Central California Coast coho salmon *Oncorhynchus kisutch*	T/SCS	From Punta Gorda, California, south to San Lorenzo River, California and is a distinct Evolutionarily Significant Unit	Low gradient coastal streams with cool water temperatures; juveniles utilize deep pools with woody debris and after 1 year in freshwater, juveniles migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species would not occur in project area since the Eel River drainage is north of Punta Gorda, California
Southern Oregon/Northern California coho salmon *Oncorhynchus kisutch*	T/SCS	From Cape Blanco, Oregon south to Punta Gorda, California and is a distinct Evolutionarily Significant Unit	Coastal rivers with cool water temperatures; juveniles spend up to 15 months in fresh water utilizing deep pools with woody debris and migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species historically known to occur in the project area
Central California steelhead *Oncorhynchus mykiss*	T/SCS	From Russian River in Mendocino County south to Soquel Creek in Santa Cruz County	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species would not occur in project area since the Eel River drainage is north of Russian River
Northern California steelhead *Oncorhynchus mykiss*	T/SCS	From Redwood Creek in Humboldt County south to the Gualala River in Sonoma and Mendocino Counties	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species known to occur in the project area
Southern Oregon/ California Coast chinook salmon *Oncorhynchus tshawytscha*	T/--	From Cape Blanco, Oregon south to Punta Gorda, California	Cold, clear water with clean gravel of appropriate sizes for spawning; migrate to ocean after spending one growing season in freshwater	Species known to occur in the project area
Federal Candidate Species				
Coastal cutthroat trout *Oncorhynchus clarki clarki*	C/SCS	Coastal streams from Seward, Alaska to the Eel River, California; in the Eel River, they occur upstream to Fortuna, California	Small, low gradient coastal streams and estuarine habitats utilizing pools with fallen logs, undercut banks, and boulders for cover; some juveniles migrate to ocean their first year while others spend up to 5 years in freshwater	Species would not occur in project area since Little Lake Valley is more than 60 miles upstream of Fortuna, California

* Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act

T = listed as threatened under the federal Endangered Species Act

PT = proposed threatened under the federal Endangered Species Act

C = federal candidate species

State

SCS = special concern species

4 FULL RANGE OF ALTERNATIVES

4.1 Alternatives Withdrawn From Further Consideration

A number of alternative routes to bypass the City of Willits were considered over the years. Approximately thirty alternatives, including a two-lane concept and additional interchange locations, were considered but later rejected because they were determined to be infeasible, or "not practicable," or had severe environmental consequences. The rejected alternatives and the reason(s) for their rejection are summarized in Chapter 3 (Description of the Proposed Action and its Alternatives) of the Draft EIR/EIS.

4.2 Alternatives Under Consideration

Five alternatives are examined in the Draft EIR/EIS and this 404 (b)(1) Alternatives Analysis, including four build alternatives and one No Build alternative. The four build alternatives, Alternatives C1T, E3, J1T, and LT involve the construction of a four-lane freeway (freeway alternatives). The No Build alternative is an alternative in which no new freeway or highway construction would occur.

At the south end of the project area, all of the freeway alternatives depart from the existing four lane U.S. 101 in the Upper Haehl Creek area. Alternatives C1T, J1T, and LT cross the Little Lake Valley east of the City of Willits and are also referred to as the "center valley" alternatives in this document. Alternative E3 is located in the hills west of the City of Willits. Map 3 of the Draft EIR/EIS (Volume 2) shows the routes of the alternatives.

The No Build alternative would consist of the continued use of the existing U.S. 101, which passes through the City. However, future improvements could be constructed. The No Build alternative is discussed for the purpose of comparing the effects of the build alternatives with a future scenario in which a bypass would not be constructed.

In 1994, a formal Memorandum of Understanding (MOU) was executed between the United States Army Corps of Engineers (ACOE), USEPA, Federal Highways Administration (FHWA), United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Caltrans. The MOU implements a policy to

improve coordination between agencies and to integrate National Environmental Policy Act (NEPA) and Clean Water Act Section 404 procedures. Under the guidelines of the MOU, signatory agencies have agreed to the project's nodal choice, purpose and need, and alternatives under consideration for the draft environmental document (see Appendix G of the Draft EIR/EIS for concurrence letters).

Each alternative, as appropriate, was evaluated by segments that could be combined to potentially create a hybrid alternative. This nodal approach divides several of the alternatives into two or three parts. The text and tables in this document, for the most part, discusses data in a manner that allows environmental impacts of each segment to be evaluated separately. For some environmental issues, however, analysis by segment was not possible or prudent; for example, certain biological resources or community issues do not lend themselves to an effective segmental analysis.

Chapter 3 of the Draft EIR/EIS provides specific descriptions of each of the proposed alternatives under consideration.

5 Project Impacts

5.1 Wetland Resources and Other Waters of The U.S.

Permanent impacts to waters of the United States are greatest for Alternative C1T (52.2 ha [129.1 ac]); intermediate for Alternatives J1T and LT (21.1 - 29.9 ha [52.4 – 72.8 ac]); and least for Alternatives E3 (6.1 ha [15.1 ac]) (Tables 5-1).

5.1.1 Alternative C1T

Alternative C1T would impact approximately 52.3 ha (129.1 ac) of wetland habitat that qualifies as waters of the U.S. Impacts to wetlands associated with Alternative C1T are summarized in Table 5.1.

Impacts to wetlands resulting from construction of Alternative C1T would be greater than for the other alternatives.

Alternative C1T would also require the realignment of approximately 400 m (1,300 ft) of Mill Creek and a 1,600 m (5,250 ft) reach of Outlet Creek bordering the east

side of the Northwest Pacific Railroad tracks, in the northern portion of Little Lake Valley. 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 in Little Lake Valley that provide habitat for several special-status species found in Little Lake Valley. Because of the magnitude of direct and indirect wetland impacts within Little Lake Valley, Alternative C1T is considered an adverse impact (Caltrans 2000).

Table H-5-1. Direct Impacts to Jurisdictional Waters of the U.S./Wetlands

	Alt. C1T		Alt. E3		Alt. J1T		Alt. LT		OWH
	south	north	south	north	south	north	south	north	
Jurisdictional Waters of the U.S./Wetlands									
Mixed riparian woodland	3.1 (7.7)*	3.3 (8.2)	2.6 (6.4)	0.3 (0.7)	1.9 (4.7)	0.5 (1.1)	3.2 (7.9)	-	-
Ash riparian woodland	-	0.2 (0.4)	-	0.1 (0.2)	0.1 (0.2)	1.4 (3.5)	-	0.4 (1.1)	-
Valley oak riparian woodland	0.3 (0.7)	0.4 (1.1)	-	-	1.0 (2.5)	-	0.3 (0.7)	-	-
Valley oak-ash riparian woodland	1.2 (3.0)	4.0 (10.0)	-	-	0.1 (0.2)	-	0.5 (1.2)	0.1 (02)	-
Mixed willow scrub	1.7 (4.2)	1.4 (3.4)	-	-	-	-	-	-	-
Mixed riparian scrub	-	0.5 (1.1)	-	-	0.4 (1.0)	0.2 (0.4)	-	0.2 (0.4)	-
Montane riparian woodland	-	-	-	0.2 (0.5)	-	0.04 (0.1)	-	0.04 (0.1)	-
Wet meadow *	12.1 (29.9)	17.8 (44.0)	1.1 (2.7)	0.2 (0.5)	2.2 (5.4)	7.7 (19.1)	13.5 (33.3)	8.7 (21.6)	-
Residential meadow	0.1 (0.2)	-	0.2 (0.5)	-	0.1 (0.2)	-	-	-	-
Hay meadow	2.9 (7.2)	-	-	-	3.4 (8.4)	-	-	-	-
Mixed marsh	-	2.4 (6.0)	-	-	-	1.7 (4.3)	-	1.7 (4.3)	-
Tule marsh	-	0.04 (0.1)	-	-	-	-	-	-	-
Vernal pool	0.1 (0.2)	-	0.1 (0.2)	-	0.4 (1.0)	0.004 (0.01)	0.2 (0.5)	0.004 (0.01)	-
Swale	0.8 (2.0)	0.004 (0.01)	-	-	0.4 (1.0)	-	0.3 (0.7)	-	-
Stock pond	-	-	0.4 (1.0)	-	0.1 (0.2)	0.2 (0.4)	-	0.2 (0.4)	-
Other waters	-	-	0.7 (1.7)	0.2 (0.5)	-	-	0.1 (0.2)	-	-
Open water	-	-	-	-	-	-	-	-	-
Total	**22.3 (55.1)**	**30.0 (74.2)**	**5.1 (12.6)**	**1.0 (2.5)**	**9.5 (23.5)**	**11.6 (28.9)**	**18.1 (44.7)**	**11.3 (28.1)**	**-**
Cumulative Total	**52.3 (129.1)**		**6.1 (15.1)**		**21.1 (52.4)**		**29.4 (72.8)**		**-**

* Units in ha (ac).

** Includes permanent impacts only. Construction of a viaduct along the valley alternatives would temporarily affect wet meadow habitat, including 1.6 ha for C1, 2.2 ha for J1, and 1.7 ha for L.

5.1.2 Alternative E3

Alternative E3 would impact approximately 6.1 ha (15.1 ac) of habitat that qualifies as waters of the United States, including wetlands. This relatively low magnitude of wetland impact is the lowest impact compared to the other build alternatives. Approximately half of the affected wetlands on this alternative include mixed riparian woodland [3.0 ha (7.4 ac)]. Impacts to wetlands associated with Alternative E3 are summarized in Table 5-1.

Several intermittent drainages that qualify as waters of the U.S. would require culverts ranging in length from 150 m (492 ft) to 300 m (984 ft). These long culverts would potentially increase velocities and concentrate flows affecting downstream reaches.

5.1.3 Alternative J1T

Alternative J1T would impact about 21.1 ha (52.4 ac) of habitat that qualifies as waters of the U.S., including wetlands. This magnitude of wetland impact is intermediate among the alternatives, but is extensive from a local and regional perspective.

Over two-thirds of the affected wetlands on this alternative include meadow habitat [about 14.5 ha (35.9 ac). Impacts to wetlands associated with Alternative J1T are summarized in Table 5-1.

Alternative J1T would include the construction of a viaduct approximately 1,600 m (5,250 ft) long, which would limit the potential for the alteration of surface and groundwater hydrologic conditions. The viaduct would also reduce potential indirect effects to nearby wetlands, and to plant and wildlife species dependent on these aquatic habitats.

5.1.4 Alternative LT

Alternative LT would impact approximately 29.4 ha (72.8 ac) of habitat that qualifies as waters of the U.S., including wetlands. This magnitude of impact is intermediate among the alternatives, but is substantial from a local and regional perspective.

Most of the wetlands affected by Alternative LT consist of 22.2 ha (54.9 ac) of wet meadows. Impacts to wetlands associated with Alternative LT are summarized in Table 5-1.

5.1.5 Alternatives C1T, J1T, LT: Designated Borrow Site

Excavation activities in the designated borrow site at the Oil Well Hill area for fill material will not directly affect any wetlands or other waters of the U.S. subject to ACOE jurisdiction.

5.2 Special-Status Plants

5.2.1 Alternative C1T

Alternative C1T would directly impact populations of Baker's meadowfoam and could indirectly affect populations of this species due to changing local hydrologic conditions resulting from the realignment of Mill and Outlet Creeks, at the north end of the valley. The C1T alternative would not directly or indirectly affect Baker's navarretia or glandular dwarf flax.

Baker's Meadowfoam

Baker's meadowfoam is listed by the state as rare. It is a federal special 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.

Alternative C1T would directly impact four Baker's meadowfoam populations, consisting of approximately 44,000 plants (10,300 south and 33,700 north) and nearly 1.3 ha (3.2 ac) of occupied habitat (Table H-5-1). Most of this impact occurs along the northern portion of the alignment. The populations remaining in these locations would be subject to potential indirect hydrologic and fragmentation effects, including the very large population at the north end of Little Lake Valley where a portion of Mill and Outlet creeks would be realigned. This highway alternative also separates flood basins from other areas, potentially preventing the opportunity for seeds produced in the Haehl-Baechtel meta-population to reach the central and northern portion of Little Lake Valley. Because the majority of the area occupied by Baker's

meadowfoam in Little Lake Valley occurs primarily in the northern and northeastern portion of the valley, Alternative C1T would remove a relatively small percentage of the total population. However, because of the rarity of this species, any impact would be considered adverse.

Table H-5-2. Special-Status Plant Nodal Impact Summary

	Alternative:	C1T		E3		J1T		LT	
	Segment:	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.

5.2.2 Alternative E3

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.

Alternative E3 would have a direct impact on a population of the glandular western flax. One small population (<100 plants) of four would be directly impacted by Alternative E3 along the northern portion of the alignment. Alternative E3 would not adversely affect populations of Baker's meadowfoam.

5.2.3 Alternative J1T

Baker's Meadowfoam

Alternative J1T would directly impact two populations of Baker's meadowfoam that include approximately 35,000 plants and 1.6 ha (4.0 ac) of habitat (H-5-2). The remaining fragments from the two directly affected populations are exposed to

hydrologic and fragmentation effects. The J1T alternative would not adversely affect Baker's navarretia or glandular western flax.

5.2.4 Alternative LT

Baker's Meadowfoam

Alternative LT would directly impact one population of Baker's meadowfoam, impacting approximately 33,000 plants and 0.2 ha (0.5 ac) of habitat (H-5-2). The LT alternative would not adversely affect Baker's navarretia or glandular western flax.

5.2.5 Alternatives C1T, J1T, LT: Designated Borrow Site

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

5.3 Special-Status Wildlife

5.3.1 Alternative C1T

Two special-status bird species may be impacted by the C1T Alternative, the California yellow warbler and yellow-breasted chat.

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 remove approximately 7.6 ha (18.7 ac) of mixed riparian woodland, 5.9 ha (14.8 ac) of oak riparian woodland, and 3.7 ha (8.9 ac) of scrub riparian habitat, which provides suitable nesting habitat for yellow warbler and yellow-breasted chat. This could cause indirect impacts to at least two existing California yellow warbler nesting territories; and cause direct impacts on one existing yellow-breasted chat nesting territory and indirect impacts on at least four other existing territories.

5.3.2 Alternative E3

Three special-status species would experience habitat losses under Alternative E3, including foothill yellow-legged frogs, northern spotted owls, and red tree voles (Table H-3-4).

Foothill Yellow-Legged Frog

The foothill yellow-legged frog is a federal species of concern and a state species of special concern. This species is found in shallow, shaded streams with rocky substrates. Foothill yellow-legged frogs were observed in streams in the hills west of Little Lake Valley and in two streams on the eastern side of Little Lake Valley.

Alternative E3 would have direct impacts on two known occurrences of foothill yellow-legged frogs and indirect impacts on one other occurrence near the alignment. All drainages crossing this alternative provide habitat for this species most of which occur along the southern portion of the alignment. Several intermittent drainages that provide habitat for foothill yellow-legged frog would require culverts ranging in length from 150 m (492 ft) to 300 m (984 ft). These long culverts would directly impact habitat and have the potential indirect impact by increasing velocities and concentrating flows affecting downstream reaches. The direct and indirect impact to intermittent streams by culvert construction on many of the smaller drainages within this alignment, Alternative E3 would have the greatest impacts on yellow-legged frogs and their stream habitats, which would be considered an adverse impact.

Northern Spotted Owl

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; and 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, particularly in the northern portion of the alternative where two northern spotted owls historical breeding territories were active in 1992. The loss of 127 ha (313 ac) of potential nesting and

foraging habitat could adversely affect spotted owls that may occur in the general vicinity or individuals that could return to the project area in the future.

Red Tree Vole

The red tree vole is a federal species of concern and a state species of special concern. Red tree voles are almost entirely arboreal (living in trees), and occur 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 voles. 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 corridor, indicating that red tree voles could occur in the study area. Alternative E3 could impact red tree voles by removing nests and killing individuals during construction.

5.3.3 Alternative J1T

Alternative J1T could affect two special-status species, white-tailed kite and yellow warbler. Compared with other alternatives, Alternative J1T would adversely affect an intermediate number of special-status species known to occur in the project area.

White-Tailed Kite

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 usually 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 from this breeding territory.

California Yellow Warbler

Alternative J1T would cause indirect impacts on at least one existing California yellow warbler nesting territory. This alternative would remove 3.4 ha (8.4 ac) of mixed riparian woodland, 3.2 ha (7.9 ac) of oak riparian woodland, and 1.7 ha (4.2

ac) of scrub riparian habitat, which constitute suitable yellow warbler nesting habitat. Compared with other alternatives, Alternative J1T would cause intermediate impacts on riparian habitats preferred by yellow warblers.

5.3.4 Alternative LT

One special-status bird species, yellow-breasted chat, could be impacted by Alternative LT. Alternative LT would have the fewest impacts to wildlife and would affect a lower number of species than any other alternative.

Yellow-Breasted Chat

One existing yellow-breasted chat nesting territory could be directly affected and at least one additional existing nesting territory could be indirectly affected by construction of Alternative LT. This alternative would remove 5.5 ha (13.7 ac) of mixed riparian woodland, 1.5 ha (3.7 ac) of oak riparian woodland, and 0.3 ha (0.7 ac) of scrub riparian habitat, which provide suitable nesting habitat for yellow-breasted chat. Compared with the other alternatives, Alternative LT would remove an intermediate amount of riparian habitats used by yellow-breasted chat.

5.3.5 Alternatives C1T, J1T, LT: Designated Borrow Site

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

Northern Spotted Owl

The excavation activities in the Oil Well Hill area would occur within approximately 500 feet 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 to 16 ha (30 to 40 ac) of potential nesting and/or foraging habitat could be a significant adverse impact because of the difficulty in reestablishing forested habitat that provides suitable nesting and foraging habitat for Northern spotted owls.

Red Tree Vole

Excavation in the Oil Well Hill area could adversely affect red tree voles that occur in the general vicinity of the project area. The remains of one red tree vole was found in a Northern spotted owl pellet (regurgitated prey remains) at a nesting territory located in the project area, indicating that red tree voles could occur in the project site.

Adverse impacts to red tree voles could include the removal of red tree vole nests and the direct injury or death of individual tree voles.

5.4 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; 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 January. 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 Haele 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 though March. Stream reaches historically important for chinook salmon spawning include the upper reaches of Broaddus, Mill, Haele and Davis Creeks.

5.4.1 Alternative C1T

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. Approximately 275 m (900 ft) of upper Haehl Creek would be realigned along the southern portion of the alignment; and approximately 400 m (1,300 ft) of Mill Creek, and 1,600 m (5,250 ft) of Outlet Creek bordering the eastern edge of the Northwest Pacific Railroad tracks would be realigned at the northern portion of Little Lake Valley (Table H-5-3). This alternative is located in the valley, where stream gradients are lower, and the quality of potential spawning habitat for

salmonids is lower. Outlet Creek, however, is an essential migratory corridor for the federal-listed coho salmon, chinook salmon, and steelhead, and provides access to other streams and tributaries in Little Lake Valley.

The risk of soil erosion is low for the southern portion of the C1T alignment, but is higher for the northern portion of this alignment, due to the proposed creek alignments and impacts to riparian vegetation associated with the creeks (approximately 7.6 ha (18.7 ac). A focused study in the Little Lake Valley also found that reduced canopy cover was directly related to increases in water temperatures (Caltrans 2000). Hence, the removal of large segments of riparian vegetation could reduce habitat quality by increasing stream temperatures. This type of impact would be significant along Outlet Creek, due to its importance as the primary migratory corridor for salmonids moving to the other streams and tributaries in the Little Lake Valley watershed. Because of the extensive realignment of Mill and Outlet Creeks, riparian vegetation removal, and the potential for increases in sedimentation and temperature, impacts associated with Alternative C1T on fish migratory patterns and habitat quality are considered adverse.

Table H-5-3. Willits Bypass Major Creek Corridor Roadway Impact Assessment Summary: Fisheries Resources

Creek Corridor	C1T	E3	J1T	LT
South Segments (nodal analysis)				
Upper Haehl**	Realignment [275 m (902 ft)], culvert w/ natural bottom, 2 culverts removed	Realignment [880 m (2886 ft)], bridge, 2 culverts removed bridge (2nd crossing)	realignment [275 m (902 ft)], culvert w/ natural bottom, 2 culverts removed	realignment [275 m (902 ft)], culvert w/ natural bottom, 2 culverts removed
Lower Haehl*			bridge	
Baechtel*		bridge	viaduct	
Broaddus*		bridge	viaduct	
Outlet*	Viaduct			viaduct
Mill/Willits*	Viaduct	bridge	viaduct	viaduct
Upp**		bridge		
North Segments (nodal analysis)				
Mill/Willits*	culvert (2nd crossing) realignment (400 m) bridge (3rd crossing)			
Upp**			bridge	bridge
Wild Oat	Culvert	bridge		
Outlet*	Realignment (1600 m)	bridge		
Total crossings	6 crossings	8 crossings	6 crossings	4 crossings
Total realignment	2275 m (7464 ft)	880 m (2886 ft)	275 m (902 ft)	275 m (902 ft)
% of alignment traversing highly erosive soils***	7	85	38	23

* creeks with known anadromous fish usage (coho, chinook, and steelhead)
** creeks with historic anadromous fish usage (chinook and steelhead)
*** review of soil survey maps and length of alignment within highly erosive soil areas

5.4.2 Alternative E3

Alternative E3 would require seven 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 species. This alternative would directly affect the upper reaches of Baechtel, Broaddus, and Mill creeks. These reaches are important spawning and rearing areas for coho and chinook salmon and steelhead trout. In addition, tributaries upstream of the alternative construction footprint, including Willits Creek and segments of Mill, Broaddus, and Baechtel Creeks, support salmonid populations that could be indirectly affected in the short term as a result of construction activities that inhibit spawning migration (Table H-5-3).

Alternative E3 would have the greatest impacts to salmonids resulting from potential project-related erosion, relative to the other alternatives. The proposed alternative would directly impact or degrade 3.6 ha (8.9 ac) of riparian habitat (Table H-5-1), most of which is along Haehl Creek due to channel realignment. Soil disturbance associated with the cut-and-fill slopes at the stream crossings would have the potential of soil sedimentation during storm events.

The impacts on fish habitat and the distribution and abundance of fish associated with Alternative E3 are considered extensive because a high potential for permanent impacts to fish populations and suitable salmonid habitat resulting from the proposed stream crossings, and the potential for increased erosion from project related activities.

5.4.3 Alternative J1T

Alternative J1T would require six crossings of streams identified for fisheries analysis, on Haehl, Baechtel, Broaddus, Mill, and Upp Creeks. The stream crossings would directly affect the lower reaches of Baechtel, Broaddus, and Mill creeks, which contain important habitat for salmonids. However, they would be located farther downstream from the high 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 affected reaches under this alternative are located near the Little Lake Valley floor,

and pass through residential areas of the City of Willits. Hence, they are characterized by lower habitat quality (e.g., less habitat complexity due to 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 collectively impact or degrade approximately 4.0 ha (9.9 ac) of riparian habitat. Soil disturbance from the cut-and-fill slopes would have the potential of sedimentation 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. The quantity of sediments that could enter the streams due to erosion and lineal extent of habitat impacts occurring in Alternative J1T would be less than this alternative than for Alternatives E3 and 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.

5.4.4 Alternative LT

Alternative LT would require four crossings of streams identified for fisheries analysis and bridge construction on Haehl, Outlet, Mill, and Upp Creeks (Table H-5-3). 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 approximately 7.3 ha (18.1 ac) of riparian habitat (Table H-5-1).

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

5.4.5 Alternatives C1T, J1T, LT: Designated Borrow Site

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.

5.5 Indirect And Cumulative Effects To Aquatic Resources And Sensitive Species

In addition to assessing the direct impacts to wetland resources and associated sensitive species, potential indirect and cumulative effects require assessment. These effects include any future federal and non-federal actions that may occur in the project area. Indirect and cumulative effects analyses are typically difficult to assess due to the lack of information on potential future development in the area, and the absence of intensive surveys of biological resources in the areas of potential development. Hence, this analysis uses the best available information to provide an estimation of the potential indirect and cumulative effects that could result from construction of the proposed Willits Bypass. For this analysis, the area of indirect and cumulative effects considered includes the immediate community of Willits, Little Lake Valley and the surrounding foothills. This area was selected because it is the area that would be most influenced by the Bypass and is within the same watershed.

Projects considered in this analysis included: 1) proposed bypass alternatives that potentially have growth inducing effects; 2) a proposed second access into the Brooktrails residential development; 3) the proposed expansion of the City's wastewater treatment facility; and 4) areas of potential industrial development.

Because all of the Willits Bypass alternatives are proposed as controlled access freeways, growth-inducing effects would be minimized. The southern interchange for each of the freeway alternatives is designed for through traffic, which would minimize access to the freeway. Alternative E3 is the only alternative that has a direct link to S.R. 20 west of Willits, and that would provide an interchange at S.R. 20. Because of the location of the S.R. 20 interchange west of City of Willits, there is the potential for growth inducing effects (e.g., service stations, restaurants, etc.) around that proposed interchange location. Because of limited wetland resources in the S.R. 20 corridor and because the aquatic resources in the vicinity of Alternative E3 are confined to Broaddus Creek, potential indirect impact would be minimal.

The Brooktrails community is planning for a second access road to its residential development, which may be located near Wild Oat Canyon. Potential impacts to wetlands here would occur near lower Wild Oat Canyon, on the valley floor along U.S. 101. Because this access road would cut through the foothills along the western side of Little Lake Valley, there would be greater impacts to upland habitats.

The City of Willits is proposing expansion of its wastewater treatment facility. Because of the location of the existing facility on the valley floor, any expansion would directly impact wetland resources. Because of the relatively small size of expanding the facility, the cumulative impacts may not be significant.

As identified in the Willits City Plan, areas zoned for industrial development occur in the area of East Hill Road, in the City of Willits. Alternative J1T would remove a newly established business park along East Hill Road, which would likely be relocated in the immediate vicinity. Other existing industrial development occurs in this area and it is anticipated that development would continue to occur in this portion of Willits. This development would likely have impacts to wetland resources.

Because most of the projects in the area occur near the City of Willits, or primarily at upland locations, indirect and cumulative effects to wetland resources would likely be less than adverse. Also, since most of the higher quality wetland areas occur in the central and northern portion of Little Lake Valley and along Outlet Creek, these areas would largely remain in agricultural use, thus minimizing the potential for development in these large intact areas.

5.6 Other Environmental Resources/Project Elements

The Section 404 (b)(1) Alternatives Analysis specifically addresses project-related effects to aquatic resources and associated sensitive species. To be "practicable," the alternative chosen: 1) must meet the projects purpose and need; 2) must be able to be constructed within estimated reasonable cost estimates; 3) must be technically feasible, and 4) should not create other unacceptable consequences, such as severe operation or safety problems, or socioeconomic or other non-aquatic environmental impacts (e.g., Section 4(f) properties). When considering the effects to other resources, wetland effects take precedence when assessing impacts prior to mitigation, while other environmental effects are evaluated by the "net harm" after mitigation.

This section summarizes other project elements (e.g., costs, purpose and need) and environmental resource impacts (e.g., cultural resources, farmlands, socioeconomic) by each of the alternatives under consideration. Table H-5-4 provides a matrix of impacts to other environmental resources by each of the proposed alternatives. These

data also are provided in Section 5 (Environmental Consequences) of the Draft EIR/EIS.

Table H-5-4. Willits Bypass Section 404 (b)(1) Alternatives Analysis Matrix

Project Elements/Environmental Resource	Alternative C1T		Alternative E3		Alternative J1T		Alternative LT		No Build
Meets Project's Purpose and Need	yes		yes		yes		yes		**no**
Level of Service (regional Freeway facility)	C+		C+		C+		C+		**F**
Constructability	high		high		high		high		n/a
Highway Connectivity w/101 and Local Service	moderate		moderate-low		high		high		n/a
Potential Growth Inducing	low		high		low		low		n/a
	South	**North**	**South**	**North**	**South**	**North**	**South**	**North**	
Project Costs (millions $)	43 borrow material: 19	65	93	**208**	38 borrow material: 20	93	38 borrow material: 25	67	--
Cultural Resources Sites	1	2	**11**	7	1	2	1	2	--
Farms/Williamson Act parcels (ha/ac)	23/58	38/96	47/116	12/30	14/34	6/16	21/52	6/16	--
Farmland Conversion Impact Rating	153.2		188.0		136.4		155.6		
Farmland, Prime and Unique (ha/ac)	**53.2/131.4**		**56.3/139.1**		24/59		24.9/61.5		
Home/Business Displacement									
Residential	3	--	**106**	8	8	5	2	5	--
Business	--	--	18	1	16	4	1	4	--
Geology (erosion/slip out potential)	low	low	**high**	**high**	low	moderate	low	moderate	low
Water Quality	moderate	**high**	**high**	**high**	moderate	moderate	moderate	moderate	low
Hazardous Waste (# of sites)	0	0	0	0	**4**	0	0	0	0
Floodplain Enroachment	moderate	**high**	low	low	low	low	moderate	moderate	low
Biological Resources:									
Listed/Proposed Species	5		4		5		5		--
Species of Concern	4		5		3		3		--
Baker's meadowfoam (pop. size / ha)	**10,300 / 0.2**	**33,700 / 1.2**	--	--	2,000 / 1.4	**33,200 / 0.2**	--	**33,200 / 0.2**	--
Waters of US/Wetland Impacts (ha)	**23.3**	**30.0**	5.1	1.0	9.5	11.6	**18.1**	11.3	--
Fisheries (crossings/channel realignment)	3 / 275 m	**4 / 1500 m**	**6 / 880 m**	2 / --	5 / 275 m	3 / --	3 / 275 m	1 / --	5 existing
Natural Habitat/Wildlife Fragmentation	moderate	**high**	**high**	**high**	low	moderate	moderate	low	low
Habitat Impact (ha):									
oak woodland	1.6	--	**19.3**	3.4	1.3	--	1.6	--	--
riparian (wetland and upland)	7.4	**13.8**	3.0	0.6	6.3	2.0	4.9	0.8	--
Anticipated Mitigation Success*	low		moderate		high		moderate		n/a

* anticipated success of mitigation in replacing impacted habitats/species and is based on the magnitude of impact and amount of replacement habitat needed

** includes 6 individual mini-storage units

6 Section 404 (b)(1) Alternatives Analysis (to determine the LEDPA)

6.1 ALTERNATIVES C1T, E3, AND NO BUILD

Alternatives C1T, E3, and the No Build alternatives do not meet the LEDPA (least environmentally damaging practicable alternative), as required under Section 404 (b)(1) Guidelines.

6.1.1 No Build Alternative

As required, the No Build alternative is included to provide an objective evaluation of all alternatives and to provide a baseline for comparison of impacts of the proposed build alternatives. This alternative would maintain U.S. 101 in its existing location, with the current facility being used as both an interregional through route and the main street of the City of Willits. Although this alternative would have no impact to wetland resources, traffic is projected to increase in the future, based on regional transportation demands, which would result in continued delays and increased safety concerns in the City of Willits. Therefore, the No Build alternative would not alleviate the current and projected traffic demand and safety concerns within the City of Willits, and would not meet the projects purpose and need.

6.1.2 Alternative C1T

Alternative C1T has the greatest impact to wetland resources, encompassing approximately 53.3 ha (131.2 ac), as well as the greatest impact to listed anadromous fish and critical habitat for anadromous fish. The northern segment of Alternative C1T would require the realignment of approximately 400 m (1,300 ft) of Mill Creek, and 1,600 m (5,250 ft) of Outlet Creek on the east side of the railroad tracks, which are aquatic resources essential to three listed anadromous fish. These reaches are also designated as critical habitat for the listed coho and chinook salmon. Modifying these stream reaches by channel realignments would remove riparian vegetation that has the potential to significantly affect these species, both directly and indirectly, by degrading water quality (e.g., increased water temperatures and sedimentation).

Wetland impacts associated with Alternative C1T are approximately two to three times greater than for Alternatives J1T and LT (approximately 21.1 to 29.4 ha [52.4 to 72.8

ac]. Alternatives LT and J1T have considerably less wetland impact and no stream realignments that would affect critical habitat for salmonids. Although Alternatives LT and J1T would have more socioeconomic impacts (i.e., to residences along existing U.S. 101), the magnitude of wetland impact and net harm to biological resources after mitigation to the residences (i.e., relocation assistance) is difficult to justify. The northern segment of Alternative C1T has one of the largest impacts to special-status plants, including Baker's meadowfoam, a state-listed rare plant species.

The southern segment of Alternative C1T also has the largest impact to wetland resources compared to the equivalent segments for Alternatives LT and J1T, which have few other environmental consequences that could be viewed as unacceptable. The southern segment of Alternative C1T also extends furthest east into Little Lake Valley, which would be subject to greater habitat fragmentation. Because both segments of Alternative C1T have the largest impacts to wetland and aquatic resources, and associated sensitive species, compared to other practicable alternatives, Alternative C1T would not meet the LEDPA. Also, Alternative C1T would convert 53.2 ha (131.4 ac) of prime farmland to other uses, compared to 24 ha (59 ac) for Alternative J1T and 24.9 ha (61.5 ac) for Alternative LT. Alternative C1T would result in removal of 13.8 ha (34 ac) of riparian habitat that benefits a number of special status wildlife (California yellow warbler, yellow breasted chat, foothill yellow-legged frog, northwestern pond turtle, chinook salmon, coho salmon, and steelhead.

6.1.3 Alternative E3

Alternative E3 would result in the least impact to wetland resources of the remaining build alternatives (6.1 ha [15.1 ac]). This alternative meets the project's purpose and need; however, it is the most expensive and has several other environmental drawbacks. This alternative costs $301 million, which is approximately 2.5 times more than budgeted for this project (Table H-5-4). Alternative E3 requires the greatest realignment of upper Haehl Creek (880 m). Alternative E3 has the greatest impact to residences (114 units), which would require relocation assistance, and there are few areas in the Willits area to relocate these residences, and no other communities are within a reasonable distance for relocation. Alternative E3 traverses the largest extent of the surrounding foothills that are mostly classified by the soil survey as having high erosion rates. Although Best Management Practices would be implemented for all of the selected alternatives, cutting and filling in these highly erodible soils would have the greatest potential for short-term construction related residual sedimentation, as well as long-term sedimentation from

possible slip outs, slumps, and landslides that could enter downstream waters. This could have indirect effects to anadromous fish resources, including three federal-listed fish species, in downstream reaches. Alternative E3 would also have the greatest impact to upland/foothill habitats, including oak woodland (22.7 ha [56.1 ac]), and encroaches into relatively undisturbed habitats west of Willits resulting in extensive habitat fragmentation. Also, Alternative E3 would convert 56.3 ha (139.1 ac) of prime farmland to other uses, compared to 24 ha (59 ac) for Alternative J1T and 24.9 ha (61.5 ac) for Alternative LT. As the result of the many environmental consequences and excessive costs, Alternative E3 would not meet the LEDPA.

6.2 ALTERNATIVES LT AND J1T

The alternatives analysis determined that Alternatives E3, C1T, and the No Build alternative, do not meet the LEDPA, because of the extent of unavoidable and unacceptable environmental consequences and, in the case of Alternative E3, the excessive construction costs. Alternatives LT and J1T meet the project's purpose and need because they would have moderate impacts to wetlands, compared to Alternatives E3 and C1T, and fewer environmental impacts to other resources (e.g., socio-economics, cultural resources, prime farmland and fisheries). Of the southern segments, Alternative J1T has fewer wetland impact (9.5 ha [23.5 ac]) than does Alternative LT, which would impact 18.1 ha (44.7 ac). This is due to the proposed longer elevated viaduct proposed for alternative J1T, which is designed to avoid wetlands in the area. Hence, the difference in direct wetland impacts associated with the southern portions of Alternative J1T, when compared to Alternative LT, would be approximately 8.6 ha (21.2 ac) less than Alternative LT. Alternative J1T would result in the conversion of less prime farmland (24 ha [59 ac]) than Alternative LT (24.9 ha [61.5 ac]). Because of the longer viaduct, the cost of Alternative J1T would be greater (approximately $21 million more than Alternative LT) for the equivalent segment. However, with the longer viaduct Alternative J1T would involve less encroachment into the 100-year floodplain than would Alternative LT.

Because Alternative J1T immediately parallels the existing railroad, it would also result in less fragmentation of habitat. Alternative LT would be placed further east in the valley, which would bisect a large oak riparian corridor near Center Valley Road. Alternative J1T would also impact a newly established business park at East Hill Road.

The differences between the southern portions of J1T and LT include:

- Socio-economics: J1T would impact 13 residences compared to 7 in LT; J1T-south would require relocation of a new, occupied business park while LT-south would avoid the business park;
- Costs: J1T would cost approximately $21 million more than LT, due to the longer viaduct and impacts to commercial structures;
- Potential hazardous waste sites: J1T would impact four hazardous waste sites compared to none in LT;
- Floodplain encroachment: LT would place more fill in the floodplain and has a shorter viaduct than alternative J1T;
- Baker's meadowfoam: J1T south would impact a small population of about 2,000 plants, and LT south would impact none);
- Habitat fragmentation: LT would extend further into Little Lake Valley, and would bisect a large area of mixed riparian woodland; and
- Williamson Act farmlands: Alternative LT impacts 7 ha (18 ac) more Williamson Act farmlands (27 ha/68 ac) than Alternative J1T (20 ha/50 ac).
- Prime farmland: Alternative LT would result in the conversion of slightly more prime farmland (24.9 ha [61.5 ac]) than Alternative J1T (24 ha [59 ac]).

At the Quail Meadows Interchange where both alternatives LT and J1T converge, the impacts are similar.

This analysis of the proposed Willits Bypass alternatives identifies either Alternative J1T or Alternative LT as the LEDPA. Following the public comment period and input from the resources and regulatory agencies, the final NEPA preferred alternative/Section 404 LEDPA will be identified in the final EIR/EIS. Based on the preferred alternative/LEDPA, the final design will incorporate measures to minimize impacts to resources within the project limits. In addition, a detailed compensatory mitigation plan(s) will be finalized and approved by the resource agencies for all unavoidable impacts to aquatic resources based on the agreed upon preferred alternative.

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Appendix I Section 106 SHPO Concurrence

STATE OF CALIFORNIA – THE RESOURCES AGENCY

P33117

GRAY DAVIS, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov

August 17, 2000

Reply To: FHWA000717A

Michael G. Ritchie, Division Administrator
U.S. Department of Transportation
Federal Highway Administration
California Division
980 Ninth Street, Suite 400
Sacramento, CA 95814-2724

RECEIVED
SEP 11 2000
CALTRANS CEM, M-3

Re: Determinations of Eligibility for the Willits Bypass, Willits, CA

Dear Mr. Ritchie:

You have provided me with the results of your efforts to determine whether the project described above may affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The Federal Highway Administration (FHWA) has identified that 183 properties qualify for treatment under the "Memorandum of Understanding Regarding Evaluation of Post-1945 Buildings, Moved Pre-1945 Buildings, and Altered Pre-1945 Buildings", and the "Interim Guildelines-Post-45 MOU" (MOU). The FHWA has determined that the following properties located in Willits are not eligible for the National Register of Historic Places (NRHP):

- 19907 Highway 101
- 751 East Hill Road
- 22801 Bray Road
- 998 Hearst Willits Road
- 19950 North Highway 101
- 20110 Hollands Lane
- 20518 Highway 101
- 601 Locust Lane
- 23091 and 23881 Sherwood Road
- On SR 20 1.2 miles west of Willits
- 500 Shell Lane
- 24050 Highway 101
- 24500 Highway 101
- 24700 Highway 101
- 24850 Highway 101
- 291 Shell Lane
- 1251 Center Valley Road
- 1150 Center Valley Road
- 1000 Center Valley Road
- 1000A Center Valley Road
- 1001 Center Valley Road
- 27200 North Highway 101
- 1535 Baechtel Road
- 21080 Baechtel Road
- 190 Baechtel Road
- 195 E Oak Avenue
- 180 E Oak Avenue
- 167 E Oak Avenue
- 658 Railroad Avenue
- 562 Railroad Avenue
- 514 Railroad Avenue
- 364 Railroad Avenue
- 376 Railroad Avenue
- 1 Page Court
- 3B Page Court
- 334 Railroad Avenue
- 324 Railroad Avenue
- 96 San Francisco Avenue
- 501 Central Avenue
- 475 Central Avenue
- 549 Central Avenue
- 621 Central Avenue
- 351 Penn Street
- 389 Penn Street
- 349 Penn Street
- 195 California Street
- 235 State Street
- 236 State Street

FHWA-Sacramento

- 253 State Street
- 258 State Street
- 281 State Street
- 274 State Street
- 296 State Street
- 212 State Street
- 65 Marin Street
- 85 Marin Street
- 21490-21480 Baechtel Road
- 230 Shell Lane
- 97 Baechtel Road
- 119 Baechtel Road
- 135 E Oak Street
- 145 E Oak Street

The FHWA has also determined that the following properties are eligible for the NRHP:

- **Martin Baechtel House**, 21110 Baechtel Road – This house is eligible at a local level of significance under Criterion A for its association with one of the region's pioneers. The house is also eligible under Criterion C for its vernacular Greek Revival architecture, which is unusual for the area. The period of significance in circa 1861, the year the house was built.
- **Samuel Baechtel House**, 187 Baechtel Road – This house is eligible at the local level of significance under Criterion A for its association with one of Willits' pioneers, and also as the last surviving building associated with the first permanent Euro-American settlement in the region. The period of significance is the early 1860s.
- **Northwestern Pacific Railroad** (NWP) – The entire railroad extends from Sausalito in Marin County to the Eureka vicinity in Humboldt County. The NWP is eligible at the state level of significance under Criterion A for its association with the development of the town of Willits, the expansion of the redwood lumber industry resulting from the new railroad link to distant markets, and promotion of tourism in the redwood country. In addition the depot, restaurant building, and baggage building appear to be individually eligible under Criterion C for their unique Craftsmen/Swiss Chalet design and beautifully rendered architectural details. The period of significance for the section in the project area is from 1869 to 1950.
- **California Western Railroad** – The entire line of the railroad is eligible at the state level of significance under Criterion A for its important contribution to the expansion of the redwood lumber industry in Mendocino County and for its stimulation of the tourism industry in the region. The period of significance is 1885 to 1950.
- **Historic District, Block 3 of 1877 Willits Town Plat** – This residential district is bounded on the south by East Valley Street, on the east by Madden Lane, on the north by East Van Street, and on the west by South Humboldt Street. Of the total of eighty-two buildings, eighteen are non-contributors and sixty-six are contributors to the district. The district is a mostly working class residential neighborhood with a large number of well-preserved vernacular Queen Anne cottages and Craftsmen bungalows. These homes reflect the modest incomes of the hundreds of laborers who came to Willits seeking employment in the sawmills and logging camps in the area during the economic boom starting with the arrival of the Northwestern Pacific Railroad in 1901 and ending in the mid-1920s when the largest sawmill in the area closed down. The district is significant at a local level of significance under Criterion A for its association with the growth and expansion of Willits. The period of significance is from 1901-1928.
- **Tee Pee Burner, 101 Redwood, Inc.**, 101 N Main Street – California's tremendous economic expansion following World War II created a boom in construction, and the sawmills of Willits were kept busy keeping up with the increasing demand for building material. The tee pee burner was an important part of any sawmill operation. It was an efficient device for disposing of the flammable waste material produced by the milling process. This tee pee burner is one of the few burners left in Mendocino County, as sawmills tore them down after federal regulations in 1971 identified them as significant contributors to air pollution. The tee pee burner is eligible under Criterion A on a local

level of significance for its association with the lumber industry in the post-war era. The period of significance is 1947-1948, when the burner was first put into service.

Based on review of the submitted documentation, I have the following comments:

1) The Historic Property Survey Report (HPSR) and its attendant documents are adequate.
2) 183 properties were treated under the MOU.
3) The Martin Baechtel House, Samuel Baechtel House, Northwestern Pacific Railroad, California Western Railroad, Block 3 of the 1877 Willits Town Plat historic district, and the Tee Pee Burner are eligible for the NRHP for the reasons listed above.
4) The remaining sixty-two architectural properties that were evaluated in the HPSR are not eligible for the NRHP.

Thank you for considering historic properties during project planning. If you have any questions, please call Natalie Lindquist at (916) 654-0631 or e-mail at nlind@ohp.parks.ca.gov.

Sincerely,

Daniel Abeyta, Acting
State Historic Preservation Officer

Appendix J Relocation Assistance Advisory Service

APPENDIX J. RELOCATION ASSISTANCE ADVISORY SERVICE

BENEFITS PROVIDED TO RELOCATEES PURSUANT TO LAW

The acquisition and relocation program will be conducted in accordance with the **Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.** Relocation resources are available and will be provided to all residential and business relocatees without discrimination.

The Department of Transportation provides relocation advisory assistance to any person, business, farm or non-profit organization displaced as a result of the Department's acquisition of real property for public use. The Department assists displacees in obtaining replacement housing by providing current and continuing information on the availability and prices of houses for sale and rental units that are comparable, "decent, safe and sanitary". Mobile home owner occupants renting space may receive a combination of replacement housing benefits due to owner/tenant status. Non-residential displacees will receive information on comparable properties for lease or purchase.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are fair housing open to all persons, consistent with the requirements of Title VI of the Civil Rights Act of 1968.

Residential Relocation Payments Program

The Relocation Payment Program will help eligible residential occupants by paying costs and expenses. These cost are limited to those necessary for the purchase or rent of a replacement dwelling and actual reasonable moving expenses to a new location within a 50-mile radius of the displacee's property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Program can be summarized as follows:

Moving Costs

Any displaced person who was lawfully in occupancy of the acquired property regardless of length of occupancy therein, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, a moving service authorization, or a fixed payment based on a fixed moving cost schedule which is

determined by the number of furnished or unfurnished rooms of the displacement dwelling.

Purchase Supplement

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the first written offer to purchase the property, may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property.

The price differential payment is made when the Department determines that the cost to purchase a comparable and "decent, safe and sanitary" replacement dwelling will be more than the present cost of the displacement dwelling. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum amount of supplemental payment that the owner-occupants can receive is $22,500.00. If the total entitlement (without moving payments) is in excess of $22,500.00, the Last Resort Housing Program (LRHP) will be used.

Rental Supplement

Tenants who have occupied the property to be acquired by the Department for 90 days or more and owner-occupants of 90 days or more prior to the date of the first written offer to purchase, may qualify to receive a rental differential payment. This payment is made when the Department determines that the cost to rent a comparable and decent, safe and sanitary replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property. Once the eligibilities are determined, occupants of the residential care home will be eligible for tenant relocation benefits and their individual needs will be considered. The maximum amount payment to any tenant of 90 days or more and any owner-occupant of 90 days or more, in addition to moving expenses, will be $5,250.00. If the total entitlement for rental supplement exceeds $5,250.00, LRHP will be used.

Last Resort Housing

The State Department of Transportation, adopted federal guidelines for implementing the LRHP. Last resort housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard relocation as explained above. LRHP has been designed primarily to cover situations

where comparable replacement housing is unavailable, or when their anticipated replacement housing payments exceed the $5,250.00 and $22,500.00 limits of the standard relocation procedures. In certain exceptional situations, LRHP may also be used for tenants of less than 90-days.

After the first written offer to acquire the property has been made, the Department will, within a reasonable length of time, personally contact the displacees to gather important information relating to:

- Preferences in area of relocation;
- Number of people to be displaced and the distribution of adults and children according to age and sex;
- Location of school and employment;
- Special arrangements to accommodate any handicapped member of the family;
- Financial means to relocate into comparable replacement dwelling which is decent, safe and sanitary.

The Business and Farm Relocation Assistance Program

The Business and Farm Relocation Assistance Program provides for aid in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program can provide, when requested, a current list of properties offered for sale or rent, suitable for specific relocation needs.

The types of payments available to businesses, farms and non-profit organizations can be summarized as follows:

Moving expenses include the following actual reasonable costs:

The moving of inventory, machinery, office equipment and similar business-related personal property dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property.

Loss of tangible personal property provides payment to relocatee for "actual direct" losses of personal property that the owner elects not to move.

Expenses related to searching for a new business site can be reimbursed up to $1,000.00 for actual reasonable cost incurred.

Reestablishment expenses up to $10,000.00 relating to the new business operation.

In lieu payment (instead of the above payments). Payment "in Lieu" of moving and reestablishment expenses is available to businesses and farms which are assumed to

suffer a substantial loss of existing patronage as a result of the displacement, or if certain other requirements such as inability to find a suitable relocation site are met.

This payment is an amount equal to the average annual net earnings for the last 2 taxable years prior to relocation. Such payment may not be less than $1,000.00 and not more than $20,000.00.

Additional Information

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or sources for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, local Section 8 housing programs, or other federal assistance programs.

Persons whom are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable "decent, safe and sanitary" replacement residence, open to all persons, regardless of race, color, religion, sex or national origin is available, or has been made available to them by the State.

Any persons, business, farm or nonprofit organization which has been refused a relocation payment by the Department of Transportation, or believes that the payments are inadequate, may appeal for a special hearing of the complaint. No legal assistance is required, however, the displacee may choose to obtain legal council, but at their own expense. Information about the appeal procedure is available from Department of Transportation relocation advisors.

The information above is not intended to be a complete statement of all the Department's laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the State's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of the Department's relocation programs.

Important Notice

To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation Relocation Advisor at:

State of California
Department of Transportation, District 3
2800 Gateway Oaks Dr.
Sacramento, CA 95833
(916) 274-5809

Appendix K Willits Bypass Newsletters

A number of Willits newsletters have been issued during the project development process to keep the public informed about the status of the project and related studies. Following is the most recent Willits Bypass newsletter.

CALTRANS

Connection

NEWSLETTER FOR THE WILLITS BYPASS PROJECT

WINTER 2001

Status of the Draft EIR/EIS

Caltrans completed the Willits Bypass Administrative draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) in June 2001 and sent it to the Federal Highway Administration (FHWA) for its review. The document includes two volumes. Volume 1 is the text describing the alternatives under consideration and the impacts associated with those alternatives. Volume 2 is an Environmental Atlas containing all the detailed maps for the document at 11"x 17" size.

We have received preliminary comments from FHWA and are modifying the document to address comments received to date. However, the document cannot be completed until formal comments are received. We anticipate public circulation to begin early next year.

The draft EIR/EIS will be available for public review at Mendocino County Libraries and at the Caltrans District Office in Eureka. We will also place the document on the Willits Bypass webpage (see address below) for public review and comment. Copies of the document will be sent to the organizations and individuals who have requested copies.

A public "Open House" style meeting on the draft EIR/EIS will be held in Willits. A notice of availability and the date of the public meeting will be published concurrently with distribution of the draft EIR/EIS. Comments may be made on the draft EIR/EIS either at the public meeting or in writing before the end of the 60-day comment period. For a hard copy or compact disk of the draft EIR/EIS, send your request to:

California Department of Transportation
Caltrans Office of Environmental Management S-1
2800 Gateway Oaks Drive, Suite 100
Sacramento, CA 95833
Attn: Nancy MacKenzie, Environmental Coordinator

After the comment period, a preferred alternative will be selected based on comments received and an evaluation of the impacts. The final EIR/EIS presents the preferred alternative and identifies the impacts and mitigation measures for that alternative.

Valley Alternatives are Truncated

In early 2001, Caltrans proposed shortening, or truncating, the three valley alternatives to conform more closely to existing funding. The truncated valley Alternatives; C1T, J1T and LT now end just north of their northerly interchanges and tie into existing U.S. 101 north of the Willits City limits.

Approximately $117 million is currently programmed for construction and right of way for the Willits Bypass. Construction (including right of way) cost estimates for the three truncated valley alternatives range from $128 to $151 million. In addition to their

reduced cost, the truncated valley alternatives meet the project purpose and need on the newly constructed freeways, and these alternatives will function well as "stand alone" alternatives into the future.

To provide flexibility in selecting a preferred alternative, we employed an evaluation procedure we referred to as a "nodal approach." This approach allows a segment of one alternative to be combined with a segment of another alternative to create a "hybrid alternative." The Alternatives Map shows where the dividing, or nodal, point for each alternative is located. By combining segments of alternatives, there are more possibilities for choosing a preferred alternative.

Alternative E3, the wetland avoidance alternative, has not been truncated. Its location as a western bypass alternative and the geography along its alignment do not lend themselves to shortening or combining with other truncated valley alternatives. Alternative E3 is presented in the draft EIR/EIS and has an estimated cost of $301 million. All four "build" alternatives propose construction of a four-lane freeway with two travel lanes in each direction, a center grass median, and a design speed of 68 mph. For a detailed description of each alternative, please visit our webpage at: **http://www.dot.ca.gov/dist3/departments/planning/willits/willits.htm**

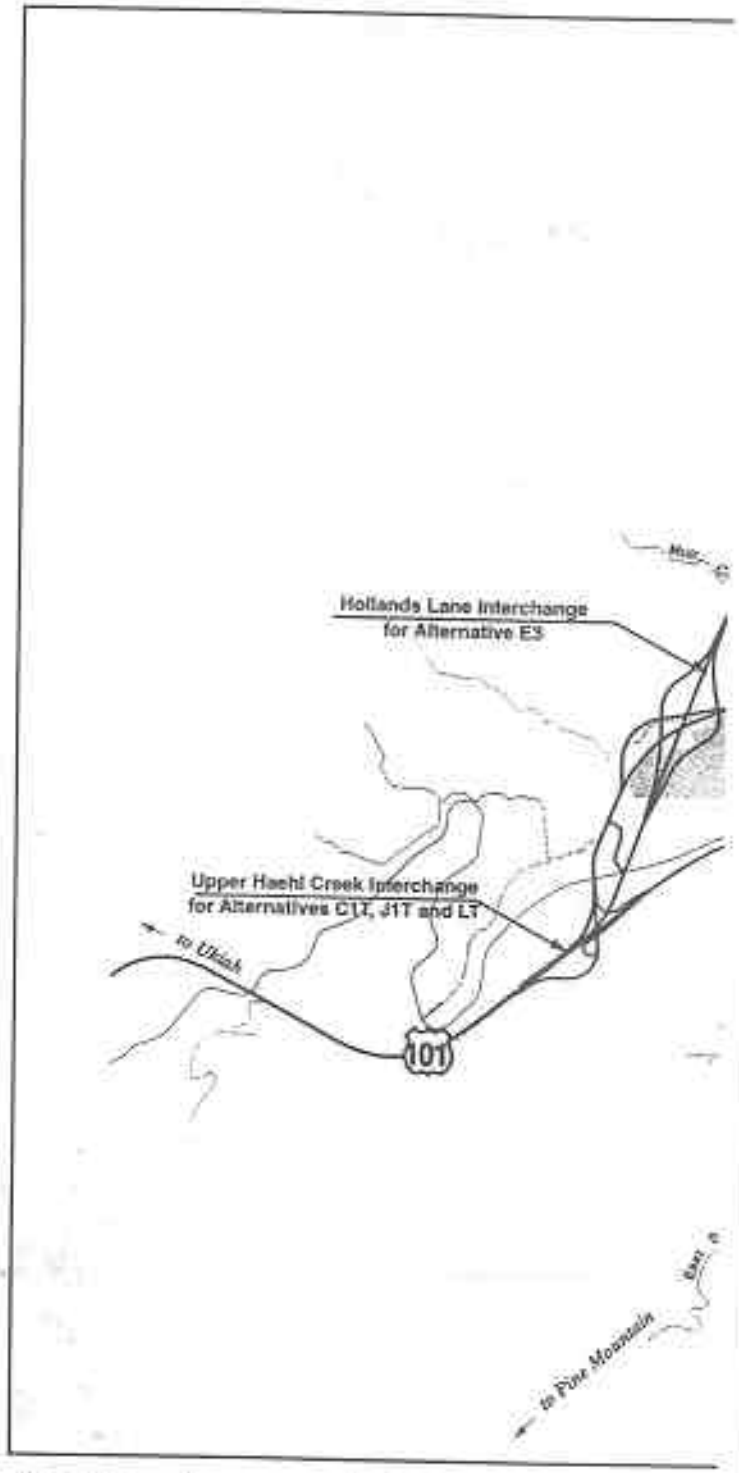
Numerous Technical Studies were prepared for the Draft EIR/EIS

During preparation of the draft EIR/EIS, Caltrans staff and consultants prepared numerous technical studies to evaluate impacts associated with the proposed alternatives. The Historic Properties Survey Report is one of the studies prepared to evaluate cultural resources including historic architecture and pre-historic sites. The Transportation History of Willits insert was written by our Caltrans Architectural Historian and summarizes some of the research he completed to evaluate the historic significance of structures in Willits.

Please see the insert "A Transportation History of Willits"

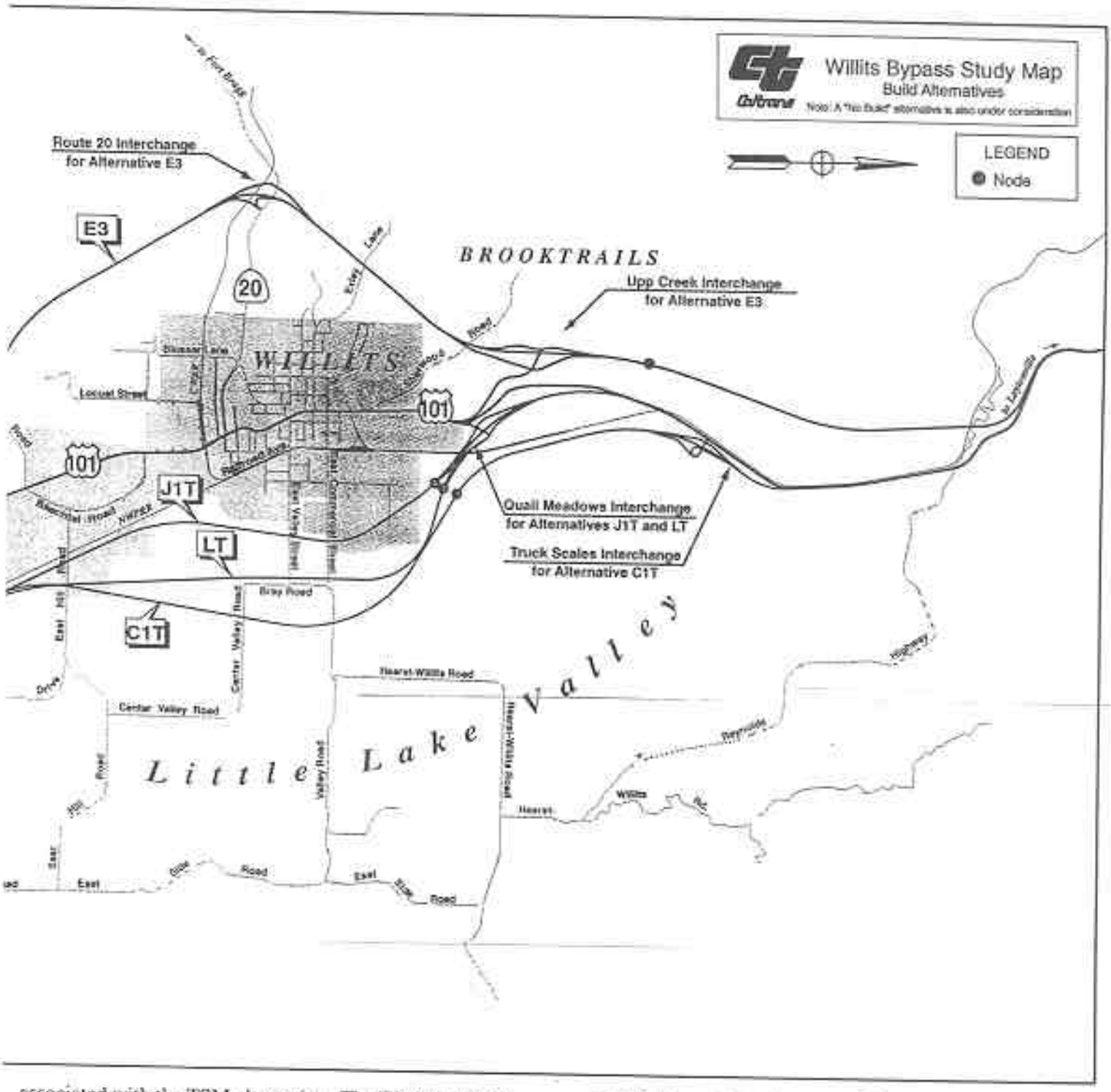
Elimination of the TSM Alternative

During preparation of the draft EIR/EIS, Caltrans Management considered but eliminated the Transportation System Management (TSM) alternative because it did not meet the project purpose and need. The TSM alternative would have operated as an arterial parallel to existing U.S. 101 and would have provided the least delay reduction of all the study alternatives. In addition, Alternative TSM was not expected to reduce the number



of collisions when compared with the No Build Alternative. The freeway study alternatives, however, are expected to provide a substantial reduction in collisions. Finally, the level of service provided by the TSM Alternative was not consistent with the level of service provided by the freeway alternatives.

Because of interest expressed by community members and a Project Development Team resource agency representative, Caltrans committed to fully studying the TSM alternative in the many technical studies developed to prepare the draft EIR/EIS. These studies revealed the significance of the environmental and community impacts



associated with the TSM alternative. The TSM alternative had the greatest impact to community housing stock. The alternative resulted in the removal of 140 residential units, including 104 single-family homes, 15 multi-family units and 21 mobile homes. In addition, 28 commercial, industrial, and non-profit businesses would have been relocated. There is not sufficient housing stock in Willits for the large number of residents who would have been displaced by the TSM alternative.

The TSM alternative was the only build alternative that resulted in unavoidable adverse impacts to eligible historic access in the vicinity. These impacts would likely have modified the existing character of the area. Finally, the alternative also had the potential to physically divide the community of Willits and conflicted with the City's goal to provide a "livable, walkable" community.

Design and layout by District 3 Multimedia

A Transportation History of Willits

Winter 2001

by Frank Lortie, Caltrans Cultural and Community Studies Office

The first non-Native Americans who came to the Willits-Little Lake Valley area passed through here in the early 1850s, on horseback and on foot, on their way north to the new settlement of Eureka and the mines of the Trinity Mountains. Travelers returning to the San Francisco Bay Area told of the rich lands and redwood forests in the region. The first permanent settlement of the Willits region is credited to Samuel, Martin and Henry Baechtel. In 1855, the three brothers drove a herd of cattle from Marin County to Little Lake Valley with the intention of setting up their own farms in the fertile valley. By 1861, a frontier settlement, called Little Lake, had been created at the southwest corner of Little Lake Valley and was located on Sam Baechtel's ranch. The village had a store and trading post, a saloon, and a public hall. When the Baechtel brothers first entered the area and for decades afterward, the rugged mountains around Little Lake Valley and its remoteness from the major population centers to the south thwarted rapid settlement in this part of Mendocino County. These transportation barriers kept Willits from the economic expansion and influx of population early settlers had been hoping for. Consequently, Willits and Little Lake Valley grew slowly during the last part of the 1800s.

By the time Hiram Willits laid out the town site of Willitsville in 1877, about a mile north of the Baechtel ranch, Mendocino County had built a public road connecting Ukiah with the settlements at Little Lake Valley. Apparently, the road followed the alignment of former U.S. 101, now Walker Road, after it crossed the Ridgewood Summit. But it turned where Baechtel Road branches off the highway today and proceeded past Martin Baechtel's house and through the center of Little Lake Village and in front of Samuel Baechtel's ranch house (both Baechtel houses are still there today). The old road then turned northward on to Willitsville's Main Street. Slow growth did not mean no growth for Willits (it shortened its name in the 1880s), and regular stagecoach service and frequent deliveries by freight wagons from Ukiah allowed improved, but limited, access to markets in the outside world. By the end of the 1880's, Willits, with a population of around 400, offered a full array of retail establishments and public services for the resident and traveler alike. Still, products from local farmers and sawmill operators were confined to regional markets, which did not allow much room for growth.

All this changed in 1902 when, with much fanfare, the first train of the Northwestern Pacific Railroad (a subsidiary of the Southern Pacific Railroad since 1900) arrived in Willits. Now that there was a reliable and efficient means for transporting large quantities of redwood lumber to the San Francisco Bay Area, local sawmills could

expand their capacities and cut much more lumber than could be consumed locally. As an indication of the important connection between the railroad and lumber production, several of the owners of the Northwestern Redwood Company, based in Willits, were on the board of directors of the NWP Railroad. Passenger traffic was also important for the NWP, and by the 1910s it offered regularly scheduled trains for Bay Area visitors to the Willits area. In 1912, the Union Lumber Company finished its railroad, the California Western, linking Fort Bragg with Willits and the NWP. Now as much a "railroad town" as a lumber town, Willits had become the commercial and transportation hub of northern Mendocino County. The beautiful 1916 redwood railroad station on Commercial Street (listed on the National Register of Historic Places) is a fitting symbol of Willits' important role in the development of the railroad and the lumber industry in California's northwest.

The decade of the '20s saw a rapid increase in automobile traffic, mostly from the San Francisco Bay Area. Auto courts and other resorts catering to the auto tourists multiplied along the route of the Redwood Highway (today's U.S. 101) from Marin County to Eureka. In 1923, the highway reached the Oregon border. Unfortunately, the economic boom of the 1920s did not survive to the end of the decade, and Northwestern Redwood Company, along with several other large mills in the region, shut down its operation, probably as a result of over-supply. Also during this time, the State Division of Highways closed its District 1 office in town and moved its fifty employees to Eureka (the former office is now the Willits Veterans Building on U.S. 101 just south of the high school). The Great Depression of the 1930s compounded the economic problems of the region as sawmills and businesses closed their doors, and ultimately only two sawmills (both on the coast) were able to keep operating until the outbreak of World War II.

Wartime construction at military facilities and around defense plants brought full production to Willits' lumber industry, and the post-war boom in housing and commercial construction kept Mendocino County sawmills busy into the 1960s. The trucking industry, which had been expanding steadily in the 1930s, now had become an essential factor in the redwood lumber business, and the NWP Railroad started to feel the effects as its revenues declined sharply. The California Western railroad also suffered from the competition but was able to compensate for this by running regular excursion trains through the spectacular scenery of the mountains between Fort Bragg and Willits. Tourism had become an essential industry for Willits after the war, and the continuing improvements to U.S. 101, combined with the post-war economic boom, encouraged thousands of motorists from all over northern California to vacation in the Redwood Country.

From the 1920s to the 1950s, U.S. 101 passed through the major towns along its route in Sonoma, Mendocino, and Humboldt Counties. The highway was also the Main Street of those communities. The economic benefits derived from the expansion of the tourist trade and the increase in truck traffic on U.S. 101 were being offset by the problems of traffic congestion on the highway once it entered a town's commercial center. As the freeway era progressed from the mid-1950s through the 1970s, drivers came to expect a fast, convenient, uninterrupted trip on the state's super-highways. So the delay motorists and truckers faced in the towns on the U.S. 101 corridor, especially during the summer months, increased demands for some relief.

Bypassing the Main Streets was seen as the solution, and over the years, large sections of the highway from Marin County to the Oregon border were rerouted around town commercial centers to expedite traffic flow and improve safety. Some town merchants and residents feared that a bypass would hurt local business and encroach upon farmlands on the town's fringes. Others welcomed the bypass as a rescue from the traffic jams on "Main Street" and as an inducement for suburban development outside the town's old historic core. Historically, most highway projects involve some controversy, and bypass proposals are no exception.

WILLITS BYPASS NEWSLETTER

Caltrans

P.O. BOX 3700
EUREKA, CA 95502

If you would like to be added to our mailing list
please fill out the form below and mail to:

CALTRANS
Program/Project Management
P.O. Box 3700
Eureka, CA 95502

PLEASE ADD ME TO THE
WILLITS BYPASS NEWSLETTER
MAILING LIST

Name _____

Street _____

City/State _____

Zip Code _____

Appendix L Farmland Conversion Impact Rating Form And Williamson Act Contract Lands Summary of Impacts

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request: 3/29/01 — 4. Sheet 1 of 1
1. Name of Project: Willits Bypass	5. Federal Agency Involved: Federal Highway Administration
2. Type of Project: Freeway Bypass	6. County and State: Mendocino, CA
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS — 2. Person Completing Form
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐	4. Acres Irrigated: 24,716 — Average Farm Size: 585 AC
5. Major Crop(s): GRAPES, PEARS, HAYLAND	6. Farmable Land in Government Jurisdiction — Acres: 94,039 x 4 — 7. Amount of Farmland As Defined in FPPA — Acres: 94 039 x4
8. Name Of Land Evaluation System Used: ONUE, STORIE INDEX	9. Name of Local Site Assessment System: NONE — 10. Date Land Evaluation Returned by NRCS

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor C11	Corridor E-3	Corridor J11	Corridor LT
A. Total Acres To Be Converted Directly	242	713	209	226
B. Total Acres To Be Converted Indirectly, Or To Receive Services	40	161	91	89
C. Total Acres In Corridor	282	874	300	315
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	131.4	139.1	59.0	61.5
B. Total Acres Statewide And Local Important Farmland	* 0	0	0	0
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.47	.15	.20	.20
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	DATA NOT AVAILABLE			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	56.2	78	40.39	58.6

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points	Corridor C11	Corridor E-3	Corridor J11	Corridor LT
1. Area In Nonurban Use	15	9	15	9	9
2. Perimeter In Nonurban Use	10	8	10	7	8
3. Percent Of Corridor Being Farmed	20	15	15	15	15
4. Protection Provided By State And Local Government	20	20	20	20	20
5. Size of Present Farm Unit Compared To Average	10	0	0	0	0
6. Creation Of Nonfarmable Farmland	25	15	20	15	15
7. Availability Of Farm Support Services	5	5	5	5	5
8. On-Farm Investments	20	5	5	5	5
9. Effects Of Conversion On Farm Support Services	25	10	10	10	10
10. Compatibility With Existing Agricultural Use	10	10	10	10	10
TOTAL CORRIDOR ASSESSMENT POINTS	160	97	110	96	97
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	56.2	78.0	40.39	58.6
Total Corridor Assessment (From Part VI above or a local site assessment)	160	97.0	110	96	97
TOTAL POINTS *(Total of above 2 lines)*	260	153.2	188	136.4	155.6

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

* MENDOCINO COUNTY HAS NOT GONE THRU LOCAL IMP. FARMLAND PROCESS

Signed: Louise Owens (FOR) DC
Thomas Schott, NRCS

Signature of Person Completing this Part: — DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Summary of Impacted Williamson Act Contract Lands

Alternative C-1(T) North					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
108-030	02	48.8	131365.12	13.14	16.31
108-010	03	82.68	123182	12.32	30.44
108-020	04	155.0	131365.12	13.14	32.46
108-040**	03	125.0	48109.00	4.81	11.89
108-040**	08	41.0	19875.10	1.99	4.91
Total			388523.118	**38.9**	**96.0**
Alternative C-1(T) South					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
103-130	01	78.0	48969.44	4.90	12.10
103-110	01	80.0	39300.29	3.93	9.71
103-070	03	17.8	20091.72	2.01	4.96
104-090	04	12.0	4496.55	0.45	1.11
104-070	05	38.6	6531.61	0.65	1.61
108-040**	03	125.0	97844.81	4.89	12.09
108-040**	08	41.0	19875.10	1.995	2.46
Total			237109.52	**23.7**	**58.6**
Alternative E-3 North					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
037-160*	27	70.0	8228.85	0.82	2.03
037-240	19	7.0	15944.8	1.59	3.94
038-020	06	160.0	93814.22	9.38	23.18
108-010	01	53.5	3986.8	0.40	0.99
Total			121974.67	**12.2**	**30.1**
Alternative E-3 South					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
007-240	01	39.1	51369.26	5.14	12.69
007-240	02	40.0	66838.97	6.68	16.52
007-260	03	80.0	1980.2	.1980	.49
038-020	07	160.0	11393.5	1.14	2.82
038-020	42	78.8	19295.7	1.93	4.77
038-020	43	78.7	5361.38	0.54	1.32
038-130	20	80.0	120992.71	12.10	29.90
038-130	47	48.8	67609.97	6.76	16.71
038-130	40	40.0	28494.61	2.85	7.04
038-130	48	11.2	42512.54	4.25	10.50
038-130	38	420.0	40873.21	4.09	10.10
038-130	52	157.5	846.00	0.08	0.21
038-140	07	11.84	13760.83	1.38	3.40
Total			471328.88	**47.1**	**116.5**

Alternative J1(T) North					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
108-040**	08	41.0	66940	6.69	16.54
Total			184154.7374	**6.7**	**16.5**
Alternative J1(T) South					
007-050	02	27.43	44993.42	4.50	11.12
007-050	03	40.0	42468.79	4.25	10.49
007-070	01	71.5	41800.44	4.18	10.33
104-070	05	38.6	6512.23	0.65	1.61
104-090	04	12.0	4667.68	0.47	1.15
Total			140442.56	**14.0**	**34.70**
Alternative L(T) North					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
108-040**	08	41.0	67741	6.77	16.74
Total			67741	**6.8**	**16.7**
Alternative L(T) South					
APN#	PARCEL #	Total Acres	Sq. meters	ha	Acres of Take
007-050	01	71.5	2757.6	0.28	0.68
007-070	03	40.0	39382.07	3.94	9.73
103-110	01	80.0	36461.2	3.65	9.01
103-130	01	78.0	26749.44	2.67	6.61
104-070	05	38.6	5707.86	0.57	1.41
104-090	04	12.0	5029.045	0.50	1.24
108-040	03	125.0	41956.266	4.20	10.37
108-040**	08	41.0	55549.93	5.55	13.73
Total			213593.411	**21.4**	**52.8**

*Designated as a Timber Protection Zone (TPZ).

**Parcel split by nodal segmentation.

Appendix M Noise Impact Summary

Under Federal/FHWA regulations (23 CFR 772) and Caltrans' policy, noise abatement must be considered when the project results in a noise impact. An evaluation of reasonable and feasible abatement measures must be included in the draft environmental document. This appendix contains a summary of this process:

- First, predicting future noise and analyzing the impact for each receptor (Table M-1),
- Second, analyzing the feasibility of soundwalls where there is a noise impact (Table M-2), and
- Third, evaluating the reasonableness of each feasible soundwall (Table M-2).

Existing noise and predicted noise increases for each alignment are shown in Table M-1. The "Predicted Noise Level Leq(h), dBA" is shown for the No-Build Alternative (Column 3) and for each build alternative (Column 4). If this "Predicted Noise Level" approaches (by 1 dBA) or exceeds the Noise Abatement Criteria (Column 2), there is an impact (Column 6). Also, an impact occurs if there is a noise increase that exceeds 12 dBA, Leq(H) (Column 5). The receptor locations listed in this table are shown on Map 23B in the atlas (Volume II). The noise levels were calculated based on peak-hour traffic projections for all the alternatives under consideration, including the no-build alternative.

Table M-2 is a summary of impacted receptors and the feasibility and reasonableness of soundwall abatement for these impacted receptors.

For a soundwall to be feasible, it must reduce noise by at least 5 dB. Also, locations that would be outside the construction limits of any alternative and locations that may be considered for purchase by the state for the proposed project, were eliminated from further analysis. Columns 4 and 8 summarize the feasibility of soundwalls for each impacted receptor.

For each impacted receptor where a soundwall was feasible, the reasonableness of the soundwall was evaluated. A soundwall was considered feasible only for receptors 73, 74, and 75, so the evaluation continued, to determine whether a soundwall was reasonable for these three receptors. The conclusion was that a soundwall for these receptors did not meet the reasonableness criteria (Column 9).

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.

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative C1T					
		Existing	Alternative C1T		
1	B (67)	46	50	+4	None
2	B (67)	47	54	+7	None
3	B (67)	44	59	+15	S
4	B (67)	41	54	+13	S
5	B (67)	49	52	+3	None
6	B (67)	57	58	+1	None
7	B (67)	62	62	--	None
8	B (67)	53	54	+1	None
9	B (67)	56	56	--	None
10	B (67)	55	55	--	None
11	B (67)	68	68	--	A/E
12	B (67)	71	70	-1	A/E
13	B (67)	64	64	--	None
14	B (67)	62	62	--	None
15	B (67)	68	67	-1	A/E
16	B (67)	47	48	+1	None
20	B (67)	51	53	+2	None
23	B (67)	47	48	+1	None
24	B (67)	45	45	--	None
25	B (67)	44	44	--	None
26	B (67)	45	45	--	None
27	B (67)	44	44	--	None
28	B (67)	48	48	--	None
29	B (67)	58	58	--	None
30	B (67)	58	59	+1	None
31	B (67)	49	51	+2	None
34	C (72)	47	49	+2	None
62	B(67)	50	50	--	None
63	B (67)	52	52	--	None
67	B (67)	51	55	+4	None
68	B (67)	56	56	--	None
69	B (67)	50	52	+2	None
72	B (67)	52	55	+3	None
73	B (67)	63	63	--	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative C1T					
		Existing	Alternative C1T		
74	B (67)	63	64	+1	None
75	B (67)	59	60	+1	None
76	B (67)	58	74	+16	S
77	B (67)	50	60	+10	None
80	B (67)	64	60	-4	None
81	B (67)	67	65	-2	None
82	B (67)	66	64	-2	None
83	B (67)	66	65	-1	None
84	B (67)	59	59	--	None
85	B (67)	61	60	-1	None
86	B(67)	65	64	-1	None
87	B(67)	61	60	-1	None
89	B(67)	66	65	-1	None
90	B(67)	61	60	-1	None
91	C(72)	62	62	--	None
92	B(67)	66	66	--	A/E
93	B(67)	48	48	--	None
94	B(67)	55	55	--	None
95	B(67)	50	50	--	None
96	B(67)	60	60	--	None
97	B(67)	50	50	--	None
98	B(67)	50	50	--	None
99	B(67)	49	49	--	None
100	B(67)	49	49	--	None
101	B(67)	45	45	--	None
102	B(67)	45	45	--	None
103	B(67)	44	44	--	None
104	B(67)	45	45	--	None
105	B(67)	50	50	--	None
106	B(67)	50	50	--	None
107	B(67)	40	40	--	None
Alternative E3					
		Existing	Alternative E3		
1	B (67)	46	50	+4	None
2	B (67)	47	54	+7	None
3	B (67)	44	52	+8	None
4	B (67)	41	46	+5	None
5	B (67)	49	52	+3	None
6	B (67)	57	61	+4	None
7	B (67)	62	62	--	None
8	B (67)	53	55	+2	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative E3					
		Existing	Alternative E3		
9	B (67)	56	57	+1	None
10	B (67)	55	56	+1	None
11	B (67)	68	67	-1	A/E
12	B (67)	71	69	-2	A/E
13	B (67)	64	67	+3	A/E
14	B (67)	62	66	+4	A/E
15	B (67)	68	68	--	A/E
16	B (67)	47	60	+13	S
20	B (67)	51	51	--	None
23	B (67)	47	52	+5	None
24	B (67)	45	52	+7	None
25	B (67)	44	49	+5	None
26	B (67)	45	48	+3	None
27	B (67)	44	51	+7	None
28	B (67)	48	56	+8	None
29	B (67)	58	59	+1	None
30	B (67)	58	58	--	None
31	B (67)	49	49	--	None
34	C (72)	47	46	-1	None
62	B(67)	50	51	+1	None
63	B (67)	52	52	--	None
67	B (67)	51	52	+1	None
68	B (67)	56	57	+1	None
69	B (67)	50	50	--	None
72	B (67)	52	52	--	None
73	B (67)	63	63	--	None
74	B (67)	63	63	--	None
75	B (67)	59	59	--	None
76	B (67)	58	58	--	None
77	B (67)	50	50	--	None
80	B (67)	64	63	-1	None
81	B (67)	67	66	-1	A/E
82	B (67)	66	66	--	A/E
83	B (67)	66	65	-1	None
84	B (67)	59	62	+3	None
85	B (67)	61	62	+1	None
86	B(67)	65	64	-1	None
87	B(67)	61	61	--	None
89	B(67)	66	64	-2	None
90	B(67)	61	60	-1	None
91	C(72)	62	64	+2	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative E3					
		Existing	Alternative E3		
92	B(67)	66	66	--	A/E
93	B(67)	48	56	+8	None
94	B(67)	55	55	--	None
95	B(67)	50	58	+8	None
96	B(67)	60	64	+4	None
97	B(67)	50	50	--	None
98	B(67)	50	51	+1	None
99	B(67)	49	53	+4	None
100	B(67)	49	55	+6	None
101	B(67)	45	46	+1	None
102	B(67)	45	46	+1	None
103	B(67)	44	45	+1	None
104	B(67)	45	60	+15	S
105	B(67)	50	59	+9	None
106	B(67)	50	55	+5	None
107	B(67)	40	59	+19	S
Alternative J1T					
		Existing	Alternative J1T		
1	B (67)	46	52	+6	None
2	B (67)	47	55	+8	None
3	B (67)	44	60	+16	S
4	B (67)	41	55	+14	S
5	B (67)	49	53	+4	None
6	B (67)	57	60	+3	None
7	B (67)	62	64	+2	None
8	B (67)	53	56	+3	None
9	B (67)	56	58	+2	None
10	B (67)	55	57	+2	None
11	B (67)	68	70	+2	A/E
12	B (67)	71	72	+1	A/E
13	B (67)	64	66	+2	A/E
14	B (67)	62	64	+2	None
15	B (67)	68	69	+1	A/E
16	B (67)	47	50	+3	None
20	B (67)	51	55	+4	None
23	B (67)	47	49	+2	None
24	B (67)	45	45	--	None
25	B (67)	44	44	--	None
26	B (67)	45	45	--	None
27	B (67)	44	44	--	None
28	B (67)	48	48	--	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative J1T					
		Existing	Alternative J1T		
29	B (67)	58	58	--	None
30	B (67)	58	60	+2	None
31	B (67)	49	59	+10	None
34	C (72)	47	63	+16	S
62	B(67)	50	53	+3	None
63	B (67)	52	56	+4	None
67	B (67)	51	57	+6	None
68	B (67)	56	58	+2	None
69	B (67)	50	51	+1	None
72	B (67)	52	52	--	None
73	B (67)	63	63	--	None
74	B (67)	63	64	+1	None
75	B (67)	59	59	--	None
76	B (67)	58	58	--	None
77	B (67)	50	50	--	None
80	B (67)	64	65	+1	None
81	B (67)	67	65	+1	None
82	B (67)	66	65	-1	None
83	B (67)	66	65	-1	None
84	B (67)	59	58	-1	None
85	B (67)	61	60	-1	None
86	B(67)	65	65	--	None
87	B(67)	61	61	--	None
89	B(67)	66	65	-1	None
90	B(67)	61	61	--	None
91	C(72)	62	62	--	None
92	B(67)	66	66	--	A/E
93	B(67)	48	48	--	None
94	B(67)	55	55	--	None
95	B(67)	50	50	--	None
96	B(67)	60	60	--	None
97	B(67)	50	50	--	None
98	B(67)	50	50	--	None
99	B(67)	49	49	--	None
100	B(67)	49	49	--	None
101	B(67)	45	45	--	None
102	B(67)	45	45	--	None
103	B(67)	44	44	--	None
104	B(67)	45	45	--	None
105	B(67)	50	50	--	None
106	B(67)	50	50	--	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
107	B(67)	40	40	--	None
Alternative LT					
		Existing	Alternative LT		
1	B (67)	46	51	+5	None
2	B (67)	47	55	+8	None
3	B (67)	44	60	+16	S
4	B (67)	41	56	+15	S
5	B (67)	49	53	+4	None
6	B (67)	57	60	+3	None
7	B (67)	62	64	+2	None
8	B (67)	53	56	+3	None
9	B (67)	56	58	+2	None
10	B (67)	55	57	+2	None
11	B (67)	68	70	+2	A/E
12	B (67)	71	72	+1	A/E
13	B (67)	64	66	+2	A/E
14	B (67)	62	64	+2	None
15	B (67)	68	69	+1	A/E
16	B (67)	47	50	+3	None
20	B (67)	51	53	+2	None
23	B (67)	47	49	+2	None
24	B (67)	45	45	--	None
25	B (67)	44	45	+1	None
26	B (67)	45	45	--	None
27	B (67)	44	45	+1	None
28	B (67)	48	48	--	None
29	B (67)	58	58	--	None
30	B (67)	58	59	+1	None
31	B (67)	49	52	+2	None
34	C (72)	47	52	+3	None
62	B(67)	50	55	+5	None
63	B (67)	52	59	+7	None
67	B (67)	51	57	+6	None
68	B (67)	56	58	+2	None
69	B (67)	50	52	+2	None
72	B (67)	52	55	+3	None
73	B (67)	63	71	+8	A/E
74	B (67)	63	71	+8	A/E
75	B (67)	59	68	+9	A/E
76	B (67)	58	61	+3	None
77	B (67)	50	56	+6	None
80	B (67)	64	70	+6	A/E
81	B (67)	67	65	-2	None
82	B (67)	66	65	-1	None
83	B (67)	66	65	-1	None
84	B (67)	59	58	-1	None
85	B (67)	61	61	--	None
86	B(67)	65	65	--	None

Table M-1. Predicted Traffic Noise Impacts

1	2	3	4	5	6
Receptor I.D. No.[2]	Activity Category And NAC Leq(h)	Predicted Noise Level Leq(h), dBA	Predicted Noise Level Leq(h), dBA Year 2028	Noise Increase (+) or Decrease (-)	Impact Type[1] (S, A/E, CR or None)
Alternative LT					
		Existing	Alternative LT		
87	B(67)	61	61	--	None
89	B(67)	66	66	--	A/E
90	B(67)	61	61	--	None
91	C(72)	62	62	~	None
92	B(67)	66	66	--	A/E
93	B(67)	48	48	--	None
94	B(67)	55	55	--	None
95	B(67)	50	50	--	None
96	B(67)	60	60	--	None
97	B(67)	50	50	--	None
98	B(67)	50	50	--	None
99	B(67)	49	49	--	None
100	B(67)	49	49	--	None
101	B(67)	45	45	--	None
102	B(67)	45	45	--	None
103	B(67)	44	44	--	None
104	B(67)	45	45	--	None
105	B(67)	50	50	--	None
106	B(67)	50	50	--	None
107	B(67)	40	40	--	None

1 Impact Type: S = Substantial Increase (12 dBA or more)
A/E = Approach or Exceed NAC
CR = Classroom Noise (Section 216 of Streets and Highways Code)

2 See Map 23B for location of receptors. Receptor I.D. Numbers that are missing were from alternatives that are no longer under consideration.

Table M-2 is a summary 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 (Column 9).

Table M-2. Summary of Impacts and Feasibility of Sound wall Abatement

1	2	3	4	5	6	7	8	9
Modeling Receptor I.D. No.	**Alternate C1T**				**Alternate LT**			
	Impact[1]	No. of Units	Sound wall Feasible	Sound wall Reasonable	Impact[1]	No. of Units	Sound wall Feasible	Sound wall Reasonable
3	Yes	1	No[4]	--	Yes	1	No[4]	--
4	Yes	3	No[4]	--	Yes	3	No[4]	--
11	Yes	1	No[5]	--	Yes	1	No[5]	--
12	Yes	9	No[5]	--	Yes	9	No[5]	--
13	No	--	--	--	Yes	6	No[5]	--
14	No	--	--	--	No	--	--	--
15	Yes	6	No[5]	--	Yes	6	No[5]	--
16	No	--	--	--	No	--		--
73	No	--	--	--	Yes	2	Yes	No[3]
74	No	--	--	--	Yes	2*	Yes	No[3]
75	No	--	--	--	Yes	2	Yes	No[3]
76	Yes	4	No[2]	--	No	--	--	--
80	No	--	--	--	Yes	2	No[2]	--
81	No	--	--	--	Yes	3	No[2]	--
82	No	--	--	--	No	--	--	--
83	No	--	--	--	No	--	--	--
84	No	--	--	--	No	--	--	--
85	No	--	--	--	No	--	--	--
86	No	--	--	--	No	--	--	--
87	No	--	--	--	No	--	--	--
89	No	--	--	--	Yes	13	--	--
90	No	--	--	--	No	--	--	--
91	No	--	--	--	No	--	--	--
92	Yes	1	No[5]	--	Yes	1	No[5]	--
100	No	--	--	--	No	--	--	--
104	No	--	--	--	No	--	--	--
105	No	--	--	--	No	--	--	--
107	No	--	--	--	No	--	--	--
Total of Impacted Units		25				51		

Table M-2. Summary of Impacts and Feasibility of Sound wall Abatement - Continued

1	2	3	4	5	6	7	8	9
Modeling Receptor I.D. No.	**Alternate J1T**				**Alternate E3**			
	Impact[1]	No. of Units	Sound wall Feasible	Sound wall Reasonable	Impact[1]	No. of Units	Sound wall Feasible	Sound wall Reasonable
3	Yes	1	No[4]	--	No		--	--
4	Yes	3	No[4]	--	No		--	--
11	Yes	1	No[5]	--	Yes	1	No[2]	--
12	Yes	9	No[5]	--	Yes	9	No[2]	--
13	Yes	6	No[5]	--	Yes	6	No[2]	--
14	No	--	--	--	Yes	1	No[2]	--
15	Yes	6	No[5]	--	Yes	6	No[2]	--
16	No	--	--	--	Yes	7	No[2]	--
73	No	--	--	--	No	--	--	--
74	No	--	--	--	No		--	--
75	No	--	--	--	No		--	--
76	No	--	--	--	No		--	--
80	No	--	--	--	No		--	--
81	No	--	--	--	Yes	3	No[2]	--
82	Yes	1	No[2]	--	Yes	1	No[2]	--
83	No	--	--	--	No	--	--	--
84	No	--	--	--	No		--	--
85	No	--	--	--	No		--	--
86	No	--	--	--	No		--	--
87	No	--	--	--	No		--	--
89	No	--	--	--	No	--	--	--
90	No		--	--	No		--	--
91	No	--	--	--	No	--	--	--
92	Yes	1	No[5]	--	Yes	1	No[5]	--
100	No	--	--	--	No	--	--	-
104	No	--	--	--	Yes	4	No[4]	--
105	No	--	--	--	No	--	--	--
107	No	--	--	--	Yes	1	No[4]	--
Total of Impacted Units		28				42		

Notes:
1 If the noise level at a receptor exceeds Leq (h) 66 dBA or has a 12 dBA increase, the impact is listed as “yes”.
2 Proposed for state acquisition if this alternative is selected
3 Does not meet reasonableness criteria
4 Can not achieve 5 dBA attenuation.
5 Outside the construction limits – noise levels will remain the same with or without the project.
*Per Section 2.8.3 in the Caltrans Noise Protocol, for every 30.5m (100 ft) of frontage along the soundwall one *receptor unit* will be used.

Appendix N 4(F) Joint Development Planning Documentation

CITY OF WILLITS

CITY HALL – 111 East Commercial Street, (707) 459-4601 • Fax (707) 459-1562
POLICE DEPARTMENT – 125 E. Commercial St., (707) 459-6122 • Fax (707) 459-0405
Willits, CA 95490

April 26, 2001

Cher Daniels, Chief
Office of Environmental Management, S-1
2800 Gateway Oaks Drive, Suite 100
Sacramento, CA 95833

Subject: Willits Bypass - J1T Recreational Impacts

Dear Ms. Daniels:

Attached is the map you requested showing the improvements proposed for the Redwood Empire Railroad History Project planned jointly by the City of Willits and the County of Mendocino. The alignments for the three valley alternatives of the Willits Bypass are also shown on the map.

The Railroad History Project is a multi-phase project that includes construction of several structures to house and display the railroad museum collection, a loop railroad track, and three new ball fields for our community. At the heart of the project is the 20,000-sq. ft. world class exhibition and learning center funded by TEA-21 funds and approved by the Mendocino Council of Governments and the CTC. I am happy to report that we have begun construction on Phase 1 of this project. As we complete the planning process for Phase II, we recognized the need to address potential transportation facilities such as the proposed Willits Bypass J1T Alternative.

The City seeks to find a balanced solution to jointly develop both projects during the planning process. As you are aware, the City of Willits supports a freeway bypass and we have carefully sited the planned Railroad History Project improvements to prevent conflict with all of the proposed alternates, including Alternative J1T. You will see the alignment of Willits Bypass Alternative J1T running through the parcels' eastern portion over constructed wetlands required as mitigation for our project. I understand this segment of alternative J1T is a viaduct so access to the eastern portion of our parcel will be unencumbered. Clearly, the City prefers an alternative further to the east and the Council has proclaimed their support for a combination of Alternatives L at the south and C1 at the north on several occasions. The L-C1 combination alternative would also avoid the San Hedrin industrial park and incorporate a northern interchange near the Truck Scales location.

I appreciate your coordination with our Railroad History Project, our Recreation Field Project, and the planned expansion of our Wastewater Treatment Plant. If I can be of further assistance, please don't hesitate to contact me.

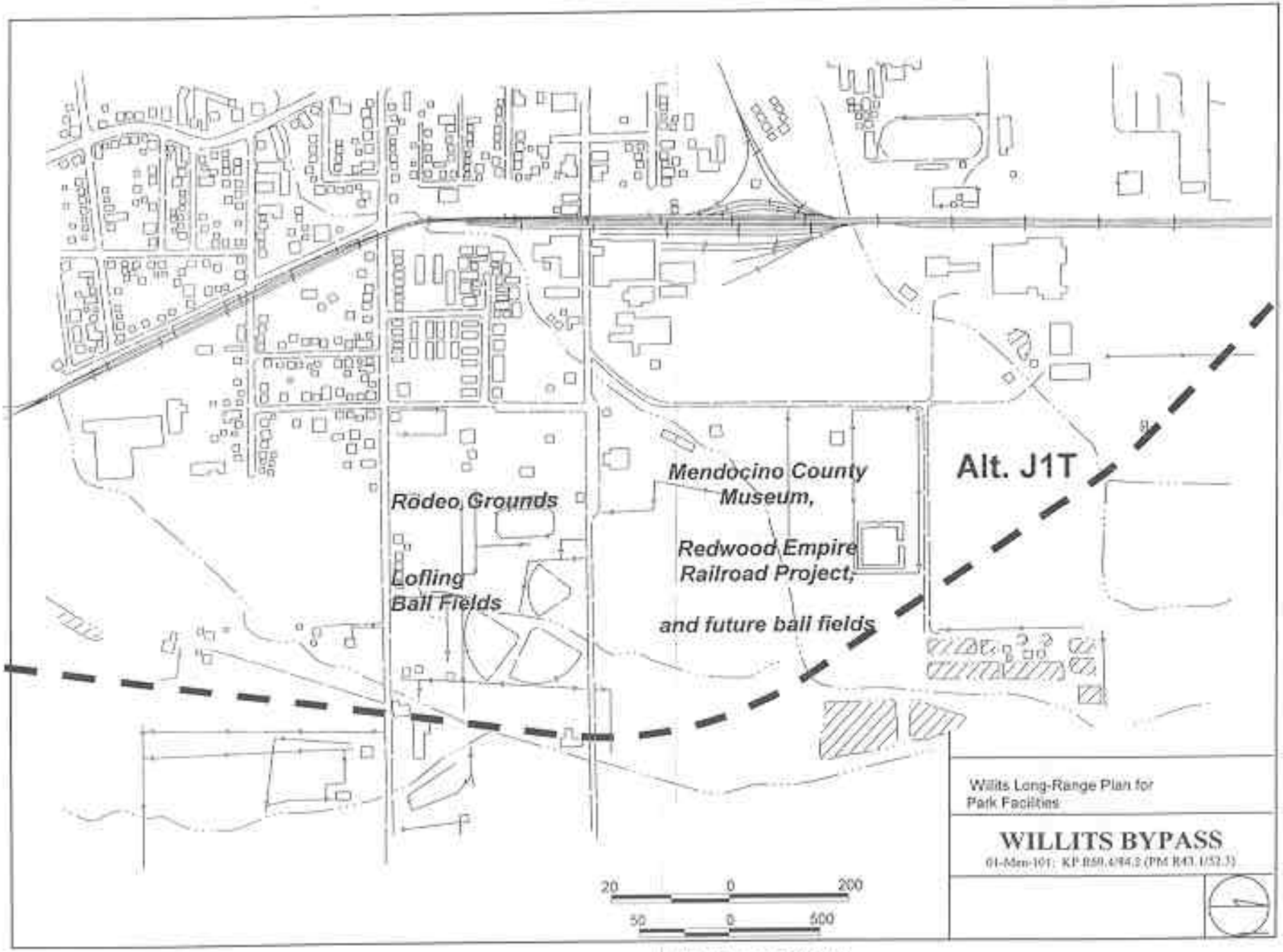
Sincerely,

Gordon Logan
City Manager

GL:tjd

cc: City Council
Lena Ashley, Caltrans Project Manager
Mendocino County Board of Supervisors

enc.


Alt. J1T
Rodeo Grounds
Lofling
Ball Fields
Mendocino County
Museum,
Redwood Empire
Railroad Project,
and future ball fields
20
0
200
50
0
500
Willits Long-Range Plan for
Park Facilities
WILLITS BYPASS
01-Men-101; KP 85.4/94.3 (PM 53.1/58.7)

Appendix O USFWS Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish and Wildlife Office
1655 Heindon Road
Arcata, CA 95521
(707) 822-7201
FAX (707) 822-8136

IN REPLY REFER TO

1-14-1998-95.4

December 12, 2001

Mr. Chris Collison
Department of Transportation
2800 Gateway Oaks, Suite 130
Sacramento, CA 95833

Subject: Species Lists for Proposed SR 101 Willits Bypass Project, Mendocino County, California

Dear Mr. Collison:

As requested by letter from your agency dated November 26, 2001, you will find enclosed list(s) of endangered and threatened species that may be present in *or may be affected by* projects in the subject project area (see Enclosure A). This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide species lists pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (Act).

The Service used your map(s) and/or other information to determine the U.S.G.S. 7.5' quadrangle(s) containing the proposed project. The species listed in Enclosure A are those species we believe may occur within, *or be affected by projects within* the Willits, Burbeck, and Laughlin Range quads, where your project is planned.

Some of the species listed in Enclosure A may not be affected by the proposed action. A trained biologist or botanist, familiar with the habitat requirements of the listed species, should determine whether these species or habitats suitable for these species may be affected by the proposed action.

Some pertinent information concerning the distribution, life history, habitat requirements, and published references for the listed species is available upon request. This information may be helpful in preparing the biological assessment for this project, if one is required. Please see Enclosure B for a discussion of the responsibilities Federal agencies have under section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative.

Formal consultation, pursuant to 50 CFR § 402.14, should be initiated if you determine that a listed species may be affected by the proposed project. If you determine that a proposed species

may be adversely affected, you should consider requesting a conference with our office pursuant to 50 CFR § 402.10. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of these lists with our office.

Candidate species are currently being reviewed by the Service and are under consideration for possible listing as endangered or threatened. The term *candidate* now strictly refers to species for which the Service has on file enough information to propose listing. Candidate species have no protection under the Endangered Species Act, but are included for your consideration as it is possible that one or more of these candidates could be proposed and listed before the subject project is completed. Should the biological assessment reveal that candidate species may be adversely affected, you may wish to contact our office for technical assistance. One of the potential benefits from such technical assistance is that by exploring alternatives early in the planning process, it may be possible to avoid conflicts that could otherwise develop, should a candidate species become listed before the project is completed.

If the proposed project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by the U.S. Army Corps of Engineers (Corps), a Corps permit shall be required, pursuant to section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act. Impacts to wetland habitats require site specific mitigation and monitoring. You may request a copy of the Service's General Mitigation and Monitoring Guidelines or submit a detailed description of the proposed impacts for specific comments and recommendations.

Please contact Mr. Greg Goldsmith at (707) 822-7201 if you have any questions regarding the attached lists or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of the species list coordinator at this address. For questions regarding wetlands, please contact Mr. Randy Brown of this office at (707) 822-7201.

Sincerely,

(FOR) Bruce G. Halstead
Project Leader

Enclosures

Enclosure A

Listed/Proposed Threatened and Endangered Species for BURBECK Quad (Candidates Included)

December 12, 2001

TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Plants				
	Trifolium amoenum	showy Indian clover	E	N
Fish				
	Eucyclogobius newberryi	tidewater goby	E	Y
*	*Oncorhynchus mykiss*	Northern California steelhead	T	N
*	*Oncorhynchus kisutch*	S. OR/N. CA coho salmon	T	Y
*	*Oncorhynchus kisutch*	central CA coast coho salmon	T	Y
*	*Oncorhynchus tshawytscha*	CA coastal chinook salmon	T	Y
Birds				
	Coccyzus americanus	yellow-billed cuckoo	C	N
	Strix occidentalis caurina	northern spotted owl	T	Y
	Brachyramphus marmoratus	marbled murrelet	T	Y
	Haliaeetus leucocephalus	bald eagle	T	N

KEY:

(PE) Proposed Endangered	Proposed (in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future.
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future.
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated

* Denotes a species listed by the National Marine Fisheries Service

Enclosure A

Listed/Proposed Threatened and Endangered Species for LAUGHLIN RANGE Quad (Candidates Included)

December 12,2001

TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
Plants				
	Trifolium amoenum	showy Indian clover	E	N
Fish				
*	*Oncorhynchus kisutch*	central CA coast coho salmon	T	Y
*	*Oncorhynchus tshawytscha*	CA coastal chinook salmon	T	Y
*	*Oncorhynchus mykiss*	Central California steelhead	T	Y
Birds				
	Coccyzus americanus	yellow-billed cuckoo	C	N
	Strix occidentalis caurina	northern spotted owl	T	Y
	Brachyramphus marmoratus	marbled murrelet	T	Y
	Haliaeetus leucocephalus	bald eagle	T	N

KEY:

(PE) Proposed Endangered	Proposed (in the Federal Register as being in danger of extinction
(PT) Proposed Threatened	Proposed as likely to become endangered within the foreseeable future.
(E) Endangered	Listed in the Federal Register as being in danger of extinction
(T) Threatened	Listed as likely to become endangered within the foreseeable future.
(C) Candidate	Candidate which may become a proposed species
Critical Habitat	Y = Designated, P = Proposed, N = None Designated

* Denotes a species listed by the National Marine Fisheries Service

Enclosure B

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7(a) and (c) OF THE ENDANGERED SPECIES ACT

SECTION 7(a) Consultation/Conference

Requires: (1) federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species; (2) Consultation with FWS when a federal action may affect a listed endangered or threatened species to insure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the federal agency after determining the action may affect a listed species; and (3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7(c) Biological Assessment-Major Construction Activity[1]

Requires federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action[2] on listed and proposed species. The process begins with a Federal agency requesting from FWS a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with our Service. No irreversible commitments of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA: an on-site inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat are present; a review of literature and scientific date to determine species' distribution, habitat needs, and other biological requirement; interviews with experts, including those within FWS, State conservation departments, universities and others who may have data not yet published in scientific literature; an analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of indirect effects of the proposal on the species and its habitat; an analysis of alternative actions considered. The BA should document the results, including a discussion of study methods used, and problems encountered, and other relevant information. The BA should conclude whether or not a listed or proposed species will be affected. Upon completion, the BA should be forwarded to our office.

---

[1] A construction project (or other undertaking having similar physical impacts) which is a major federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332(2)C).

[2] "Effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action.

Appendix P Recommendation Matrix And Criteria For Comparing Alternatives

The following documents in Appendix P summarize the highlights of the 1998 Value Analysis Study. These documents include the evaluation criteria that were used for retaining or eliminating alternatives and a matrix showing the results of the evaluation for each alternative along with the PDT's conclusions.

APPENDIX P. RECOMMENDATION MATRIX AND CRITERIA FOR COMPARING ALTERNATIVES

Criteria for Comparing Alternatives

Purpose: To describe evaluation criteria in the Willits Bypass Study Team Recommendations Matrix for elimination of alternatives. Please see attached Willits Bypass Study Team Recommendations Matrix.

COST

The project is currently programmed at a cost of $70 million in the 98/99 fiscal year. We requested this project be funded for $104 million, but funding was cut by the California Transportation Commission (CTC) when it added this project to the 1992 State Transportation Improvement Program (STIP). In November 1992, Proposition 156, the rail bond bill, did not pass. We are not sure what will happen to the Willits Bypass and many other projects in the STIP. We were told, prior to the elections, that if this bill did not pass we would lose funding for the project, since monies would have to be diverted south. However, the CTC is now looking for ways to avoid dropping projects. These decisions will be made in conjunction with the 1994 STIP.

Gaining additional funding for this project may be difficult; and, funding exorbitantly expensive alternatives, or a third interchange would be difficult to justify.

Cost estimates are preliminary and do not include traffic control, drainage, hazardous waste cleanup, and mitigation for other than wetlands. Alternative E1 does not include cost of a new interchange design at Oil Well Hill, since the alternative currently includes a very high retaining wall which is determined infeasible.

The ranking for cost shown on the Study Team Recommendations matrix is based on the following:

Preliminary Cost	Rank
< 30 million $	Excellent
31 to 70 million $	Good
71 to 100 million $	Fair
> 100 million $	Poor

HAZARDOUS WASTE

Using the following criteria, we rated the potential for encountering hazardous waste:

- Size of site in question
- Mobility and toxicity of hazardous waste suspected at the site
- Collected historical data from permits and records
- Field observations of each site
- Number of sites on each alternative

The numbers indicated on the matrix are an overall rating based on the above criteria and are summarized below.

Overall Rating	Rank
0	Excellent
1 to 4	Good
5 to 10	Fair
> 11	Poor

Wetland Impacts
Wetland impacts are a critical selection criteria, since current law requires that filling wetlands cannot be done unless no practicable alternative exists.

Wetland Impacts	Rank
0 to 10 acres	Excellent
11 to 20 acres	Good
21 to 60 acres	Fair
> 60 acres	Poor

Upland Impacts
This evaluation is qualitative, since final acreage calculations for upland habitat impacts have not yet been performed.

Endangered Species
This is a qualitative estimate of the anticipated impacts to endangered species for each alternative, and assumes that Northern Spotted Owl impacts will not jeopardize continued existence of the species.

SOCIO/ECONOMIC IMPACTS
The socio-economic impact of each alternative has been estimated using the following criteria:

Residential Relocations
The number of displaced residences has been estimated for each alternative, and represents the total number of single family residences, multiple dwelling units, and mobile homes/units.

The matrix shows the number of residential relocations estimated; and, the following ranking was used to compare alternatives:

Residential Relocations	Rank
0 to 5	Excellent
6 to 20	Good
21 to 40	Fair
> 40	Poor

Business Relocations
The number of displaced businesses has been estimated for each alternative. The TSM alternative requires purchase of a mini-storage business, and each unit is counted as a separate business. For this reason, the number of business relocations was reduced to 12 displacements for the TSM alternative, and the mini-storage business was counted as only one business displacement.

The matrix shows the number of business relocations estimated for each alternative; and, the following ranking was used to compare alternatives:

Business Relocations	Rank
0 to 3	Excellent
4 to 10	Good
11 to 20	Fair
>20	Poor

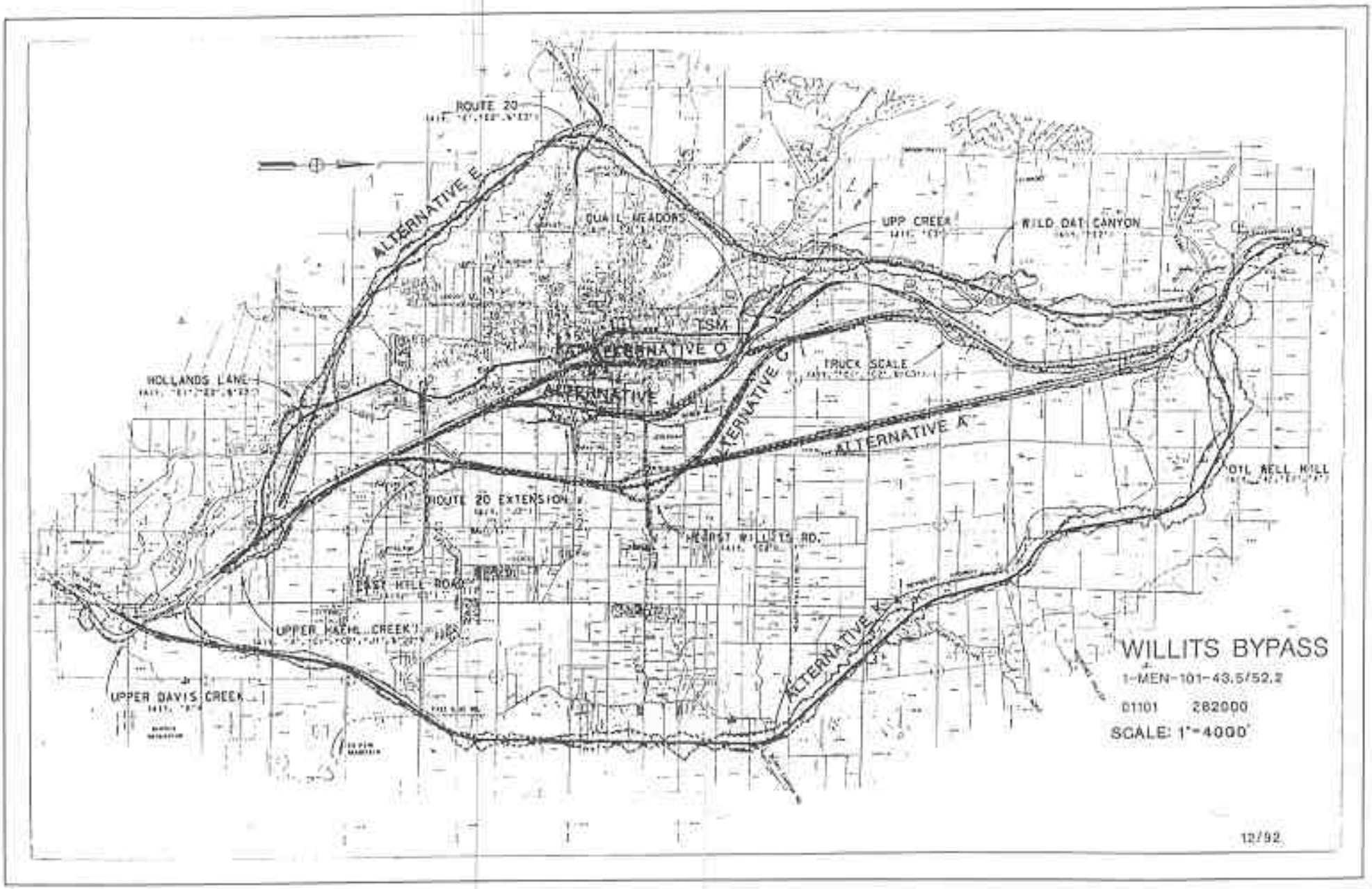
WILLITS BYPASS STUDY TEAM RECOMMENDATIONS MATRIX

Alternative	Interchange Locations	Preliminary Cost* (Million $)	Hazardous Waste (Overall Rating)	Interregional Service: Reduced Delay	Interregional Service: Reduced Accidents	Local Service
A	Upper Haehl Oil Well Hill	● (80)	● (7)	●	●	●
C1	Upper Haehl Truck Scales	● (75)	● (2)	●	●	●
C2	Upper Haehl Commercial Truck Scales	● (84)	● (4)	●	●	●
C3	East Hill Truck Scales	● (83)	● (5)	●	●	●
J1	Upper Haehl Quail Meadows	● (96)	● (8)	●	●	●
J2	Upper Haehl Route 20 Ext. Quail Meadows	● (100)	• (11)	●	●	●
E1	Hollandia Lane Route 20 Oil Well Hill	• (135)	● (3)	●	●	●
E2	Hollandia Lane Route 20 Wild Oak Cir.	• (124)	● (1)	●	●	●
E3	Hollandia Lane Route 20 Lazy Creek	• (147)	● (5)	●	●	●
X	Upper Davis Oil Well Hill	• (123)	● (5)	●	●	●
O	None	● (55)	• (10)	●	•	●
TSM	None	● (50)	• (11)	●	•	●
No Build	None	● (0)	● (0)	•	•	•

* Preliminary estimates only, and do not include the cost of UPRR corridor, drainage, hazardous waste cleanup, and mitigation other than wetland.
+ Alternative E1 does not include the cost of a new interchange design at Oil Well Hill, since the alternative currently includes a very high cut slope which is determined infeasible.
† Historical/Evaluation not yet complete, but 4(f) impacts are anticipated.

Alt.	Resource Impacts: 4(f) Impacts (Number)	Resource Impacts: Wetland Impacts (Acres)	Resource Impacts: Upland Impacts	Resource Impacts: Endangered Species	Socio/Economic Impacts: Residential Relocations (Number)	Socio/Economic Impacts: Business Relocations (Number)	Recommend. to PDT	Rationale
A	● (1)	• (105)	●	•	● (2)	● (2)	Retain	Lowest relocation.
C1	● (1)	• (123)	●	•	● (2)	● (2)	Retain	Good interchange location from the standpoint of service and wetland impacts.
C2	● (1)	• (130)	●	•	● (11)	● (4)	Drop	Additional interchange is costly. Wetland impacts due to additional valley interchange, and anticipated future growth induced.
C3	● (1)	• (120)	●	•	● (13)	● (5)	Drop	C1 provides better service in terms of interchange location.
J1	● (1)	● (52)	●	●	● (56)	● (17)	Retain	Less wetland impact than the C alternatives.
J2	● (1)	• (81)	●	•	• (63)	• (24)	Drop	Additional interchange is costly. Wetland impacts due to additional valley interchange, and anticipated future growth induced.
E1	● (1)	● (18)	•	●	• (50)	● (7)	Drop	More relocation than E3. E3 also provides better service in terms of northern interchange location.
E2	● (1)	● (13)	•	●	• (54)	● (10)	Drop	More relocation than E3. E3 also provides better service in terms of northern interchange location.
E3	● (1)	● (13)	•	●	• (75)	● (17)	Retain	Provides better service in terms of northern interchange location and less relocation than E1 or E2. Wetland avoidance alternative.
X	• (2)	● (8)	•	●	● (50)	● (8)	Drop	Poor service in terms of interchange locations.
O	• (3)	● (10)	●	●	• (77)	● (8)	Drop	Highest number of multi-dwelling units displaced.
TSM	• (7)	● (1)	●	●	● (48)	● (12)	Retain	Lowest cost and low biological impacts. Non-heavy alternative.
No Build	● (0)	● (0)	●	●	● (0)	● (0)	Retain	Required for environmental document.

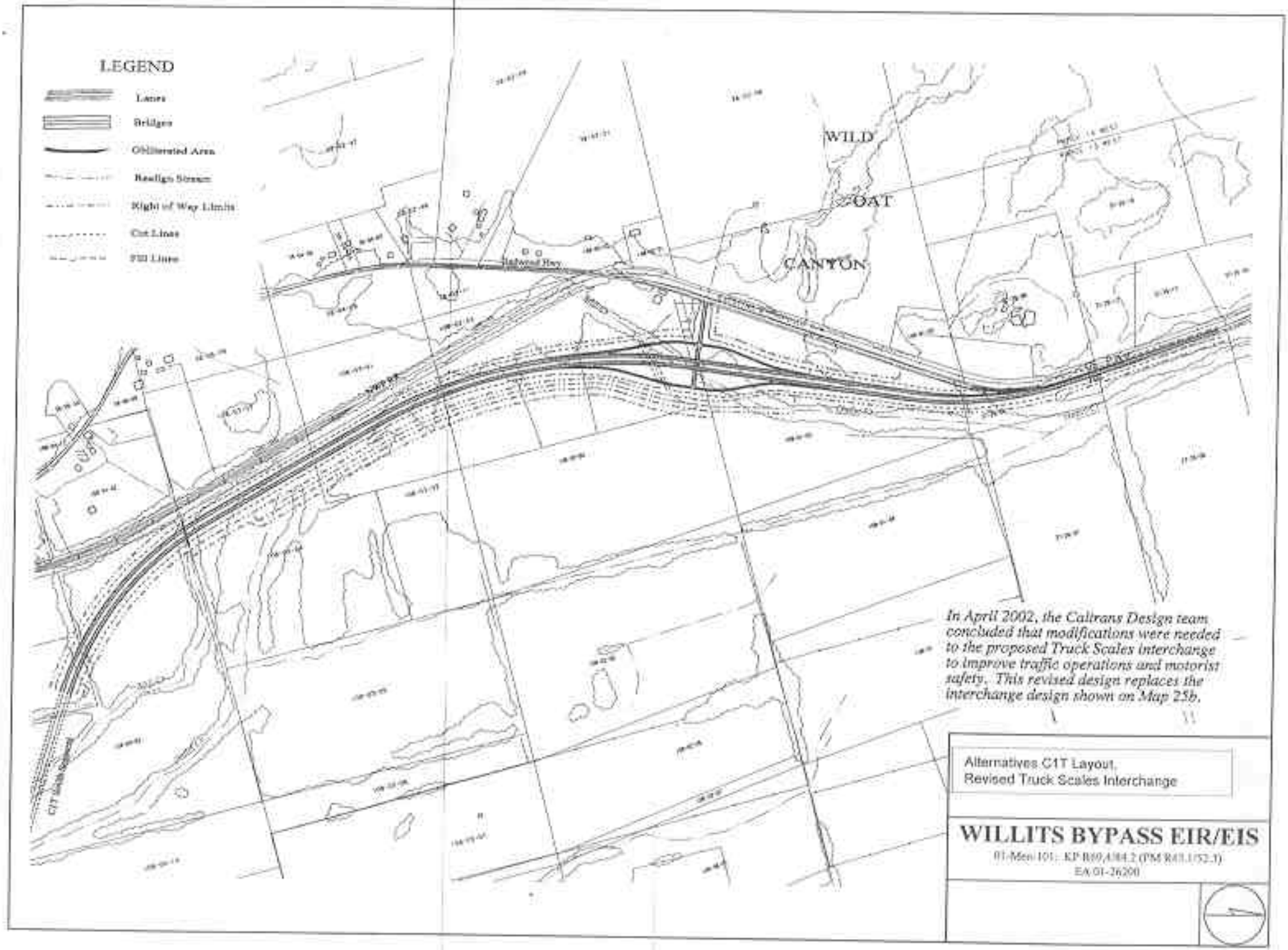
EXCELLENT = ● GOOD = ● FAIR = ● POOR = •


ROUTE 20
ALTERNATIVE E
QUAIL MEADOWS
UPP CREEK
WILD CAT CANYON
TSM
ALTERNATIVE D
ALTERNATIVE C
TRUCK SCALE
HOLLANDS LANE
ALTERNATIVE
ALTERNATIVE A
OIL WELL HILL
ROUTE 20 EXTENSION
HEADST WILLITS RD.
EAST HILL ROAD
UPPER HAEHL CREEK
ALTERNATIVE B
UPPER DAVIS CREEK
WILLITS BYPASS
1-MEN-101-43.5/52.2
01101 282000
SCALE: 1"=4000'
12/92

Appendix Q Revised Truck Scales Interchange (Alternative C1T)

In April of 2002, the Willits project design team developed revisions to the originally proposed Truck Scales Interchange for Alternative C1T. The original Truck Scales Interchange is shown on Map 25b in Volume 2. These revisions were made in response to critiques of the original proposal, as a result of Caltrans design exception approval process. The following interchange design changes are proposed: shift the mainline alignment easterly at the farthest point approximately 85 m (280 ft), change the interchange type to a diamond, and lengthen the connection to existing U.S. 101 at the north end by approximately 430 m (1400 ft) to complete the lane reduction. The new interchange is shown in this appendix and on Map 25b(2) in Volume 2. Caltrans Headquarters and FHWA have approved the modified interchange concept proposed by the Caltrans Design team. The revised interchange improves operation and motorist safety.

Caltrans has studied the differences in environmental impact between the two interchanges and concluded that there would be a minimal change in area impacted by the revised interchange design (see table below). The revised interchange design would result in approximately 0.43 ha (1.06 ac) increase in impact to jurisdictional wetlands and other waters of the U.S. Alternative C1T, with the former interchange design, impacted a total of 52.3 ha (129.1 ac). With the revised interchange the total would be 52.73 ha (130.16 ac). Caltrans has notified its NEPA/404 resource agency partners and California Department of Fish and Game of the revised interchange design and the differences in environmental impacts between the old and revised interchange designs (copy of letter follows).


LEGEND
Lanes
Bridges
Obliterated Area
Realign Stream
Right of Way Limits
Cut Lines
Fill Lines
WILD
OAT
CANYON
Halwood Hwy
C1T Alternative
In April 2002, the Caltrans Design team concluded that modifications were needed to the proposed Truck Scales interchange to improve traffic operations and motorist safety. This revised design replaces the interchange design shown on Map 25b.
Alternatives C1T Layout,
Revised Truck Scales Interchange
WILLITS BYPASS EIR/EIS
01-Men-101; KP R69.4/84.2 (PM R43.1/52.3)
EA 01-26200

COMPARISON OF IMPACTED WETLAND AND PLANT COMMUNITIES
For original and modified Truck Scales Interchange

Habitats	ACOE Jurisdictional	Impacted Veg. Areas: Orginal IC Ha	Modified IC Ha	Area Increase Ha
GRASS LAND				
ANNUAL GRASS LAND	N	1.3779	4.4109	3.033
PASTURE GRASSLAND	N	0.01667	0.2052	0.18853
NATIVE BUNCHGRASS	N	0	0	0
OLD FIELD GRASSLAND	N	0	0	0
DRYLAND FARMED GRSLND	N	0	0	0
OAK WOODLAND		0	0	0
GARRY OAK WOODLAND	N	0	0	0
BLACK OAK WOODLAND	N	0	0	0
WOODED RIPARIAN				
MXD RIPARIAN WOODLAND	Y	1.9174	2.0152	0.0978
ASH RIPARIAN WOODLAND	Y	0.0794	0.2722	0.1928
VALLEY OAK RIP. WDLND	Y	0	0	0
V.OAK-ASH RIP WDLND	Y	2.4749	1.5736	-0.9013
MIXED WILLOW SCRUB	Y	1.2582	1.2472	-0.011
MXD RIPARIAN SCRUB	Y	0.3942	0.1878	-0.2064
MONTANE RIP WDLND	Y	0	0	0
FOREST				
MXD. N. SLOPE FOREST	N	0	0	0
DOUGLES FIR FOREST	N	0	0	0
MXD. CONIFER FOREST	N	0	0	0
MXD EVERGREEN FOREST	N	0	0	0
CHAPARRAL				
MXD CHAPARRAL	N	0	0	0
MANZANITA CHPRL	N	0	0	0
MARSH				
MXD MARSH	Y	1.4393	1.5662	0.1269
CATTAIL MARSH	Y	0	0	0
TULE MARSH	Y	0	0.0758	0.0758
MEADOWS				
WET MEADOW *	Y	12.9	12.7135	-0.1865
HAY MEADOW	Y	0	0	0
RESIDENTIAL MDW	N	0	0	0
DRY MEADOW	N	0.155	0.161	0.006
OTHER COMMUNITIES				
VERNAL POOL	Y	0	0	0
SWALE	Y	0.0108	0.005	-0.0058
STOCK POND	Y	0	0	0
OPEN WATER	Y	0	0	0
OTHER WATER	Y	0	0	0
ORCHARD (ABANDONED)	N	0	0	0
DEVELOPED	N	0	0	0
		22.02377	24.4336	0.4893

* Wet Meadow unsurveyed area 1.24
1.7393
(4.3 acres)

N = Non-ACOE jurisdictional wetland
Y = ACOE jurisdictional wetland
IC = Interchange
Ha = Hectares (all amounts in hectares unless otherwise noted)

Source: Caltrans 4/2002

The following letter to U.S. National Marine Fisheries Service was also addressed to U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and California Department of Fish and Game to inform them of the revision to the Truck Scales Interchange within Alternative C1T.

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3, SACRAMENTO AREA OFFICE
2800 Gateway Oaks Drive, Suite 100
SACRAMENTO, CA 95833
TDD TEL (530) 741-4509
FAX (916) 274-0110
TEL (916) 274-0616

May 1, 2002

U.S. National Marine Fisheries Service
Attn: Tom Daugherty
2550 North State Street
Ukiah, CA 95482

Subject: Willits Bypass Project, Mendocino County
Proposed Design Modification to Alternative C1T Truck Scales Interchange

Dear Mr. Daugherty:

This letter is being submitted to each of our NEPA/404 resource agency partners and California Department of Fish and Game. The purpose of this letter is to describe design modifications Caltrans is making to the Alternative C1T Truck Scales Interchange, explain our reasons for revising the interchange design, and compare the environmental impacts of the old and new interchange designs. Three attachments are provided for your review: a layout showing the preliminary original interchange design (Map 25b), a layout showing the revised design, and a table comparing wetland and plant communities for the old and new designs.

The following interchange design changes are proposed: shift the mainline alignment easterly at the farthest point approximately 85 m (280 ft), change the interchange type to a diamond, and lengthen the connection to existing U.S. 101 at the north end by approximately 430 m (1400 ft) to complete the lane reduction.

In April of 2002, the project's design team developed these modifications in response to critiques of the original proposal, as a result of Caltrans design exception approval process. Caltrans Project Development Procedures Manual requires Design Engineers to obtain identified design exceptions at each significant milestone of the project development process, one of which is the draft environmental document stage. Upon reviewing the interchange design as proposed in Map 25b, Caltrans Headquarters Design Reviewer and Headquarters Project Development Coordinator indicated that they would not issue a design exception for the interchange. Headquarters has approved the modified interchange concept proposed by the Caltrans Design team. The revised interchange improves operation and motorist safety.

Caltrans has studied the differences in environmental impact between the two interchanges and concluded that there would be a minimal change in area impacted by the revised interchange

design (see attached table). The revised interchange design would result in approximately 0.43 ha (1.06 ac) increase in impact to jurisdictional wetlands and other waters of the U.S. Alternative C1T, with the former interchange design, impacted a total of 52.3 ha (129.1 ac). With the revised interchange the total would be 52.73 ha (130.16 ac).

Caltrans has reviewed the revised interchange design with the Federal Highway Administration (FHWA) and discussed with FHWA the best approach for disclosing this new information to the public. Because public circulation is eminent, we will not change the entire environmental document to reflect the revised interchange. Instead, FHWA has approved our proposal to include as an appendix to the Draft EIS/EIR a description of the interchange with mapping and a table comparing the environmental impacts of the two designs. We also will provide a brief explanation of the revised interchange design in the main body of the document. In addition, Caltrans will ensure there is full disclosure of the new interchange design with complete coverage at our project website and at the public workshop during the public circulation period.

Caltrans is modifying the Draft EIS/EIR to reflect the change in interchange design. If you require additional information related to this correspondence, please contact me at 916-274-5800.

Sincerely yours,

Cher Daniels

Cher Daniels, Chief
Office of Environmental Management – Sacramento (S-1)

Enclosures

cc: Rick Knapp, Caltrans
John Webb, Caltrans
Lena Ashley, Caltrans
Harry Khani, FHWA