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City of Chico
PLANNING DIVISION

Draft Environmental Impact Report
(EIR)

Programmatic Draft EIR for the
Oak Valley Conceptual Master Plan and
Project-Specific Draft EIR
for the 43-acre Portion of the
Subdivision

Prepared for:

The City of Chico

Prepared by:

EIP Associates

April 2000

RETURN TO CITY OF CHICO PLANNING
DIVISION

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Sacramento, California**

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1. INTRODUCTION AND SCOPE OF EIR

1. INTRODUCTION AND SCOPE OF EIR

INTRODUCTION

This Draft Environmental Impact Report (EIR) was prepared in accordance with the California Environmental Quality Act of 1970 (CEQA), as amended. The City of Chico is the lead agency for the proposed Oak Valley Subdivision and Conceptual Master Plan (Project) evaluated herein and has the principal responsibility for approving the project. As required by Section 15165 of the CEQA Guidelines, this EIR assesses the expected environmental impacts resulting from approval, construction, and operation of the Project, and identifies feasible means of minimizing potential adverse environmental impacts.

The EIR impact analyses evaluate buildout of the Conceptual Master Plan at a programmatic level of detail (per CEQA Guidelines Section 15168 regarding Program EIRs). In addition, a 43-acre portion of the subdivision map and Conceptual Master Plan, is evaluated at a project-specific level (per Section 15161 of the CEQA Guidelines).

The Project is consistent with the City's General Plan, which was subject to an EIR (State Clearinghouse #92123063). The EIR for the Project "tiers upon" the 1994 General Plan EIR analysis and focuses on the impacts that were not addressed in the General Plan EIR or for which new information shows that an impact would be substantially more severe than described in the General Plan EIR. The General Plan EIR is available for public review at the City of Chico Community Development Department, Fifth and Main Streets, Chico, California.

NATURE OF THE PROJECT UNDER REVIEW

The project area encompasses approximately 340 acres and is generally bounded by Bruce Road on the west, State Route 32 on the north, two PG&E 500 kilovolt (kV) transmission lines on the east and Humboldt Road on the south. The Conceptual Master Plan would include 230 acres of single and multi-family residential units, 87.5 acres designated as open space for resource protection and passive recreation use, and approximately 109,000 square feet of community commercial uses on 10 acres. The Master Plan would include a total of approximately 864 single-family units and 260 multi-family units. In addition, 200 very low density residential units would be developed using the clustered housing concept. The project applicant proposes to develop a 43-acre subdivision with a mix of low, medium and high density residential units and open space. The 43-acre portion of the site would include 138 parcels for a total of 101 low density single-family homes on 11 acres, 96 medium density duplex units on five acres, and 103 multi-family high density units on seven acres.

PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The City of Chico has prepared this Draft EIR on the Project for the following purposes:

- to satisfy the requirements of the California Environmental Quality Act;
- to inform the general public, the local community, and responsible and interested public agencies of the nature of the Project, the possible environmental effects, possible measures to mitigate those effects, and alternatives to the Project; and
- to enable the City to consider environmental consequences when deciding whether to approve the Project.

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental and social issues. This EIR is an informational document, the purpose of which is to identify the potential significant effects of the Project and project alternatives on the environment and to indicate the manner in which those significant effects can be avoided or mitigated, to identify any unavoidable adverse impacts that cannot be mitigated, and to identify reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental effects or reduce the impacts to a less-than-significant level. The EIR also discloses growth-inducing impacts, effects found not to be significant, and cumulative impacts.

The lead agency is required to consider the information in the EIR along with any other available information in making its decision on whether to implement the project (Section 15121 of the CEQA Guidelines). Although the EIR does not determine the ultimate decision that will be made regarding implementation of the project, the City must consider the information in the EIR and respond to each significant effect identified in the EIR.

FOCUS OF THE EIR

The City of Chico, as lead agency, identified potentially significant impacts that could result from project implementation in the Notice of Preparation and Initial Study for this EIR (see Appendix A). Based on the Initial Study, the City determined that this EIR address in detail the following technical issues:

- Land Use,
- Transportation/Circulation,
- Air,
- Noise,
- Public Services and Utilities,
- Hydrology and Drainage,

- Biological Resources,
- Aesthetics, and
- Hazards.

In addition, growth-inducing impacts resulting from implementation of the Project are discussed in Section 5.1, cumulative impacts associated with the Project are discussed in Chapter 4 and Section 5.2, and significant and irreversible environmental effects caused by the Project are discussed in Section 5.3.

Impacts that are determined to be significant in Chapter 4, and for which no feasible mitigation measures are available to reduce those impacts to a less-than-significant level, are identified as significant and unavoidable. Section 5.4 in the Draft EIR presents a discussion and comprehensive list of all significant and unavoidable impacts presented in Chapter 4.

Issues focused out of this EIR which were identified as being less-than-significant in the Notice of Preparation and Initial Study include:

- Population and Housing;
- Geology and Soils;
- Energy and Mineral Resources;
- Cultural Resources; and
- Recreation.

For a complete discussion of the technical issues focused out of this EIR, please see Appendix A.

DEFINITION OF TERMS

This EIR includes discussions of the significance of project impacts. The following are definitions of the terms that will be used to denote the magnitudes of these environmental impacts:

No Impact: No changes in existing conditions are expected to occur with implementation of the project.

Less-than-Significant Impact: A less-than-significant impact is an impact that would not result in a substantial and adverse change in the environment and would not require mitigation.

Significant Impact: The State CEQA Guidelines (Section 15382) define a significant impact as an effect that causes "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and object of historic or aesthetic significance." Mitigation measures are proposed, when feasible, to reduce the magnitude of significant impacts.

Significant and Unavoidable Impact: A significant and unavoidable impact is one that would result in a substantial adverse effect on the environment that could not be mitigated to a less-than-significant level.

PUBLIC REVIEW PROCESS

The CEQA Guidelines Section 15082 states that once the decision is made to produce an EIR, the lead agency must prepare a Notice of Preparation (NOP) to inform all responsible agencies that an EIR will be prepared. The purpose of the NOP is to provide responsible and trustee agencies with sufficient information describing the Project and its potential environmental effects to enable the responsible and trustee agencies to make a meaningful response as to the scope and content of the information to be included in the EIR. The NOP on the Project was distributed on March 27, 1998 for a 30 day public review and comment period. The NOP and comments on the NOP are provided in Appendices A and B, respectively.

The EIR will initially be published as a Draft EIR and will be subject to review and comment by the public, as well as all responsible and other interested jurisdictions, agencies, organizations and individuals during a period of 45 days. This Draft EIR began public circulation on April 18, 2000, and the public review period concludes at 5 P.M. on June 2, 2000. Comments relating to the Draft EIR may also be presented orally during the public meeting on May 24 from 4:00 p.m. to 6:00 p.m. at the City Council chamber, located at 441 Main Street in Chico. All comments or questions about the Draft EIR should be addressed to:

City of Chico/Lead Agency:

Pam Figge, Principal Planner
City of Chico
Community Development Department, Planning Division
411 Main Street, Second Floor
Chico, California 95928

Following the public meeting on this document and after the close of the written public comment period, responses to written and oral comments on the environmental effects of the project will be prepared and published in the Final EIR document. The EIR (comprised of the Draft EIR and the Final EIR documents) will be considered by the City of Chico in a public meeting and will be certified if it is determined to be in compliance with CEQA. Following certification of the EIR, the City will consider approval of the Project. CEQA requires that decision makers balance the benefits of a project against any unavoidable environmental impacts. If environmental impacts are identified as significant and unavoidable, the City may still approve the project if it finds that social, economic, or other benefits outweigh the unavoidable impacts. The City would then be required to state in writing the specific reasons for approving the project based on information in the EIR and other information in the record. As indicated in Section 15093 of the CEQA Guidelines, this reasoning is called a "statement of overriding considerations."

LEAD AND RESPONSIBLE AGENCIES

The City of Chico Community Development Department is the lead agency under CEQA for the preparation of this EIR. Responsible agencies may include the California Department of Transportation, the California Department of Fish and Game, the State Water Resources Control Board, the Regional Water Quality Control Board, the Butte County Air Quality Management District, the Department of Toxics Substances Control, the U.S. Army Corps of Engineers, the

U.S. Fish and Wildlife Service, and the U.S. Environmental Protection Agency.

ORGANIZATION OF THE EIR

The EIR is organized into the following sections:

Chapter 1 - Introduction and Scope of EIR: Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process.

Chapter 2 - Summary: Summarizes the elements of the Project and the environmental impacts that would result from implementation of the Project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.

Chapter 3 - Project Description: Provides a detailed description of the Project, including its location, background information, major objectives, and technical characteristics.

Chapter 4 - Environmental Setting, Impacts and Mitigation Measures: Contains a project-specific analysis of environmental issue areas. The subsection for each environmental issue contains an introduction and description of the setting of the project site, identifies project-specific and cumulative impacts and recommends appropriate mitigation measures.

Chapter 5 - Statutorily Required Sections: Provides discussions required by CEQA regarding impacts that would result from the Project, including a summary of cumulative impacts, potential growth-inducing impacts, and significant irreversible changes to the environment.

Chapter 6 - Alternatives Analysis: Describes the alternatives to the Project and their respective environmental effects.

Chapter 7 - Bibliography: Provides bibliographic information for all references and resources cited.

Chapter 8 - EIR Authors and Persons Consulted: Lists report authors by section, City of Chico staff and others who provided technical assistance in the preparation and review of the EIR.

Appendices: Includes the NOP, responses to the NOP, and additional technical information.

2. SUMMARY OF ENVIRONMENTAL EFFECTS

2. SUMMARY OF ENVIRONMENTAL EFFECTS

NATURE OF THE PROJECT UNDER REVIEW

This EIR evaluates the environmental impacts of the proposed Oak Valley Subdivision and Conceptual Master Plan (Project) in the City of Chico. The Project area encompasses approximately 340 acres and is generally bounded by Bruce Road on the west, State Route 32 on the north, two PG&E 500 kilovolt (kV) transmission lines on the east and Humboldt Road on the south. The project applicant proposes to develop the 43-acre portion of the Oak Valley Subdivision with a mix of low, medium and high density residential units and open space. The Conceptual Master Plan and tentative subdivision map, which divides the entire acreage into 159 parcels (21 large parcels and 138 within the 43-acre portion of the subdivision), would include 230 acres of single and multi-family residential units, 87.5 acres designated as open space for resource protection and passive recreation use, and 10 acres of community commercial uses. The Master Plan includes a total of approximately 864 single-family units and 260 multi-family units. In addition, 200 very low density residential units would be developed using the clustered housing concept. A more detailed description is contained in Chapter 3, Project Description.

Background of Project Design

As noted previously, the Project includes a proposal to develop 43 acres of the subject site for mixed-density residential use and a Conceptual Master Plan which sets forth a blueprint for future development of the entire 340 acres.

The original development proposal submitted to the City of Chico consisted of two parcel maps which subdivided the project site into nine large parcels ranging in size from 20 to 81.7 acres. Due to several factors including (but not limited to) the existing environmental resources on the project site and the project's foothill setting and proximity to the urban boundary line, the City determined that a conceptual plan for the entire acreage was appropriate and required.

The Conceptual Master Plan provides the following design and environmental resource protection components:

1. The designation and mapping of a continuous creekside greenway (averaging 100 feet from top of bank) adjacent to the north and south of Dead Horse Slough. The creekside greenway preserves a riparian habitat along the slough and provides (outside of the riparian habitat area) a continuous recreational walking/biking path which will be linked to the City Urban Area Bicycle Plan.

2. The conceptual design of an internal roadway system with a continuous street pattern based on the topography of the land. The continuous roadways will link subsequent future development to ensure continuity within the entire project site, rather than the project build-out resulting in adjacent subdivisions with separate circulation systems.
3. Mapping of the zoning classifications and densities for the entire site. The project site is within a Planned Development Overlay District (Foothill) which will allow the transfer of allowable densities and flexibility in development standards while protecting the special resources of the site. The Conceptual Master Map provides a baseline analysis for development intensity and density within the context of the entire 340 acres.

As noted within this draft environmental impact report, the Conceptual Master Plan is analyzed as a Program EIR which allows individual projects in the future to be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.

SUMMARY OF IMPACTS

This summary provides an overview of the analysis contained in Chapter 4, Environmental Setting, Impacts and Mitigation Measures. This summary also includes discussions of: (a) effects found to be less than significant; (b) potential areas of controversy; (c) significant impacts; (d) mitigation measures to avoid or reduce identified significant impacts; (e) significant unavoidable impacts; and (f) alternatives to the project.

Effects Found to Be Not Significant

The City of Chico prepared a Notice of Preparation (NOP) for the EIR in March 1998 for circulation to all responsible and trustee agencies. A copy of the NOP can be found in Appendix A.

In the course of drafting the EIR for this project, it was determined that numerous identified impacts could be reduced to a less-than-significant level with implementation of the proposed mitigation measures which are described herein.

Potential Areas of Controversy

The major areas of potential controversy identified through the environmental evaluation process stem from proximity of the project site to the City/County Humboldt Road Burn Dump, and the loss and alteration of scenic views in the foothills area of the City of Chico. These issues are discussed in the Hazards, and Aesthetics and Visual Resources sections of this EIR.

Significant Impacts and Mitigation Measures

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the

project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. The Project could result in significant impacts on these resources without mitigation.

This EIR incorporates mitigation measures that could be implemented by the City and/or the project applicants to reduce potential adverse impacts to a level that is considered less than significant. Such mitigation measures are noted in this report and are found in the following sections: Land Use; Transportation/Circulation; Air Quality; Noise; Public Services; Hydrology and Drainage; Biological Resources; Aesthetics; and Hazards. Generally, these mitigation measures include management practices, development constraints, and specific points of coordination between the Project applicants and the City. The mitigation measures presented in the EIR which were not incorporated into the Project design by the Project applicants will form the basis of the Mitigation Monitoring Program (MMP).

Significant Unavoidable Impacts

New significant and unavoidable impacts were identified under the Project for changes to visual character, and compliance with regional air quality attainment plans.

Alternatives to the Project

The alternatives to the Project that are analyzed in this EIR are:

1. The No Project Alternatives assume that (1) no development would occur on the project site; (2) denial of the Conceptual Master Plan and the Oak Valley Subdivision with subsequent development applications submitted implementing the General Plan designation and policies.
2. The 43-acre Subdivision Only which assumes denial of the Conceptual Master Plan, but approval of the proposed 43-acre portion of the Subdivision. Under this alternative, subsequent development applications for the remainder of the project site could be submitted implementing the General Plan designations and policies.
3. The Partial Master Plan Alternative which assumes construction of the Conceptual Master Plan, but with all the allowable density concentrated on the western half of the project site. The eastern portion of the project site would remain undeveloped.
4. The Reduced-Density Alternative which assumes fewer residential units but on the same acreage as the Project.
5. The Off-site Alternative which assumes the same type and level of development in the Project would occur on vacant land directly south of the project site south of Humboldt Road.

SUMMARY TABLE

Information in the following table, Table 2-1, Summary of Impacts and Mitigation Measures, has been organized to correspond with environmental issues discussed in Chapter 4. The summary table is arranged in four columns and is organized as follows:

- 1) environmental impacts;
- 2) level of significance prior to mitigation;
- 3) mitigation measures; and
- 4) the level of significance after implementation of mitigation.

Table 2-1 summarizes information pertaining to the Conceptual Master Plan as well as the 43-acre portion of the Subdivision. Unless otherwise indicated, mitigation measures identified in the table apply to both the 43-acre portion of the Subdivision and the Conceptual Master Plan. The information presented includes the levels of significance before and after implementation of mitigation measures. A series of mitigation measures are noted where more than one mitigation measure may be required to reduce the impact to a less-than-significant level.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)		Level of Significance After Mitigation	
	CMP	Sub			CMP	Sub
4.2 Land Use						
4.2-1 The Project would be compatible with adjacent land uses.	LS	LS	4.2-1 None required.		N/A	N/A
4.2-2 The Project could be inconsistent with the City's General Plan.	S	S	4.2-2 Prior to recordation of the Final Map(s), the Community Development Department shall review Design Standards provided by the applicant to ensure that building design will meet the following standards: ▪ buildings are oriented to the pedestrian and create positive transitions to the street (CD-G-57), and ▪ small-lot design will be of high quality (CD-G-58). (43-acre portion of the subdivision and Conceptual Master Plan) In addition, the Conceptual Master Plan must meet the following standard: ▪ neighborhoods and buildings are oriented to the street (CD-G-51) (Conceptual Master Plan)		LS	LS
4.3 Transportation and Circulation						
4.3-1 The Project would increase traffic congestion on local roadways over existing levels.	S	LS	4.3-1(a) The project applicant shall install a traffic signal at 8th Street/Fir Street/S.R. 99 and in consultation with Caltrans or pay the fair share transportation impact fees if this improvement is added to the City's Capital Improvement Program (CIP). (Conceptual Master Plan)		LS	N/A
	S	LS	4.3-1(b) The project applicant shall install a traffic signal at Fir Street/East 9th Street and in consultation with Caltrans or pay the fair share transportation impact fees if this improvement is added to the City's CIP. (Conceptual Master Plan)		LS	N/A

CMP = Conceptual Master Plan Sub = 43-Acre Portion of the Subdivision

S = Significant LS = Less than Significant N/A = Not Applicable
SU = Significant and Unavoidable NI = No Impact

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation	
	CMP	Sub		CMP	Sub
4.3-2 The Project could degrade safety conditions along Highway 32 and on Bruce Road.	S	S	4.3-2 (a) The project applicant shall ensure the placement of an eastbound right turn deceleration lane on Highway 32 with a minimum storage capacity of 200 feet and appropriate taper indicated by Caltrans design standards. A westbound left turn lane with 50 feet of storage and appropriate transition indicated by Caltrans design standards must also be provided by the project applicant. (43-Acre portion of the Subdivision and Conceptual Master Plan)	LS	LS
	S	S	4.3-2 (b) Due to the small demand for southbound left-turns from Yosemite Drive and the incorporation of a new intersection, approximately 500 feet to the east, southbound left-turns from Yosemite Drive shall be prohibited through the use of raised median channelization. (43-acre portion of the Subdivision and Conceptual Master Plan)	LS	LS
	S	N/A	4.3-2(c) The project applicant shall ensure that the placement of the secondary access points on Highway 32, east of the primary access near Yosemite Drive, be limited to right turns in and right turns out only. This may include an on-site channelization island. An acceleration and deceleration taper must also be provided on the eastern access. (Conceptual Master Plan)	LS	N/A
	S	N/A	4.3-2(d) The project applicant shall provide a left turn lane on Bruce Road at the entrance to the community commercial. Left turn movements out of the access shall be prohibited. (Conceptual Master Plan)	LS	N/A
4.3-3 The Project could degrade pedestrian and bicycle safety	S	LS	4.3-3(a) Humboldt Road shall be de-emphasized as a project access component by providing a narrow street width, bike lanes or paths, and limited access to residential development within the project site, especially east of Potter Road. (Conceptual Master Plan)	LS	N/A

CMP = Conceptual Master Plan

Sub = 43-Acre Portion of the Subdivision

S = Significant

LS = Less than Significant

N/A = Not Applicable

SU = Significant and Unavoidable

NI = No Impact

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation	
	CMP	Sub		CMP	Sub
4.3-4 The development of the Project in conjunction with cumulative development would increase traffic congestion on the local roadways.	S	LS	4.3-3(b) A series of pedestrian and bicycle recreational trails shall be provided which connect residential development with the Humboldt Road corridor. (Conceptual Master Plan)	LS	N/A
	S	N/A	4.3-4 (a) The project applicant shall install traffic signals including separate left turn pockets, on all four approaches to the intersection of Bruce Road and Humboldt Road. (Conceptual Master Plan)	LS	N/A
	N/A	S	4.3-4(b) The project applicant shall build improvements or, if these projects are included in the City's CIP, provide fair share funding for separate right turn lanes in the northbound and westbound directions and a right turn overlap phase for the southbound right-turn at the intersection of Highway 32 and Bruce Road. (43-Acre Subdivision)	N/A	LS
	N/A	S	4.3-4(c) The project applicant shall build improvements or if these projects are included in the City's CIP, provide fair share funding for the following lane improvements at the intersection of Highway 32 and Forest Avenue: • The northbound approach shall be widened from one lane to two left turn lanes, one through and one right turn lane. • The southbound approach shall be widened to include two lanes. • The eastbound and westbound approaches should be widened to include an additional through lane. (Highway 32 currently transitions from four to two lanes, east of Fir Street. This mitigation would require that the four-lane section be extended to east of Forest Avenue). (43-Acre Subdivision)	N/A	LS

CMP = Conceptual Master Plan

Sub = 43-Acre Portion of the Subdivision

S = Significant

LS = Less than Significant

SU = Significant and Unavoidable

N/A = Not Applicable

NI = No Impact

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation	
	CMP	Sub		CMP	Sub
	N/A	S	4.3-4(d) The project applicant shall provide its fair share funding toward installation of a traffic signal at the intersection of 8th Street and Fir Street and the following lane improvements. The applicant shall coordinate with Caltrans in installing the traffic signal. (43-Acre portion of the Subdivision)	N/A	LS
			The southbound approach shall be widened to include a right turn lane and a through/right turn lane.		
	N/A	S	4.3-4(e) The project applicant shall provide its fair share funding toward installation of a traffic signal at the intersection of East 9th Street and Fir Street. The applicant shall coordinate with Caltrans in installing the traffic signal. (43-Acre portion of the Subdivision)	N/A	LS
	S	S	4.3-4(f) In addition to the turn lane improvements, the project applicant shall provide a traffic signal at the intersection of Highway 32 and the primary project access. (43-Acre portion of the Subdivision and Conceptual Master Plan)	LS	LS
	S	N/A	4.3-4(g) At the intersection of Bruce Road and the project access, restrict left turn movements from the project access. All other movements including inbound left turns could be allowed while maintaining acceptable traffic conditions with free flow operations for traffic on Bruce Road. Provide a southbound left turn lane and a northbound right turn lane on Bruce Road. (Conceptual Master Plan)	LS	N/A

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TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

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Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation	
	CMP	Sub		CMP	Sub
4.4 Air Quality					
4.4-1 Construction of the Project would generate criteria air pollutants which exceed the BCAQMD thresholds.	S	S	4.4-1(a) In accordance with Rule 207, apply nontoxic soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas). (Conceptual Master Plan and 43-Acre portion of the subdivision)	SU	SU
			4.4-1(b) Provide temporary traffic control (e.g., flag person) as appropriate during all phases of construction to improve traffic flow. (Conceptual Master Plan and 43-Acre portion of the subdivision)		
			4.4-1(c) Schedule construction activities that affect traffic flow for off-peak hours. (Conceptual Master Plan and 43-Acre portion of the subdivision)		
			4.4-1(d) Sweep streets at the end of the day if visible soil materials are carried onto adjacent public paved roads. (Conceptual Master Plan and 43-Acre portion of the subdivision)		
			4.4-1(e) Properly maintain equipment and do not allow construction equipment to be left idling for long periods during smog seasons (May through October). (Conceptual Master Plan and 43-Acre portion of the subdivision)		
			4.4-1(f) Use low VOC asphalt, if available and feasible. (Conceptual Master Plan and 43-Acre portion of the subdivision)		
			4.4-1(g) All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 15 mph averaged over 1 hour. (Conceptual Master Plan and 43-Acre portion of the subdivision)		

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	CMP	Sub		CMP	Sub
4.4-2 The Project's total long-term operational activities would violate BCAQMD's adopted air quality thresholds for ROG's.	S	S	4.4-1(h) All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust. (Conceptual Master Plan and 43-Acre portion of the subdivision) 4.4-2(a) Install a natural gas hook up in proposed fireplaces; or Limit the number of woodburning devices on the average to one per dwelling unit; 4.4-2(b) In accordance with the Chico General Plan policy OS-I-13, install low-NO_x water heaters; 4.4-2(c) In accordance with Chico General Plan policy OS-I-11, require all wood burning devices installed in any residence to be U.S. EPA Phase-II certified or meet U.S. EPA standards applicable at the time of project approval; 4.4-2(d) Install electrical outlets at the front and back of all residential units for electrical yard equipment. (Conceptual Master Plan and 43-Acre portion of the subdivision)	SU	SU
4.4-3 Operational emissions resulting from project-related energy consumption and motor vehicle trip generation, along with cumulative land use development in the City of Chico, could further contribute to criteria air pollutant emissions in Butte County.	S	S	4.4-3 Implement Mitigation Measures 4.4-1 and 4.4-2.	SU	SU

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	CMP	Sub			CMP	Sub
4.5 Noise						
4.5-1 Project-related traffic noise levels will increase at existing noise-sensitive areas.	LS	LS	4.5-1 None required.		N/A	N/A
4.5-2 Residents of the Project could be exposed to high levels of traffic noise.	S	S	4.5-2(a) Residential uses constructed on the project site shall be located outside of the 60 dB L _{dn} traffic noise contours shown in Table 4.5-4. OR 4.5-2(b) The project applicant shall demonstrate that a combination of setbacks, topography, and noise barriers has been designed to reduce noise levels at all residential parcels to a state of compliance with City of Chico exterior noise level standards. Barriers could take the form of solid walls, earth berms, or a combination of the two. A detailed analysis of site grading would be required to develop specific barrier height and location recommendations for this project, and the use of barriers for this project may conflict with the City's design criteria.		LS	LS
4.5-3 Traffic noise due to project and cumulative development would increase in noise-sensitive areas.	LS	LS	4.5-3 None required.		N/A	N/A
4.5-4 Residents of the Project could be exposed to high levels of cumulative traffic noise.	S	S	4.5-4 Implement Mitigation Measure 4.5-2 using the cumulative plus Conceptual Master Plan column in Table 4.5-4.		LS	LS

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Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)			
	CMP	Sub	CMP	Sub	CMP	Sub
4.6 Public Services and Utilities						
4.6-1 The Project would increase water demand.	LS	LS	4.6-1	None required.	N/A	N/A
4.6-2 The Project would require the extension of Cal Water's water service distribution infrastructure.	S	S	4.6-2(a)	The project applicant shall obtain a fire-flow analysis to determine if fire flows to the project site are adequate. If fire flows are not adequate, the applicant shall install, or provide funds for, a well and pump and/or an above ground welded steel storage tank.	LS	LS
			4.6-2(b)	The project applicant shall be obligated through project approval conditions to fund and install the infrastructure required to provide for water needs and fire flow requirements for each development implemented under the project. (Conceptual Master Plan and 43-Acre Subdivision)		
4.6-3 The Project, in combination with buildout of the General Plan, would contribute to cumulative demand on existing water supply sources.	S	S	4.6-3	None available.	SU	SU
4.6-4 The Project would increase the volume of solid waste accepted at the Neal Road Landfill.	LS	LS	4.6-4	None required.	N/A	N/A
4.6-5 The Project, in combination with buildout of the City of Chico General Plan, would increase the volume of solid waste accepted at the Neal Road Landfill.	LS	LS	4.6-5	None required	N/A	N/A
4.6-6 The Project would increase the demand for school services from the Chico Unified School District.	LS	LS	4.6-6	None required.	N/A	N/A

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	CMP	Sub		CMP	Sub
4.6-7 The Project, in combination with buildout of the City of Chico General Plan, would increase the demand for school services from the Chico Unified School District.	LS	LS	4.6-7 None required.	N/A	N/A
4.7 Hydrology and Drainage					
4.7-1 The Project would increase impervious surface cover which could contribute to localized flooding and exceed existing drainage capacity.	S	LS	4.7-1 Prior to approval of any improvement plans for the Conceptual Master Plan, applicants shall submit and obtain approval of final drainage plans from the City of Chico Public Works Director. Final drainage plans shall demonstrate that post-development surface drainage peak flows shall be reduced to pre-development conditions. The drainage plan shall be prepared by a registered civil engineer and shall be in conformance with City of Chico requirements. The drainage plan shall include at a minimum a description of existing conditions, pre- and post-development runoff, proposed on-site improvements, appropriate calculations, a watershed map, and maintenance responsibilities. (Conceptual Master Plan)	LS	N/A
4.7-2 Increased impervious surface cover associated with development of the Project, in combination with buildout of other development in the Little Chico Creek drainage shed, could cumulatively contribute to localized flooding and exceed existing drainage capacity.	S	S	4.7-2 Implement Mitigation Measure 4.7-1.	LS	LS

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4.8 Biological Resources						
4.8-1 The Project would result in the removal of native trees, heritage trees, and/or the loss of riparian habitat.	S	LS	4.8-1(a) Project design shall avoid oak trees and riparian habitat to the maximum extent feasible. In particular, the alignment of stream crossings shall be designed to avoid trees within the riparian habitat along the south branch of Dead Horse Slough. All individual trees and groups of trees shall be clearly marked for avoidance in the field and on construction plans. (Conceptual Master Plan). 4.8-1(b) When tree removal is necessary, the project applicant shall implement a tree planting restoration program that will plant two trees for every one tree removed which has a dbh of at least six inches. Plantings shall occur on-site in areas that are designated as open space or preserve areas. (Conceptual Master Plan).	LS	LS	N/A
4.8-2 The Project could result in the loss of nesting raptors.	S	LS	4.8-2 To protect any active raptor nest sites, the project applicant shall conduct a raptor survey during the nesting season (March through July). A qualified biologist shall assess the nesting activity on the project site. If active nests are located on-site, no construction activities shall be allowed within 250 feet of the nest until the young have fledged. If construction activities are planned during the non-breeding period (August through February), a raptor nest survey is not necessary. (Conceptual Master Plan)	LS	LS	N/A
4.8-3 The Project would result in the loss of seasonal wetlands and/or realignment of creek channels.	S	S	4.8-3(a) The project applicant shall avoid to the maximum extent feasible, vernal pools, seasonal wetlands and other waters of the United States, as shown in Figure 4.8-2 (43-acre portion of the Subdivision and Conceptual Master Plan).	LS	LS	LS

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4.8-4 The Project could result in the loss of habitat for federally-listed vernal pool crustaceans.	S	N/A	4.8-3(b) For waters of the United States that will be filled, the project applicant shall ensure that no net loss of wetlands occurs. Measures to achieve no net loss may include preservation, creation on-site or offsite, and/or purchase of credits in an approved mitigation bank. This measure may be implemented by first demonstrating that no alternative to the project, which avoids fill of jurisdictional waters while meeting the purpose and need of the project, can be feasibly implemented (Clean Water Act Section 404(b)(1)). This measure may be further implemented by obtaining a Clean Water Act Section 404 permit from the Corps and conducting all measures required as provisions of the permit. (Conceptual Master Plan)	LS	N/A
	S	S	4.8-3(c) The project applicant shall obtain a Streambed Alteration Agreement for all stream crossings, and comply with the terms of those agreements. (43-acre Subdivision and Conceptual Master Plan)	LS	LS
	S	NI	4.8-4(a) The project applicant shall complete the USFWS's two-year survey protocol for federally-listed vernal pool crustaceans or the applicant may assume federally-listed vernal pool crustaceans are present and comply with Mitigation Measure 4.8-4(c) below. If an absence finding is determined and accepted by the USFWS, then no further mitigation shall be required for federally-listed vernal pool crustaceans. (Conceptual Master Plan)	LS	N/A
			4.8-4(b) Implement Mitigation Measures 4.8-3(a) and (b).		

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	CMP	Sub		CMP	Sub
4.8-5 The Project could result in the loss of habitat for rare wetland and/or vernal pool plant species.	S	NI	4.8-4(c) If federally-listed vernal pool crustaceans are found to be present within vernal pools affected by the Project, the project applicant shall provide for no net loss of habitat value. Measures to ensure no net loss may include on-site or off-site creation and/or preservation of vernal pool crustacean habitat at ratios ranging from 2:1 to 5:1, depending on the affected habitat and where creation or preservation occurs. Mitigation could also involve the purchase of mitigation credit through an accredited mitigation bank. This mitigation may be implemented through the USFWS requirements of the Programmatic Biological Opinion on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. (Conceptual Master Plan)		
			4.8-5(a) Prior to development of areas that support vernal pools and seasonal wetlands (shown in Figure 4.8-2), the project applicant shall conduct surveys to identify and delineate any special-status plant species populations within the designated development areas, proposed stream crossings, and heavy equipment staging areas. (Conceptual Master Plan)	LS	N/A
			4.8-5(b) Vernal pools and wetlands that are to be retained shall be clearly marked with highly visible fencing to protect and delineate the special-status plant population(s). The fenced area shall be free of parking, material storage, vehicular access, etc. (Conceptual Master Plan)		

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	CMP	Sub		CMP	Sub
4.8-6 Implementation of the Project could result in the loss of suitable habitat for the valley elderberry longhorn beetle (VELB).			4.8-5(c) For vernal pools and wetland areas that are to be filled or disturbed pursuant to California Fish and Game Code Chapter 10. Native Plant Protection, §1913 paragraph (c), the applicant shall notify the California Department of Fish and Game at least ten (10) days in advance of ground disturbing activities to allow for salvage of special-status plant species. (Conceptual Master Plan)		
			4.8-5(d) Require replacement wetland construction.		
			4.8-5(e) Comply with Mitigation Measure 4.8-4(c).		
	S	NI	4.8-6(a) The project applicant shall ensure through surveys conducted by a qualified biologist and protective fencing if applicable, that direct and indirect disturbance (such as trenching or placement of fill within the dripline) of all elderberry shrubs is avoided. (Conceptual Master Plan)	LS	N/A
			4.8-6(b) Should elderberry shrubs be affected by the Project, the project applicant shall obtain the necessary authorization/permit from the USFWS for take of the species and develop and implement an on-site VELB mitigation plan in accordance with the most current USFWS guidelines to compensate for the loss of VELB habitat. The applicant shall ensure no net loss of VELB habitat. The mitigation plan may include relocation of elderberry shrubs, planting of elderberry shrubs, and monitoring of relocated and planted elderberry shrubs, or purchase of credits in an approved VELB habitat bank. (Conceptual Master Plan)		

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4.8-7 The Project would contribute to the cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife.	S	S	4.8-7	Implement Mitigation Measures 4.8-1 through 4.8-6.	SU	SU
4.9 Aesthetics and Visual Resources						
4.9-1 The Project would convert undeveloped landscape to urban development.	S	S	4.9-1	Development of both the Conceptual Master Plan and the 43-acre portion of the Subdivision shall be consistent with the City's adopted development standards and the Foothill Design Criteria for project areas which are at the 250-foot and above elevation line. Development of both the Conceptual Master Plan and the 43-acre portion of the subdivision shall also be consistent with City of Chico lighting standards and the City's architectural review process for commercial development. (Conceptual Master Plan and 43-Acre portion of the subdivision).	SU	SU
4.9-2 The Project would alter views visible from surrounding areas, including State Route 32, Humboldt Road, and the bike trail along Little Chico Creek.	S	S	4.9-2	Implement Mitigation Measure 4.9-1.	SU	SU
4.9-3 Project nightlighting could contribute to existing ambient light, which would alter existing nighttime views of and from the project site.	S	S	4.9-3	Implement Mitigation Measure 4.9-1.	LS	LS
4.9-4 Development of the Project, in combination with other cumulative development, would alter existing views and the visual character of the City of Chico.	S	S	4.9-5	Implement Mitigation Measure 4.9-1. (Conceptual Master Plan and 43-Acre portion of the Subdivision)	SU	SU

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4.10 Hazards and Human Health					
4.10-1 Development of the Project could expose construction workers, nearby residents, and future occupants to hazards associated with contaminated soils.	S	S	4.10-1(a) Prior to development within any portion of the 157-acre HRBDRP site that would be developed under the Project, prior to the remediation of the HRBDRP, Project developers shall develop a Risk Management Plan that identifies specific actions that will be used prior to, throughout construction (to final build-out), and occupancy to protect human health and the environment from potential exposure to hazardous materials that could be present in soil within the portions of the 157-acre HRBDRP site that would be developed as part of the Project. It is intended that the approved RMP shall function as a "performance standard" specifying the minimum acceptable performance goals to ensure that risks to the public and environment during Project development can be reduced to levels that do not exceed health risk-based criteria. Should the results of planned soil testing in the 43-acre portion of the Subdivision indicate that development (construction and occupancy) would not result in the exposure of people to increased risk of adverse health effects (as evidenced by regulatory agency concurrence), the RMP will not need to specifically address the 43-acre portion of the Subdivision except where infrastructure improvements (e.g., sewer or temporary roadways) adjacent to and within the 157-acre HRBDRP site are necessary to accommodate development of the 43-acre portion of the subdivision, as identified in Mitigation Measure 4.10-1(e).	LS	LS
			For locations for which the RMP is necessary, the plan shall address, but would not be limited to, the following elements: (43-Acre Portion of the Subdivision and Conceptual Master Plan)		

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			(1) identification of potential contaminants that are present and the risk the contaminants would pose to human and ecological populations during construction and occupancy. The risk evaluation shall follow the most recent established procedures and guidelines set forth by EPA and DTSC that are in effect at the time the risk assessment is prepared;		
			(2) decision criteria for soil management (e.g., transport, on-site reuse, or off-site disposal) and methods to safely, and in accordance with all applicable laws and regulations, manage site soils during construction where exposure to contaminants that could exceed acceptable risk levels is likely. Protocols shall address, at a minimum: dust controls and monitoring, standards for fill, stockpiling and excavation, and stormwater runoff controls;		
			(3) identification of emergency contingency planning measures in the event of an unanticipated release or where previously unidentified subsurface hazards may be encountered (e.g. buried hazardous debris) during construction or occupancy;		
			(4) regular monitoring during construction and occupancy to evaluate and document the effectiveness of site controls;		

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			(5) periodic coordination throughout site development with appropriate agencies with jurisdiction over the project, as appropriate, for any necessary regulatory concurrences, permits, or approvals for activities in which contaminated soils would require on-site management during construction through build-out;		
			(6) decision criteria for post-development controls (e.g., access restrictions to soil, prohibitions on shallow groundwater use, establishment of protocols for future subsurface maintenance, construction, or repair). Should the need for post-development conditions be identified, the Project developers shall ensure enforcement of such controls through development and recording a restrictive covenant as an Environmental Restriction and Covenant pursuant to California Civil Code Section 1471. As part of any future property transfer of property title of any portion of the Project site, the City shall require current property owners to provide a copy of the Risk Management Plan to each of their future transferees (by having a note placed on the approved Final Subdivision Map); and		

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			(7) notification to future owner/occupants that the Risk Management Plan contains specific requirements for construction, maintenance, or repair activities and obligates property owners to provide like notice to contractors and occupants.		
			4.10-1(b) As part of the Risk Management Plan, where required by OSHA, a site health and safety plan that meets applicable OSHA requirements shall be prepared and in place prior to commencing work on any locations where the need for risk management measures has been identified. (43-Acre Portion of the Subdivision and Conceptual Master Plan)		
			4.10-1(c) In the event additional investigation or remediation beyond that already anticipated in the HRBDRP is identified through implementation of one or more of the steps outlined above, the Risk Management Plan shall be amended to include any specific requirements imposed by the regulatory agencies with oversight responsibility for the remedial actions. (43-Acre Portion of the Subdivision and Conceptual Master Plan)		
			4.10-1(d) Development of portions of the HRBDRP site within the Conceptual Master Plan area shall not occur until: (1) the locations to be developed are remediated to levels that are protective of human health and the environment, taking into account the land uses within and adjacent to the site, potential exposure pathways, and receptors; and (2) remediated locations have received regulatory closure from the agency with jurisdiction over the cleanup. (Conceptual Master Plan only)		

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			4.10-1(e) Near-term or interim infrastructure development activities (e.g., the westerly temporary access road) shall only be allowed when it can be demonstrated that construction and use of such features would not result in an increased risk of adverse effects on human health and the environment. If the need for risk management measures is identified, the Risk Management Plan (Mitigation Measure 4.10-1(a)) shall be amended accordingly. (43-Acre Portion of the Subdivision and Conceptual Master Plan) 4.10-1(f) Until such time that equally effective mitigation is adopted for the HRBDRP (through agency approval of a plan and/or mitigation measures adopted in conjunction with a certified EIR for the HRBDRP), the City shall verify through its review of HRBDRP reports that all required post-closure monitoring of the HRBDRP is performed and all other conditions set forth by the agency have been implemented. In the event post-closure monitoring indicates a known or likely situation in which human health or the environment could be adversely affected, the City shall verify through its review of HRBDRP reports that appropriate action has been taken in accordance with applicable laws and regulations to remedy the situation, coordinating such action with the appropriate agencies and providing notice to potentially affected individuals living or working in the area. (43-acre Portion of the Subdivision and Conceptual Master Plan)		

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4.10-2 Implementation of HRBDRP activities concurrently with development of the Project could expose Project, occupants, or visitors to hazardous substances.	S	S	4.10-2(a) The City and Applicant(s) shall coordinate with the agency with oversight and approval authority of the HRBDRP to ensure controls are in place to protect project occupants from potential hazards associated with remediation activities if occupancy occurs prior to remediation at the HRBDRP site. Such controls would include, but would not be limited to: mitigation measures identified in the EIR prepared for the Environmental Restoration Plan, and any other controls imposed by regulatory agencies in conjunction with the approval of remediation plan(s) or issuance of permits for the HRBDRP. (43-Acre Portion of the Subdivision and Conceptual Master Plan) 4.10-2(b) Until such time that equally effective mitigation is adopted for the HRBDRP cleanup (through agency approval of a plan and/or mitigation measures adopted in conjunction with a certified EIR for the HRBDRP), the City shall verify the effectiveness of HRBDRP site remediation site controls through regular site inspections, review of relevant data, documentation compiled by the remediation contractor, and establishment of a notification process. In the event remediation site controls are determined to provide less than the required level of environmental protection, the City shall immediately coordinate with the remediation contractor to remedy the situation and shall provide appropriate notification to potentially affected individuals living or working in the area. (43-Acre Portion of the Subdivision and Conceptual Master Plan)	LS	LS

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Impact	Level of Significance Prior to Mitigation		Mitigation Measure(s)	Level of Significance After Mitigation	
	CMP	Sub		CMP	Sub
4.10-3 Construction of the Project could interfere with remediation efforts.	S	S	4.10-3(a) All Project contractors shall coordinate with the City, RWQCB, DTSC, or other involved agencies, as appropriate, to assure that construction activities shall not interfere with any adjacent and/or on-site remediation activities or unduly delay either project development or site remediation. (43-Acre Portion of the Subdivision and Conceptual Master Plan) 4.10-3(b) The Project developers shall ensure that the integrity and effectiveness of site controls established for HRBD RP site remediation activities are not adversely affected by Project construction. (43-Acre Portion of the Subdivision and Conceptual Master Plan)	LS	LS
4.10-4 Throughout the life of the Project, changes in land use could expose people or ecological communities to increased risk of adverse effects due to the presence of hazardous substances in soils at the project site.	S	S	4.10-4(a) Rezone applications or other proposed changes in the current land use designations shall include identification and analysis of potential soil contamination. (43-Acre Portion of the Subdivision and Conceptual Master Plan) 4.10-4(b) Implement Mitigation Measures 4.10-1(a) through 4.10-1(f). (43-Acre Portion of the Subdivision and Conceptual Master Plan)	LS	LS
4.10-5 The Project, in combination with other cumulative development, could result in exposure to hazardous materials.	LS	LS	4.10-5 None required.	N/A	N/A

CMP = Conceptual Master Plan

Sub = 43-Acre Portion of the Subdivision

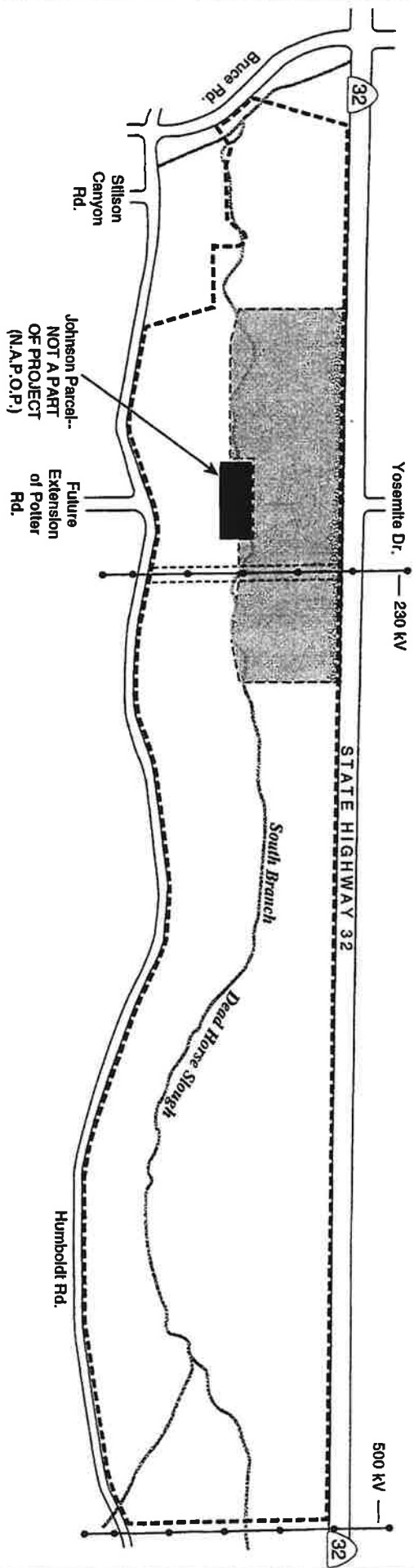
S = Significant

LS = Less than Significant

N/A = Not Applicable

SU = Significant and Unavoidable

NI = No Impact



3-6

43-Acre Portion of the Subdivision

Conceptual Master Plan Project Boundary

Power Lines



0 200 400 600 800
Scale in Feet

10C-3-Base

SOURCE: EIP Associates, March 2000.

EIP
ASSOCIATES

Figure 3-2
43-Acre Portion
of the
Subdivision

3. PROJECT DESCRIPTION

3. PROJECT DESCRIPTION

Project Location

The Project is located on 340 acres in the southeast quadrant of the City of Chico in the foothill region of the Cascade Mountain Range. The 340-acre site is within the Chico City limits and is approximately three miles from downtown Chico (see Figure 3-1). The site is bordered by State Route 32 to the north, Humboldt Road to the south, and Bruce Road to the west. Two PG&E 500 kV transmission lines run parallel to the site along the eastern boundary, outside of the project site.

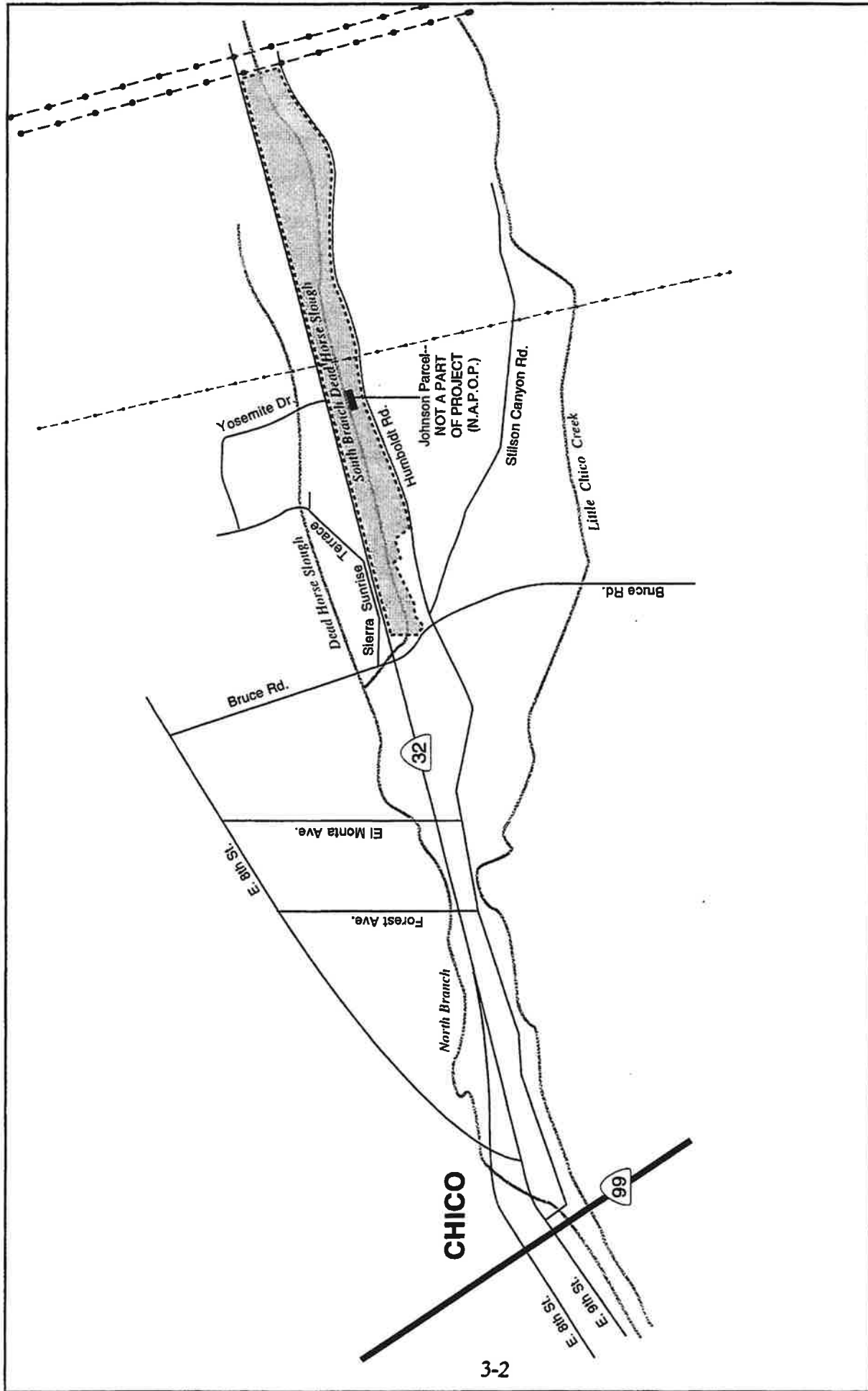
Project Description

Project Site

The project site is undeveloped land characterized by gently rolling topography with non-native annual grasslands and blue oak woodlands/savanna. The site is currently used for seasonal grazing activities. The elevation of the site ranges from 600 feet to 250 feet sloping southwesterly from east to west on the north side of Dead Horse Slough and north easterly from Humboldt Road to the slough. The western portion of the site is relatively flat becoming increasingly steeper towards the eastern edge of the site. The site is bisected from east to west by the south branch of Dead Horse Slough, a seasonal drainage course. Portions of the former City/County Humboldt Road Burn Dump site are located in the southwestern portion of the site, contiguous to the remaining portions outside the limits of the project. The Western Area Power Administration (WAPA) 230 kV transmission lines bisects the site in a north-south direction east of the Yosemite Drive intersection along the north side of State Highway 32.

Vegetation on the site consists of non-native annual grasslands with areas of blue oak woodland and blue oak savanna. The oak woodlands are characterized by a mature tree canopy dominated by blue oaks with some interior live oaks and gray pines. Fremont cottonwoods are found in the eastern portion of the site. The oak savanna is similar to the blue oak woodland, but has a less dense tree canopy. Approximately 0.14 acres of vernal pools and 2.4 acres of seasonal wetlands are located in the western portion of the site.

Soils on the site consist of shallow toomes/pentz substrate with Tuscan Formation, a nearly impermeable lava cap containing volcanic conglomerate and layers of tuff-breccia underlying the toomes/pentz substrate.



3-2

Figure 3-1

Project Location Map



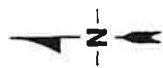
Project Site

230 kV Power Lines

500 kV Power Lines

Streamcourses

SOURCE: EIP Associates,
March 2000.



No Scale

10049-Area

Surrounding land uses include a high density senior citizen residential complex and single family residences on the north side of State Highway Route 32, west of the 230kV power lines. Vacant lands are located to the north (east of the power lines), east, south and west of the project site. The remainder of the City/County Humboldt Road Burn Dump site is located southerly of the western portion of the project site and on a five-acre "island" parcel completely surrounded by the project, contiguous to those portions of the former Burn Dump within the project.

The project site is owned by Fogarty Profit Sharing, Ildo L. and Patricia B. Rosellini and George and Joann S. Martin (APN 011-030-090) and Thomas and Mary Fogarty and Ildo L. and Patricia B. Rosellini and George and Joann S. Martin (APN 011-030-136, 138 and 139).

Project Objectives

The objectives of the proposed project are:

I. General Plan Consistency

1. To implement the City of Chico General Plan goals and policies related to the Project site as a "Special Development Area" and other goals and policies which relate to the land use designations as set forth in the general plan.
2. To provide housing and commercial development at appropriate densities and intensities that are compatible with the natural character of the area. This will be accomplished by providing increased densities and intensities on the westerly portions of the site and clustering and open space areas on the easterly portions of the project site.
3. To preserve the existing native vegetation and use native plants for new landscaping where feasible and appropriate.
4. To provide adequate public facilities while providing for a variety of housing types and affordability to meet the community's future housing needs.
5. To protect historic and environmental resources by providing scenic views and the existing native vegetation to the greatest extent feasible, and dedicating open space for the preservation of special environmental resources such as Dead Horse Slough.
6. To provide pedestrian and bicycle paths for the enjoyment of the project site's natural setting and provide alternative modes of transportation for internal circulation and links to bicycle and pedestrian facilities offsite as well.

7. To carefully plan the development of the project site to ensure that the designated Resource Management Area (Dead Horse Slough) is preserved while providing a public resource and amenity for the residents of the project site and the Chico community.

II. Design Flexibility

8. To incorporate natural resources such as the mature oak trees, the existing slough and its riparian habitat and unique topographical features within the site plans for the Project development.
9. To incorporate street designs which complement the topography with minimized roadway widths and paved areas including the design of informal curved streets with a "rural" quality.
10. To site residential uses among the existing ribbons of trees and open spaces throughout the site, minimize light and glare, incorporate drainage features, and vary the orientations, locations, designs and colors of houses to provide aesthetic interest.

III. Phased Implementation

11. To establish economically feasible development in phases over time to provide adequate infrastructure with appropriate offsite and onsite improvements.
12. To provide a conceptual plan for designated land uses with environmental guidelines and mitigations which can be assessed at each development phase over the buildout of the project site.
13. To present a Conceptual Master Plan for the comprehensive planning and environmental assessment for the 340-acre project site and a project-specific phase for a 43-acre subdivision comprised of mixed-density residential uses including multi-family, attached housing and single family units.

Elements of the Project

Tentative Subdivision Map

The Project includes a vesting tentative subdivision map to subdivide the entire 340 acres into twenty-one large parcels and 138 smaller parcels (referred to as the "43-acre portion of the subdivision"). The large parcels range in size from 4.34 gross acres to 26.52 gross acres and would facilitate phased development and financing. The smaller parcels within the 43-acre portion of the subdivision range in size from 4,002 square feet to 6,254 square feet with two parcels for multiple-residential development on 3.89 acres and 2.76 acres. A total of 159 parcels are proposed to be created with the subdivision map approval.

43-Acre Portion of the Subdivision

The tentative subdivision map identifies a 43-acre portion of the project site (see Figure 3-2) which is evaluated at a project-specific level in the EIR. The 43-acre portion of the site would include 138 parcels for a total of 87 low density single-family homes on 10 acres, 98 medium density duplex units on six acres, and 132 multi-family high density units on eight acres (see Table 3-1). A portion of the residential units would be designed in a clustered concept, consistent with the requirements for City of Chico General Plan Special Development Areas, connected by green belts to preserve open space areas on the site. Approximately eight acres would be designated for buffers, setbacks, and open space while the remaining 10 acres would be designated for road rights-of-way (see Figure 3-3).

TABLE 3-1

43-ACRE PORTION OF THE SUBDIVISION AND MASTER PLAN PROPOSED LAND USES

Land Use	43-Acre Portion	Conceptual Master Plan ¹	
		Addition to 43-Acres	Total
Single-family Residential ³	87 dwelling units (du) 10.2 acres	506 du 158.1 acres	593 du 168.3 acres
Duplex	98 du 5.6 acres	373 du 40.9 acres	471 du 46.5 acres
Multi-family	132 du 8.2 acres	128 du 7.2 acres	260 du 15.4 acres
Commercial	0	109,000 sf 15.0 acres	109,000 sf 15.0 acres
Open Space	8.4 acres	79.1 acres	87.5 acres
Rights-of-way	10.5 acres		10.5 acres ²
TOTAL	317 du 42.9 acres	1,007 du 300.3 acres	1,324 du 343.2 acres²

¹ Includes 43-acre Subdivision

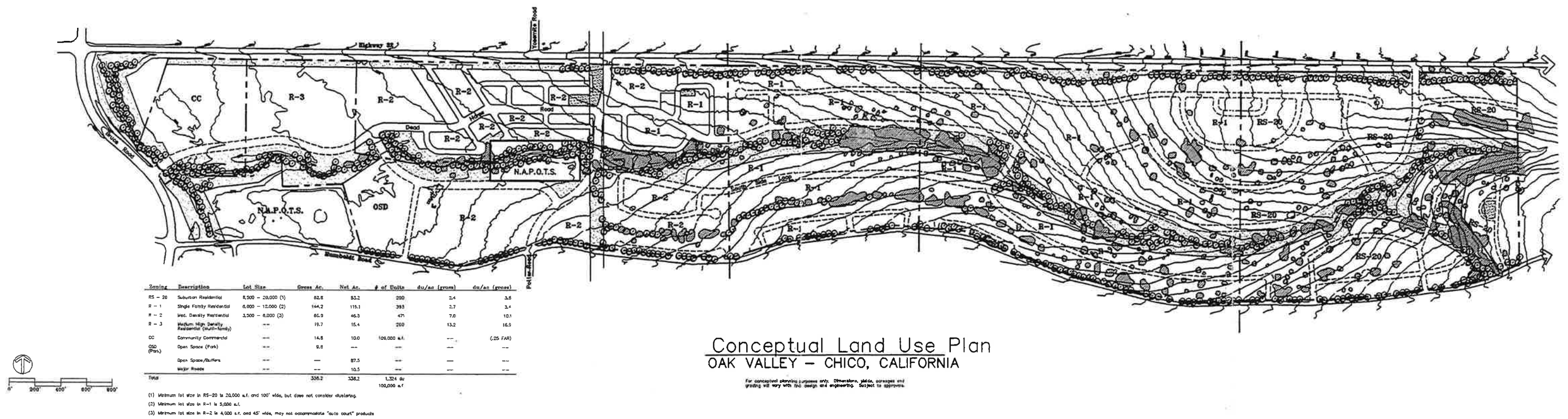
² Total net acreages are approximate. Discrepancies in total acreages may occur because details for the Conceptual Master Plan have not been finalized. Changes to the acreages for the Conceptual Master Plan would not alter the impacts analyzed in this EIR.

³ Includes RS-20 Suburban Residential.

Source: Gilbert Engineering, the Spink Corporation

Conceptual Master Plan

The Conceptual Master Plan for the full project site includes approximately 230 acres of single- and multi-family units, 87.5 acres designated as open space for resource protection and passive recreation use, and 10 acres of commercial uses (see Figures 3-4 through 3-6). The Master Plan includes a total of approximately 593 low-density single-family homes, 471 medium-density residences, and 260 multi-family units. The Conceptual Master Plan also provides for 109,000 square feet of community commercial uses on 10 acres. The Conceptual Master Plan is evaluated at a programmatic level because development is not proposed at this time. Therefore, the details of site design and plan implementation have not been determined.



Conceptual Land Use Plan OAK VALLEY - CHICO, CALIFORNIA

Figure 3-4 Conceptual Master Plan

Figure 3-5 Conceptual Master Plan
Vesting Tentative Subdivision Map (Western Portion)

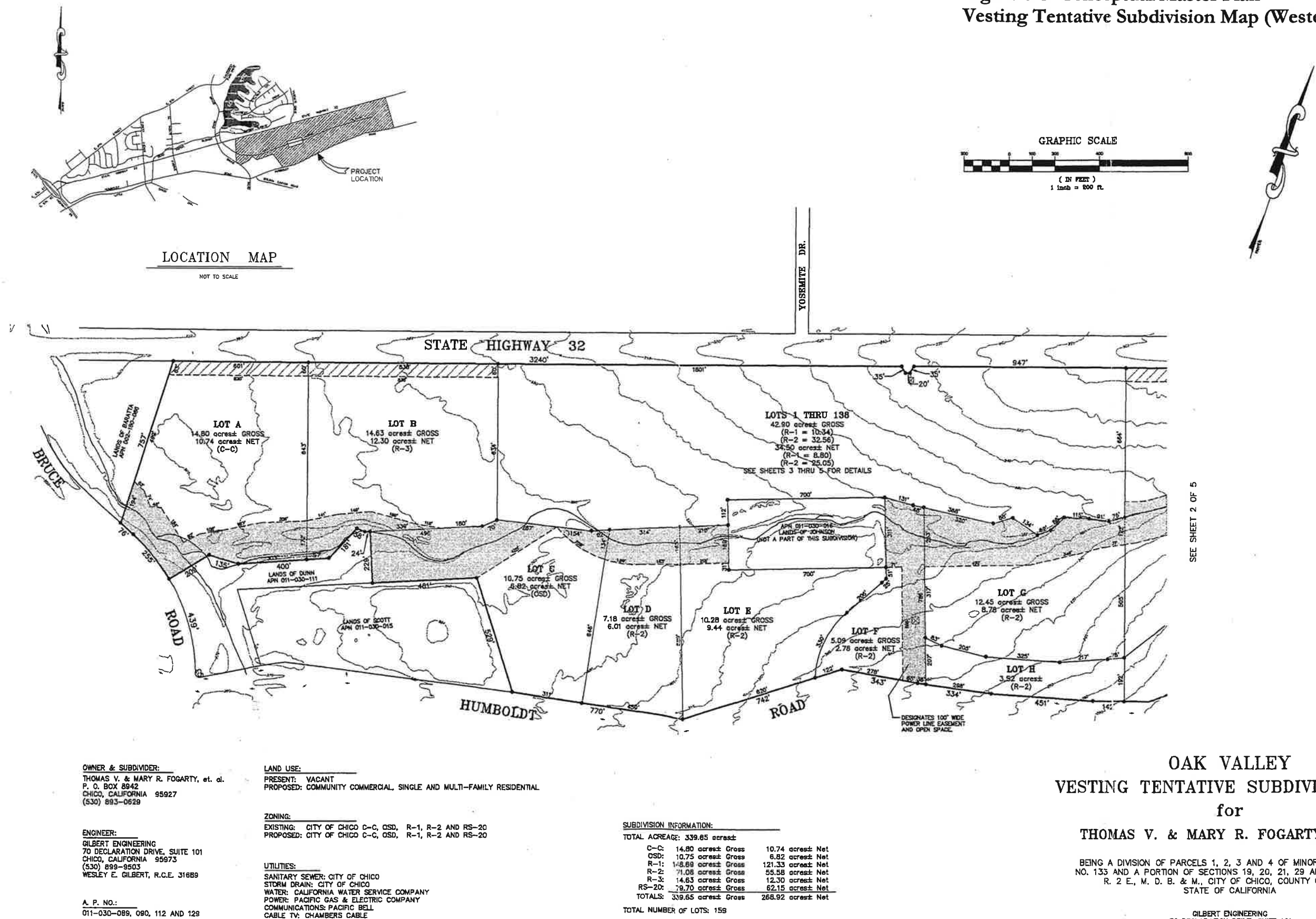
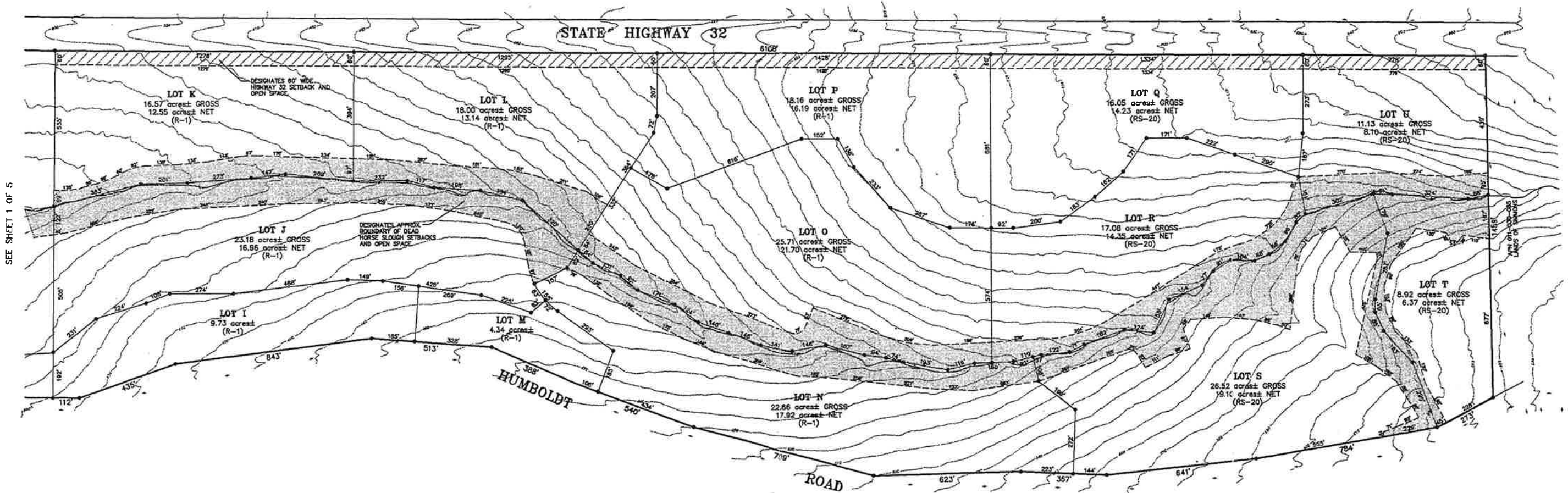
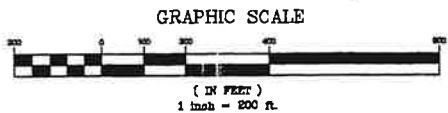


Figure 3-6 Conceptual Master Plan
Vesting Tentative Subdivision Map (Eastern Portion)



OAK VALLEY
VESTING TENTATIVE SUBDIVISION MAP
for
THOMAS V. & MARY R. FOGARTY, et. al.

BEING A DIVISION OF PARCELS 1, 2, 3 AND 4 OF MINOR LAND DIVISION
NO. 133 AND A PORTION OF SECTIONS 19, 20, 21, 29 AND 30, T. 22 N.,
R. 2 E., M. D. B. & M., CITY OF CHICO, COUNTY OF BUTTE,
STATE OF CALIFORNIA

GILBERT ENGINEERING
70 DECLARATION DRIVE, SUITE 101
CHICO, CALIFORNIA 95973
(530) 899-9503

AUGUST, 1999

SHEET 2 OF 5

The project site is adjacent to the former City/County Humboldt Road Burn Dump and a small portion is within the 157 acre Humboldt Road Burn Dump Remediation Project area. A restoration plan was initiated to remediate the waste materials from the former dump activities by on-site consolidation and capping. The dump remediation project was the subject of a Draft EIR (SCH #97062073) released in September 1997 and a Final EIR completed in February 1998. The Final EIR has not been certified as of this time. The plan proposed the consolidation of all waste materials from the former Burn Dump operations onto 21.7 acres. The 21.7 acre consolidation site is located along Humboldt Road, just east of Bruce Road, and consists of the 10 acre former City owned Burn Dump and 11.7 acres of the project site which would be dedicated to the City of Chico. Following the restoration project, the consolidation site would remain as permanent open space, consistent with the General Plan designation. The remainder of the area formerly constrained by the Burn Dump waste, including portions of the project site, would be able to move forward with development proposals consistent with the City's General Plan and standards. Cleanup plans may include remediation of the Burn Dump site as a separate action under the oversight of the Regional Water Quality Control Board; however, no specific clean plans have been recommended or adopted by the City at the time of the preparation of this Draft EIR (please see Section 4.10, Hazards and Human Health, for a discussion of the Burn Dump cleanup).

Planned Development Use Permit

The project site has been identified as a "Special Development Area" in the Chico General Plan. Several implementation policies are applicable to the project site, including clustering development to protect the foothills viewshed and sensitive biological habitat. The project site was zoned Planned Development (Foothill) in the City's Comprehensive Update to Title 19 Land Use and Development Regulations. The Planned Development process will allow the project developer to cluster housing units and to transfer density in the western portion of the site by reducing parcel sizes, setbacks or other development standards.

Public Facilities and Services

Proposed infrastructure for both the 43-acre portion of the Subdivision and the Conceptual Master Plan subdivision includes the following:

Access and Circulation: The project site would be served by an internal road system that provides for circulation for vehicles, pedestrians, bicycles and access to existing City streets and State Highway 32. Primary access to the site would be directly from State Highway 32 and continue through the project site as the Potter Road Extension, identified in the General Plan. Other access points being proposed are east of the Potter Road extension at Highway 32, multiple connections to Humboldt Road, and a connection to Bruce Road, along the western boundary of the site.

For the 43-acre portion of the Subdivision, one bridge crossing to Humboldt Road would be built prior to the construction of the 151st housing unit as required by the City for safety reasons. The Conceptual Master Plan proposes four possible bridges across the slough.

Sanitary Sewer: The project site is within the boundaries of the Southeast Chico Sewer Assessment District. There is an existing sewer trunk line within the site parallel to the north side of Dead Horse slough extending to a point approximately 500 feet east of the Yosemite Drive intersection. Additional sewer main lines and laterals would be constructed to serve the project.

Water: Water would be provided to the site through the California Water Service Company (Cal Water), the City of Chico's water provider. Implementation of the project would require the extension of Cal Water facilities from the western end of the project site. In addition, the project may require water storage tanks, a pump station, and onsite well(s).

Emergency Access

Because the 43-acre portion of the subdivision provides only one access point, the City will require additional access from existing roads as the project is developed. An interim or emergency access road from Bruce Road, west of the project site, would be required before the 51st unit is constructed. This road may become an emergency access only road when a second access to the site is constructed. A permanent second access road, connecting to Humboldt Road to the south, would be required before the 151st unit is constructed.

Project Schedule and Process

43-Acre Portion of the Subdivision

Construction of the 43-acre portion of the Subdivision is expected to begin in the summer of 2000, and take up to 5-8 years to complete.

Conceptual Master Plan

A schedule has not been identified for the remainder of the Project. Any projects developed within the Conceptual Master Plan (subsequent to the 43-acre portion) will be considered by the City after appropriate CEQA review.

Lead and Responsible Agencies

In conformance with Sections 15050 and 15367 of State CEQA Guidelines, the City of Chico Community Development Department has been designated the "lead agency" which is defined as the "public agency which has the principal responsibility for carrying out or disapproving a project."

A Responsible Agency is a public agency with discretionary approval over one or more actions involved with the development of a proposed project. The Responsible Agencies for the Project may include the State Water Resources Control Board, the Regional Water Quality Control Board, the Butte County Air Quality Management District, the California Department of Fish and Game, the U.S. Army Corps of Engineers, and the California Department of Transportation.

Required Discretionary Actions

The City of Chico and other responsible agencies are required to follow through with discretionary actions for project approval. In addition, the project applicant has proposed other agreements with the City for consideration. The actions proposed for project approval include, but are not limited to, the following:

- Certification that the EIR adequately identifies the significant environmental effects of the Project, pursuant to CEQA and the State CEQA Guidelines;
- Vesting Tentative Subdivision Map to create 159 parcels which includes 21 large parcels and 138 smaller parcels;
- Planned Development Use Permit (with Conceptual Master Plan approval as a condition);
- A grading permit for portions of the property specified in the Vesting Tentative Subdivision Map and Conceptual Master Plan;
- Encroachment Permit (California Department of Transportation);
- Streambed Alteration Agreement (California Department of Fish and Game);
- Storm Water Discharge Permit (State Water Resources Control Board);
- Section 404 Permit (U.S. Army Corps of Engineers and Environmental Protection Agency); and
- Cooperative funding agreements among the property owner, the City of Chico, the Chico Redevelopment Agency and various other agencies, to implement the terms of the requested land use approvals. (Applicant's Proposal)

*4. ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION
MEASURES*

4.1 INTRODUCTION TO THE ANALYSIS

4.1 INTRODUCTION TO THE ANALYSIS

SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

Chapter 4 presents the environmental analysis for each subject examined in this EIR. Chapter 4 is subdivided into individual subsections, each of which addresses a specific subject. Chapter 4 includes the following subsections and subjects:

- 4.2 Land Use
- 4.3 Transportation/Circulation
- 4.4 Air Quality
- 4.5 Noise
- 4.6 Public Services and Utilities
- 4.7 Hydrology and Drainage
- 4.8 Biological Resources
- 4.9 Aesthetics
- 4.10 Hazards

ISSUES NOT INCLUDED IN THIS EIR

Issues focused out of the EIR that were identified as being less-than-significant in the Notice of Preparation and Initial Study (see Appendix A) include:

- Population and Housing
- Geologic Problems
- Energy and Mineral Resources
- Cultural Resources
- Recreation

PRESENTATION OF THE IMPACT ANALYSIS

Chapter 4 is divided into sections which provide the environmental setting, standards of significance, impacts to the environmental setting, and feasible mitigation measures for significant impacts. This analysis is conducted for land use, transportation and circulation, air quality, noise, public services and utilities, hydrology and drainage, biological resources, aesthetics, and hazards.

The environmental setting and standards of significance discussions establish the base condition and threshold by which the Project and alternatives are measured and analyzed. The setting discussion addresses the conditions that exist prior to project development (e.g., traffic conditions, air quality conditions). This setting is the base by which the Project and alternatives are measured for environmental impacts. A standard of significance is identified for each environmental category to determine if the development of the proposed 43-acre portion of the Subdivision

and/or the Conceptual Master Plan could result in a significant environmental impact when evaluated against the environmental setting. This standard of significance varies depending on the environmental category.

Impacts and feasible mitigation measures are presented, where appropriate, for each environmental category. The significance of the project and cumulative impacts are listed in one of three ways throughout the discussion: (1) no impact, (2) less than significant, or (3) significant. Feasible mitigation measures are always identified, if available, for those impacts found to be significant, but are not presented for those found to be less than significant. An impact will be considered significant and unavoidable if there are no feasible mitigation measures available to reduce the impact to a less-than-significant level. Each mitigation measure presented in this Draft EIR is feasible from a technological standpoint. The impacts and mitigations listed in this Draft EIR are numbered consecutively.

SECTION FORMAT

Each section includes the following components:

- **Introduction**
- **Environmental setting** as it pertains to a particular issue.
- **Regulatory context**, which includes a discussion of the relevant federal and State laws and General Plan and City policies.
- **Impacts and mitigation measures**, including the assumptions and methods used to evaluate impacts in this EIR and standards of significance.

An example of the impact format is shown below.

4.X-1 Statement of impact for the Project in bold type.

43-acre Portion of the Subdivision

Discussion of impact. The *level of significance* is presented in bold, italic type.

Conceptual Master Plan

General discussion of impact for the 43-acre portion of the subdivision project and the Conceptual Master Plan in paragraph form. The *level of significance* is presented in bold, italic type.

Mitigation Measures.

Statement whether the following mitigation measures would reduce the impact to a *less-than-significant level*.

4.X-1 *Statement of what, if any, mitigation measures are required to reduce the magnitude of the impact.* (Identification of whether mitigation applies to the Conceptual Master Plan, the 43-acre Subdivision, or both)

Explanation of how the mitigation measure would reduce the impact.

4.2 LAND USE

4.2 LAND USE

INTRODUCTION

This section evaluates changes in land use due to implementation of the Project. Potential changes in the intensity and patterns of land use and the relationship of the relevant State and local regulations are considered. In addition, potential conflicts between existing and proposed land uses are addressed, and primary goals and policies related to applicable plans are discussed. Information contained in this section has been compiled from the *City of Chico General Plan* and EIR and the accompanying *Master Environmental Assessment* (MEA), as well as a site reconnaissance.

As discussed in Chapter 1, Introduction and Scope of EIR, certain impacts were fully addressed in the Initial Study and do not require further consideration in this EIR. The Initial Study found that the 43-acre portion of the subdivision and Conceptual Master Plan are generally consistent with the City's General Plan land use designations and zoning, and that the project would not disrupt or divide the physical arrangement of the community in which it occurs. In addition, the Initial Study found that the Project would have no impact on Prime Farmland or Farmland of Local Importance.

ENVIRONMENTAL SETTING

Regional Setting

The project site is located within the City of Chico in Butte County, California. The site is located in eastern Chico, approximately three miles east of Downtown Chico. The project site encompasses 340 acres and is located to the south of State Route (SR) 32, east of Bruce Road, north of Humboldt Road and west of the two 500 kilovolt (kV) transmission lines. The 43-acre portion of the subdivision is located within the 340 acres, between SR 32 and the south branch of Dead Horse Slough from approximately 1,500 feet west of Yosemite Drive to 1,500 feet east of Yosemite Drive. The City of Chico establishes land use designations and policies primarily through its General Plan.

Onsite Land Uses

The site is currently undeveloped and used for approximately four months of the year for cattle and horse grazing. None of the project site is under Williamson Act contract nor are the soils classified as important by the Department of Conservation Farmland Mapping and Monitoring Program.

The site is covered with grassland, intermittent stands of oak woodland, especially around the Dead Horse Slough area and the rocks that are distinctive of the east Chico area, of which the area's historic rock walls are made. The only structure on the site is Department of Toxic Substances Control fencing.

The south branch of Dead Horse Slough is the principal drainage on the project site. It originates about one mile east of the project site and serves as a minor drainage channel between SR 32 and Humboldt Road. It flows into Little Chico Creek approximately two miles west of the site. Both Dead Horse Slough and Little Chico Creek are intermittent streams.

The 340-acre project site is owned by Fogarty Profit Sharing, Ildo L. and Patricia B. Rosellini and George and Joann S. Martin (Rosellini/Martin) (APN 011-030-090) and Thomas and Mary Fogarty and Rosellini/Martin (APN 011-030-136, 138, and 139) and is primarily vacant. Approximately five acres known as the former Johnson Burn Dump site (APN 011-030-16), is adjacent to the southerly boundary line of the 43-acre portion of the subdivision and is estimated to contain 38,000 cubic yards of waste. There is also a former burn dump site on the southwestern edge of the project area. The City/County Humboldt Road Burn Dump Site was operated as a municipal landfill for household and commercial waste from the early 1890s until the mid-1960s. The dump ceased operation in 1965 when Butte County opened the Neal Road Landfill.¹ A soil cover of unknown thickness was reportedly applied to the dump after it ceased operation. The burn site is the subject of a proposed restoration project to remediate lead contaminated wastes scattered over approximately 157 acres. The Final EIR for the Humboldt Road Burn Dump Remediation Project was released on January 2, 1998; the site is encumbered by a regulatory development restriction because of its contamination. For a more detailed discussion of the former burn dump, please see Chapter 4.10, Hazards and Human Health, of this Draft EIR.

General Plan Designation and Zoning

The City's General Plan designates the project site Very Low Density Residential, Low Density Residential, Medium Density Residential, Medium High Density Residential, and Community Commercial with an Open Space for Environmental Conservation/Safety overlay. The site is zoned Very Low Density Residential (RS-20), Low Density Residential (R-1), Medium Density Residential (R-2), Medium-High Density Residential (R-3), and Community Commercial (CC) by the City of Chico General Plan.

The site is identified as a Special Development Area (SDA) by the General Plan, entitled the "Humboldt Road - Foothills South of SR 32". The site is not listed as a Resource Conservation Area in the General Plan, but is considered a Resource Management Area (RMA).² RMAs generally contain some resources that merit long-term preservation, but require further study before a precise delineation of acreage to be preserved can take place. RMAs allow some level of development if a Project demonstrates that sensitive resources would be protected. For sites located partly or wholly within an RMA, a development applicant would be required to participate in a pre-application review with City staff to identify and discuss the biological resources potentially affected by the project and the applicable policies and review procedures for

RMAs. The applicant would be required to submit a preliminary Resource Management, Monitoring and Reporting Plan (RMMRP), or required elements thereof, along with a development application.

The 1994 General Plan assumes development of the project site as well as other undeveloped land in the City. The General Plan EIR found that the conversion of open space to urban uses would be a significant and unavoidable impact. The City Council determined that this impact was acceptable in light of the benefits of development envisioned in the General Plan (Resolution No. 80-94/95).

Surrounding Land Uses

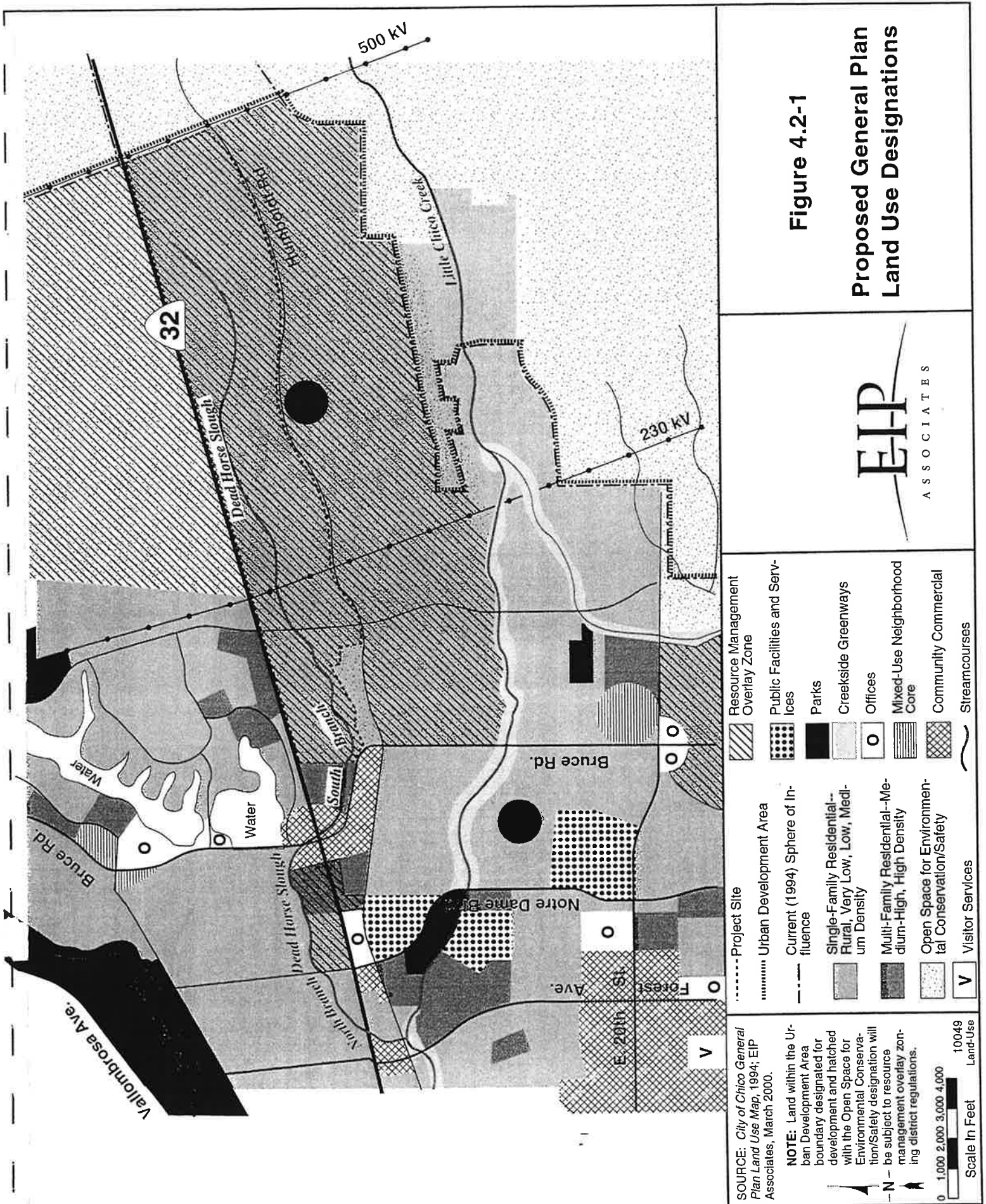
The project site is bordered by primarily residential land uses and vacant land. The surrounding General Plan land use designations are shown on Figure 4.2-1. A high density senior housing community (Sierra Sunrise Village) is located to the north of State Route 32 between Bruce Road and Yosemite Drive. The neighborhood consists of medium to high density residential areas with one-, two- and three-story structures.

The land immediately south of the project site along Humboldt and Stilson Canyon Roads is currently vacant and used for seasonal grazing. Land farther to the south contains low to medium density residential areas. County Rural Residential use is located southeast of the project, accessed by Stilson Canyon Road. To the west of the project site is undeveloped; however, a new Chico Unified School District Junior High School has been constructed on Humboldt Road, west of Bruce Road. Land to the northeast and east of the site is vacant and designated as open space.

Land Use Patterns and Relationships

Approximately 10,300 acres (45 percent) of land within the City of Chico Sphere of Influence (SOI) are urbanized and include residential, commercial, airport and industrial uses. Open space/recreation areas comprise 4,000 acres (mainly Bidwell Park). An additional 6,730 acres are vacant and 5,910 acres are devoted to agriculture, grazing and rural residential uses.³ The predominant urban land use in Chico is residential, with low-density development constituting almost 90 percent of the total residential land use.

According to the City of Chico Master Environmental Assessment (MEA), the City urban area has expanded from the original downtown core to the north, east and south, while agricultural lands are west of the City. The areas to the north, east and south are under development pressure because they are located along a major transportation corridor (SR 99), and the County of Butte and City of Chico have established a "greenline" on the western boundary of the City to preserve agricultural soils and use.



REGULATORY CONTEXT

City of Chico General Plan

The City of Chico last completed a comprehensive update of the General Plan in 1994. The General Plan update included the preparation of the MEA and an update of the following general plan elements: Land Use Element, Transportation Element, Parks, Public Facilities and Services Element, Open Space and Environmental Conservation Element, Safety and Safety Services Element, Noise Element, and the Housing Element. Two optional elements, the Economic Development Element and the Community Design Element, were also included in the update.

The General Plan supports the separation between urban development, agricultural uses, and natural areas. The Plan focuses on development through goals for conservation and preservation of natural and community resources. The Plan includes a variety of land uses including several residential land use designations (from rural to medium-high density residential development), land uses tailored to the downtown area, several commercial and industrial designations, and specific designations for public facilities and services, parks and creekside greenways, and open space uses. The City of Chico General Plan goals and policies that apply to the Project are listed under Impact 4.2-3, which discusses project consistency with City General Plan.

The site is designated Very Low Density Residential (RS-20), Low Density Residential (R-1), Medium Density Residential (R-2), Medium-High Density Residential (R-3), and Community Commercial (CC) by the City of Chico General Plan.

Butte County

Existing land uses in Butte County on lands outside the project site and boundaries of the Chico Sphere of Influence are primarily agricultural and rural residential. Lands northeast and east of the Sphere of Influence are used for seasonal grazing of livestock and are designated as Grazing and Open Lands by the Butte County Chico Area Land Use Plan.⁴ The area north of the Sphere of Influence, east of SR 99 and south of Rock Creek is developed as rural residential land use interspersed with orchards, field crops, and grazing land and is designated as Agricultural Residential. Lands along the eastern boundary of the portion of the Sphere of Influence that includes Chico Municipal Airport are also designated Agricultural Residential. Lands along Butte Creek, east of the Sphere of Influence, are also developed with rural and low-density residential land uses.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

Land Use

Existing and planned land uses in the project area have been identified based on a site visit by EIP Associates staff and information provided by the City of Chico Planning Division. The land use evaluation is based on a qualitative comparison of existing and proposed uses on the site and their

compatibility with existing and planned land uses as defined in the City's General Plan. The 43-acre portion of the subdivision is analyzed at a project-specific level of detail, while the Conceptual Master Plan is analyzed programmatically.

The planned use under the Proposed Project includes the conversion of the 43-acre portion of the subdivision from approximately 34 acres of open space to urban uses, while providing for approximately 9 acres (21 percent of the project site) of buffers, setbacks, and open space. Implementation of the full Project would convert approximately 253 acres of undeveloped land to urban uses. Approximately 87.5 acres of the total 340 acres (26 percent of the project site) would be designated as open space for resource protection and passive recreation use. In addition, a portion of the homes would be designed to conform to the natural topography of the site to minimize the loss of trees, and preserve other unique natural and historic features present on the site. Development along Dead Horse Slough would be set back 100 feet on both sides, including a 75-foot setback from the creek for environmental conservation and an additional 25-foot setback for a proposed pedestrian and/or bike trail. The open space along the slough would be expanded to include the adjacent trees on the appropriate sections of the slough.

Some of the residential units would be designated in clusters, consistent with the policies for Special Development Areas set forth in the Chico General Plan. Greenbelts to preserve open space, existing oak trees, and scenic vistas are also proposed. The applicant has prepared a Resource Management, Monitoring, and Reporting Plan to provide the necessary elements for the Project site's RMA designation (see Section 4.8, Biological Resources).

Consistency with the General Plan

The 1994 City of Chico General Plan was reviewed to assess the degree to which the Project conforms to the goals, objectives, and policies set forth in the General Plan. Implementation of the Project would not result in a change to the existing land use designations.

The Project is consistent with the General Plan, and the project would not result in development of open space beyond the level anticipated by the 1994 General Plan and accompanying EIR. Potential physical or environmental impacts related to the development of the project site are discussed in the relevant sections of this EIR.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative land use impacts are considered significant if implementation of the Project would:

- result in conversion of undeveloped open space to more intensive land uses;
- result in a use substantially incompatible with the existing surrounding land uses;
or
- conflict with adopted plans, policies, and goals of the community.

4.2-1 The Project would be compatible with adjacent land uses.

43-Acre Portion of the Subdivision

Based upon a general comparison of the existing land uses in the Plan Area, no potential incompatibilities were identified. Adjacent land use designations are shown in Figure 4.2-1. The 43-acre portion of the subdivision proposes single- and multi-family residential land uses on existing open space on the western portion of the project site, north of Dead Horse Slough. Because the Project would be similar to surrounding existing and proposed development to the north, the 43-acre portion of the subdivision would be compatible with adjacent uses, and this would be a *less-than-significant impact*. Please see section 4.10, Hazards and Human Health, which includes a discussion of mitigation measures required throughout project development through project occupancy which would protect human health and the environment. Please see Impacts 4.10-1 through 4.10-4 for a complete discussion.

Conceptual Master Plan

Development of the proposed Conceptual Master Plan would include single-family, low-density residential, multi-family residential and community commercial land uses. The land uses on the properties in the general vicinity of the project site consist of low, medium and high density residential and vacant areas. The commercial development would be on the western edge of the project site, which is currently separated from residential development by SR 32. There are two- to three- story residential housing units to the northwest of the site, and open space around the project site to the north, east, and south. Because the proposed commercial use would be small scale, with a floor area ratio of approximately 0.25, because it would be physically separated from existing residential uses and is planned for local commercial use in the Chico General Plan, it is considered compatible with existing development.

The General Plan land uses proposed adjacent to the project site are similar in nature to the Project, single-family and medium density residential and open space for environmental Conservation/Safety with a resource management overlay zone. These uses are considered compatible with the proposed single-family and multi-family residential land use pattern for the Project. Therefore, the Project would result in a *less-than-significant impact*. Please see section 4.10, Hazards and Human Health, which includes a discussion of mitigation measures required throughout project development and project occupancy which would protect human health and the environment. Please see Impacts 4.10-1 through 4.10-4 for a comprehensive discussion.

Mitigation Measures

4.2-1 *None required.*

4.2-2 The Project could be inconsistent with the City's General Plan.

The City of Chico General Plan contains goals and policies for the development and maintenance of land uses in Chico. The General Plan consists of several elements, including Community Design and Land Use Elements. The following is a list of goals and policies from these two

elements that are relevant to the development of the project site. They are listed from the General Plan along with an analysis of the Project's consistency or inconsistency with each goal and policy.

Except where indicated, the analysis of each policy applies equally to the Conceptual Master Plan and the 43-acre portion of the subdivision.

Community Design Element Goals and Policies

2.1 City Form

CD-G-1 Reinforce the Compact Form of the City.

The proposed 43-acre portion of the subdivision and Conceptual Master Plan development would be consistent with this goal because the proposed development is within the City of Chico Sphere of Influence and within the 4-mile radius from the Chico downtown that forms a compact, focused ring around the center of town. The project also proposes smaller parcels and mixed-density Residential Use on the lower elevations of the project site with more open space and lower densities on the easterly portion of the project site. The site has been designated for urban uses and development in the General Plan, which assumed that development would occur on the site.

2.2 Continuity and Connection

CD-G-7 Design street and creekside improvements in consideration of their hierarchical role and function within the larger system.

The Project would be consistent with this goal because the area around the southern branch of Dead Horse Slough would maintain the Slough's function and be set aside as an open space area. Establishment of this open space area gives relative importance to the Dead Horse Slough corridor.

CD-G-8 Extend new street patterns that heighten the sense of the creeks and are connected to existing patterns of development.

The proposed configuration would be consistent with this policy because it would allow views and physical access to Dead Horse Slough and would preserve an area for a bike path and pedestrian walkway.

CD-G-11 Heighten the visual prominence of the creek corridors which help to establish a sense of orientation and identity within the City.

The proposed design of the Conceptual Plan would be consistent with this goal because it includes a 100-foot dedication on each side of Dead Horse Slough for a creekside greenway which would be a visible public resource.

CD-G-12 Open up creeks to public view and access.

The Project would be consistent with this goal because the project design includes preservation of visual corridors into the open space area around Dead Horse Slough. The proposed bike path would make the open space accessible and visible to the public.

CD-G-13 Extend the amenity value of the creeks.

The Project would be consistent with this goal because Dead Horse Slough would be preserved as public open space and made accessible with a bike path.

2.3 Neighborhood conservation and development

CD-G-18 Encourage positive transitions in scale and character where new development and extensive expansion of existing buildings are proposed.

While many of the proposed neighborhood amenities are unknown at this time, the project design follows the General Plan Foothill policies to keep densities low on the eastern portions of the property with greater densities with clustering and smaller lots to the west. Additionally, the conceptual plan includes an interior street plan which provides connection and continuity (see also Section 4.9, Aesthetics and Visual Quality). There are no existing buildings on or adjacent to the project site.

2.6 New residential neighborhoods

CD-G-45 Create new neighborhoods that have a human scale and are oriented to the pedestrian.

The Project would be consistent with this goal because sidewalks would be provided through this project, including a path along Dead Horse Slough. The length of the blocks are not too long, nor streets excessively wide, to discourage pedestrian use. The small lot/cluster design can also provide human scale.

CD-G-46 Establish clean and distinctive neighborhood edges, organized around larger streets and natural features such as streams or creeks.

The Project would be consistent with this goal because the development area is bordered distinctively by existing streets to the south, west, and north, and by the existing 500 kV line to the east.

CD-G-47 Mark major entries to neighborhoods, but prohibit the use of high walls and gated entries which isolate areas from one another and create an unfriendly appearance.

The Project would be consistent with this goal because there are no plans for gated or restrictive entrances into the neighborhood. The only area where sound walls might be constructed is along State Highway 32 (see Section 4.5, Noise). The highway already divides the project site from neighborhoods to the north, and soundwalls would not substantially alter this existing condition.

CD-G-48 Establish a central focus of activity within each neighborhood.

The Project would be consistent with this goal because the project would maintain the corridor along Dead Horse Slough as open space, and Dead Horse Slough would be a focal point of the project site.

- CD-G-49 Encourage a fine-grained and integrated pattern of streets that provides continuity, focus, diversity, and a human scale.

The Project would be consistent with this goal because the proposed plan for streets within the development connects to existing streets and accommodates connections to planned streets.

- CD-G-50 Encourage the continuity of streets between neighborhoods.

The proposed plan for streets within the development connects to existing streets and accommodates connections to planned streets. The Project would be consistent with this goal.

- CD-G-51 Orient neighborhoods and individual residential and commercial buildings positively to the street, not away from it.

43-Acre Portion of the Subdivision

The proposed 43-Acre portion of the Subdivision project would be consistent with this goal because residential structures would be oriented toward the street.

Conceptual Master Plan

The orientation of the residential units and the commercial uses (proposed for the Conceptual Master Plan only) is unknown at this time, and will be subject to further review.

- CD-G-52 Establish a hierarchy of streets, open spaces and community buildings that can be used to help provide structure and orientation to the neighborhoods and districts.

The proposed development would be consistent with this goal because the trails, roadways, and open spaces within the development site provide connections through and to adjacent residential neighborhoods, open space areas, and parks. No community buildings are planned for the proposed development.

- CD-G-53 Design streets with a priority on neighborhood structure and pedestrian scale.

The Project would be consistent with this goal because street configuration allows for easy connection and circulation through the development, either by auto or for pedestrians.

- CD-G-54 Integrate special features as landmarks to heighten a sense of orientation within new residential neighborhoods.

The Project would be consistent with this goal because the existing Dead Horse Slough would be maintained with a bike and pedestrian path open space area on either side.

CD-G-55 Encourage tree planting.

A street planting program would be required with this project, which would be consistent with this goal. In addition, many existing oaks would be preserved in open space and/or view corridors.

CD-G-57 As part of the planned development process, encourage the design of buildings that are oriented to the pedestrian and create positive transitions to the street.

The building design is unknown at this time and will be subject to future review.

CD-G-58 Establish high standards for small-lot design in projects approved through the planned development process.

The building design is unknown at this time and will be subject to future review.

CD-G-62 Encourage some diversity in parcel and house sizes, but with careful transition between densities in projects approved through the planned development process.

The Project provides for residential lot sizes from approximately 4,000 square feet to 20,000 square feet. The higher densities (R-2 and R-3) are planned for the western portion of the project site, closest to the existing urbanized land uses. The lower densities (R-1 and R-20) are planned for the eastern portion, with the very lowest densities adjacent to the eastern boundary, providing a transition to the open space to the east. The Project will be subject to a planned development use permit process. Therefore, the Project is consistent with this policy.

Guiding Policies: Growth and Physical Expansion

LU-G-3 Ensure that new development is at an intensity to ensure a long-term compact urban form.

The Project would be consistent with this goal because the proposed development is within the City of Chico Sphere of Influence and within the 4-mile radius from the Chico downtown that forms a compact, focused ring around the center of town. The site has been designated as a special development area in the General Plan .

LU-G-4 Maintain long-term boundaries between urban and agricultural uses in the west, and urban uses and the hillside in the east, and limit expansion north and south to maintain compact urban form. The hillside is generally defined as the area where oak woodland habitat begins, approximately the 300-foot contour in all areas, except in the Northeast where it is defined by the 250-foot contour (see Figure 7-1 in the Open Space and Environmental Conservation Element). Multiple approaches to restrict urbanization outside the City's sphere of influence will be used, including large-lot zoning and possibly acquisition of land for a greenbelt.

The Project would be consistent with this goal because it is part of the planned expansion of new developments in Chico. Further, the Project would extend urban development to the east, rather than the north or south.

Guiding Policies: Residential Land Use

LU-G-7 Encourage new residential growth in the form of neighborhoods.

The Project is planned to provide development in the form of neighborhoods.

LU-G-9 Allow and encourage small-lot single-family housing development in new and existing neighborhoods to provide compact development and efficient infill. In addition to the benefit of affordability, small-lot housing increase opportunities to conserve land and protect environmental sensitive areas and can provide a positive aesthetic quality as characterized by Chico's older neighborhoods.

The Project includes medium-density uses with relatively small parcels (minimum of 3,500 square feet), as well as multi-family units. The project site is not adjacent to any of Chico's older neighborhoods.

LU-G-10 Improve the community orientation of new residential developments. A community orientation calls for greater attention to the relationship between residences, streets and shared spaces, and does not require sacrifice of privacy or amenities. Gated neighborhoods isolate parts of the community from others and will not be allowed.

The Project would be consistent with this goal because the design of the neighborhood would include open community space along Dead Horse Slough, which runs the length of the project site. This shared open space within the project area would foster a sense of community among the future residents. Gated neighborhoods are not proposed.

Summary

As discussed above, the Project would be generally consistent with the City of Chico General Plan policies and goals. However, consistency cannot be determined for all applicable goals and policies, because the project's building design is not known as it is proposed at the subdivision stage. This is considered a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on compatibility between land uses to a *less-than-significant level*.

4.2-2 *Prior to recordation of the Final Map(s), the Community Development Department shall review Design Standards provided by the applicant to ensure that building design will meet the following standards:*

- *buildings are oriented to the pedestrian and create positive transitions to the street (CD-G-57), and*
- *small-lot design will be of high quality (CD-G-58) (43-acre portion of the subdivision and Conceptual Master Plan).*

In addition, the Conceptual Master Plan must meet the following standard:

- *neighborhoods and buildings are oriented to the street (CD-G-51) (Conceptual Master Plan).*

These measures would reduce the Project impact by ensuring that project design is consistent with the City's General Plan.

Cumulative Impacts and Mitigation Measures

The cumulative context for land use impacts is buildout of the City's General Plan. Consistency with General Plan policies and compatibility with adjacent land uses are site-specific, and are not affected by cumulative development. Therefore, they do not have cumulative impacts.

ENDNOTES

1. City of Chico, *Draft Environmental Impact Report, Humboldt Road Burn Dump Restoration Project*, September 9, 1997, page 2-1.
2. City of Chico, *City of Chico General Plan*, November 1994, Figure 7-1.
3. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 3-1.
4. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 3-12.

4.2 LAND USE

4.2 LAND USE

INTRODUCTION

This section evaluates changes in land use due to implementation of the Project. Potential changes in the intensity and patterns of land use and the relationship of the relevant State and local regulations are considered. In addition, potential conflicts between existing and proposed land uses are addressed, and primary goals and policies related to applicable plans are discussed. Information contained in this section has been compiled from the *City of Chico General Plan* and EIR and the accompanying *Master Environmental Assessment* (MEA), as well as a site reconnaissance.

As discussed in Chapter 1, Introduction and Scope of EIR, certain impacts were fully addressed in the Initial Study and do not require further consideration in this EIR. The Initial Study found that the 43-acre portion of the subdivision and Conceptual Master Plan are generally consistent with the City's General Plan land use designations and zoning, and that the project would not disrupt or divide the physical arrangement of the community in which it occurs. In addition, the Initial Study found that the Project would have no impact on Prime Farmland or Farmland of Local Importance.

ENVIRONMENTAL SETTING

Regional Setting

The project site is located within the City of Chico in Butte County, California. The site is located in eastern Chico, approximately three miles east of Downtown Chico. The project site encompasses 340 acres and is located to the south of State Route (SR) 32, east of Bruce Road, north of Humboldt Road and west of the two 500 kilovolt (kV) transmission lines. The 43-acre portion of the subdivision is located within the 340 acres, between SR 32 and the south branch of Dead Horse Slough from approximately 1,500 feet west of Yosemite Drive to 1,500 feet east of Yosemite Drive. The City of Chico establishes land use designations and policies primarily through its General Plan.

Onsite Land Uses

The site is currently undeveloped and used for approximately four months of the year for cattle and horse grazing. None of the project site is under Williamson Act contract nor are the soils classified as important by the Department of Conservation Farmland Mapping and Monitoring Program.

The site is covered with grassland, intermittent stands of oak woodland, especially around the Dead Horse Slough area and the rocks that are distinctive of the east Chico area, of which the area's historic rock walls are made. The only structure on the site is Department of Toxic Substances Control fencing.

The south branch of Dead Horse Slough is the principal drainage on the project site. It originates about one mile east of the project site and serves as a minor drainage channel between SR 32 and Humboldt Road. It flows into Little Chico Creek approximately two miles west of the site. Both Dead Horse Slough and Little Chico Creek are intermittent streams.

The 340-acre project site is owned by Fogarty Profit Sharing, Ildo L. and Patricia B. Rosellini and George and Joann S. Martin (Rosellini/Martin) (APN 011-030-090) and Thomas and Mary Fogarty and Rosellini/Martin (APN 011-030-136, 138, and 139) and is primarily vacant. Approximately five acres known as the former Johnson Burn Dump site (APN 011-030-16), is adjacent to the southerly boundary line of the 43-acre portion of the subdivision and is estimated to contain 38,000 cubic yards of waste. There is also a former burn dump site on the southwestern edge of the project area. The City/County Humboldt Road Burn Dump Site was operated as a municipal landfill for household and commercial waste from the early 1890s until the mid-1960s. The dump ceased operation in 1965 when Butte County opened the Neal Road Landfill.¹ A soil cover of unknown thickness was reportedly applied to the dump after it ceased operation. The burn site is the subject of a proposed restoration project to remediate lead contaminated wastes scattered over approximately 157 acres. The Final EIR for the Humboldt Road Burn Dump Remediation Project was released on January 2, 1998; the site is encumbered by a regulatory development restriction because of its contamination. For a more detailed discussion of the former burn dump, please see Chapter 4.10, Hazards and Human Health, of this Draft EIR.

General Plan Designation and Zoning

The City's General Plan designates the project site Very Low Density Residential, Low Density Residential, Medium Density Residential, Medium High Density Residential, and Community Commercial with an Open Space for Environmental Conservation/Safety overlay. The site is zoned Very Low Density Residential (RS-20), Low Density Residential (R-1), Medium Density Residential (R-2), Medium-High Density Residential (R-3), and Community Commercial (CC) by the City of Chico General Plan.

The site is identified as a Special Development Area (SDA) by the General Plan, entitled the "Humboldt Road - Foothills South of SR 32". The site is not listed as a Resource Conservation Area in the General Plan, but is considered a Resource Management Area (RMA).² RMAs generally contain some resources that merit long-term preservation, but require further study before a precise delineation of acreage to be preserved can take place. RMAs allow some level of development if a Project demonstrates that sensitive resources would be protected. For sites located partly or wholly within an RMA, a development applicant would be required to participate in a pre-application review with City staff to identify and discuss the biological resources potentially affected by the project and the applicable policies and review procedures for

RMA's. The applicant would be required to submit a preliminary Resource Management, Monitoring and Reporting Plan (RMMRP), or required elements thereof, along with a development application.

The 1994 General Plan assumes development of the project site as well as other undeveloped land in the City. The General Plan EIR found that the conversion of open space to urban uses would be a significant and unavoidable impact. The City Council determined that this impact was acceptable in light of the benefits of development envisioned in the General Plan (Resolution No. 80-94/95).

Surrounding Land Uses

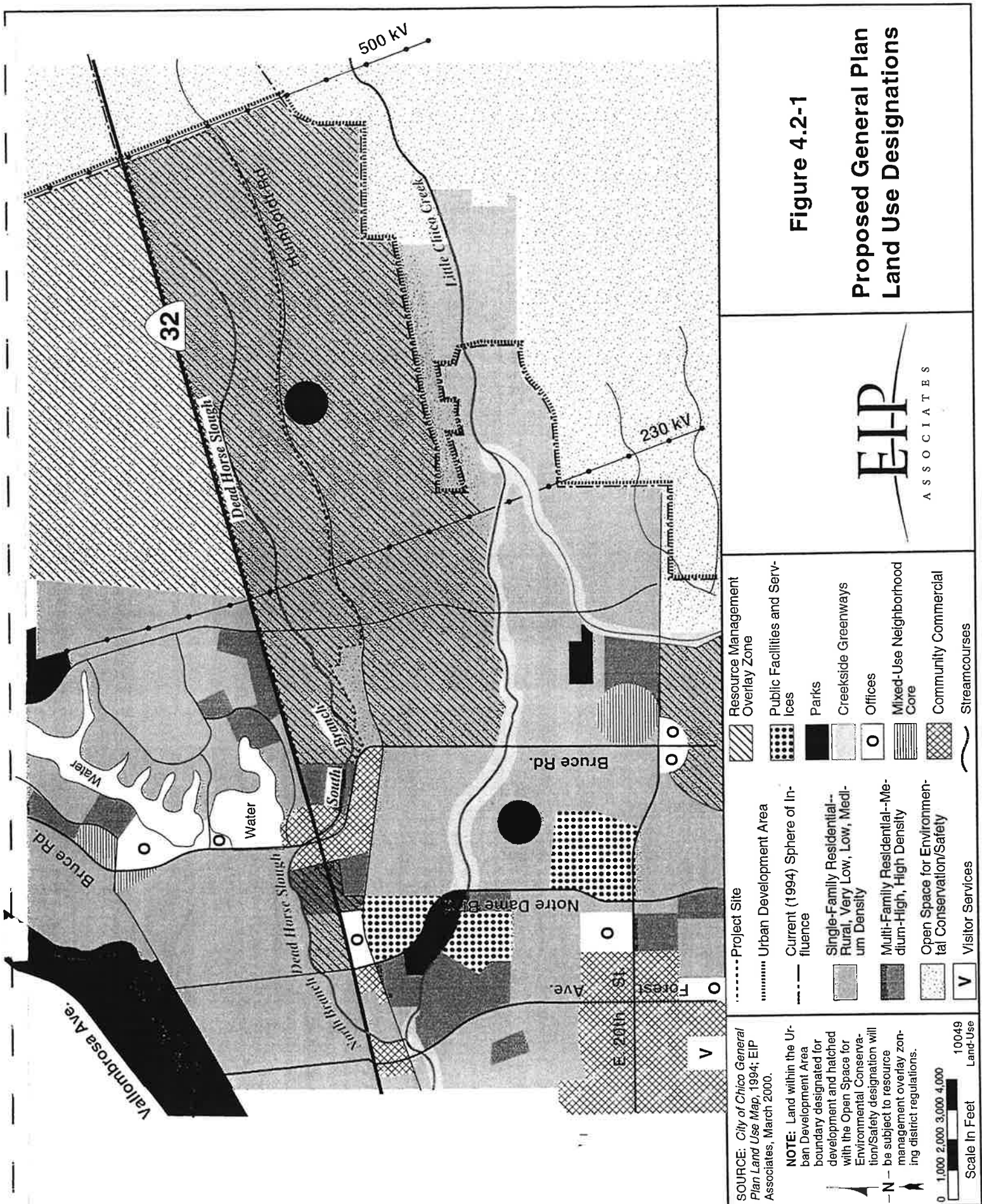
The project site is bordered by primarily residential land uses and vacant land. The surrounding General Plan land use designations are shown on Figure 4.2-1. A high density senior housing community (Sierra Sunrise Village) is located to the north of State Route 32 between Bruce Road and Yosemite Drive. The neighborhood consists of medium to high density residential areas with one-, two- and three-story structures.

The land immediately south of the project site along Humboldt and Stilson Canyon Roads is currently vacant and used for seasonal grazing. Land farther to the south contains low to medium density residential areas. County Rural Residential use is located southeast of the project, accessed by Stilson Canyon Road. To the west of the project site is undeveloped; however, a new Chico Unified School District Junior High School has been constructed on Humboldt Road, west of Bruce Road. Land to the northeast and east of the site is vacant and designated as open space.

Land Use Patterns and Relationships

Approximately 10,300 acres (45 percent) of land within the City of Chico Sphere of Influence (SOI) are urbanized and include residential, commercial, airport and industrial uses. Open space/recreation areas comprise 4,000 acres (mainly Bidwell Park). An additional 6,730 acres are vacant and 5,910 acres are devoted to agriculture, grazing and rural residential uses.³ The predominant urban land use in Chico is residential, with low-density development constituting almost 90 percent of the total residential land use.

According to the City of Chico Master Environmental Assessment (MEA), the City urban area has expanded from the original downtown core to the north, east and south, while agricultural lands are west of the City. The areas to the north, east and south are under development pressure because they are located along a major transportation corridor (SR 99), and the County of Butte and City of Chico have established a "greenline" on the western boundary of the City to preserve agricultural soils and use.



REGULATORY CONTEXT

City of Chico General Plan

The City of Chico last completed a comprehensive update of the General Plan in 1994. The General Plan update included the preparation of the MEA and an update of the following general plan elements: Land Use Element, Transportation Element, Parks, Public Facilities and Services Element, Open Space and Environmental Conservation Element, Safety and Safety Services Element, Noise Element, and the Housing Element. Two optional elements, the Economic Development Element and the Community Design Element, were also included in the update.

The General Plan supports the separation between urban development, agricultural uses, and natural areas. The Plan focuses on development through goals for conservation and preservation of natural and community resources. The Plan includes a variety of land uses including several residential land use designations (from rural to medium-high density residential development), land uses tailored to the downtown area, several commercial and industrial designations, and specific designations for public facilities and services, parks and creekside greenways, and open space uses. The City of Chico General Plan goals and policies that apply to the Project are listed under Impact 4.2-3, which discusses project consistency with City General Plan.

The site is designated Very Low Density Residential (RS-20), Low Density Residential (R-1), Medium Density Residential (R-2), Medium-High Density Residential (R-3), and Community Commercial (CC) by the City of Chico General Plan.

Butte County

Existing land uses in Butte County on lands outside the project site and boundaries of the Chico Sphere of Influence are primarily agricultural and rural residential. Lands northeast and east of the Sphere of Influence are used for seasonal grazing of livestock and are designated as Grazing and Open Lands by the Butte County Chico Area Land Use Plan.⁴ The area north of the Sphere of Influence, east of SR 99 and south of Rock Creek is developed as rural residential land use interspersed with orchards, field crops, and grazing land and is designated as Agricultural Residential. Lands along the eastern boundary of the portion of the Sphere of Influence that includes Chico Municipal Airport are also designated Agricultural Residential. Lands along Butte Creek, east of the Sphere of Influence, are also developed with rural and low-density residential land uses.

IMPACTS AND MITIGATION MEASURES

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Land Use

Existing and planned land uses in the project area have been identified based on a site visit by EIP Associates staff and information provided by the City of Chico Planning Division. The land use evaluation is based on a qualitative comparison of existing and proposed uses on the site and their

compatibility with existing and planned land uses as defined in the City's General Plan. The 43-acre portion of the subdivision is analyzed at a project-specific level of detail, while the Conceptual Master Plan is analyzed programmatically.

The planned use under the Proposed Project includes the conversion of the 43-acre portion of the subdivision from approximately 34 acres of open space to urban uses, while providing for approximately 9 acres (21 percent of the project site) of buffers, setbacks, and open space. Implementation of the full Project would convert approximately 253 acres of undeveloped land to urban uses. Approximately 87.5 acres of the total 340 acres (26 percent of the project site) would be designated as open space for resource protection and passive recreation use. In addition, a portion of the homes would be designed to conform to the natural topography of the site to minimize the loss of trees, and preserve other unique natural and historic features present on the site. Development along Dead Horse Slough would be set back 100 feet on both sides, including a 75-foot setback from the creek for environmental conservation and an additional 25-foot setback for a proposed pedestrian and/or bike trail. The open space along the slough would be expanded to include the adjacent trees on the appropriate sections of the slough.

Some of the residential units would be designated in clusters, consistent with the policies for Special Development Areas set forth in the Chico General Plan. Greenbelts to preserve open space, existing oak trees, and scenic vistas are also proposed. The applicant has prepared a Resource Management, Monitoring, and Reporting Plan to provide the necessary elements for the Project site's RMA designation (see Section 4.8, Biological Resources).

Consistency with the General Plan

The 1994 City of Chico General Plan was reviewed to assess the degree to which the Project conforms to the goals, objectives, and policies set forth in the General Plan. Implementation of the Project would not result in a change to the existing land use designations.

The Project is consistent with the General Plan, and the project would not result in development of open space beyond the level anticipated by the 1994 General Plan and accompanying EIR. Potential physical or environmental impacts related to the development of the project site are discussed in the relevant sections of this EIR.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative land use impacts are considered significant if implementation of the Project would:

- result in conversion of undeveloped open space to more intensive land uses;
- result in a use substantially incompatible with the existing surrounding land uses;
or
- conflict with adopted plans, policies, and goals of the community.

4.2-1 The Project would be compatible with adjacent land uses.

43-Acre Portion of the Subdivision

Based upon a general comparison of the existing land uses in the Plan Area, no potential incompatibilities were identified. Adjacent land use designations are shown in Figure 4.2-1. The 43-acre portion of the subdivision proposes single- and multi-family residential land uses on existing open space on the western portion of the project site, north of Dead Horse Slough. Because the Project would be similar to surrounding existing and proposed development to the north, the 43-acre portion of the subdivision would be compatible with adjacent uses, and this would be a *less-than-significant impact*. Please see section 4.10, Hazards and Human Health, which includes a discussion of mitigation measures required throughout project development through project occupancy which would protect human health and the environment. Please see Impacts 4.10-1 through 4.10-4 for a complete discussion.

Conceptual Master Plan

Development of the proposed Conceptual Master Plan would include single-family, low-density residential, multi-family residential and community commercial land uses. The land uses on the properties in the general vicinity of the project site consist of low, medium and high density residential and vacant areas. The commercial development would be on the western edge of the project site, which is currently separated from residential development by SR 32. There are two- to three- story residential housing units to the northwest of the site, and open space around the project site to the north, east, and south. Because the proposed commercial use would be small scale, with a floor area ratio of approximately 0.25, because it would be physically separated from existing residential uses and is planned for local commercial use in the Chico General Plan, it is considered compatible with existing development.

The General Plan land uses proposed adjacent to the project site are similar in nature to the Project, single-family and medium density residential and open space for environmental Conservation/Safety with a resource management overlay zone. These uses are considered compatible with the proposed single-family and multi-family residential land use pattern for the Project. Therefore, the Project would result in a *less-than-significant impact*. Please see section 4.10, Hazards and Human Health, which includes a discussion of mitigation measures required throughout project development and project occupancy which would protect human health and the environment. Please see Impacts 4.10-1 through 4.10-4 for a comprehensive discussion.

Mitigation Measures

4.2-1 *None required.*

4.2-2 The Project could be inconsistent with the City's General Plan.

The City of Chico General Plan contains goals and policies for the development and maintenance of land uses in Chico. The General Plan consists of several elements, including Community Design and Land Use Elements. The following is a list of goals and policies from these two

elements that are relevant to the development of the project site. They are listed from the General Plan along with an analysis of the Project's consistency or inconsistency with each goal and policy.

Except where indicated, the analysis of each policy applies equally to the Conceptual Master Plan and the 43-acre portion of the subdivision.

Community Design Element Goals and Policies

2.1 City Form

CD-G-1 Reinforce the Compact Form of the City.

The proposed 43-acre portion of the subdivision and Conceptual Master Plan development would be consistent with this goal because the proposed development is within the City of Chico Sphere of Influence and within the 4-mile radius from the Chico downtown that forms a compact, focused ring around the center of town. The project also proposes smaller parcels and mixed-density Residential Use on the lower elevations of the project site with more open space and lower densities on the easterly portion of the project site. The site has been designated for urban uses and development in the General Plan, which assumed that development would occur on the site.

2.2 Continuity and Connection

CD-G-7 Design street and creekside improvements in consideration of their hierarchical role and function within the larger system.

The Project would be consistent with this goal because the area around the southern branch of Dead Horse Slough would maintain the Slough's function and be set aside as an open space area. Establishment of this open space area gives relative importance to the Dead Horse Slough corridor.

CD-G-8 Extend new street patterns that heighten the sense of the creeks and are connected to existing patterns of development.

The proposed configuration would be consistent with this policy because it would allow views and physical access to Dead Horse Slough and would preserve an area for a bike path and pedestrian walkway.

CD-G-11 Heighten the visual prominence of the creek corridors which help to establish a sense of orientation and identity within the City.

The proposed design of the Conceptual Plan would be consistent with this goal because it includes a 100-foot dedication on each side of Dead Horse Slough for a creekside greenway which would be a visible public resource.

CD-G-12 Open up creeks to public view and access.

The Project would be consistent with this goal because the project design includes preservation of visual corridors into the open space area around Dead Horse Slough. The proposed bike path would make the open space accessible and visible to the public.

CD-G-13 Extend the amenity value of the creeks.

The Project would be consistent with this goal because Dead Horse Slough would be preserved as public open space and made accessible with a bike path.

2.3 Neighborhood conservation and development

CD-G-18 Encourage positive transitions in scale and character where new development and extensive expansion of existing buildings are proposed.

While many of the proposed neighborhood amenities are unknown at this time, the project design follows the General Plan Foothill policies to keep densities low on the eastern portions of the property with greater densities with clustering and smaller lots to the west. Additionally, the conceptual plan includes an interior street plan which provides connection and continuity (see also Section 4.9, Aesthetics and Visual Quality). There are no existing buildings on or adjacent to the project site.

2.6 New residential neighborhoods

CD-G-45 Create new neighborhoods that have a human scale and are oriented to the pedestrian.

The Project would be consistent with this goal because sidewalks would be provided through this project, including a path along Dead Horse Slough. The length of the blocks are not too long, nor streets excessively wide, to discourage pedestrian use. The small lot/cluster design can also provide human scale.

CD-G-46 Establish clean and distinctive neighborhood edges, organized around larger streets and natural features such as streams or creeks.

The Project would be consistent with this goal because the development area is bordered distinctively by existing streets to the south, west, and north, and by the existing 500 kV line to the east.

CD-G-47 Mark major entries to neighborhoods, but prohibit the use of high walls and gated entries which isolate areas from one another and create an unfriendly appearance.

The Project would be consistent with this goal because there are no plans for gated or restrictive entrances into the neighborhood. The only area where sound walls might be constructed is along State Highway 32 (see Section 4.5, Noise). The highway already divides the project site from neighborhoods to the north, and soundwalls would not substantially alter this existing condition.

CD-G-48 Establish a central focus of activity within each neighborhood.

The Project would be consistent with this goal because the project would maintain the corridor along Dead Horse Slough as open space, and Dead Horse Slough would be a focal point of the project site.

- CD-G-49 Encourage a fine-grained and integrated pattern of streets that provides continuity, focus, diversity, and a human scale.

The Project would be consistent with this goal because the proposed plan for streets within the development connects to existing streets and accommodates connections to planned streets.

- CD-G-50 Encourage the continuity of streets between neighborhoods.

The proposed plan for streets within the development connects to existing streets and accommodates connections to planned streets. The Project would be consistent with this goal.

- CD-G-51 Orient neighborhoods and individual residential and commercial buildings positively to the street, not away from it.

43-Acre Portion of the Subdivision

The proposed 43-Acre portion of the Subdivision project would be consistent with this goal because residential structures would be oriented toward the street.

Conceptual Master Plan

The orientation of the residential units and the commercial uses (proposed for the Conceptual Master Plan only) is unknown at this time, and will be subject to further review.

- CD-G-52 Establish a hierarchy of streets, open spaces and community buildings that can be used to help provide structure and orientation to the neighborhoods and districts.

The proposed development would be consistent with this goal because the trails, roadways, and open spaces within the development site provide connections through and to adjacent residential neighborhoods, open space areas, and parks. No community buildings are planned for the proposed development.

- CD-G-53 Design streets with a priority on neighborhood structure and pedestrian scale.

The Project would be consistent with this goal because street configuration allows for easy connection and circulation through the development, either by auto or for pedestrians.

- CD-G-54 Integrate special features as landmarks to heighten a sense of orientation within new residential neighborhoods.

The Project would be consistent with this goal because the existing Dead Horse Slough would be maintained with a bike and pedestrian path open space area on either side.

CD-G-55 Encourage tree planting.

A street planting program would be required with this project, which would be consistent with this goal. In addition, many existing oaks would be preserved in open space and/or view corridors.

CD-G-57 As part of the planned development process, encourage the design of buildings that are oriented to the pedestrian and create positive transitions to the street.

The building design is unknown at this time and will be subject to future review.

CD-G-58 Establish high standards for small-lot design in projects approved through the planned development process.

The building design is unknown at this time and will be subject to future review.

CD-G-62 Encourage some diversity in parcel and house sizes, but with careful transition between densities in projects approved through the planned development process.

The Project provides for residential lot sizes from approximately 4,000 square feet to 20,000 square feet. The higher densities (R-2 and R-3) are planned for the western portion of the project site, closest to the existing urbanized land uses. The lower densities (R-1 and R-20) are planned for the eastern portion, with the very lowest densities adjacent to the eastern boundary, providing a transition to the open space to the east. The Project will be subject to a planned development use permit process. Therefore, the Project is consistent with this policy.

Guiding Policies: Growth and Physical Expansion

LU-G-3 Ensure that new development is at an intensity to ensure a long-term compact urban form.

The Project would be consistent with this goal because the proposed development is within the City of Chico Sphere of Influence and within the 4-mile radius from the Chico downtown that forms a compact, focused ring around the center of town. The site has been designated as a special development area in the General Plan .

LU-G-4 Maintain long-term boundaries between urban and agricultural uses in the west, and urban uses and the hillside in the east, and limit expansion north and south to maintain compact urban form. The hillside is generally defined as the area where oak woodland habitat begins, approximately the 300-foot contour in all areas, except in the Northeast where it is defined by the 250-foot contour (see Figure 7-1 in the Open Space and Environmental Conservation Element). Multiple approaches to restrict urbanization outside the City's sphere of influence will be used, including large-lot zoning and possibly acquisition of land for a greenbelt.

The Project would be consistent with this goal because it is part of the planned expansion of new developments in Chico. Further, the Project would extend urban development to the east, rather than the north or south.

Guiding Policies: Residential Land Use

LU-G-7 Encourage new residential growth in the form of neighborhoods.

The Project is planned to provide development in the form of neighborhoods.

LU-G-9 Allow and encourage small-lot single-family housing development in new and existing neighborhoods to provide compact development and efficient infill. In addition to the benefit of affordability, small-lot housing increase opportunities to conserve land and protect environmental sensitive areas and can provide a positive aesthetic quality as characterized by Chico's older neighborhoods.

The Project includes medium-density uses with relatively small parcels (minimum of 3,500 square feet), as well as multi-family units. The project site is not adjacent to any of Chico's older neighborhoods.

LU-G-10 Improve the community orientation of new residential developments. A community orientation calls for greater attention to the relationship between residences, streets and shared spaces, and does not require sacrifice of privacy or amenities. Gated neighborhoods isolate parts of the community from others and will not be allowed.

The Project would be consistent with this goal because the design of the neighborhood would include open community space along Dead Horse Slough, which runs the length of the project site. This shared open space within the project area would foster a sense of community among the future residents. Gated neighborhoods are not proposed.

Summary

As discussed above, the Project would be generally consistent with the City of Chico General Plan policies and goals. However, consistency cannot be determined for all applicable goals and policies, because the project's building design is not known as it is proposed at the subdivision stage. This is considered a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on compatibility between land uses to a *less-than-significant level*.

4.2-2 *Prior to recordation of the Final Map(s), the Community Development Department shall review Design Standards provided by the applicant to ensure that building design will meet the following standards:*

- *buildings are oriented to the pedestrian and create positive transitions to the street (CD-G-57), and*
- *small-lot design will be of high quality (CD-G-58) (43-acre portion of the subdivision and Conceptual Master Plan).*

In addition, the Conceptual Master Plan must meet the following standard:

- *neighborhoods and buildings are oriented to the street (CD-G-51) (Conceptual Master Plan).*

These measures would reduce the Project impact by ensuring that project design is consistent with the City's General Plan.

Cumulative Impacts and Mitigation Measures

The cumulative context for land use impacts is buildout of the City's General Plan. Consistency with General Plan policies and compatibility with adjacent land uses are site-specific, and are not affected by cumulative development. Therefore, they do not have cumulative impacts.

ENDNOTES

1. City of Chico, *Draft Environmental Impact Report, Humboldt Road Burn Dump Restoration Project*, September 9, 1997, page 2-1.
2. City of Chico, *City of Chico General Plan*, November 1994, Figure 7-1.
3. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 3-1.
4. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 3-12.

4.4 AIR QUALITY

4.4 AIR QUALITY

INTRODUCTION

This section describes the environmental setting of the Northern Sacramento Valley as it pertains to air quality, identifies sources of air pollutant emissions, summarizes current air quality in the project vicinity, and discusses relevant regulatory information. Potential emissions from the construction and operation of the Project are evaluated. Specific emissions that are addressed are dust, ozone (O₃), ozone precursors (NO_x and ROGs) and PM₁₀ (particulate matter less than 10 microns in diameter), and carbon monoxide (CO). Where appropriate, mitigation measures to reduce emissions are identified. Potential effects on air movement, moisture, temperature, change in climate, and the creation of odors or toxic air contaminants were evaluated in the Initial Study and were determined to result in no impact (please see Appendix A). Therefore, these issues are not addressed further in the EIR.

Information contained in this section has been derived from the recently adopted *City of Chico General Plan* and EIR, the accompanying *Master Environmental Assessment* (MEA), and communications with representatives of the Butte County Air Quality Management District.

ENVIRONMENTAL SETTING

Ambient air quality is commonly determined by climatological conditions, the area's topography, and the quantity and type of pollutants released. The following section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant buildup and dispersion in the Chico area. The environmental setting also discusses the sources, types, and health effects of the air pollutants.

Climate and Topography

The project site is located in the Northern Sacramento Valley Air Basin (NSVAB) within the jurisdiction of the Butte County Air Quality Management District (BCACMD). The NSVAB includes seven counties: Shasta, Tehama, Glenn, Butte, Colusa, Sutter, and Yuba. The concentration of air pollutants within the NSVAB varies on a daily basis depending on several factors including climate, topography, and airflow.

The NSVAB is bounded on the north and west by the Coast Mountain range and the southern Cascades, and the northern portion of the Sierra Nevada. Mountain ranges tend to buffer the NSVAB from the marine weather systems that originate over the Pacific and are drawn inland

by the jet stream. Weather in the Chico area is characterized by summers that are typically hot and dry, and winters that are mild and wet. Summer temperatures range from an average low of 70°F to an average high of 90°F with temperatures in excess of 100°F being fairly common. This high average summer temperature, combined with very low relative humidity, produces hot, dry summers which contribute to ozone buildup. The winter season is characterized by overcast days and lengthy periods of rain and drizzle. Winter temperatures range from an average low of 40°F to an average high of 57°F, with occasional overnight freezing temperatures. During winter months CO accumulation is of concern. Annual precipitation averages 26 inches, and 90 percent falls from November through April.

Pollution problems typically occur during the summer months due to frequent strong temperature inversions that trap pollutants near the earth's surface. Surface inversions are formed when the air close to the surface cools more rapidly than the warm layer of air above it. Elevated inversions occur when a layer of cool air is suspended between warm air layers above and below it. Inversions result in air stagnation, the formation of O₃ and increased levels of CO. These stagnant air conditions can last for weeks at a time. Air pollutants accumulate under and within inversions, subjecting people in the region to elevated pollution levels and ensuing health concerns.

Airflow in this region can be characterized by sea breezes occurring in the spring and summer months from flows originating in the southern portion of the valley. These breezes can transport pollution from the broader Sacramento area and from the San Francisco Bay area air basin to the NSVAB. During the fall and winter months, winds are generally calm with occasional northerly or southerly wind flow patterns dominating the mid-day hours.

Site Characteristics

The project site is currently undeveloped and is not located near or adjacent to any stationary air sources. A portion of the site is subject to a remediation plan to remove contamination associated with prior operations. Please see Section 4.10, Hazardous and Human Health, for more information on the status of the remediation efforts.

Criteria Air Quality Standards and Existing Concentrations

Currently, most of the effort to improve air quality in the United States and California is directed toward the control of five pollutants, called "criteria" air pollutants: photochemical oxidants (ozone), CO, PM₁₀, nitrogen dioxide (NO₂), and sulfur dioxide (SO₂). Pollutants subject to federal ambient standards are referred to as "criteria" pollutants because the U.S. Environmental Protection Agency (U.S. EPA) publishes criteria documents to justify the choice of standards. The federal and State standards for the criteria pollutants of greatest concern in the NSVAB (O₃, CO, and PM₁₀) are provided in Table 4.4-1. Table 4.4-2 provides a summary of the health effects associated with major air pollutants. Specific air quality regulations are discussed below.

TABLE 4.4-1				
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS				
Pollutant		Averaging Time	Federal Standard	California Standard
Ozone		1-hour	0.12 ppm	0.09 ppm
		8-hour	0.08 ppm*	
Carbon Monoxide		1-hour	35.0 ppm	20.0 ppm
		8-hour	9.5 ppm	9.0 ppm
Particulate Matter	PM10	24-hour	150 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
		Annual	50 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$
	PM2.5	24-hour	50 $\mu\text{g}/\text{m}^3$ *	
		Annual	15 $\mu\text{g}/\text{m}^3$ *	
ppm = parts per million $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter * Standard not yet in effect Sources: US EPA, California Air Resources Board, 1999.				

TABLE 4.4-2	
HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS	
Air Pollutant	Adverse Effects
Ozone	eye irritation respiratory function impairment
Carbon Monoxide	impairment of oxygen transport in the blood stream, increase of carboxyhemoglobin aggravation of cardiovascular disease impairment of central nervous system function fatigue, headache, confusion, dizziness can be fatal in the case of very high concentrations in enclosed places
Sulfur Dioxide	aggravation of chronic obstructive lung disease increased risk of acute and chronic respiratory illness
Nitrogen Dioxide	risk of acute and chronic respiratory disease
Suspended Particulates	increased risk of chronic respiratory disease with long exposure altered lung function in children with SO ₂ , may produce acute illness particulate matter 10 microns or less in size (PM ₁₀) may lodge in and/or irritate the lungs
Source: California Air Resources Board, 1999.	

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refers to specific population groups as well as the land uses where they would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses are residences, schools, playgrounds, child care centers, retirement homes or convalescent homes, hospitals, and clinics. Areas sensitive to air pollutants in or near the project area include residential areas, schools, and elderly care facilities. Other sensitive areas include the nearest right-of-way where children and the elderly have continuous access to areas such as sidewalk areas or parks.

The formation, health effects, ambient air pollutant concentrations, and classifications of the three key criteria pollutants in the NSVAB are discussed below.

Ozone

Ozone is a colorless gas with a pungent odor. Ozone causes eye irritation and respiratory function impairment. Most ozone in the atmosphere is formed as a result of the interaction of ultraviolet light, reactive organic gases (ROG), and oxides of nitrogen (NO_x). ROG is composed of nonmethane hydrocarbons, and NO_x is made of different chemical combinations of nitrogen and oxygen, mainly NO and NO_2 . Motor vehicle emissions are the primary source of ROG and NO_x . A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_x levels are present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because of these reactions occur on a regional scale, ozone is considered a regional pollutant.

Carbon Monoxide

CO is an odorless, colorless, gas produced almost entirely from vehicle exhaust. CO causes a number of health problems including fatigue, headache, confusion, and dizziness. CO is also produced during the winter from wood stoves and fireplaces. CO tends to dissipate rapidly into the atmosphere; consequently, violations of the CO state standard are generally limited to major intersections during peak hour traffic conditions. The NSVAB is designated "attainment" for State CO standards and has recently been redesignated to attainment under the federal standards.

Particulate Matter Less Than Ten Microns (PM_{10}) and Less than 2.5 Microns ($\text{PM}_{2.5}$)

PM_{10} consists of atmospheric particles resulting from fume-producing industrial and agricultural operations, construction related activities, and natural activities. Health impacts from inhaling particulates resulted in revision of the Total Suspended Particulate (TSP) standard to reflect particulates that are small enough to be considered "inhalable", i.e., 10 microns or less in size. Current standards define acceptable concentrations of particulates that are smaller than 10 microns in diameter, referred to as the PM_{10} .

In June of 1997 the EPA adopted new PM_{10} federal standards. The EPA changed the standard for suspended particulate matter from PM_{10} to particulate matter less than 2.5 microns ($PM_{2.5}$). Although these new standards have been adopted, air quality monitoring data is not available for new measurements.

Toxic Air Contaminants

In addition to the criteria pollutants, another group of substances, called Toxic Air Contaminants (TACs), are known to be highly injurious, even in small quantities. TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness). There are hundreds of substances that can be toxic when inhaled, but air quality standards have not been set for most of them.

TACs can be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations and painting operations. Natural source emissions include windblown dust and wildfires. Farms, construction sites, and residential areas can add to air toxic emissions. Research facilities can also be a source of toxic air contaminants. TACs include both organic and inorganic chemical substances. Examples include certain chlorinated hydrocarbons, such as solvents, certain metals such as lead, and asbestos.

Lead is primarily generated by industrial sources and is present in the atmosphere in particulate form. However, it can also be present in soils where old landfills or burn dumps are present.

TAC differ from criteria air pollutants in that established national or state ambient standards do not exist for these pollutants. Rather, a health risk assessment (HRA) is typically used to analyze potential TAC impacts. The HRA is typically prepared pursuant to applying for a permit from the local air districts.

For a discussion of lead in site soils, and related air quality issues see Section 4.10, Hazards and Human Health.

Air Quality Monitoring

To determine whether the ambient air pollutant concentrations in the project vicinity can cause health effects, ambient air pollutant concentrations must be measured. Two ambient air pollutant monitoring stations within the City of Chico are located at Manzanita and Salem Streets. Data from the Manzanita monitoring station were used in this analysis because it measures both gas and particulate matter. Data from the Salem Street station were not used because the station is located farther from the project site and does not include complete measurements for all significant air pollutants. After air pollutant concentration data are collected, the data are used for classifying and quantifying criteria air pollutants in each air basin, county, or in some cases within a specific urbanized area by comparing actual monitoring data with State and federal standards. If a pollutant concentration is lower than the standard, the pollutant is classified as "attainment" in that area. If an area exceeds the standard, the pollutant is classified as "non-attainment." If there are not enough data available to determine whether an area is exceeding the standard or not, the area is designated "unclassified."

Table 4.4-3 presents a three-year summary of air pollutant concentration monitoring data collected at the Manzanita monitoring station in Chico. Pollutant concentrations measured at this station is generally representative of background air pollutant concentrations in the project vicinity. State standards, which are more stringent than federal standards, were used to determine the attainment status of criteria air pollutants in the project vicinity. As summarized in Table 4.4-3, the project site is currently in non-attainment for O₃ and PM₁₀ under State regulations.

TABLE 4.4-3				
AIR POLLUTANT SUMMARY FOR PROJECT VICINITY 1995-1997				
Pollutant	State Standard	1995	1996	1997
Ozone(O₃)¹				
Highest 1-Hour average concentration ppm	0.09	0.11	0.11	0.09
Number of violations ³		1	2	0
Carbon Monoxide(CO)¹				
Highest 1-Hour average concentration ppm ²	20	6	5	7
Highest 8-Hour average concentration ppm ²	9.0	3.8	3.4	3.9
Number of violations		0	0	0
Suspended Particulate Matter (PM₁₀)¹				
Highest 24-Hour average concentration ²	50	64	66	108
Annual Geometric Mean	30.0	25.0	22.0	21.5
¹ Monitoring data is from the Manzanita monitoring station ² ppm: parts per million Ug/m3: micrograms per cubic meter ³ For ozone, "Number of violations" refers to the number of days in a given years during which violations of the standard were recorded.				
Bold type indicates recorded value exceeded State standard				
SOURCE: California Air Resources Board, Air Quality Data Summary, 1995-1997.				

REGULATORY CONTEXT

Federal

The federal Clean Air Act (CAA) required the U.S. EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the six "criteria" air pollutants: O₃, CO, NO₂, SO₂, and lead (Pb), so-called because the standards were based on a health criteria document. The State of California has established its own set of ambient air quality standards (CAAQS).

The CAA requires an air quality control plan, referred to as the State Implementation Plan (SIP) be prepared by each state. The CAA of 1990 requires states containing areas in violation of the NAAQS to revise their SIPs to incorporate additional measures to reduce air pollutants. The most recent update to the California SIP was approved by the U.S. EPA in September 1996.

In addition to the criteria air pollutants, many other substances are known or suspected to be highly injurious to human health. Adverse health effects can manifest themselves as acute and/or debilitating symptoms after a short-term heavy dose or through the development of various cancers after long-term low-level exposure. The U.S. EPA has established a list of over 400 "extremely hazardous" substances and has promulgated emission standards (known as National Emissions Standards for Hazardous Air Pollutants or NESHAPS) for nine of these compounds (i.e., arsenic, asbestos, benzene, beryllium, cadmium, coke oven emissions, mercury, radio nuclides, and vinyl chloride).

In July of 1997, the U.S. EPA adopted new O₃ and particulate matter federal standards that are an addition to the existing standards. The EPA changed the 1-hour O₃ federal standard of 0.12 ppm to an 8-hour standard of 0.08 ppm. The U.S. EPA also adopted an additional standard for suspended fine particulate matter of 2.5 microns (PM_{2.5}). According to information provided by U.S. EPA, designations for the new PM_{2.5} standards by the U.S. EPA will begin in the year 2002 with attainment plans due by 2005 for regions that violate the standards. Although these new standards have been adopted, air quality monitoring data is not available for the new measurements. Therefore, the evaluation of air quality impacts in this section refers only to the pre-July 1997 standards. Butte County is currently designated as attainment for federal PM₁₀ standards and non-attainment for State PM₁₀ standards.

State

The State of California has established its own set of ambient air quality standards (CAAQS) that are generally more stringent than the corresponding NAAQS. The California Clean Air Act (CCAA), which became effective on January 1, 1989, provides a planning framework for attaining the CAAQS. Non-attainment areas in the State were required to prepare plans for attaining these standards. The CCAA provided for the classification of regions within the State into three classes depending upon the findings of the attainment plans: moderate, if CAAQS attainment could not be demonstrated before December 31, 1994; serious, if CAAQS attainment could not be demonstrated before December 31, 1997; and severe, if CAAQS attainment could not be demonstrated at all. For each class, the CCAA specifies attainment strategies that must be adopted. For all classes, attainment plans are required to demonstrate a five percent per year reduction in the emissions of non-attainment pollutants or their precursors, unless all feasible measures are being employed.

The California Air Resources Board (CARB) coordinates and oversees both State and federal air pollution control programs in California. As part of this responsibility, the CARB monitors existing air quality, establishes CAAQS, and limits allowable emissions from vehicular sources. The CARB has divided the State into many air basins. Regulatory authority within them has been given to local Air Pollution Control Districts (APCDs) and Air Quality Management Districts (AQMDs) that regulate stationary source emissions and develop local air quality attainment plans.

California has designated several substances (e.g., arsenic, asbestos, benzene, cadmium, carbon tetrachloride, chlorinated dioxins and furans, chloroform, hexavalent chromium, ethylene dichloride, ethylene dibromide, ethylene oxide, methylene chloride, vinyl chloride, and nickel) as "toxic air contaminants" (TACs) and is continuing to review numerous others under the process established by AB 1807 (Tanner). The CARB identified inorganic lead as a TAC in 1997.

Regional

Butte County Air Quality Management District

As specified in the California Clean Air Act of 1988 (CCAA), it is the responsibility of each air pollution control district within the State to attain and maintain California's ambient air quality standards. At the regional level, the Butte County Air Quality Management District (BCAQMD) regulates most stationary air pollutant sources within the county, and is involved in planning activities intended to help achieve future attainment of the CAAQS. In response to CCAA requirements, the APCD developed an attainment plan, entitled *The Air Quality Attainment Plan (AQAP)*. The AQAP is formatted to reflect the baseline inventories (for the year 1990) of ROG, NO_x, CO, SO₂, and PM₁₀ emissions throughout the County. The plan is required to be updated every three years. The 1997 update is the latest version of the plan with the next update scheduled for the year 2000.

As indicated in Table 4.4-4, Butte County is currently designated as non-attainment for PM₁₀ and transitional/non-attainment for ozone under the State standards. As of 1999, the county is attainment for federal PM₁₀ designation, and unclassified for federal 8-hour ozone designation, and attainment for federal CO designation.

The BCAQMD has adopted various rules and regulations to reduce the generation of criteria air pollutants within the County. Included among adopted rules and regulations is Rule 207 which has been created to reduce the amount of fugitive dust/PM₁₀ emissions generated within the air district. Provisions of Rule 207 that are relevant to the Project are reproduced below.

Rule 207 Fugitive Dust Emissions

A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being air borne beyond the property line from which the emission originates; from any construction, handling or storage activity; or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

- A. Use where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction of roadways, or the clearing of land;
- B. Application of asphalt, oil, water or suitable chemicals on dirt roads, materials, stockpiles, and other surfaces which can give rise to airborne dusts;
- C. Other means approved by the Air Pollution Control Officer.

TABLE 4.4-4

BUTTE COUNTY ATTAINMENT STATUS DESIGNATIONS

Pollutant	Federal Designation	State Designation
1-hour Ozone	Non-attainment	Transitional non-attainment
Carbon Monoxide (CO)	Attainment	Attainment
Particulate Matter (PM ₁₀)	Unclassified	Non-attainment
Nitrogen Dioxide (NO ₂)	Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Sulfates	No federal standard	Attainment
Lead (particulates)	No federal standard	Unclassified
Hydrogen Sulfide	No federal standard	Unclassified
¹ EPA has revoked the 1-hour ozone standard for Butte County. ² Air quality designation for PM _{2.5} is expected in 2001. Source: CARB, November 19, 1999.		

Local**City of Chico General Plan**

Relevant Guiding and Implementing policies from the City of Chico's General Plan's Open Space and Environmental Conservation Element¹ are as follows:

OS-G-2 Encourage mixed-use and pedestrian-oriented development and circulation systems that promote use of alternatives to the automobile for transportation, including bicycles and bus transit, along with car pooling.

Increased use of transit and car pooling, coupled with land use and circulation patterns that promote walking and bicycle use, can lead to a decrease in daily trips, less emissions, and improved air quality.

OS-G-3 Promote the use of trees and plants in landscaping to reduce air pollutant levels.

OS-I-2 In new subdivisions with more than 200 dwelling units, require internal street design to include the installation of dedicated pedestrian/bicycle pathways connecting to adjacent residential and commercial areas as well as schools, parks and recreational areas. Bike paths and dedications would be required where allowed by law, as well as connecting paths from internal streets as a condition of development.

OS-I-8 Require applicants whose development would result in construction-related fugitive dust emissions to control such emissions as follows:

- During clearing, grading, earth-moving, or excavation operations, fugitive dust emissions shall be controlled by regular watering, paving of construction roads, or other dust-preventive measures.
 - All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.
 - All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 15 mph averaged over 1-hour.
 - All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
 - The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times.
 - Portions of the construction site to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown.
 - All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.
- OS-I-9 Require applicants whose development would result in construction-related exhaust emissions to minimize such emissions by maintaining equipment engines in good conditions and in proper tune according to manufacturer's specifications and during smog seasons (May through October) by not allowing construction equipment to be left idling for long periods.
- OS-I-11 Continue to require that all wood burning devices installed in any residence built in a new subdivision or housing development be EPA Phase-II certified or meet EPA standards applicable at the time of project approval.
- OS-I-13 Low-NO_x water heaters shall be installed in any new residence built within the project area.
- OS-I-14 All new construction shall comply with the energy efficiencies mandated by Title 24 construction requirements. New facilities will be substantially more energy efficient than the facilities they replace or existing units, even at higher densities.

The CCAA requires that an Attainment Plan be developed by all non-attainment districts for O₃, CO, SO_x, and NO_x. The Butte County Air Quality Management District (BCAQMD) was formed to monitor the generation of criteria pollutants from stationary sources as well as assist in bringing Butte County into compliance with State and Federal air quality standards.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

Air quality emissions generated by the Project were analyzed for two separate scenarios. The first scenario consists of the development of the 43-acre portion of the subdivision while the second scenario consists of the entire Conceptual Master Plan. Information for the ultimate

operation and construction associated with the Master Plan was not available at the time of this analysis. Consequently, all air quality impacts associated with the Master Plan are discussed qualitatively. Specific information for development of the 43-acre portion of the subdivision is available, and potential air quality emissions associated with this development were quantified using the URBEMIS7G version 3.1 emissions estimation model (see Appendix J).

Model inputs for the Project were obtained from the City of Chico. The anticipated year for build out is 2005. Model outputs presented represent a worst-case analysis since in most cases the default values within the model were used. Specific model inputs are discussed within each identified impact.

URBEMIS7G has been enhanced from the previous URBEMIS5 modeling program to include the CARB's most recent motor vehicle emission factor model, and mitigation measures for construction emissions, area sources, and motor vehicle trips. URBEMIS7G also includes updated trip generation rates based on equations included in the Institute of Transportation Engineers (ITE) Trip Generation Manual Version 5.0 (Institute of Transportation Engineers 1991).

Construction

Project-related air quality impacts fall into two categories: short-term impacts due to construction and long-term impacts due to project operation. Impacts in each category can be classified as having effects on a regional or local scale. Construction activities resulting in the generation of PM_{10} pollution would be the primary short-term source of additional air pollutants resulting from grading activities.

Construction equipment usage rates, site grading area, and acreage of asphalt for the 43-acre portion of the subdivision were based on information obtained from the applicant engineer. The URBEMIS7G default emission rate of 220 pounds of PM_{10} /acre/month was used to calculate fugitive dust emissions due to construction activity, and the default ROG emission rate of 2.62 pounds/acre was used to derive asphalt paving emissions. In addition, the URBEMIS7G default emission factors for diesel-powered construction equipment were used. Construction worker vehicle trips were derived by relying on the URBEMIS7G defaults as well (see Appendix J).

Area Source Emissions

To determine long-term air emissions resulting from the Project, the URBEMIS7G emissions estimation model, developed by the San Joaquin Unified Air Pollution Control District was used. Area-source emissions for five categories of emission sources were estimated. Four of these five categories are fuel combustion related: natural gas, wood stoves, fireplaces, and landscape maintenance. The fifth, consumer products, includes only reactive organic compound emissions released through the use of products such as hair sprays and deodorants. Given the location of the Project, it was assumed that 1.0 cords of wood/year/residential unit would be burned. However, the URBEMIS7G model defaults were used for fireplaces and woodburning stoves, since project-specific information regarding ultimate development of the homes is not yet available. The emission factors used by URBEMIS7G to estimate area-source emissions are

described in detail in Appendix B, of the URBEMIS7G Computer Program User's Guide. Mitigation measures and percentage emission reduction for ROG, NO_x, PM₁₀, and CO were included in the resulting area-source emissions. Land use inputs to the model were based upon information obtained from the applicant engineer.

Vehicle Source Emissions

The following five pieces of information were used to estimate vehicle source emissions: vehicle fleet percentages, target year, trip characteristics, temperature data, and variable starts. URBEMIS7G automatically estimates motor vehicle emissions for both winter and summer of the target year. The target year used in the model is 2005.

The BCAQMD Indirect Source Review Guidelines (ISRG) were adopted by the Air Quality Management Board on March 20, 1997. The city uses these guidelines as a policy document. An indirect source is defined by the BCAQMD as "any building, facility, structure or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant for which there is a state or federal ambient air quality standard." The BCAQMD has approved the methodology contained in the Sacramento Metropolitan Air Quality Management District's (SMAQMD) *Air Quality Thresholds of Significance* guidelines to calculate construction-related emissions. The quantitative thresholds used to analyze the short- and long-term impacts of mobile and source and construction-generated emissions are found in the Butte County ISRG and are used as the Standards of Significance for this project.

Standards of Significance

A significant air quality impact would result if the Project would:

- exceed the following action-level thresholds (thresholds) from the Butte County Air Quality Management District's *Indirect Source Review Guidelines*:
 - ROG: 137 pounds/day;
 - NO_x: 137 pounds/day; and
 - PM₁₀: 137 pounds/day.
- expose sensitive receptors to substantial pollutant concentrations.

Project Impacts and Mitigation Measures

4.4-1 Construction of the Project would generate criteria air pollutants which exceed the BCAQMD thresholds.

Construction emissions originate from earth moving and site preparation activities, fuel combustion from equipment and machinery, construction employee commute trips, asphalt ROG emissions and architectural coatings. Earth moving and site preparation activities result in the production of dust and the generation of PM₁₀. Construction equipment is primarily diesel

powered and generates excessive amount of NO_x that contributes to the formation of O_3 . Architectural coatings and asphalt paving generate ROG emissions that also contribute to the formation of O_3 .

Construction activities related to project area buildout could potentially generate substantial quantities of fugitive dust/ PM_{10} . Fugitive/ PM_{10} emissions would vary from day to day depending on the level of construction activity, the silt content of the soil, and the prevailing weather. A larger portion of the dust emissions associated with a particular stage of project development would result from equipment traffic over temporary dirt roads within the construction site. Other sources of dust emissions associated with project development would include excavation, earth movement, grading and wind erosion from exposed surfaces. In addition to the fugitive dust/ PM_{10} , the use of construction equipment, architectural equipment, architectural coatings and asphalt, and construction worker vehicles would generate ROG and NO_x emissions, which would contribute to regional O_3 problems.

The timing and size of the individual development projects will determine the magnitude of their impact on air quality. Construction emissions generate short-term impacts, and the magnitude of these impacts is dependent upon the extent of construction activities. Larger and more intense development requires more construction vehicles and hence generates more emissions.

43-Acre portion of the Subdivision

As shown in Table 4.4-5, construction-related emissions would exceed thresholds for NO_x and ROG. PM_{10} would be generated primarily from fugitive dust created during grading activities; however, the amount of PM_{10} generated from the 43-acre portion of the subdivision would not exceed BCAQMD thresholds. Exhaust from construction vehicles/equipment would release air pollutants such as ROG, CO, and NO_x . Vehicular emissions from construction workers traveling to and from the project site and asphalt application to the project site would also contribute to the generation of ROG and NO_x emissions. Because predicted ROG and NO_x emissions exceed BCAQMD thresholds, construction of the 43-acre portion of the subdivision would be considered a short-term *significant impact*.

TABLE 4.4-5					
PROJECT EMISSIONS IN POUNDS PER DAY(Lbs/Day)					
43-ACRE PORTION OF THE SUBDIVISION					
	BCAQMD Thresholds	Emissions			
		Short-term Construction Emissions	Operational Emissions		
			Area Source	Vehicles	Total Emissions
NO_x	137	529.44	56.71	50.79	107.5
ROG	137	182.25	265.28	38.27	303.55
PM_{10}	137	83.88	40.26	17.64	57.90
CO	N/A	3.18	555.96	322.05	878.01
Source: EIP-URBEMIS7G, December 1999.					

Conceptual Master Plan

The specifics of site design and project construction scheduling for development of the Conceptual Master Plan have not yet been established; therefore, construction-related emissions cannot be quantified. The magnitude of construction-related emissions would depend upon the scale and duration of construction activities. However given the size of the Project, construction emissions activities under the Conceptual Master Plan have the potential to exceed BCAQMD significance thresholds. Specifically, grading activities would generate fugitive dust/PM₁₀, operation of diesel construction equipment would generate NO_x, and architectural coatings and asphalt paving would generate ROG emissions. Therefore, implementation of the Conceptual Master Plan would generate criteria air pollutants, and this is considered a short-term *significant impact*.

Mitigation Measures

Implementation of the following mitigation measures and compliance with the Air District's *Rule 207 Fugitive Dust Emissions* would reduce construction-related criteria air emissions; however, not to a level below air emissions thresholds. Therefore, the impact would remain short-term *significant and unavoidable*.

- 4.4-1(a) *In accordance with Rule 207, apply nontoxic soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas). (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(b) *Provide temporary traffic controls (e.g., flag person) as appropriate during all phases of construction to improve traffic flow. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(c) *Schedule construction activities that affect traffic flow for off-peak hours. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(d) *Sweep streets at the end of the day if visible soil materials are carried onto adjacent public paved roads. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(e) *Properly maintain equipment and do not allow construction equipment to be left idling for long periods during smog seasons (May through October). (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(f) *Use low VOC asphalt, if available and feasible. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(g) *All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 15 mph averaged over 1 hour. (Conceptual Master Plan and 43-acre portion of the subdivision)*

- 4.4-1(h) *All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.* (Conceptual Master Plan and 43-acre portion of the subdivision)

4.4-2 The Project's total long-term operational activities would violate BCAQMD's adopted air quality thresholds for ROG's.

Both area-source and vehicle emissions constitute long-term operational emissions. Unlike construction emissions, area-source and vehicle emissions are generated continually after full implementation of the project. Area-source emissions are comprised of several sources; natural gas, woodstoves, fireplaces and landscaping equipment. Woodburning stoves and fireplaces constitute the majority of emissions for ROG and CO emissions, while vehicle emissions primarily create CO emissions.

43-Acre portion of the subdivision

As shown in Table 4.4-5, project area sources would contribute ROG emissions above Butte County's adopted air quality thresholds. As indicated in Table 4.4-5, area-source pollutants from wood stoves and fireplaces during winter months would generate approximately 265.28 lbs of NO_x per day which exceeds the Butte County adopted threshold of 137 lbs/day. URBEMIS7G default values were changed to more adequately reflect the project. Twenty-five percent of the residents within the 43-acre portion of the subdivision were assumed to have woodburning stoves. One cord of wood per household was assumed to be burned using woodburning stoves by the 25% of the households within the 43-acre portion of the subdivision. It was conservatively assumed that 10% of the households within the 43-acre portion of the subdivision would have fireplaces and those 10% would only burn 1.0 cord of wood per household. Default values were modified to reflect the number of multi-family residential units which would not have woodburning stoves and to reflect the climate of the project site where the ambient winter temperature is 54 degrees. Given these factors, the modification of the default values is still conservative and represents a worst-case analysis.

Because operational emissions would exceed Air District thresholds, this is considered a *significant impact*.

Conceptual Master Plan

The specifics of site design and fuel combustion related levels for development of the Conceptual Master Plan have not yet been established; therefore, area-source emissions cannot be accurately or adequately quantified. The magnitude of area-source activities is dependent upon the number of fireplace and wood stove inserts, the number and density of residential units, and the number of cords of wood burned during the winter season. Vehicle emissions associated with implementation of the Conceptual Master Plan would generate CO, NO_x and ROG emissions. Generation of emissions from vehicles is dependent upon the number and density of residential homes, vehicle trip lengths and proximity to adjacent retail and commercial stores. Given the size and number of units proposed for the project, as well as general knowledge of area-source and

vehicle emissions and long-term operational activities, it is assumed that generation of the long-term emissions would exceed BCAQMD significance thresholds for ROG and NO_x. This is considered a *significant impact*.

Mitigation Measures

Implementation of the following mitigation measures would reduce the generation of long-term operational criteria air emissions, however emissions would still exceed BCAQMD thresholds; therefore, this impact would remain *significant and unavoidable*.

- 4.4-2(a) *Install a natural gas hook up in proposed fireplaces; or
Limit the number of woodburning devices on the average to one per dwelling unit;*
- 4.4-2(b) *In accordance with the Chico General Plan policy OS-I-13, install low-NO_x water heaters;*
- 4.4-2(c) *In accordance with Chico General Plan policy OS-I-11, require all wood burning devices installed in any residence to be U.S. EPA Phase-II certified or meet U.S. EPA standards applicable at the time of project approval;*
- 4.4-2(d) *Install electrical outlets at the front and back of all residential units for electrical yard equipment. (Conceptual Master Plan and 43-acre portion of the Subdivision)*

Mitigation Measures 4.4-3(a) through (e) would reduce the generation of ROG emissions associated with buildout of the Project; however, not to a level below the BCAQMD thresholds. Therefore, long-term operational impacts associated with the project are considered *significant and unavoidable*.

Cumulative Impacts and Mitigation Measures

The cumulative context for air quality is buildout of the full project and other development in the Butte County area, including buildout of the City of Chico General Plan.

- 4.4-3 Operational emissions resulting from project-related energy consumption and motor vehicle trip generation, along with cumulative land use development in the City of Chico, could further contribute to criteria air pollutant emissions in Butte County.**

Project-related energy consumption and project-generated motor vehicle trips, in combination with cumulative emissions of these pollutants arising from cumulative development and resultant construction activities, could lead to continued violations of both State and federal air quality standards. As stated in the Environmental Setting, Butte County is in nonattainment attainment of ozone and PM₁₀ standards. The Project would increase the difficulty of attaining air quality standards. This is considered a *significant impact*.

The General Plan EIR found that buildout of the General Plan would contribute to regional emissions, and that the resulting degradation of air quality would be a significant and unavoidable impact, even with implementation of General Plan Air Quality policies. Emissions from development of the Project were assumed in the General Plan analysis. The City determined that the air quality impacts were outweighed by the benefits of development under the General Plan (Resolution No. 80-94/95).

Mitigation Measure

Implementation of the following mitigation measure, along with City General Plan policies and BCAQMD rules and regulations, would reduce project-related air emissions, particularly construction and area source emissions. However, air emissions would not be mitigated to level lower than the BCAQMD thresholds. Therefore, the cumulative air quality impact would remain *significant and unavoidable*.

4.4-3 *Implement Mitigation Measures 4.4-1 and 4.4-2 shown below:*

- 4.4-1(a) *In accordance with Rule 207, apply nontoxic soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas). (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(b) *Provide temporary traffic controls (e.g., flag person) as appropriate during all phases of construction to improve traffic flow. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(c) *Schedule construction activities that affect traffic flow for off-peak hours. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(d) *Sweep streets at the end of the day if visible soil materials are carried onto adjacent public paved roads. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(e) *Properly maintain equipment and do not allow construction equipment to be left idling for long periods during smog seasons (May through October). (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(f) *Use low VOC asphalt, if available and feasible. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(g) *All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 15 mph averaged over 1 hour. (Conceptual Master Plan and 43-acre portion of the subdivision)*
- 4.4-1(h) *All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust. (Conceptual Master Plan and 43-acre portion of the subdivision)*

- 4.4-2(a) *Install a natural gas hook up in proposed fireplaces; or*
Limit the number of woodburning devices on the average to one per dwelling unit;
- 4.4-2(b) *In accordance with the Chico General Plan policy OS-I-13, install low-NO_x water heaters;*
- 4.4-2(c) *In accordance with Chico General Plan policy OS-I-11, require all wood burning devices installed in any residence to be U.S. EPA Phase-II certified or meet U.S. EPA standards applicable at the time of project approval;*
- 4.4-2(d) *Install electrical outlets at the front and back of all residential units for electrical yard equipment. (Conceptual Master Plan and 43-acre portion of the Subdivision)*

ENDNOTES

1. City of Chico, *City of Chico General Plan*, November 1994, Chapter 7, Section 7.1.

4.5 NOISE

4.5 NOISE

INTRODUCTION

This section evaluates the potential noise impacts resulting from the implementation of the Project. This section describes basic noise acoustic fundamentals, establishes the study area for the noise analysis, and evaluates the existing noise environment. Noise generated by project-specific traffic and the potential exposure of sensitive receptors to unacceptable noise levels are evaluated and, where appropriate, noise attenuation measures are recommended to reduce noise levels to acceptable levels.

Short-term construction noise was determined in the Initial Study (see Appendix A) to result in less-than-significant impacts due to compliance with the City's noise ordinance and the standard that construction noise not exceed 83 dBA at a distance of 25 feet from the noise source, or 86 dBA from any point off-site. Therefore, construction noise will not be further evaluated in this EIR.

Information contained in this section has been derived from the *City of Chico General Plan* and EIR, the accompanying *Master Environmental Assessment* (MEA), a noise study on the project site conducted by Peter Klaveness & Associates, the Humboldt Road Burn Dump Restoration Project EIR (SCH# 97062073), and the traffic section of this report.

ENVIRONMENTAL SETTING

The environmental backdrop for noise is presented with discussions on acoustic fundamentals, characteristics of sound propagation and attenuation, and human response to environmental noise. In addition, the existing noise sources, the measured noise levels, and the existing noise sensitive receptors in the project area are addressed.

Acoustic Fundamentals

Noise is often defined as unwanted sound. Sound is a mechanical form of radiant energy transmitted by pressure waves in the air. It is characterized by two parameters: amplitude (loudness) and frequency (tone).

Amplitude is the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic rather than a linear scale. As a consequence, the pressure difference in a 10 dB sound is 10 times that of a 0 dB sound, a 20 dB sound is 100 times the pressure difference of a 0 dB sound, and so on. Another feature of the decibel scale is the way in which sound amplitudes from multiple sources are added. A 65 dB

point source of sound (e.g., a truck) when joined by another similar source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference for the average person.¹

Frequency is the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (abbreviated Hz; one Hz equals one cycle per second). The human ear is not equally sensitive to sound of different frequencies. Sound waves below 16 Hz or above 20,000 Hz cannot be heard at all, and the ear is more sensitive to sound in the higher portion of this range than in the lower. To approximate this sensitivity, environmental sound is usually measured in A-weighted decibels (dBA). On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA.

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. Three most commonly used are L_{eq} , L_{dn} , and CNEL. The energy equivalent noise level, L_{eq} , is a measure of the average energy content (intensity) of noise over any given period of time. Many communities use 24-hour descriptors of noise levels to regulate noise. The day-night average noise level, L_{dn} , is the 24-hour average of the noise intensity, with a 10 dBA "penalty" added for nighttime noise (10:00 p.m. to 7:00 a.m.) to account for the greater sensitivity to noise during this period.² CNEL, the community equivalent noise level, is similar to L_{dn} , but adds a 5 dBA penalty to evening noise (7:00 a.m. to 10:00 p.m.).

Characteristics of Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, industrial operations. Noise generated by mobile sources typically attenuates at a rate between 3.0 to 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number of objects between the noise source and the receiver. Hard and flat surfaces such as concrete or asphalt have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces such as uneven or vegetated terrain have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6.0 to about 7.5 dBA per doubling of distance.

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the line of sight between the source and the receiver. Buildings, walls, berms, and dense foliage can all act as noise barriers. Buildings, concrete walls, and berms are a great deal more effective at reducing noise levels than wooden walls or dense foliage.

Human Response to Noise

The human response to environmental noise, such as planes, trains and automobiles, is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The

health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation, tasks demanding concentration or coordination, and at the highest intensity levels, hearing loss. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Existing Noise Sources

The project site is exposed to noise from traffic on State Route (SR) 32, Bruce Road and Humboldt Road. All are two-lane roadways: SR 32 and Bruce Road receive the majority of traffic, while Humboldt Road receives very little traffic. There are no existing noise sources on the project site with the exception of a 230 kV and 500 kV Western Area Power Authority (WAPA) transmission lines. The noise emitted from these transmission lines was evaluated in a noise study conducted by Peter Klaveness & Associates which concluded that the transmission lines would generate noise levels below current city standards. As stated in the Initial Study (see Appendix A), noise impacts associated with the transmission lines are considered less than significant and will not be further evaluated. No other mobile or stationary noise sources exist on the project site.

Noise Sensitive Receptors

Noise sensitive receptors include residences, schools, churches, hospitals and other areas where quiet is essential. No noise-sensitive receptors are located on the project site. The primary noise-sensitive receptors in the project vicinity are residential areas, which includes two schools, located approximately 2,500 feet southwest of the western edge of the project site; and a second residential area located approximately 250 feet northwest of the project site across SR 32. Within this residential area is the 114-unit Sierra Sunrise Apartment congregate care facility. This facility is located approximately 250 to 300 feet north of the project site across SR 32.

Noise Exposure Circumstances

Most of the land in the project vicinity is comprised of rolling grasslands and oak woodland, transected by Little Chico Creek to the south of the project site and Dead Horse Slough, which bisects the project site in an east-west direction. The elevation on the site varies by approximately 350 feet sloping from 250 in the west to 600 feet in the east.

Noise Levels

Noise levels on the project site were measured for the California Park South Noise Study by Peter Klaveness and Associates. The existing noise sources of significance at the site included traffic on SR 32 and Bruce Road. Existing noise levels were measured in February 1995 and were calculated along the roadways in the project area, based on model calibration results and existing traffic volume data. The estimated existing traffic noise levels are presented in Table 4.5-1 below. The data displays calculated noise levels at 50 feet from the centerlines of the roadways, and distances to various noise level contours from the roadway center lines of major roadways in the planning area.

TABLE 4.5-1

Estimated Existing Traffic Noise Levels

Noise Source	Noise Level (L_{dn}) at 50' from Centerline	Distance to Contour (Feet)*		
		65 dB	60 dB	55 dB
SR 32 (west of Yosemite)	67	60	140	290
Bruce Road	65	—	110	240
Humboldt Road	57	—	—	70

* Distance in feet from the roadway centerline to the specified noise level, given as dB, L_{dn} , under existing traffic conditions.

SOURCE: *California Park South Noise Study*, Peter Klaveness & Associates.

REGULATORY CONTEXT

Responsibility for noise control varies among federal, State, and local levels of government depending on the type of source. Federal and State regulations mitigate transportation noise impacts on adjacent and nearby residential areas. Local jurisdictions have the responsibility for determining what land uses are suitable in a given noise environment.

State of California

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. The California Department of Health Services' (DHS) Office of Noise Control studied the correlation of noise levels and their effects on different land uses. As a result of this study, a graphic relating land use types to compatible noise environments was developed. This relationship has served as the basis for standards and guidelines promulgated by many local jurisdictions in their general plans.

The State has also developed land use compatibility guidelines for community noise environments. Title 24 of the California Administrative Code establishes standards governing interior noise levels that apply to all new multi-family residential units (hotels, motels, apartments, condominiums, and other attached dwellings) in California. These standards require that acoustical studies be performed prior to construction at residential building locations where the existing exterior L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit maximum L_{dn} to 45 dBA in any habitable room. Residential uses are normally unacceptable in areas exceeding 70 dBA CNEL and conditionally acceptable within 60 to 70 dBA CNEL.

City of Chico

Local regulations of noise usually take the form of a noise ordinance which specifies allowable levels on private property due to noise generated on other private property. In addition to a noise ordinance, a local government establishes noise controls through the Noise Element of the General Plan. The City of Chico has both a Noise Ordinance and a Noise Element, discussed below.

City of Chico Municipal Code (Noise Ordinance)

The City of Chico noise ordinance (Chapter 9.38 of the Municipal Code) prohibits noise levels that increase background 15-minute L_{eq} values by more than 5 dBA on adjoining residential property, or by more than 8 dBA on adjoining commercial or industrial property. The ordinance also contains exemptions for alarms, daytime construction activities, emergencies, and similar circumstances. The relevant exemptions are included below.

9.38.060 Categorical Exemptions

- C. Construction and Alteration of Structures. Notwithstanding any other provisions of this chapter, between the hours of 7 a.m. and 9 p.m. daily except Sundays and holidays, when the exemption herein shall apply between 10 a.m. and six p.m.
 - 1. No individual piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible.
 - 2. The noise level at any point outside of the property plane of the project shall not exceed 86 dBA.

City of Chico General Plan

The City of Chico Noise Element identifies the maximum acceptable noise levels for several categories of land uses, shown in Figure 4.5-1. The relevant land use policies from the Chico General Plan are as follows:

- N-I-2 Condition approval of all new development in residential areas with an actual or projected exterior noise level of greater than 60 dB CNEL on the use of noise mitigation measures to reduce exterior sound levels in those residential areas to less than or equal to 60 dB CNEL.
- N-I-3 Where noise mitigation measures are anticipated to be needed based on a review of a project in relation to Table 9.2-1 (of the General Plan), require that project applicants secure the services of a qualified acoustical engineer to perform a detailed technical study and to design mitigation measures.
- N-I-7 In making a determination of impact under the California Environmental Quality Act (CEQA), consider an increase of four or more dBA to be "significant" if the resulting noise level would exceed that described as normally acceptable for the affected land use in Table 9.2-1 (of the General Plan).
- N-I-13 Encourage noise attenuation programs that avoid visible sound walls, where practical. Open space, parking, accessory buildings, frontage roads and landscaping can be used to buffer development from noise.



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	NORMALLY ACCEPTABLE	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	NORMALLY UNACCEPTABLE	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
	CLEARLY UNACCEPTABLE	New construction or development generally should not be undertaken.

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IMPACTS AND MITIGATION MEASURES

Method of Analysis

Traffic Noise Impact Assessment

Traffic Noise Prediction Model

To describe existing and projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calvenno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict L_{dn} values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume. In general, impacts for the 43-acre portion of the subdivision are analyzed at a project-specific level of detail, while the Conceptual Master Plan is analyzed programmatically.

Traffic Noise Prediction Model Calibration

The FHWA Model provides reasonably accurate traffic noise predictions under "ideal" roadway conditions. Ideal conditions are generally considered to be long straight roadway segments with uniform vehicle speeds, a flat roadway surface, good pavement conditions, a statistically large volume of traffic, and a unimpeded view of the roadway from the receiver location. However, ideal conditions tend to be more the exception than the rule. As a result, it is often necessary to calibrate the FHWA Model through site-specific traffic noise level measurements and concurrent traffic counts.

The calibration process was performed by Peter Klaveness & Associates at locations 50 feet from Bruce Road and SR 32 as part of a previous noise assessment conducted for this project. The results of the calibration procedure indicate that the FHWA Model yielded good agreement with the measured traffic noise levels at a speeds of 58 and 45 mph for SR 32 and Bruce Road, respectively. Therefore, no site-specific offsets to the FHWA Model appear to be warranted for the prediction of existing or future traffic noise levels at the project site.

Traffic Noise Prediction Model Inputs

Inputs to the FHWA Highway Traffic Noise Prediction model include average daily traffic volume (ADT), the day/night traffic distribution, medium and heavy truck percentages, and vehicle speed. The ADT's were obtained from the traffic analysis prepared for this project by multiplying P.M. Peak Hour traffic volumes by a factor of 10. The day/night traffic distribution, truck mix assumptions, and vehicle speeds were obtained from the *California Park South Noise Study*, prepared by Peter Klaveness & Associates. The FHWA model input data for this project are shown in Table 4.5-2.

Traffic Noise Prediction Model Results

The FHWA traffic noise prediction model was used with the input data of Table 4.5-2 to predict existing and future traffic noise levels for the project-vicinity roadways. The results of this analysis are shown in Table 4.5-3 in terms of the L_{dn} at a representative distance of 100 feet and the distances to the 60 dB L_{dn} traffic noise level contours.

Operational Impacts

Traffic Noise Impacts

Analysis Scenarios

Consistent with the transportation analysis, traffic noise impacts were evaluated under the following scenarios:

- Existing conditions,
- Existing plus 43-acre portion of the subdivision,
- Existing plus full Conceptual Master Plan area,
- Cumulative (future) no project conditions,
- Cumulative (future) plus 43-acre portion of the subdivision, and
- Cumulative (future) plus full Conceptual Master Plan area.

Modeled Statistics

L_{dn} was modeled since the relevant significance criteria are based upon the L_{dn} metric.

Traffic Inputs

The average daily traffic (ADT) values used to model noise impacts are presented in Section 4.3, Transportation and Circulation.

Reference Location

Traffic noise modeling locations were selected to represent worst-case exposure of project receptors to cumulative traffic noise impacts and of off-site receptors to project traffic noise impacts.

Standards of Significance

The Project would result in significant noise impacts if the Project would:

- result in an increase of four or more dBA above an exterior CNEL of 60 dBA at existing sensitive receptors, according to Policy N-I-7 in the Chico General Plan; or

TABLE 4.5-2

FHWA HIGHWAY TRAFFIC NOISE PREDICTION MODEL INPUTS

Roadway	Segment	Average Daily Traffic Volumes						Day/Night	Truck Usage		
		Existing Without Project	Existing Plus 43-Acre Portion	Existing Plus Master Plan	Cumulative	Cumulative plus 43-Acre Portion	Cumulative plus Master Plan		Medium	Heavy	Speed
State Route 32	SR 99 to Forest	16,000	16,760	19,680	30,380	31,170	34,090	87%/13%	5%	2%	55
	Forest to El Monte	9,720	10,590	13,800	17,460	18,330	21,540	87%/13%	5%	2%	55
	El Monte to Bruce	9,780	10,340	13,870	13,020	13,890	17,090	87%/13%	5%	2%	55
	Bruce to Yosemite	4,390	6,100	10,040	7,530	10,180	13,180	87%/13%	5%	2%	55
	East of Yosemite	3,060	3,060	3,800	4,700	4,730	5,290	87%/13%	5%	2%	55
Humboldt Rd.	El Monte to Bruce	480	880	2,330	4,920	5,320	6,470	87%/13%	0.5%	0.5%	45
	East of Bruce	680	680	4,880	0	0	3,900	87%/13%	0.5%	0.5%	45
Forest Ave.	North of SR 32	2,900	2,980	3,270	10,780	10,860	11,150	87%/13%	0.5%	0.5%	45
	SR 32 to Humboldt	10,050	10,050	10,050	19,800	19,800	19,800	87%/13%	0.5%	0.5%	45
Bruce Rd.	North of SR 32	10,060	10,420	13,030	21,240	21,810	39,690	87%/13%	0.5%	0.5%	45
	SR 32 to Humboldt	7,610	8,400	9,380	14,080	15,300	15,470	87%/13%	0.5%	0.5%	45
	South of Humboldt	7,140	7,960	10,720	16,510	17,330	20,090	87%/13%	0.5%	0.5%	45
Yosemite Dr.	North of SR 32	1,330	1,330	1,710	2,860	2,860	3,240	87%/13%	0.5%	0.5%	45

Note: ADT computed at ten times the PM peak hour volume.
Source: Bollard Acoustical Consulting, W-Trans, 1999.

TABLE 4.5-3 PREDICTED TRAFFIC NOISE LEVELS							
Roadway	Segment	Ldn at 100 Feet From Roadway Centerline, dB					
		Existing Without Project	Existing Plus 43-Acre Portion	Existing Plus Master Plan	Cumulative	Cumulative plus 43-Acre Portion	Cumulative plus Master Plan
State Route 32	SR 99 to Forest	67	68	68	70	70	71
	Forest to El Monte	65	66	67	68	68	69
	El Monte to Bruce	65	66	67	67	67	68
	Bruce to Yosemite	62	63	65	64	65	67
	East of Yosemite	60	60	61	62	62	63
Humboldt Rd.	El Monte to Bruce	49	51	55	59	59	60
	East of Bruce	50	50	59	0	0	58
Forest Ave.	North of SR 32	56	56	57	62	62	62
	SR 32 to Humboldt	62	62	62	65	65	65
Bruce Rd.	North of SR 32	62	62	63	65	65	68
	SR 32 to Humboldt	61	61	61	63	64	64
	South of Humboldt	60	61	62	64	64	65
Yosemite Dr.	North of SR 32	53	53	54	56	56	57
Note: FHWA-RD-77-108 & Table 1 input data. Acoustically "soft" site sound propagation conditions. Source: Ballard Acoustical Consulting, 1999.							

- introduce new sensitive receptors into an area that would be exposed to unacceptable noise levels.

Project Impacts and Mitigation Measures

4.5-1 Project-related traffic noise levels will increase at existing noise-sensitive areas.

43-Acre Portion of the Subdivision

Table 4.5-3 data indicate that the increase in existing traffic noise levels resulting from the 43-acre portion of the subdivision would range from 0 to 2 dB L_{dn} . This would not exceed the City of Chico General Plan Noise Element policy N-I-7 significance criteria for project-related traffic noise level increases of 4 dB. Because the project-related traffic noise level increase is projected to be 2 dB L_{dn} or less, this is considered a *less-than-significant impact*.

Conceptual Master Plan

As shown in Table 4.5-3, the increase in existing traffic noise levels resulting from the Conceptual Master Plan would exceed 4 dB L_{dn} only on Humboldt Road. Noise levels would increase from 49 to 55 dB on Humboldt Road from El Monte to Bruce and from 50 to 59 dB on Humboldt Road, east of Bruce. However, because the predicted traffic noise levels on this roadway would not exceed 60 dB L_{dn} , this is considered a *less-than-significant impact*.

Mitigation Measure

4.5-1 None required.

4.5-2 Residents of the Project could be exposed to high levels of traffic noise.

43-Acre Portion of the Subdivision

State Route 32 is the only major roadway adjacent to the 43-acre portion of the subdivision. As shown in Table 4.5-4, the 60 dB L_{dn} contour would be between 103 and 164 feet from the centerline. Some of the northern parcels shown in the tentative subdivision map are less than 164 feet from the highway centerline. If homes are constructed on these parcels without any measures to protect them from noise exposure, residents could be exposed to unacceptable noise levels. This is considered a *significant impact*.

Conceptual Master Plan

The Project would be bounded by a State highway, as well as City streets that carry substantial traffic. Table 4.5-4 shows the predicted distance to the 60 dB L_{dn} contour along roadways in the project vicinity. The residential parcels most likely subject to unacceptable noise levels would be along SR 32, where the 60 dB L_{dn} contour would be 119 to 228 feet from the centerline of the highway. Bruce Road would also have relatively high noise levels, but there are no residential uses planned in proximity to the roadway. The potential for placement of residential development in areas exceeding 60 dB L_{dn} is considered a *significant impact*.

TABLE 4.5-4
DISTANCES TO 60 dB Ldn CONTOURS WITHIN PROJECT SITE

Roadway	Segment	Distance to 60 dB Ldn Contours (feet)					
		Existing Without Project	Existing Plus 43-Acre Subdivision	Existing Plus Master Plan	Cumulative	Cumulative plus 43-Acre Subdivision	Cumulative plus Master Plan
State Route 32	SR 99 to Forest	312	321	358	478	486	516
	Forest to El Monte	223	237	282	330	341	380
	El Monte to Bruce	224	233	283	272	283	326
	Bruce to Yosemite	132	164	228	188	230	274
	East of Yosemite	103	103	119	138	138	149
Humboldt Rd.	El Monte to Bruce	17	26	50	82	86	98
	East of Bruce	22	22	81	0	0	70
Forest Ave.	North of SR 32	57	58	62	138	138	141
	SR 32 to Humboldt	131	131	131	206	206	206
Bruce Rd.	North of SR 32	131	134	156	216	220	328
	SR 32 to Humboldt	109	116	125	164	174	175
	South of Humboldt	104	112	137	183	189	208
Yosemite Dr.	North of SR 32	34	34	40	57	57	62

Note: FHAWA-RD-77-108 & Table 1 input data. Acoustically "soft" site sound propagation conditions.
Source: Bolland Acoustical Consulting.

Mitigation Measures

Implementation of the following measures would reduce onsite noise impacts to a *less-than-significant* level for both the 43-acre portion of the subdivision and the Conceptual Master Plan.

- 4.5-2(a) *Residential uses constructed on the project site shall be located outside of the 60 dB L_{dn} traffic noise contours shown in Table 4.5-4.*

OR

- 4.5-2(b) *The project applicant shall demonstrate that a combination of setbacks, topography, and noise barriers has been designed to reduce noise levels at all residential parcels to a state of compliance with City of Chico exterior noise level standards. Barriers could take the form of solid walls, earth berms, or a combination of the two. A detailed analysis of site grading would be required to develop specific barrier height and location recommendations for this project, and the use of barriers for this project may conflict with the City's design criteria.*

This measure provides two approaches to ensuring that new residents are not subject to unacceptable traffic noise levels, through the use of setbacks alone (4.5-2(a)) or a combination of setbacks and barriers, which would reduce the size of the 60dB contour. Either approach would protect project residents from unacceptable noise levels. It should be noted that the General Plan discourages the use of soundwalls (Policies CD-G-47 and N-I-13). The segment of the project site most likely to require a soundwall is along SR 32, a State highway that physically divides the site from neighboring areas. Sound walls along State highways are not uncommon in urban and suburban settings. For this project, any sound wall along SR 32 would need to be designed with gaps to allow for street connections and designated view corridors. Such gaps could reduce the effectiveness of a wall, which must break the "line of site" between a receptor and noise source in order to substantially reduce noise levels. Therefore, a combination of setbacks, walls, and other less intrusive barriers, such as berms, may be necessary to achieve City noise standards while complying with project objectives and City design policies and standards.

Cumulative Impacts and Mitigation Measures

The cumulative context for this noise analysis is based on the traffic analysis contained in Section 4.3. Table 4.5-3 provides the results of the cumulative noise analysis for both the 43-acre portion of the subdivision and the full Conceptual Master Plan.

4.5-3 Traffic noise due to project and cumulative development would increase in noise-sensitive areas.

As shown in Table 4.5-3, the addition of the 43-acre portion of the subdivision or the full Conceptual Master Plan would not increase traffic noise levels substantially. The increase in existing traffic noise levels would not exceed 4 dB L_{dn} (relative to cumulative conditions without

the project) on any of the study roadways. Further, the Project would not cause noise levels to shift from acceptable to unacceptable levels (greater than $60L_{dn}$) on any roadways. For these reasons, this is considered a *less-than-significant impact*.

Mitigation Measure

4.5-3 *None required.*

4.5-4 Residents of the Project could be exposed to high levels of cumulative traffic noise.

As discussed in Impact 4.5-2, residential parcels in the northern portion of the project site could be exposed to unacceptable noise levels. The distance to the 60 dB L_{dn} noise contour is even greater under cumulative conditions, due to increases in traffic along State Route 32 and City roadways. For example, along State Route 32 the 60 dB L_{dn} contour would be 149 to 274 feet from the centerline of the highway. The potential for placement of residential development in areas exceeding 60 dB L_{dn} is considered a *significant impact*.

Mitigation Measures

Implementation of the following measures would reduce this impact to a *less-than-significant level*.

4.5-4 *Implement Mitigation Measure 4.5-2, shown below, using the cumulative plus Conceptual Master Plan column in Table 4.5-4.*

4.5-2(a) *Residential uses constructed on the project site shall be located outside of the 60 dB L_{dn} traffic noise contours shown in Table 4.5-4.*

OR

4.5-2(b) *The project applicant shall demonstrate that a combination of setbacks, topography and noise barriers has been designed to reduce noise levels at all residential parcels to a state of compliance with City of Chico exterior noise level standards. Barriers could take the form of solid walls, earth berms, or a combination of the two. A detailed analysis of site grading would be required to develop specific barrier height and location recommendations for this project, and the use of barriers for this project may conflict with the City's design criteria.*

ENDNOTES

1. Federal Highway Administration, 1982. *Report of Field Review - Highway Traffic Noise Impact Identification and Mitigation Decisionmaking Processes*. Office of Environmental Policy. June.
2. Code of California Regulations (CCR), 1988. California Noise Insulation Standards, California State Building Code (Part 2, Title 24, CCR), Appendix Chapter 35, Sound Transmission Control.

4.6 PUBLIC SERVICES AND UTILITIES

4.6 PUBLIC SERVICES AND UTILITIES

INTRODUCTION

This section of the Draft EIR describes the public services and utilities provided in the City of Chico, including domestic water, solid waste disposal, and schools. The section also identifies the anticipated demand for these services resulting from the implementation of the proposed Oak Valley Subdivision and Conceptual Master Plan and evaluates the ability of service providers to meet project demand. The storm drainage system is discussed in Chapter 4.7, Hydrology and Drainage.

Potential effects on police services, fire protection services, wastewater, electricity, natural gas, libraries, parks and recreation, and cable and telephone service were evaluated in the Initial Study and were determined to be less than significant or result in no impact (see Appendix A), so these issues are not addressed further in the EIR. In response to the Notice of Preparation (NOP), additional information was provided by the Chico Unified School District regarding current schools capacity and enrollment, and is discussed in this EIR.

DOMESTIC WATER

ENVIRONMENTAL SETTING

Regional Water Supply

The California Water Service Company (Cal Water), Chico District, is the sole water service agency in the Chico Planning Area (Planning Area) and provided municipal water service to approximately 20,800 water service connections within the Chico District in 1997.¹ Total District-wide use in 1997 was approximately 8.5 billion gallons of water, with an average daily use of 1,092 gallons per customer and a maximum daily use of approximately 2,000 gallons per customer.

The sole source of water to the Chico planning area is groundwater. The 1994 City of Chico General Plan stated that sixty deep water wells and five storage tanks capable of storing a total of 1.38 million gallons of water were employed by Cal Water.² One well can serve approximately 450 single family units.³

Residents not currently supplied by Cal Water obtain their water through private wells and through surface water supplies. Agricultural water demand is also met through private wells. Cal Water's Chico system contains three separate pressure zones, consisting of the low, high and Chico Airport zones. The Planning Area is in the low and high zones. The lower elevations within the Planning Area (approximately 350 feet and lower) fall within the low zone and are not dependent on pumps or any special facilities for delivery. The upper zone is located in the California Park area (eastern Chico) where elevations necessitate a tank and booster pump system to supply the area. Areas above approximately 350 feet in ground elevation typically require special facilities such as pumps or storage tanks to deliver water. The Chico Airport zone is not connected with the lower or upper zone.

The 1994 City of Chico General Plan states that approximately 84 percent of Cal Water's service to the Chico District in 1991 was for residential uses, while the remaining was for industrial, governmental, and miscellaneous uses. Cal Water's supply system has not experienced any deficiencies in the Chico District, although the Chico Municipal Airport has experienced reduced flows due to water contamination which caused wells at the airport to be taken out of service.

The project site is presently undeveloped with no uses that require Cal Water's Service. Currently, the nearest well and pump station are located at the intersection of Idylwild and Yosemite Drive, north of the project site.

Reclaimed Wastewater

The Chico Water Pollution Control Plant (WPCP) has the ability to supply reclaimed water (treated to a secondary level) for the purposes of agricultural irrigation. Reclaimed water is not used on the project site at present (no irrigation takes place), and would not be used in the future as no agricultural uses are part of the Project. There are no plans at this time to use reclaimed water for project landscaping.

Butte Basin

In 1992, groundwater and surface-water users of the Butte Basin organized to form the Butte Basin Water Users Association (Association). The Association commissioned the development of a groundwater model of the Butte Water Basin to provide information about the basin, including the impacts of various water use scenarios on the life of the basin, and quality of its supply. Using 1992 as a baseline, the modeling analysis performed a comparison of the baseline demand to the future demand on groundwater resources for the 20-year buildout according to the City of Chico General Plan.

According to the study prepared for the Association, approximately 64 percent of households in Chico were serviced by the WPCP in 1992, and it is estimated that by the year 2012, the number of households that will be serviced by the WPCP will increase to 90 percent.⁴

The modeling analysis confirms that the groundwater resources within Butte Basin are sufficient to support the growth in water consumption expected in the City of Chico General Plan to the

year 2012. However, a limited decline in groundwater levels is expected as consumption increases, leading to a decrease in stored ground water and the capture of groundwater flow that would otherwise eventually flow to the Sacramento River.

Modeling results indicate that portions of the aquifer beneath Chico will experience declines in groundwater levels of approximately 8 feet by the year 2012, which represents a one-percent reduction in the saturated thickness of the aquifer beneath Chico.

REGULATORY SETTING

State

The State of California enacted legislation (SB 901) that requires cities and counties to assess the adequacy of water supplies to meet the demands of proposed new development projects, including impacts on existing water users, before they approve certain large projects (Government Code § 65302 and Water Code § 10910 et seq).

City of Chico General Plan Policies and Goals

The project area is located in the City's water service district plan. The following General Plan Goals and Policies address domestic water use.

Guiding Policies: Water Supply and Wastewater Service

- | | |
|---------|---|
| PP-G-11 | Establish equitable methods for distributing costs associated with providing water and wastewater service to development, including impact mitigation fees where warranted. |
| PP-I-30 | Explore the feasibility of using reclaimed water for irrigation of residential landscaping in new subdivisions and landscaping at public facilities, including any new golf courses. |
| PP-I-32 | In cooperation with the Butte Basin Water Users Association or similar organizations, establish limits of groundwater withdrawal that allow for sustainable levels of growth without taxing water resources or creating the potential for subsidence. Groundwater withdrawal shall be analyzed during the five-year review of the General Plan. |
| PP-I-34 | Establish guidelines and standards for water conservation and actively promote use of water-conserving devices and practices in both new construction and major alterations and additions to existing buildings. |

Guiding Policies: Resource-based Thresholds

- | | |
|---------|--|
| PP-G-19 | Establish and maintain standards for public services and facilities to ensure that service demands of new development do not exceed the capacities of streets, utilities, and other public services. |
|---------|--|

- PP-G-20 Require new development to pay for mitigating impacts on existing public services and facilities to maintain service levels.
- PP-I-62 Use resource-based standards for transportation facilities, parks, water, wastewater, and drainage facilities and police and fire services established in Table 5.6-1 as a basis for decision on applications for major development projects.
- PP-I-64 Adopt an "adequate public facilities" ordinance establishing a procedure for reviewing major development applications and requiring a determination as a condition of development approval that:
- Adequate public facilities, as stipulated in Table 5.6-1, would be available at the time of project occupancy and performance standards maintained following project occupancy; or
 - Funding for required improvements is assured and these improvements would be completed within a stipulated time of project occupancy.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

Water demand rates developed in the *City of Chico General Plan* have been applied to the land uses proposed for the Oak Valley Subdivision and Conceptual Master Plan to estimate the additional water that would be needed from Cal Water. The 43-acre portion of the Subdivision is analyzed at a project-specific level of detail. Because specific development details are not available for the Conceptual Master Plan, it is analyzed programmatically. The EIR for the City of Chico General Plan assumes a water use of 1.2 acre-feet per year per customer, with one customer equal to approximately 4.2 people.⁵ The Project would result in approximately 700 residents in 317 dwelling units for the 43-acre portion of the subdivision and approximately 3,100 new residents in 1,324 dwelling units for the Conceptual Master Plan. Correspondingly, the Project would result in an increased water demand of approximately 200 acre-feet for the initial 43-acre portion of the subdivision and 886 acre-feet for the Conceptual Master Plan.

The Butte Basin Water Users Association groundwater resources analysis developed two groundwater model simulations for a 20-year planning period that projected the response of the aquifer to water use and water supply to the year 2012. One simulation calculated the response of the groundwater system to the expected growth conditions in Chico. The impacts evaluated in the study focused on quantifying the changes in groundwater levels, storage, recharge and outflow from the aquifer. The model assumed a projected population growth of 2.5 percent, with a proportionate increase in pumping. The actual annual growth rate for the City of Chico from 1980 to 1992 was 2.9 percent.⁶ In the simulation, it was estimated that developed land within Chico would increase from approximately 6,300 acres in 1992 to about 10,400 acres in 2012 with expansion primarily to the northwest and southeast, adjacent to the foothills.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative water supply impacts are considered significant if implementation of the Project would:

- substantially increase the demand for potable water in excess of available supplies or distribution capacity without also including provisions to adequately accommodate the increase demand, or is unable to provide an adequate on-site water supply, including treatment, storage and distribution; or
- be inconsistent with adopted City of Chico General Plan goals, objectives, and policies.

Project Impacts and Mitigation Measures

4.6-1 The Project would increase water demand.

43-Acre Portion of the Subdivision

The proposed initial 43-acre portion of the subdivision would require an addition of approximately 200 acre-feet of water to be provided by Cal Water to 187 new connections. The modeling analysis completed for the Butte Basin Water Users Association states that increases in water consumption would be met with a limited decline in groundwater levels, a corresponding decrease in stored groundwater and the capture of groundwater flow that would otherwise discharge to the Sacramento River. As stated above, implementation of the General Plan policies in conjunction with the Butte Basin Ground Water Model will allow for sustainable levels of growth planned for the City of Chico. Cal Water has indicated that additional water consumption from the Project, including the 43-acre portion of the subdivision would be available under existing entitlements.⁷ Therefore, the proposed 43-acre portion of the subdivision would result in a *less-than-significant impact*.

Conceptual Master Plan

At buildout, the proposed 340-acre Conceptual Master Plan would require 886 acre-feet of water per year to approximately 1,300 new customers. A new well is required for every approximately 450 new connections. The Draft EIR for the City of Chico General Plan stated that General Plan policies PP-I-24 through PP-I-34 will enable the City to use the Butte Basin Ground Water Model to set limits on groundwater withdrawal and establish a realistic water budget that will allow for sustainable levels of growth planned in the General Plan. Also, Cal Water has indicated that they would be able to serve the new development and additional residents as long as sufficient funding is provided.⁸ Therefore, demand for water from buildout of the Conceptual Master Plan would be a *less-than-significant impact*.

Mitigation Measure

4.6-1 None required.

4.6-2 The Project would require the extension of Cal Water's water service distribution infrastructure.

43-Acre Portion of the Subdivision

As stated under Impact 4.6-1, buildout of the proposed initial subdivision would require an addition of approximately 200 acre-feet of water to be provided by Cal Water to 187 new connections. Distribution infrastructure could be provided to the site by extending the existing main from the well at Yosemite Drive and Idylwild across Highway 32 to loop with the existing main on Bruce Road. Elevations on the 43-acre portion of the Subdivision range from approximately 250 feet to approximately 370 feet. Most of the residential units would be built at an elevation under 350 feet. Single-family units under 350 feet can be served with an extension of the existing main in Yosemite Drive. For residential units over 350 feet (approximately 14 units), an above ground welded steel storage tank and booster pump station would be required. However, specific plans for water supply infrastructure are not yet available, so it is not certain how water infrastructure will be extended to project development. This is considered a *significant impact*.

Conceptual Master Plan

At buildout, the proposed 340-acre Conceptual Master Plan would require 886 acre-feet of water to approximately 1,300 new customers. As stated in the General Plan Draft EIR, funding for new wells follow Public Utilities Commission Rule 15, which specifies that if a development obtains 50 percent or more of the water from a well, that development will pay for the well and development costs and Cal Water pays for the needed land. Development must also provide funding for the water distribution system. Elevations for the Conceptual Master Plan range from 250 to 600 feet. As discussed above, residential development over 350 feet would require a storage tank and booster pump station. Because the Master Plan does not yet include provisions for well and delivery infrastructure, this is considered a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on water infrastructure to a *less-than-significant* level.

- 4.6-2(a) *The project applicant shall obtain a fire-flow analysis to determine if fire flows to the project site are adequate. If fire flows are not adequate, the applicant shall install, or provide funds for, a well and pump and/or an above ground welded steel storage tank.*
- 4.6-2(b) *The project applicant shall be obligated through project approval conditions to fund and install the infrastructure required to provide for water needs and fire flow requirements for each development implemented under the project. (43-acre portion of the subdivision and Conceptual Master Plan)*

This measure will ensure that water infrastructure is designed, funded and constructed for each project under the Conceptual Master Plan, including the 43-acre portion of the Subdivision.

Cumulative Impacts and Mitigation Measures

The cumulative context for water supply is the Butte Water Basin.

4.6-3 The Project, in combination with buildout of the General Plan, would contribute to cumulative demand on existing water supply sources.

The General Plan EIR estimates that buildout of the General Plan would result in approximately 13,195 additional water customers. Assuming water use of 1.2 acre-feet per year per customer, this population growth would require approximately 15,850 additional acre-feet of water per year.⁹ The projected buildout of the General Plan includes development of the Oak Valley Subdivision and Conceptual Master Plan site as a special development area.

The evaluation of groundwater resources for the Chico Urban Area completed for the Butte Basin Water Users Association in 1997 analyzed future demand from the planned buildout according to the City of Chico's General Plan. Modeling results indicated that portions of the aquifer beneath Chico will experience a decline in groundwater levels of approximately eight feet by the year 2012, representing a one-percent reduction in the saturated thickness of the aquifer beneath Chico by the year 2012. The *Chico General Plan Study Ground-Water Resources Analysis* concluded that the change to groundwater levels and the capture of groundwater flow in the Chico area will have no significant impact on local creeks or wetlands and is unlikely to affect the interaction between Chico's creeks and the groundwater system. The modeling analysis reported that the groundwater resources within the Butte Basin are sufficient to support the growth in water consumption expected in Chico to the year 2012.¹⁰ The City of Chico General Plan EIR states that General Plan policies PP-I-24 through PP-I-34 would enable the City to use the Butte Basin Ground Water Model to set limits on groundwater withdrawal and establish a realistic water budget that would allow for sustainable levels of growth planned in the General Plan, while protecting basin supplies from becoming overly committed as the General Plan is implemented. However, the General Plan EIR also found that additional growth in the City and other jurisdictions could result in substantial drawdown of the water table, drying of wells, increased pumping costs and reduced water quality. Because the Project would increase demand for groundwater, this cumulative impact is considered *significant*.

It was assumed in the analysis of water demand that the Project would not increase impacts on water supply beyond the level addressed in the General Plan. The City determined that the benefits of development under the General Plan outweighed the significant and unavoidable impact on water supply (Resolution No. 80-94/95).

Mitigation Measure

4.6-3 *None available.*

SOLID WASTE DISPOSAL

ENVIRONMENTAL SETTING

Collection of solid waste in the Chico Planning Area is provided by several independent haulers. Four waste removal companies are permitted to collect residential and commercial waste within the City of Chico and parts of the County. No service areas or service routes are delineated, and collection is provided on a competitive basis by each of the haulers through advertising and competitive pricing. Waste removal collection services are not required by the City or County. All solid waste is taken to the Neal Road Landfill, located approximately seven miles southeast of the City of Chico.¹¹ The 101-acre landfill is operated by the Neal Road Landfill Company and is owned by Butte County.

According to the City of Chico Master Environmental Assessment (MEA), in 1994 approximately 80 acres of the landfill were being used for waste disposal, with a generation in 1996 of approximately 183,000 tons of solid waste. The Neal Road Landfill has a capacity of approximately 8.5-9.0 million cubic yards of solid waste.¹² In 1995, the landfill had an estimated beginning capacity of 6.2 million cubic yards of solid waste. At the current disposal rate, and with implementation of proposed source reduction, recycling and composting programs, the landfill is anticipated to reach capacity by the year 2018.¹³

The total amount of solid waste generated in the City of Chico to the landfill was approximately 66,000 tons in 1996. In 1997, the total amount of solid waste was 56,155 tons. With an approximate population base of 47,000 residents, this equates to 1.19 tons (2,380 pounds) per capita per year and a generation rate of approximately 6.5 pounds per capita per day for 1997.¹⁴

REGULATORY SETTING

The City's and Butte County's Integrated Waste Management Plan (IWMP) complies with state-mandated waste reduction goals requiring local agencies to implement source reduction, recycling and composting activities to reduce solid waste generation by 25-percent by the year 1995 and 50-percent by the year 2000. State law requires that each city and county prepare a Source Reduction and Recycling Element and a Household Hazardous Waste Element. These two elements comprise the City's IWMP. The City of Chico's Source Reduction and Recycling Element provides a summary and analysis of existing and needed source reduction, recycling, and composting programs and facilities, and strategies for handling special wastes.

City of Chico General Plan Policies and Goals

The following General Plan Goals and Policies address solid waste management.

Guiding Policies: Water Supply and Wastewater Service

- | | |
|---------|---|
| OS-G-29 | Reduce the generation of solid waste, including hazardous waste, and recycle those materials that are used, to slow the filling of local and regional landfills, in accord with the California Integrated Waste Management Act of 1989. |
|---------|---|

Implementing Policy: Waste Management and Recycling

OS-I-60

Implement measures specified in the City's Source Reduction and Recycling Element and the Household Hazardous Waste Element.

IMPACTS AND MITIGATION MEASURES**Method of Analysis**

The annual solid waste generated by the development in the proposed Oak Valley Subdivision is calculated by applying the current per capita solid waste generation factor to the number of residents that are expected in the project area. The current annual solid waste generation factor is 1.19 tons per capita per year, or 6.5 pounds per capita per day. The additional solid waste generated is compared to existing and planned capacity of the landfill to determine impacts. The 43-acre portion of the Subdivision is analyzed at a project-specific level of detail, while the Conceptual Master Plan is analyzed at a programmatic level of detail.

The initial 43-acre portion of the subdivision would generate an estimated residential population of 700 +/- . With a solid waste generation rate of 6.5 pounds per person per day, this equates to 4,550 pounds per day, or approximately 830.4 tons per year. The Project would be required to comply with the City's source reduction program, resulting in a reduction rate of 50-percent. The amount of solid waste that would be transported to the Landfill from the 43-acre portion of the Subdivision is approximately 1.14 tons per day. The total Conceptual Master Plan, including the 43-acre portion of the subdivision, would generate an estimated residential population of 3,100. With a solid waste generation factor of 6.5 pounds per person per day, the buildout of the Master Plan would generate an increase in solid waste of approximately 10 tons per day or 3,650 tons per year. The Project would be required to comply with the City's source reduction program, and with a reduction rate of 50-percent, the amount of solid waste that would be transported to the Landfill from the Conceptual Master Plan is approximately 5 tons per day.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative public services impacts are considered significant if implementation of the Project would:

- generate solid waste exceeding landfill capacity or substantially shortening the life of the landfill; or
- be inconsistent with adopted City of Chico General Plan goals, objectives, and policies.

Project-Specific Impacts and Mitigation Measures

4.6-4 The Project would increase the volume of solid waste accepted at the Neal Road Landfill.

43-Acre Portion of the Subdivision

The initial proposed 43-acre portion of the subdivision is estimated to add approximately 700 +/- new residents to the Neal Road Landfill service area. The project population is expected to generate approximately 1.14 tons of solid waste per day.

Currently, the Neal Road Landfill accepts an average of 501 tons per day, and is expected to accommodate Chico's landfill requirements until the Year 2018. The landfill capacity will be extended with the purchase and operation of approximately 64 acres adjacent to the existing facility.¹⁵

The addition of approximately 1.14 tons of solid waste per day generated by the Project is anticipated to minimally impact the future solid waste capacity of the Neal Road Landfill facility through the Year 2018; therefore, this is considered a *less-than-significant impact*.

Conceptual Master Plan

The Conceptual Master Plan, including the 43-acre portion of the subdivision is estimated to add approximately 3,100 new residents to the Neal Road Landfill service area. The population, including non-residential uses, is expected to generate approximately 5 tons of solid waste per day.

The addition of approximately 5 tons of solid waste per day generated by the Project (an approximately 1 percent increase over current landfill demand) is anticipated to minimally affect the future solid waste capacity of the future expanded Neal Road landfill facility; therefore, this is considered a *less-than-significant impact*.

Mitigation Measure

4.6-4 *None required.*

Cumulative Impacts and Mitigation Measures

The cumulative context for solid waste is buildout of the City's General Plan.

4.6-5 The Project, in combination with buildout of the City of Chico General Plan, would increase the volume of solid waste accepted at the Neal Road Landfill.

Development of the Project, in conjunction with the planned buildout of the General Plan, would result in a significant increase in the amount of solid waste taken to the Neal Road Landfill. The current capacity of the Neal Road Landfill is expected to serve the community until the year 2018. However, the Landfill is expected to be expanded to increase its capacity through the acquisition of an additional 64 acres before the buildout of the General Plan, including the Oak Valley Conceptual Master Plan. Also, one of the commercial haulers has begun exporting waste from the Landfill.¹⁶ These measures, along with continued recycling and adherence to the City's source reduction programs would ensure that this impact remains *less than significant*.

Mitigation Measure4.6-5 *None required***SCHOOLS****ENVIRONMENTAL SETTING****Chico Unified School District**

The Chico Unified School District (CUSD) serves students within the City of Chico and surrounding areas. Existing facilities include 16 elementary schools, two junior high schools, two senior high schools and one continuation high school. A grade reconfiguration in 1993-94 converted the junior high facilities to middle schools (grades 7-8) and converted senior high facilities to grades 9-12. This arrangement helped to make maximum benefit of the senior high school departmental organization and relieved some overcrowding at the junior high level.

The schools that would serve the project area include Little Chico Creek Elementary School, located off of Forest Avenue, Hank Marsh Junior High School and Chico Senior High School. Table 4.6-1 shows the current public school enrollment and capacity. In addition, a new junior high school is being built in the vicinity of the Project site near the corner of El Monte and Humboldt Road. The school will have a capacity of approximately 500 students and is scheduled for completion in Year 2000. The CUSD is also in the process of selecting a site for a new senior high school in an area off of Bruce Road.¹⁷

TABLE 4.6-1			
PUBLIC SCHOOL ENROLLMENT AND CAPACITY			
School	Current Enrollment	School Capacity	% of Capacity
Little Chico Creek Elementary	659	925	71%
Hank Marsh Junior High	520	671	77%
Chico Senior High School	1,745	1,929	90%
SOURCE: Pat Rafter, Accounting Technician, CUSD, personal correspondence, March 1998, February 2000.			

The Chico Unified School District requires that development of new schools maintain an average class size of 28.5 students per classroom for grades K-6 and 34.0 students per classroom for grades 7-12. The emphasis is on maintaining "neighborhood elementary schools" and new elementary school sites should contain approximately 12 usable acres of land and student enrollment should not exceed approximately 750 students.¹⁸

REGULATORY SETTING

State

Proposition 1A/Senate Bill 50

Proposition 1A/Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) is a school construction measure that was approved by the voters on the November 3, 1998 ballot. It authorized the expenditure of State general obligation bonds totaling \$9.2 billion through 2002, primarily for the modernization and rehabilitation of older school facilities and the construction of new school facilities related to new growth. Of the \$9.2 billion, \$2.5 billion is targeted for higher education facilities and the remaining \$6.7 billion is targeted for K-12 facilities, throughout the state.

Of the \$6.7 billion for K-12 schools, \$2.9 billion is for new construction, \$2.1 billion is for modernization of older schools, \$1.0 billion is for districts in hardship situations, and \$700 million is for class size reduction. The new construction money is available through a 50/50 State/local match program. The modernization money is available through an 80/20 State/local match program. There are a number of other program reforms that are not summarized here.

Proposition 1A/SB 50 also implements significant fee reform by amending the laws governing developer fees and school mitigation in a number of ways:

- It establishes the base (statutory) amount (indexed for inflation) of allowable developer fees at \$1.93 per square foot for residential construction and \$0.31 per square foot for commercial construction.
- It prohibits school districts, cities, and counties from imposing school impact mitigation fees or other requirements in excess of or in addition to those provided in the statute.
- It also suspends for a period of at least 8 years, a series of court decisions allowing cities and counties to deny or condition development approvals on grounds of inadequate school facilities when acting on certain types of entitlements.

By way of background, the School Facilities Law of 1986 limited the amount of any fee or other requirement imposed on a development project for the mitigation of impacts on school facilities. Although the law appeared to prohibit denial of a project on the basis of inadequacy of school facilities, three subsequent court decisions held that this prohibition applied only to administrative land use approvals (such as tentative maps, use permits, and building permits), not to legislative land use approvals (such as general plan amendments and rezonings). These court decisions became known as the *Mira-Hart-Murietta* trilogy.

In reliance on these decisions, many cities and counties required payment of school fees in excess of the statutory limits as a condition to granting approval of general plan amendments, specific plans, rezonings, and other legislative approvals.

The new law overturns the *Mira-Hart-Murietta* cases by expressly prohibiting local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "legislative or adjudicative act ... involving ... the planning, use, or development of real property" (Government Code 65996(b)). In other words, the new regulations also explicitly prohibit local agencies from imposing school impact fees in excess of those provided by the statute in connection with approval of a project.

Additionally, a local agency can not require participation in a Mello-Roos for school facilities. The statutory fee is reduced by the amount of any voluntary participation in a Mello-Roos however.

Proposition 1A/SB 50 has resulted in full State preemption of school mitigation. Satisfaction of the statutory requirements by a developer is deemed to be "full and complete mitigation."

The new law does identify certain circumstances under which the statutory fee can be exceeded. These include preparation and adoption of a "needs analysis", eligibility for State funding, and satisfaction of one of four requirements (prior to January 1, 2000) identified in the law including year-round enrollment, general obligation bond measure on the ballot over the last four years that received 50 percent plus one of the votes cast, 20 percent of the classes in portable classrooms, or specified outstanding debt. After January 1, 2000, the district would have to satisfy two of the four requirements.

Assuming a district can exceed the statutory fee, the law establishes ultimate fee caps of 50 percent of costs where the State makes a 50 percent match, or 100 percent of costs where the State match is unavailable. All fees are levied at the time the building permit is issued. District certification of payment of the applicable fee is required before the City can issue the building permit.

Local

In February 1992, the CUSD Board of Education modified the District's school facilities funding plan by adopting Resolution No. 486-92 that established a District policy which requires new residential development within CUSD boundaries to fully mitigate its impact on District schools. In January 1993, the CUSD Board of Education passed an emergency resolution to enact a \$1.00 per square foot increase on residential housing school impact fees, consistent with SB 1287, which raised the fee from \$1.65 to \$2.65 per square foot. The current maximum fee is \$1.93 per square foot for new residential construction and \$0.30 per square foot for new commercial/industrial construction.

Chapter 17.34 of the Municipal Code provides authority for the City to require subdividers to reserve land for elementary school sites for a reasonable period of time. Under the Municipal Code, the CUSD would be required to provide funds for the reserved sites(s). If the land has been owned by the subdivider for more than 10 years, and facilities are required as part of the CUSD Master Plan, or CUSD requests such reservation, the CUSD has to enter into an agreement to buy the site(s) within 60 days. To fully mitigate impacts, the maximum fee is \$4.60 per square foot of assessable space.¹⁹

City of Chico General Plan Goals and Policies

The following goals, objectives and policies from the City of Chico General Plan are applicable to the Project:

PP-I-23: Require subdividers to reserve school sites as shown on the General Plan Diagram for CUSD acquisition for a reasonable time period.

PP-I-24: Support CUSD's efforts to mitigate significant impacts of new projects on school facilities, consistent with State law.

State law limits the fee that can be imposed on residential development to mitigate school impacts and prohibits denial of a project on the basis of the inadequacy of school facilities or school impact fees.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

The demand for school services is based upon the additional number of students generated by the development of residential uses in the proposed 43-acre portion of the subdivision and the Master Plan. The assumed student generation rates for the Chico Union School District are provided in Table 4.6-2. The 43-acre portion of the Subdivision is analyzed at a project-specific level of detail, while the Conceptual Master Plan is analyzed at a programmatic level of detail.

The two phases of the residential development identified in the Oak Valley Subdivision are multiplied by the student generation rates. The Project would include approximately 317 units for the 43-acre portion of the subdivision and 1,324 units for the Master Plan, all located within the Chico Unified School District. The generation rates for the Chico Unified School District and resultant number of new students expected from the Project are listed in Table 4.6-2.

TABLE 4.6-2

STUDENT ENROLLMENT ESTIMATES

School District	Residential Units		District Student Yield Factor ¹	Student Grade Breakdown ²			Total # New Students
			K-12	K-6 (54%)	7-8 (15%)	9-12 (31%)	
Chico United School District	43-Acre	317	.43	74	20	42	136
	Master Plan	1324	.43	307	85	177	569

SOURCES:

¹ Michael Weissenborn, CUSD Facilities Planning Department, Written communication, April 1998.

² Pat Rafter, CUSD Accounting Technician, personal communication, November 1998.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative public services are considered significant if implementation of the Project would:

- substantially increase the public school student population, exceeding current school capacity without also including provisions to adequately accommodate the increased demand in services; or
- be inconsistent with the adopted City of Chico General Plan goals, objectives and policies.

Project Impacts and Mitigation Measures

4.6-6 The Project would increase the demand for school services from the Chico Unified School District.

43-Acre Portion of the Subdivision

The Project would generate an estimated 136 new students in the Chico Unified School District, based on a generation factor of .43. This would result in 74 students in grades K-6, 20 students in grades 7-8 and 42 students in grades 9-12. It is not anticipated that the increase of 136 students would exceed the current remaining capacity. The developer would be required to pay school impact fees to provide adequate school facilities for future development. For these reasons, this is considered a *less-than-significant impact*.

Conceptual Master Plan

The proposed Master Plan, including the 43-acre portion of the subdivision, would generate an estimated 569 new students in the Chico Unified School District, based on a generation factor of .43. This would result in a breakdown of 307 students in grades K-6, 85 students in grades 7-8, and 177 students in grades 9-12. The Master Plan would be constructed gradually; therefore, the introduction of new elementary, junior high and high school students would not occur all at one time. The intent of the City of Chico General Plan policies is to ensure that CUSD facilities are planned and funded as development projects are approved with the objective of making them available to house students concurrent with demand. The General Plan Diagram designates approximate site locations in anticipated development area for six elementary schools, two junior high schools, and one new high school that would be necessary to house students generated through implementation of the General Plan. The CUSD has recently constructed a new junior high and is in the process of choosing a site for a new senior high in the vicinity of the Project.²⁰ Also, the developer would be required to pay school impact fees to provide adequate school facilities for future development. With the future school construction and payment of fees, the impact to schools from the Conceptual Master Plan would be *less than significant*.

Mitigation Measure

4.6-6 *None required.*

Cumulative Impacts and Mitigation Measures

The cumulative context for the schools analysis is buildout of the General Plan.

4.6-7 The Project, in combination with buildout of the City of Chico General Plan, would increase the demand for school services from the Chico Unified School District.

The buildout of the City of Chico General Plan includes several special development areas that would add residential housing within the City's Sphere of Influence. However, the General Plan also includes the addition of new schools, including a senior high school and junior high school in the southern portion of the City. The Project and other development under the General Plan would take place over an extended period, and elementary, junior high, and high school students would not all be introduced at one time. The requisite developer fees will be collected from the Project developer. The General Plan EIR states that General Plan policies, state-mandated mitigation fees, and City-enforced mitigation fees on development projects would result in less-than-significant impacts to CUSD elementary, junior high and high school facilities from the implementation of the General Plan. The Project would contribute to, but would not exceed the demand for schools identified in the General Plan EIR. For these reasons, the cumulative impact on schools is considered *less than significant*.

Mitigation Measure

4.6-7 *None required.*

ENDNOTES

1. Dorothy Lytle, California Water Service Company, EIP personal communication, November 1998.
2. City of Chico, *City of Chico General Plan*, 1994, pp. 5-18.
3. Kathryn Hutchison, California Water Service Company, EIP personal communication, March 1998.
4. City of Chico, *Chico General Plan Study Ground-Water Resources Analysis*, March 15, 1997, pp.14.
5. City of Chico, *Draft Environmental Impact Report for the Chico General Plan*, August 1994, pg. 4.11-2.
6. City of Chico, *City of Chico General Plan*, 1994.
7. Kathryn Hutchison, California Water Service Company, EIP personal communication, March 1998.
8. Kathryn Hutchison, California Water Service Company, EIP personal communication, March 1998.
9. City of Chico, *Draft Environmental Impact Report for the Chico General Plan*, August 1994.
10. City of Chico, *Chico General Plan Study Ground-Water Resources Analysis*, March 15, 1997, pp.21.
11. City of Chico, *Master Environmental Assessment for Chico General Plan*, pp. 16-2.
12. City of Chico, *Master Environmental Assessment for Chico General Plan*, pp. 16-2.
13. Jim Deweese, Butte County Solid Waste Management, EIP personal communication, April 1998.
14. Linda Herman, City of Chico Solid Waste Division, EIP personal communication, April 1998.
15. Linda Herman, City of Chico Solid Waste Division, EIP personal communication, January, 1999.
16. Jim Deweese, Butte County Solid Waste Management, EIP personal communication, November 1998.
17. Pat Rafter, CUSD Accounting Technician, personal communication, March 1998.

4.6 Public Services and Utilities

18. Chico Unified School District, *Twenty-year Student Housing Master Plan 1996/98 to 2015/16*, March 1996.
19. Ibid.
20. Pat Rafter, CUSD Accounting Technician, personal communication, March 1998.

4.7 HYDROLOGY AND DRAINAGE

4.7 HYDROLOGY AND DRAINAGE

INTRODUCTION

This section of the EIR describes surface water resources in the project area and evaluates potential increased surface water runoff and how it could affect upstream and downstream localized flooding and existing drainage system capacity. Impacts associated with on-site flooding, surface water quality and groundwater recharge and water quality were addressed in the Initial Study and were found to be less than significant (see Chapter 1, Introduction, and Appendix A). Therefore, these issues will not be further evaluated in this section of the EIR. For a discussion of groundwater as a potential water supply source, please refer to Section 4.6, Public Services and Utilities.

ENVIRONMENTAL SETTING

Surface Water Resources

The following describes the characteristics of surface water resources in the Chico area and on the project site.

Regional Water Resources

The City of Chico is located in the Sacramento River Basin. The Sacramento Basin encompasses about 26,500 square miles and is bound by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Delta-Central Sierra area to the south. Major tributaries to the Sacramento River in the Chico area include Big Chico Creek, Little Chico Creek, Comanche Creek, Sycamore Creek, Mud Creek, Rock Creek, and Butte Creek (see Figure 4.7-1).

Project Area

The proposed project site is bisected from east to west by the south fork of Dead Horse Slough, a seasonal drainage course that is tributary to Little Chico Creek. Flows from California Park Lake (Cal Park Lake), a privately owned and operated recreational and visual amenity located east of Bruce Road and north of SR 32, discharge into Dead Horse Slough, which is adjacent to the lake. The artificial lake is impounded and includes a dam, spillway, and levee system.

- establish a storm drain fee structure compatible with General Plan policies;
- use natural drainage techniques where feasible;
- enhance surface water quality; and
- establish a means to fund ongoing facility maintenance.

1997 Storm Drainage Master Plan

Based on the finding of the 1992 FEIR and the 1994 Chico General Plan Update, in 1997 the City of Chico prepared an amendment to the 1987 SDMP (1997 Storm Drainage Master Plan) which incorporated additional project elements to address:

- peak flow in Comanche Creek and Little Chico Creek;
- channel stabilization in all waterways passing through the urban area;
- Best Management Practices (BMPs) throughout the urban area; and
- design and data collection projects necessary to develop and implement the future Storm Water Management Program and water quality monitoring.

Specifically, in the vicinity of the project site, the 1997 SDMP proposes peak flow attenuation facilities for the Little Chico Creek Drainage Basin including construction of a chain of detention basins on the south fork of Dead Horse Slough to divert runoff to Little Chico Creek. In addition, a detention basin is proposed near the outfall to Little Chico Creek.⁶

Regulatory Context

City of Chico General Plan

The City of Chico General Plan identifies several objectives (Guiding and Implementing Policies) that are applicable to stormwater runoff management. Specific Goals and Implementing Policies that are relevant to the proposed project are:

- | | |
|---------|--|
| PP-G-13 | Undertake efforts to minimize stormwater runoff. |
| PP-G-19 | Establish and maintain standards for public services and facilities to ensure that service demands of new development do not exceed the capacities of streets, utilities, and other public services. |
| PP-I-37 | Continue exploring alternatives to stormwater collection methods, including the use of detention/retention basins and the feasibility of a "no net runoff" concept for the entire urban area. |
| PP-I-38 | Use porous materials (e.g., porous asphalt, modular paving, gravel, lattice concrete blocks and porous bricks) for outdoor spaces, paving, and sidewalks, where feasible. |
| PP-I-40 | Delineate urban areas draining to Little Chico and Comanche Creeks, and require stormwater detention for all projects draining to these creeks. Require no net increase in peak stormwater runoff. |

- PP-I-42 Ensure that new development has minimal impact on natural drainage channels and flow capacity.
- OS-I-41 Require use of Best Management Practices to control runoff from all new development within the Planning Area.
- PP-I-62 Use resource-based standards for transportation facilities, parks, water, wastewater, and drainage facilities and police and fire service established in TABLE 5.6-1 as a basis for decision on applications for major development projects.
- S-I-2 When considering areas for future urban expansion, ensure that impacts of flooding are adequately analyzed.

Applicable standards and review criteria of Table 5.6-1, on page 5-28 of the City of Chico General Plan (November 1994), are included in this discussion. The performance standard for storm drainage is no net increase in peak storm-water run-off. Projects occurring in Little Chico Creek and Comanche Creek drainages, or projects over two acres in other drainages will be required to pay fees to mitigate their impacts. Development will only be approved if the project design incorporates run-off reduction standards, and payment of fees in proportion to run-off.

City of Chico Municipal Code

The City of Chico Municipal Code contains specific requirements relating to stormwater runoff management. Chapter 15.04 requires that all storm water (not required to be conveyed to the sanitary sewer system) be connected to a City storm drain system.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

Drainage impacts were qualitatively evaluated based on existing and proposed land uses, effectiveness of proposed drainage structures and applicable City drainage design standards and General Plan policies, and underlying soil type. For the 43-acre portion of the Project, runoff was calculated using the modified rational method (see Appendix K). Similar calculations were not performed for the full Conceptual Master Plan, because the required level of detail is not yet known. Instead the estimated percent of impervious surface cover was determined based on the conservative assumption that residential uses and streets would result in 100 percent impervious surface cover and that open space uses would result in zero percent impervious surface. These conservative assumptions are used to provide a worst-case analysis because specific runoff calculations are not available.

The context for evaluation of cumulative impacts associated with localized and regional flooding includes buildout of the City of Chico General Plan in the Little Chico Creek Drainage Basin.

Standards of Significance

For the purpose of this EIR, an impact is considered significant if implementation of the proposed project would:

- result in substantial changes in absorption rates, drainage patterns, or the rate and amount of surface runoff which cause a net increase in peak stormwater runoff.

Project Impacts and Mitigation Measures

4.7-1 The Project would increase impervious surface cover which could contribute to localized flooding and exceed existing drainage capacity.

The Project would develop residential and open space uses on a currently undeveloped site which would increase impervious surface cover, resulting in increases in the rate and amount of surface runoff.

Calculating stormwater flow requires the measurement of a number of variables, including the amount of water that must be handled due to the intensity of the storm, the time frame within which the water must be handled, and the portion of the water likely to run off (as opposed to percolating into the soil or other permeable surfaces).

The above factors are considered to be interrelated. For example, the intensity of the storm must be computed in terms of the entire watershed. A hard rain in one part of the watershed may create local flooding problems; however, a storm that affects the entire watershed may be less intense at the local level.

The time concentration of runoff is important because drainage flows may exceed the capacity of the affected water course and/or drainage facilities. If large volumes of water from all parts of the drainage basin enter a collection facility at the same time, and the facility is not sized to receive the volume of flow, it may back up or overflow creating the potential for localized flooding. Timing can be influenced by detaining upstream flows for release after the peak has passed the effected facilities. Timing of peak flows is also influenced by the amount of percolation and soil saturation as well as other factors.

Runoff from the project site flows in Dead Horse Slough and Little Chico Creek which currently experience inadequate capacity with large storm events. Therefore, increases in the rate and amount of surface runoff could exacerbate existing upstream and downstream localized flooding.

Soils underlying the project site primarily consist of shallow toomes/pentz substrate with Tuscan Formation (lava flows). This soil type is characterized by well-drained soils underlain by the volcanic material in the Tuscan Formation which is generally impervious to vertical flow. Therefore, post-project runoff may not substantially increase over pre-project conditions.

The following describes the anticipated drainage impacts for development of the Master Plan and 43-acre portion of the subdivision.

43-acre Portion of the Subdivision

Implementation of the 43-acre portion of the subdivision would increase impervious surface cover when compared to existing conditions. Both Dead Horse Slough and Little Chico Creek currently experience inadequate capacity with large storm events. Therefore, increases in the rate and amount of surface runoff could exacerbate existing localized flooding and could exceed existing drainage capacity.

As described in the setting discussion, the City of Chico requires applicants for developments in the Little Chico Creek watershed to demonstrate no net increase in post-project peak flow runoff when compared to pre-project conditions. In accordance with City of Chico requirements for development in the Little Chico Creek watershed, the applicant conducted a drainage analysis for the 43-acre portion of the subdivision. The analysis is presented in Appendix K of this DEIR. Based on this analysis, it was determined that in order to maintain post-project peak flows at pre-project levels and in order to provide storm water quality mitigation, the minimum detention volume would be 0.21 acre-feet for a 10-year storm and 0.36 acre-feet for a 100-year storm.

The proposed project includes preliminary on-site drainage improvements including two on-site detention basins with a total storage space of 0.5 acre-feet. One 10,500 square foot by four-foot deep detention basin is proposed in the southwest corner of the site. A second 5,000 square foot by two-foot deep detention basin is proposed in the southeast portion of the site. The final size of both detention basins is proposed to be determined at the time of submittal of subdivision improvement design.

Because proposed project detention facilities would be sized to accommodate more runoff than the Project would generate (0.5 acre-feet versus 0.36 acre-feet), post-project peak flows would remain at pre-project levels. Therefore, the project increase in surface water runoff is considered a *less-than-significant impact*.

Conceptual Master Plan

Implementation of the Master Plan would result in up to 252 acres (not excluding yards/setback, parking strips, etc.) of impervious surface cover (including the proposed 43-acre portion of the subdivision) out of 340 acres. Approximately 88 acres would be designated as open space for resource protection and passive recreation use.

Increased impervious surface cover could result in an increase in the rate and amount of surface runoff into Dead Horse Slough and Little Chico Creek. Both these creeks currently experience inadequate capacity with large storm events. Therefore, increases in the rate and amount of surface runoff could exacerbate existing upstream and downstream localized flooding.

As described in the setting discussion, the City of Chico requires applicants for developments in the Little Chico Creek watershed to demonstrate no net increase in post-project peak flow runoff when compared to pre-project conditions. Because this analysis has not been prepared for the Master Plan, the increase in runoff is considered a *significant impact*.

Mitigation Measure

Implementation of the following measure would reduce impacts due to increased peak stormwater runoff to a *less-than- significant level*.

- 4.7-1 *Prior to approval of any improvement plans for the Conceptual Master Plan, applicants shall submit and obtain approval of final drainage plans from the City of Chico Public Works Director. Final drainage plans shall demonstrate that post-development surface drainage peak flows shall be reduced to pre-development conditions. The drainage plan shall be prepared by a registered civil engineer and shall be in conformance with City of Chico requirements. The drainage plan shall include at a minimum a description of existing conditions, pre- and post-development runoff, proposed on-site improvements, appropriate calculations, a watershed map, and maintenance responsibilities. (Conceptual Master Plan)*

Incorporating approximately sized drainage features into the Project will ensure that post-project runoff does not exceed pre-project levels, so that the Project does not exacerbate existing flood conditions.

Cumulative Impacts and Mitigation Measures

The cumulative context for the Project is build out of the Conceptual Master Plan in combination with buildout of other development in the Little Chico Creek watershed or drainage area.

- 4.7-2 **Increased impervious surface cover associated with development of the Project, in combination with buildout of other development in the Little Chico Creek drainage shed, could cumulatively contribute to localized flooding and exceed existing drainage capacity.**

The development of the Conceptual Master Plan, which includes the 43-acre portion of the subdivision, in combination with the other Special Development Areas listed in the General Plan within the Little Chico Creek drainage area could result in a cumulative increase in impervious surface cover. Increased impervious surface cover could increase the rate and amount of surface runoff to Dead Horse Slough and Little Chico Creek. Both creeks currently experience inadequate capacity with large storm events. As previously described, the time concentration of runoff is important. If large volumes of water from the drainage basin enter a collection facility at the same time, and the facility is not sized to receive the volume of flow, capacity may be exceeded and localized flooding could occur. Therefore, increases in the rate and amount of surface runoff could exacerbate existing downstream localized flooding. As described in the setting discussion, the City of Chico requires applicants for development in the Little Chico

Creek watershed to demonstrate no net increase in post-project peak flow runoff when compared to pre-project conditions. If the applicants cannot demonstrate no net increase, this impact is considered *significant*.

Mitigation Measure

Implementation of the following measures would reduce the cumulative impact on flooding to a *less-than-significant level*.

4.7-2 Implement Mitigation Measure 4.7-1, shown below:

- 4.7-1** *Prior to approval of any improvement plans for the Conceptual Master Plan, applicants shall submit and obtain approval of final drainage plans from the City of Chico Public Works Director. Final drainage plans shall demonstrate that post-development surface drainage peak flows shall be reduced to pre-development conditions. The drainage plan shall be prepared by a registered civil engineer and shall be in conformance with City of Chico requirements. The drainage plan shall include at a minimum a description of existing conditions, pre- and post-development runoff, proposed on-site improvements, appropriate calculations, a watershed map, and maintenance responsibilities. (Conceptual Master Plan)*

ENDNOTES

1. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 9-12.
2. Federal Emergency Management Agency, *Flood Insurance Study, Butte County, California, and Unincorporated Areas*, June 1998, pages 20 and 21.
3. City of Chico, *Chico General Plan Draft Environmental Impact Report*, August 1994, pages 4.7-6 and 4.7-8.
4. City of Chico, *Master Environmental Assessment for Chico General Plan*, January 1994, page 9-12.
5. City of Chico, *City of Chico General Plan*, November 1994.
6. Ibid, page 34 of 46.

4.8 BIOLOGICAL RESOURCES

4.8 BIOLOGICAL RESOURCES

INTRODUCTION

This section identifies the existing conditions of the project site in terms of vegetation, plant communities, wildlife, wetlands, and potential habitat for special-status species. The environmental setting presented below is based on the review of a draft *Preliminary Resource Management, Monitoring, and Reporting Information for the Oak Valley Project*¹ prepared by Foothill Associates, an evaluation of natural habitats, wildlife, and sensitive species report prepared by Beak Consultants Incorporated, wetland delineations conducted by Simpson Environmental, and biological field studies of the project area conducted by EIP.

As discussed in Chapter 1, Introduction, impacts are evaluated at a project-specific level for the 43-acre portion of the Subdivision, and at programmatic level for the full Conceptual Master Plan.

ENVIRONMENTAL SETTING

Regional Overview

The project area is regionally situated in the northern end of the Great Central Valley, California, within Butte County on the western fringe of the Sierra Nevada foothills. The project area can be characterized as an upland portion of the American Basin and lies at an elevation of 250 to 700 feet above mean sea level. The American Basin drains about 2,100 square miles along the western slope of the Sierra Nevada range in northern California to the confluence of the American and Sacramento Rivers. The American Basin forms a broad floodplain covering approximately 110,000 acres.²

The project site is located within sections 20 and 21, Township 22 north and Range 2 east on the USGS 7.5-minute Chico topographic quadrangle map. The project site is bordered by highway 32 to the north, Humboldt Road to the south, Bruce Road to the west, and 500-Kv power lines to the east.

The typical climate of the project area is very distinctive between the summer and winter seasons. The winter season is characterized by overcast days, and lengthy periods of rain and drizzle in normal rainfall years. Winter temperatures range from lows in the 30's to an average high of 74°F, with occasional overnight freezing temperatures. Rainfall typically occurs from November through April. Summer temperatures range from an average low of 50°F to an average high of 93°F, with temperatures often exceeding 100°F. This high average summer temperature, combined with moderately low relative humidity, produces dry, hot summers.³

Existing conditions in the vicinity of the project area consist of non-irrigated grazing land, irrigated pastures, urban development (urban and rural residential uses, and commercial areas in the City of Chico), and natural vegetation communities. The on-site vegetation includes tree, shrub, herb, and grass species that occur mostly along the creek corridors and in open areas throughout the project site. Portions of the project site are currently used for seasonal grazing.

Project Site Habitats

Biological resources in the project site were characterized using the habitat types defined in the Wildlife Habitat Relationship System (WHR).⁴ Habitat types within the project site include Annual Grassland, Blue Oak Woodland/Savannah, Valley-Foothill Riparian, and Riverine. The composition, vegetative structure, and approximate extent of each habitat types within the project site are described below. Habitat, types and special-status species habitat are shown in Figure 4.8-1.

Annual Grassland Habitat

The Annual Grassland habitat occurs in the open areas throughout the project area. Annual Grassland consists of mostly non-native annual grasses and herbaceous plant species. The majority of the fields in the project area supporting Annual Grassland are regularly used for grazing. There is currently no active cultivation of these fields. Typical wildlife associated with Annual Grassland includes California vole, California ground squirrel, black-tailed jackrabbit, ring-necked pheasant, western meadowlark, western kingbird, burrowing owl, western fence lizard, western rattlesnake, common garter snake, and gopher snake. In addition, the open grasslands provide foraging areas for red-tailed hawk, golden eagle, northern harrier, prairie falcon and turkey vulture. The grassland areas also support habitat for mule deer, coyote, striped skunk, and gray fox. In addition, the transition zone, or ecotone, between the open grasslands and oak woodlands provides important habitat for species such as red-tailed hawk, great-horned owl, western screech-owl, American kestrel, and western bluebird which prefer open areas for foraging, but also require nearby trees for nesting and roosting.

Some portions of the Annual Grassland habitat contain shallow topographic depressions underlain by an impervious hardpan/claypan. These areas support vernal pools or seasonal wetlands. Vernal pools are known to support a unique flora and invertebrate fauna (crustaceans and aquatic insects) that are adapted to completing their annual life cycle in the seasonally inundated basins. Most of these species lay dormant in the soil as seeds or eggs during the hot dry portion of the year until the next rainy season. Certain amphibians, insects, and other invertebrates breed and lay eggs only in vernal pools, while other species such as the western spadefoot and pacific tree frog opportunistically breed in some of the deeper pools. During the wet months, seasonal wetlands and vernal pools are also used by waterfowl and other migrating birds as a place to drink, feed, and rest. Vernal pools and seasonal wetlands are located in the western portion of the open fields/pasture within the project site.^{5,6}

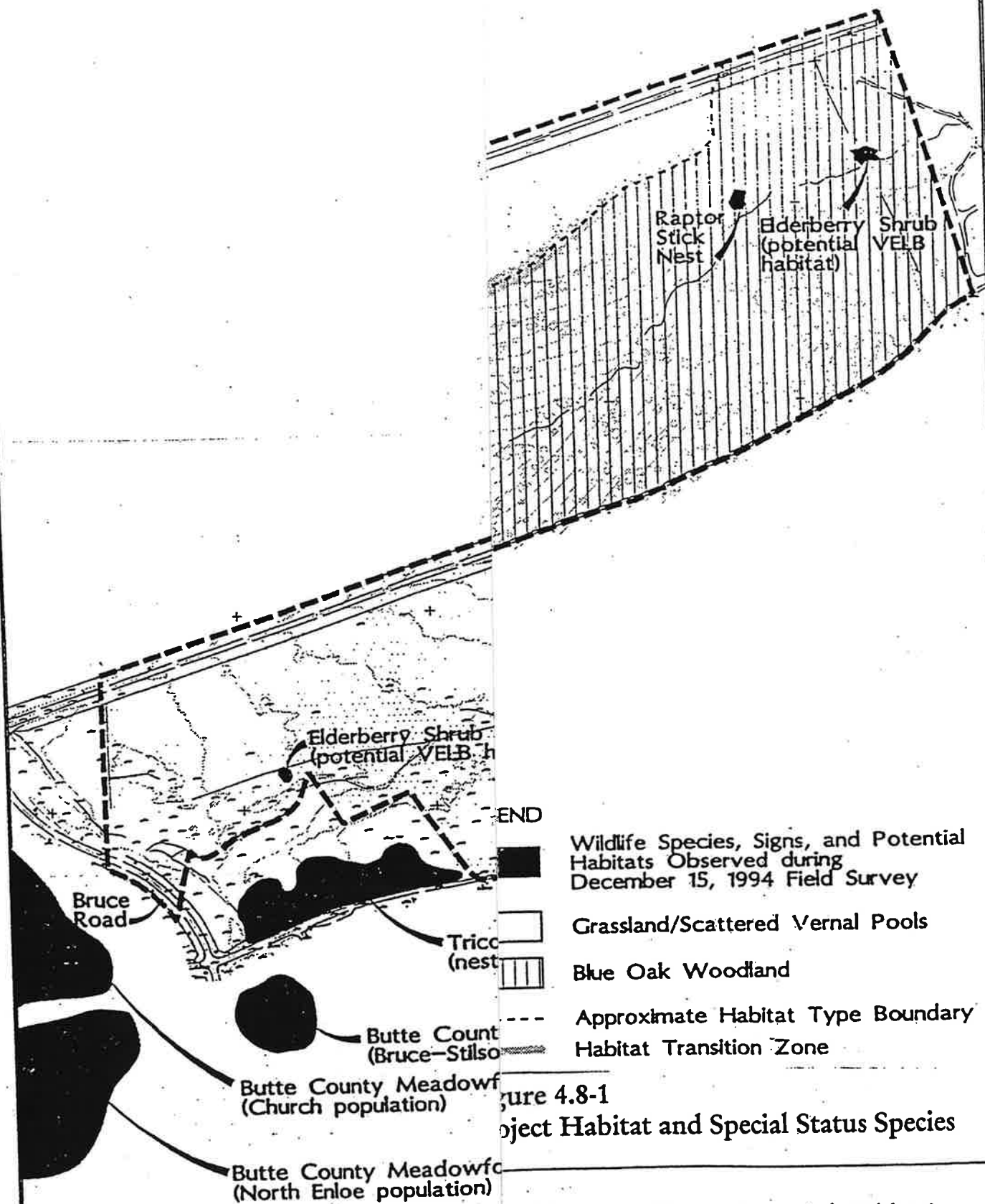


Figure 4.8-1

Project Habitat and Special Status Species

Field Survey Observations and California Natural Diversity Data Base (1994)
Sensitive Species Locations within the California Park South, Chico, Study Area

DATE
MAY 95
PROJECT NUMBER
41317

beak

beak
consultants
incorporated

Valley-Foothill Riparian and Riverine Habitats

Valley-Foothill Riparian and Riverine habitats exist along the intermittent South Branch of Dead Horse Slough. This intermittent stream bisects the project site. The riparian habitat is the terrestrial component to the aquatic Riverine habitat (open water of the creek) in this interdependent system. The majority of the Valley-Foothill Riparian habitat occurs as intermittent stands of trees growing along portions of the stream. The Riverine habitat designation applies to the open water or aquatic environment of the stream.

The riparian areas along the South Branch of Dead Horse Slough provide valuable roosting, foraging and nesting habitat for birds, while at the same time providing shade over the stream. The open water habitat of the stream provides important food and cover for wildlife. Species typically observed in the riparian habitat include American kestrel, red-tailed hawk, great-horned owl, western bluebird, belted kingfisher and yellow-billed magpie. Resident and migratory song birds typically use the riparian habitat for nesting in the spring and summer.

Blue Oak Woodland/Savannah

The Blue Oak Woodland/Savannah habitats are dominated by blue oak, but also include interior live oak, valley oak, black oak, California buckeye, and foothill pine along the lowlands adjacent to the South Branch of Dead Horse Slough in the middle portion of the project site. Valley oaks dominate the woodland habitat. The understory in the Blue Oak Woodland/Savannah habitats is composed of herbaceous and annual grassland species.

The complex structure, abundance of food, cover, and nesting sites provided by the Blue Oak Woodland/Savannah habitats create habitats with high value for wildlife. Numerous mammals such as mule deer, bobcat, striped skunk, raccoon, western gray squirrel, and a variety of common small rodents can be found in the Blue Oak Woodland/Savannah habitats on the project site. Typical bird species known to use these habitats include acorn and Nuttall's woodpecker, western scrub jay, and various species of warblers and flycatchers. The abundance of insects that occur in these habitats attracts bird species such as the western bluebird, oak titmouse, white-breasted nuthatch, and Bullock's oriole. Dead or dying trees in these habitats often provide open cavities that are used as nesting sites for American kestrel, western screech-owl, tree swallow, wrens, and western bluebirds. Often times the cavities are produced by primary cavity nesters such as woodpeckers (who excavate), but are used by secondary cavity nesters (who simply use the holes). The oaks also provide suitable nesting habitat for great-horned owls, red-tailed hawks, and Cooper's hawks. See Appendix L for a list of plant and wildlife species observed during the field surveys.

Special-Status Species

For the purposes of this section, special-status species include those species that are listed as rare, threatened, or endangered by the California Department of Fish and Game (DFG) or the U.S. Fish and Wildlife Service (USFWS); species that are candidates for either state or federal listing; species designated as "fully protected" or "species of special concern" by the DFG and USFWS; and other species that are tracked by the California Natural Diversity Data Base or are on list 1B of the California Native Plant Society. Species with any of the above status designations meet the

definition of "rare", "endangered" or "special status" as presented in Section 15380(d) of the CEQA Guidelines and therefore must be addressed during preparation of a CEQA document if the project may impact the species. Table 4.8-1 of this section lists the endangered, threatened, or rare wildlife species that could be potentially impacted by the Project.

The project site has the potential to support a variety of special-status plant and wildlife species. Specifically, the vernal pools on the project site have the potential to support special-status plant or vernal pool crustacean species, while the upland habitats have the potential to support special-status wildlife species including the Swainson's hawk, other raptors, and valley elderberry longhorn beetle.

Swainson hawks are known to forage as far as 18 miles from the nest. However, 50 percent of their foraging time occurs within one-half mile (63 to 202 acres) of their nest sites during peak nesting activities (high food demands of nestlings).⁷ The open grassland areas within the project site and trees that border the onsite streams could provide suitable nesting and foraging habitat for Swainson's hawk. However, Swainson's hawks typically prefer mature riparian vegetation, adjacent to open agricultural areas on the valley floor. Therefore, the project site does not represent or provide optimum nesting or foraging habitat for Swainson's hawk. In addition, Blue Oak Woodland habitat does not typically provide appropriate habitat for Swainson's hawk.⁸ Further, several field surveys did not reveal the presence of Swainson's hawks in the vicinity.⁸ The nearest recorded occurrences listed by the CNDDB and City of Chico General Plan's Master Environmental Assessment are located along the Sacramento River, a considerable distance from the project site.

Elderberry shrubs, host to the valley elderberry longhorn beetle, have been recorded within the Conceptual Master Plan boundaries, but were not recorded in the 43-acre Subdivision portion of the site.

REGULATORY BACKGROUND

A number of federal and State statutes and City policies provide the regulatory structure that guides the protection of biological resources. The following discussion summarizes those laws that are most relevant to biological resources in the vicinity of the project site.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) implements the Migratory Bird Treaty Act (16 USC Section 703-711), Bald and Golden Eagle Protection Act (16 United States Code (USC) Section 668), and Federal Endangered Species Act (FESA; 16 USC § 153 *et seq.*). Projects that would result in "take" of any federally-listed threatened or endangered species are required to obtain authorization from the USFWS through either Section 7 (interagency consultation) or

Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project. The authorization process is used to determine a project would jeopardize the continued existence of a listed species and what mitigation measures would be required to avoid jeopardizing the species.

TABLE 4.8-1

**ENDANGERED, THREATENED, OR RARE WILDLIFE SPECIES POTENTIALLY IMPACTED BY THE OAK
VALLEY MASTER PLAN OR 43-ACRE PORTION OF THE SUBDIVISION**

Species	Status ¹ Fed/CA/CNPS	Habitat Requirements	Conceptual Master Plan Area	43-Acre Portion of the Subdivision
<i>Plants</i>				
Four-angled spikerush (<i>Eleocharis quadrangulata</i>)	--/--/1B	Marshes and margins of lakes and ponds	Unlikely to occur, due to lack of required habitat components	Unlikely to occur, due to lack of required habitat components
Butte County fritillary (<i>Fritillaria eastwoodiae</i>)	--/--/1B	Woodland and coniferous forest on serpentine, red-clay, or sandy soils	Not observed during focused plant surveys in 1995 and 1997	Unlikely to occur, due to lack of required habitat components
Rose mallow (<i>Hibiscus lasiocarpus</i>)	--/--/1B	Marshes and swamps	Unlikely to occur, due to lack of required habitat components	Unlikely to occur, due to lack of required habitat components
Butte County meadowfoam (<i>Limnathes floccosa</i>)	E/E/1B	Valley and foothill grasslands, swales, vernal pools	Could occur on the extreme western side; however, not observed during plant surveys	Not expected to occur, because no appropriate soils
Ahart's paronychia (<i>Paronychia abartii</i>)	--/--/1B	Woodland, valley and foothill grassland, and vernal pools	Could occur; however, not observed during plant surveys	Could occur; however, not observed during plant surveys
California-beaked rush (<i>Rhynchospora californica</i>)	--/--/1B	Marshes and swamps	Unlikely to occur, due to lack of required habitat components	Unlikely to occur, required habitat components not on-site
Butte County checkerbloom (<i>Sidalcea robusta</i>)	--/--/1B	Chaparral and cismontane woodland	Unlikely to occur, due to lack of required habitat components	Unlikely to occur to occur, required habitat components not on-site
<i>Invertebrates</i>				
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	E/--	Vernal Pools	Extremely low potential to occur in vernal pools	Not expected to occur, because no vernal pools present
Longhorn fairy shrimp (<i>Branchinecta longiatenna</i>)	E/--	Vernal Pools	Low potential to occur, but could occur in vernal pools on-site	Not expected to occur, because no vernal pools present

TABLE 4.8-1

ENDANGERED, THREATENED, OR RARE WILDLIFE SPECIES POTENTIALLY IMPACTED BY THE OAK VALLEY MASTER PLAN OR 43-ACRE PORTION OF THE SUBDIVISION

Species	Status ¹ Fed/CA/CNPS	Habitat Requirements	Conceptual Master Plan Area	43-Acre Portion of the Subdivision
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T/-	Vernal Pools	Low potential to occur, but could occur in vernal pools on-site	Not expected to occur, because no vernal pools present
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	T/-	Elderberry shrubs	Elderberry shrubs observed on-site	Surveys did not locate the elderberry shrub on the 43-acre site
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	E/-	Vernal pools	Low potential to occur, but could occur in vernal pools on-site	Not expected to occur, because no vernal pools present
Fish				
Fall-run chinook salmon (<i>Oncorhynchus tshawytscha</i>)	-/-	Anadromous fish requires perennial streams	Highly unlikely to occur in on-site tributary	Not expected to occur, because no habitat present
Steelhead rainbow trout (<i>Salmo gairdneri gairdneri</i>)	T/-	Anadromous fish requires perennial streams	Highly unlikely to occur in on-site tributary	Not expected to occur, because no habitat present
Amphibians				
California tiger salamander (<i>Ambystoma californiense</i>)	CSC/CSC	Vernal pools or seasonal ponds for breeding rodent burrows in uplands for dry season refuge	Could occur on-site in vernal pools	Not expected to occur, because no vernal pools or seasonal ponds present
Western spadefoot toad (<i>Scaphiopus hammondi</i>)	-/CSC	Vernal pools or seasonal ponds for breeding rodent burrows in uplands for dry season refuge	Could occur on-site in vernal pool habitat	Not expected to occur, because no vernal pools or seasonal ponds present.
Reptiles				
Western pond turtle (<i>Clemmys marmorata</i>)	CSC/CSC	Perennial aquatic habitats	Highly unlikely to occur, because required habitat components not present	Highly unlikely to occur, because required habitat components not present
Giant garter snake (<i>Thamnophis gigas</i>)	T/T	Spring and summer aquatic habitats associated with slow moving streams, sloughs, rice fields, and agricultural irrigation ditches	Highly unlikely to occur, because required habitat components not present	Highly unlikely to occur, because required habitat components not present

TABLE 4.8-1

ENDANGERED, THREATENED, OR RARE WILDLIFE SPECIES POTENTIALLY IMPACTED BY THE OAK VALLEY MASTER PLAN OR 43-ACRE PORTION OF THE SUBDIVISION

Species	Status ¹ Fed/CA/CNPS	Habitat Requirements	Conceptual Master Plan Area	43-Acre Portion of the Subdivision
<i>Birds</i>				
Western burrowing owl (<i>Athene cunicularia hypugae</i>)	CSC,FP	Grassland with ground squirrel burrows	Low potential to occur	Low potential to occur
Great blue heron (<i>Ardea herodias</i>)	--/--	Large trees near water and food source for rookery sites (colonial nest sites)	Highly unlikely to occur, because required habitat components not present	Highly unlikely to occur, because required habitat components not present
Great egret (<i>Ardea herodias</i>)	--/--	Large trees near water and food source for rookery sites (colonial nest sites)	Highly unlikely to occur, because required habitat components not present	Highly unlikely to occur, because required habitat components not present
Swainson's hawk (<i>Buteo swainsoni</i>)	--/T	Riparian habitat for nesting; open grassland and some annual cropland for foraging	Highly unlikely to occur, because required habitat components not present; lack of suitable nest sites	Highly unlikely to occur, because required habitat components not present; lack of suitable nest sites
¹ Status				
Fed	Federal status under the Endangered Species Act			
E	Endangered			
T	Threatened			
CSC	Considered a species of special concern by the U.S. Fish and Wildlife Service			
CA	Status under the California Endangered Species Act, the Fish and Game Code of California, or the Department of Fish and Game			
T	Threatened			
FP	Fully protected against take pursuant to Section 3503.5 of the Fish and Game Code of California			
CSC	Considered a species of special concern by the California Department of Fish and Game			
CNPS				
1B	Plants that are rare throughout their range and are vulnerable under present circumstances or have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population or their limited number of populations.			
--	No Federal or California status			

The federal definition of "take" includes "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Candidate species do not have the full protection of FESA. However, the USFWS advises project applicants that it is prudent to address these species since they could be elevated to listed status prior to completion of projects with long planning or development schedules. For this reason, federal candidate species are addressed in this analysis.

U.S. Army Corps of Engineers

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) has authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. Perennial and intermittent creeks are considered waters of the United States and are within the regulatory jurisdiction of the Corps. The Corps implements the federal policy embodied in Executive Order 11990, which is intended to preserve wetland values or acres. In achieving the goals of the Clean Water Act, the Corps seeks to avoid adverse impacts and to offset unavoidable adverse impacts on existing aquatic resources. Any fill or adverse modification of wetlands may require a permit from the Corps prior to the start of work. Typically, permits issued by the Corps condition a project with mitigation to offset unavoidable impacts on wetlands and other waters of the United States in a manner that achieves the goal of no net loss of wetland acres or values. The Project will require a permit or authorization from the Corps for work in the South Branch of Dead Horse Slough, and, if proposed, fill of wetlands. The permit most likely to be required will be an "Individual Permit."

California Department of Fish and Game

The California Department of Fish and Game (DFG) derives its authority from the Fish and Game Code of California.⁹ The California Endangered Species Act (CESA; Fish and Game Code Section 2050 *et seq.*) prohibits the take of listed threatened or endangered species. "Take" under CESA is restricted to the direct killing of a listed species and does not prohibit indirect harm by way of habitat modification.¹⁰

Species of Special Concern (CSC) is a category conferred by DFG for those species which are considered to be indicators of regional habitat changes or are considered to be potential future protected species. Species of special concern are not necessarily afforded protection under the code unless they are addressed as California Fully Protected Species. The CSC category is intended by the DFG for use as a management tool to take these species into special consideration when decisions are made concerning the development of natural lands.

The DFG also has authority to administer the Native Plant Protection Act (Fish and Game Code Section 1900 *et seq.*). CESA requires the DFG to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the Act, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of rare or endangered plants.

Perennial and intermittent streams also fall under the jurisdiction of DFG pursuant to Sections 1601-1603 of the Fish and Game Code (Streambed Alteration Agreements). DFG jurisdiction over work within the stream zone includes, but is not limited to, the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream or lake. Project activities that can affect the banks of the South Branch of Dead Horse Slough are considered to be activities in the stream zone and would require a Streambed Alteration Agreement from the DFG.

California Environmental Quality Act (CEQA)

CEQA requires review of projects to determine their environmental effects and to identify mitigation for significant effects. The CEQA Guidelines state an effect may be significant if it affects rare and endangered species. Section 15380 of the CEQA Guidelines defines "rare" to include listed species, and allows agencies to consider "rare" species other than those designated as State or federal threatened or endangered, but that meet the standards for rare under the federal or state endangered species acts. On this basis, plants designated as "rare" by non-regulatory organizations (i.e., California Native Plant Society), species of special concern (DFG), Candidate species (USFWS) and other designations may need to be considered in CEQA analyses.

City of Chico General Plan

The City of Chico General Plan's conservation strategy focuses on habitat conservation, minimization of impacts on sensitive biological resources, and the preservation of plant and animal diversity as the most effective way to protect individual special status species.

Based on the results of fieldwork and other studies undertaken as part of the General Plan, a habitat "scoring system" was devised to rank sensitive habitats within the City of Chico's Planning Area. This information was used to classify certain habitats as either a Resource Conservation Area (RCA) or a Resource Management Area (RMA). RCAs are either under public ownership or have been agreed to be preserved by project proponents as a condition of development approval. RMAs, unlike RCAs, would allow some level of development if proposed projects demonstrate that sensitive resources would be protected. The project site falls within a designated RMA.

Resource Management Areas

RMAs generally contain resources that merit long-term preservation, but further study is necessary before a precise delineation of acreage to be preserved can take place.

RMAs include ecological systems representing important habitat types, such as blue oak woodland, blue oak savanna, valley oak woodland, mixed oak woodland, live oak woodland, cottonwood riparian, valley oak riparian, mixed riparian, willow scrub, open water, emergent wetland, vernal pools, lower perennial riverine, upper perennial riverine, and intermittent riverine habitats. Portions of some of the RMAs include highly sensitive habitats that may be appropriate for on-site preservation and management, or for incorporation into an existing RCA if one is adjacent. This determination would occur during review of development proposals for sites within the RMA.

Some level of development within an RMA is allowed if the development project demonstrates that sensitive resources would be protected. The intent of the RMA designation is to ensure that biological resources are considered early in the development process, prior to substantial design/layout/engineering of a development application. For sites located partly or wholly within an RMA, a development applicant would be required to participate in a pre-application review with City staff to identify and discuss the biological resources potentially affected by the project and the applicable policies and review procedures for RMAs. The applicant would then submit a preliminary Resource Management, Monitoring and Reporting Information (RMMRI), or required elements thereof, along with a development application and information required for environmental review. The RMMRI would be revised during the environmental review process, and the final RMMRI would be approved when environmental review is complete to avoid any additional steps in the process.

Both RCAs and RMAs are intended to be of sufficient size to ensure the long-term viability of the habitats and species that occur within the area.

City of Chico General Plan Guiding Policies: Biotic Resources

The following general plan goals and policies are intended to protect Chico's biological resources.

- OS-G-5 Protect habitats that are sensitive, rare, declining, unique or represent valuable biological resources in the Planning Area. These include Resource Conservation and Resource Management Areas.
- OS-G-6 Preserve and protect populations and supporting habitat of special status species within the Planning Area, including species that are state or federally-listed as Rare, Threatened, or Endangered, all federal "candidate" species for listing and other species on officially adopted federal and/or state listings, and all California Species of Special Concern.
- OS-G-7 Minimize impacts to sensitive natural habitats throughout the Planning Area.

In new developments, emphasis should be placed on protecting and preserving valuable and sensitive natural habitats. The comprehensive habitat mapping and biological resource inventory prepared as part of Plan preparation shall be consulted when reviewing development applications.
- OS-G-8 Preserve and protect areas determined to function as regional wildlife corridors, particularly those areas that provide natural connections permitting wildlife movement between designated sensitive habitats and all areas being considered for future conservation because of their high value.

For terrestrial wildlife, particularly those species that require large home ranges (such as the bobcat and mountain lion), connecting corridors are an essential habitat element because they permit access into areas that might otherwise be too small to use if isolated. For less mobile species, such as small mammals, corridors become more important in the long-term because they permit occasional movements between populations, which provides for genetic exchange and more healthy individuals. The preservation of corridors includes development of maintenance and monitoring programs, designation of protective buffers, and construction of under crossing, as necessary.

- OS-G-9 Provide for no net loss of overall wetland acreage; where such losses may be unavoidable at the project level, require mitigation that meets the no net loss goal.

This policy is consistent with state and federal wetlands policies. The City will continue to work with state and federal regulatory agencies, exploring the feasibility of wetlands mitigation alternatives, including provisions for mitigation banking, transfer of development rights, and land purchases, to implement the "no net loss" goal.

Resource Management Areas

- OS-I-23 Protect sites designated as Resource Management Areas by amending the Zoning Ordinance to include a Resource Management (RM) Overlay District to apply to sites designated as Resource Management Areas. Establish use regulations and development standards for the RM District, including provisions for clustering of development in Resource Management Areas, waiver of minimum-lot-width requirements, and narrower local street widths where these would enhance protection of sensitive habitats and resources, and prohibition of grading prior to receipt of discretionary approvals, subject to CEQA review.

- OS-I-24 Establish procedures for reviewing development applications in Resource Management Areas and for approving off-site mitigation to replace resources affected by development.

Prior to submittal of a development application on sites wholly or partially within an RMA, the project applicant shall meet with City staff at a Development review Committee meeting or other appropriate meeting, to discuss how the Proposed Project could affect biological resources, including protected species and sensitive habitats present or potentially present. City staff will review techniques and design solutions to protect those resources, and mitigation alternatives for those resources which can not be avoided. If the project applicant proposes to remove or irreparably affect sensitive biological resources, then options for habitat compensation will be discussed, including on-site and off-site preservation, creation, or enhancement of RCAs.

The City will establish a checklist for use in "pre-application" conferences to ensure that all information relevant to sensitive biological resources mitigation and monitoring is reviewed, and all responsible agencies are consulted, and that applicants are aware of the City's interest in and procedures for preserving, protecting and managing resources potentially affected by development in RMAs.

- OS-I-25 Require applicants for development with sites wholly or partially within Resource Management Areas and within the Resource Management Overlay District to submit preliminary resource management information including that necessary for analysis, monitoring, and reporting, as stipulated in OS-I-26 and as needed for completion of an environmental assessment. The preliminary resource management information and conceptual development plan shall be submitted for review during the pre-application development review process.

It is expected that in sites where biological resources exist and are not identified as Resource Conservation Areas, development and the resources would coexist.

- OS-I-26 Establish guidelines for the preparation and submittal of Resource Management, Monitoring and Reporting Information in a *Best Practices Manual* to ensure consistency, streamline the development review process, and expedite Resource Management, Monitoring and Reporting Information preparation.

The Preliminary Resource Management, Monitoring and Reporting Information submitted by applicants will be required to include, at a minimum, the following information:

- An inventory of known or potentially-occurring biological resources within the RMA-designated acreage and surrounding buffer areas within 500 feet of the project site. This data should include: location of oak trees 6 inches or greater in width measured 4 feet above the base of the tree; descriptions and maps of all habitat areas; lists of all special status species observed or suspected of occurring on the property; and an analysis of on-site wildlife movement corridors, demonstrating connectivity between proposed on-site open space and off-site creek ways and RCA's.
- An analysis of how the preliminary site plan responds to biological resources and how applicable provisions of the City's *Best Practices Manual* were incorporated into engineering and design; identification of all proposed open space (including parks and private opens space), habitat preserves, protective setbacks (non-development buffers), any proposed corridor connections to off-site open space and RCAs, and general "footprints" of structures, major access roads and parking areas.
- Measures proposed to mitigate unavoidable impacts to biological resources. This "mitigation package" can include combinations of on-site preserved (managed) and created acreage, with restoration and enhancement components to increase habitat value when a loss of sensitive habitat acreage is not avoided. Clustering preserved acreage on-site, or with contiguous open space parcels just off-site, will be encouraged. When habitat preservation on-site is not feasible (i.e., preserved parcels would be too small to be any value, see OS-I-22), then off-site mitigation should occur, preferably at priority expansion areas for existing RCAs, or an expansions of proposed of existing open space acreage within adjoining or nearby RMAs.
- Topographic map and aerial photograph, showing property boundaries and delineated habitats (by type).
- Preliminary information on soils and hydrology, including drainage basin and watershed boundaries, surface flow patterns, depth to groundwater, and boundaries of known wetlands, creeks, and open water bodies. No detailed hydrologic analysis (e.g., peak flow or flood stage data) is necessary.
- Other information, as requested by City staff, that may be relevant to the type(s) of biological resources present in the RMA.
- Draft environmental documents prepared (e.g., negative declaration, environmental impact report) will consider the development application materials and the Resource Management, Monitoring and Reporting Information together. After City staff review and approval, the Resource Management, Monitoring and Reporting Information will be published along with the draft environmental document.

The final environmental document(s) will generally include the additional Resource Management, Monitoring and Reporting components listed below; the specific details and level of effort required to define each component will differ depending on the type of biological resources present on the site. The City's *Best Practices Manual* should be followed unless other suitable protection and management method are developed by a qualified biologist approved by the City.

- **Buffer Zone.** Standards and requirements for buffering sensitive natural habitats, including allowable uses, minimum widths and interface function, revegetation plans (if proposed), management practices, and access limitations.
- **Wildlife Movement Corridors.** Proposals to encourage wildlife use of RMAs, to be based on field surveys by a qualified biologist documenting current wildlife movement and activity on-site. The focus here should be on the more mobile terrestrial vertebrates, with mule deer, bobcat, mountain lion, raccoon, long-tailed weasel, gray fox, red fox, and coyote being some examples of suitable "target" species. Every effort should be made to preserve and enhance connections of on-site corridors with off-site open space, creek ways, and RCAs. If not already part of the mitigation acreage, then long-term management and monitoring of the corridors should be addressed.
- **Recreational & Education Plan.** Guidelines and standards for providing, and limiting, recreational activities, if applicable to the RMA, including descriptions of proposed recreational activities within public open space (e.g., parkways, green space, or golf courses. Where biological resources are adjacent to urban uses, ways to restrict or prevent access into those habitats should be prescribed. An educational program to increase public awareness of sensitive resources and use restrictions, including instructional and interpretive signage, hiking trails with descriptive pamphlets/guides, wildlife viewing platforms near preserve areas, and other types of public information should be included, if appropriate.
- **Habitat for Special Status Species.** In most cases, habitat supporting special status species should be incorporated into larger mitigation areas. However, with some species, such as isolated plant populations, smaller set-asides may be necessary. This section of the Resource Management, Monitoring and Reporting Program should address the unique management techniques associated with managing and maintaining the viability of these areas.
- **Habitat Enhancement.** Measures proposed to enhance habitats on-site not associated with mitigation acreage should be described. Some relevant examples would include limitations on mowing/grazing, fencing to stimulate oak tree regeneration, uses of native species in landscaping, installation of wildlife nest boxes/nest structures, establishment of thickets and shrubby borders for small mammal cover, and promoting or planting of emergent and submergent vegetation in created ponds.
- **Mitigation and Monitoring Program.** Actions to be taken for maintenance and long-term monitoring of both on-site and off-site mitigation acreage should be listed, including annual management practices to prevent no loss of value through disturbance, and remedial actions which may be taken to ensure success for created, restored, or enhanced habitats. Funding responsibilities for mitigation and monitoring also should be defined.

- OS-I-27 Ensure that biological resources protected on-site or in combination with adjoining sites are of sufficient acreage to represent the natural diversity of the landscape (e.g., oak woodlands) adequately, to protect the supporting watershed for wetlands, creeks, and vernal pools, and to maintain the viability of species inhabiting the RMA.
- OS-I-28 Allow off-site mitigation when preserving and protecting biological resources on site in an RMA proves to be infeasible (i.e., acreage too small, use intensity too high etc.). Priority should be given to in-kind mitigation at specially designated expansion areas for existing RCAs. As an alternative, expanding existing or proposed preserves through land acquisition within other RMAs should be allowed.
- All policies related to on-site mitigation also apply to off-site mitigation, including the requirement for preparation of a preliminary Resource Management, Monitoring and Reporting Program for off-site mitigation areas.
- OS-I-29 Encourage groups of property owners to prepare a joint Resource Management, Monitoring and Reporting Program and permit transfer of development between properties when joint development and management efforts are undertaken.

IMPACTS AND MITIGATION MEASURES

Methods of Analysis

The evaluation of Project impacts on biological resources is based on a field reconnaissance of the project area, and review of relevant data including aerial photography, soil maps and descriptions, the California Natural Diversity Data Base, the California Native Plant Society rare plant data base, and species-specific references and literature.

As discussed in Chapter 1, Introduction, impacts are evaluated at a project-specific level for the 43-acre portion of the Subdivision, and at programmatic level for the full Conceptual Master Plan.

Standards of Significance

For the purpose of this EIR, an impact is considered a significant effect if the Project would:

- adversely affect, either directly or through habitat modifications, any endangered, threatened or rare species, as listed in Title 14 of the California Code of Regulations (Sections 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12) or their habitats (including, but not limited to plants, fish, insects, animals, and birds);
- have a substantial adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

- adversely affect federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

Project Impacts and Mitigation Measures

4.8-1 The Project would result in the removal of native trees, heritage trees, and/or the loss of riparian habitat.

Because the project site is located within an RMA under the Chico General Plan, specific policies govern the removal of oak trees. The General Plan specifies retaining all oaks (where possible) with a diameter at breast height (dbh) (generally defined as four feet above the base of the tree) of six inches or greater. Many oaks on the project site meet this protection criterion.

43-Acre Portion of the Subdivision

The 43-acre portion of the Subdivision would require removal of some native oak trees. The Resource Management, Monitoring, and Reporting Information Report (RMMRI) prepared for the 43 acres states that the existing oak trees along the south branch of Dead Horse Slough will be protected by the streams' 100-foot setback and designated open-space areas. According to the June 1998 tentative subdivision map for the 43-acre portion, it appears that most of the trees will be retained. There are 1 to 3 trees that are located in the footprint of planned roadways, and these trees may have to be removed. However, the subdivision has been redesigned to incorporate oak trees in the open space areas rather than in individual private parcels.

The 43-acre portion of the Subdivision must provide emergency access from Bruce and Humboldt Roads at the construction of the 51st and 157th units respectively. These access roads would have to cross streams, and depending on their alignment, may require the removal of oak trees in the riparian corridor.

The RMMRI report states that, wherever possible, blue oaks should be retained, and that if trees are removed, replacement trees shall be planted at a 2:1 ratio. Provision 5.6.1, Tree Preservation and Planting, of the RMMRI report further states that:

Based on the City of Chico's Best Practices Manual, tree preservation measures will encompass at least the following terms as provided by the Urban Forester. The natural grade around existing trees will remain undisturbed during and after construction. Preferably, the undisturbed area will be at the dripline, but in no case closer than 20 feet from the trunk. The dripline of a tree is a projected line on the ground formed at the outermost of the tree canopy. Prior to construction, existing trees will be pruned to remove limbs which may be dead or may become damaged during construction. A temporary fence will be installed at the dripline or no closer than 20 feet from the tree trunk. The fence should be substantial enough to restrict activity outside the area. Underground facilities, such as, utility services, sanitary sewer or storm drainage lines will be consolidated, to the extent feasible, and located to minimize impacts to tree root systems, ideally outside of the tree dripline. Roots three-quarters of an inch or greater in size encountered during trenching, will be cleanly cut and treated with a sealing agent to reduce loss of moisture to the tree. Existing trees having a minimum 20 feet of landscaped/open space from the base of the tree, *shall be* [text in italics added by EIP Associates] free of any site improvements, such as sidewalks, bike racks, pavement, etc.

Implementation of provision 5.6.1 of the RMMRI report would ensure that the loss of trees in the 43-acre portion of the Subdivision would be a *less-than-significant impact*.

Conceptual Master Plan

Implementation of the Conceptual Master Plan would require the removal of native oak trees due to the construction of residential housing, commercial development, new roadways and stream crossings. Most trees located within 100 feet of the south branch of Dead Horse Slough would be protected by a riparian vegetation buffer (Crescent greenway). However, the construction of stream crossings would require the removal of some oak trees in the riparian corridor. The RMMRI, cited above, applies only to the 43-acre portion of the Subdivision, so it would not protect or replace trees in the remainder of the project area. The potential loss of native oak trees with a dbh of six inches or greater is considered a *significant impact*.

Mitigation Measures

Implementation of the following mitigation measures would reduce impacts on oaks and other native trees due to the Conceptual Master Plan to a *less-than-significant level*.

- 4.8-1(a) *Project design shall avoid oak trees and riparian habitat to the maximum extent feasible. In particular, the alignment of stream crossings shall be designed to avoid trees within the riparian habitat along the south branch of Dead Horse Slough. All individual trees and groups of trees shall be clearly marked for avoidance in the field and on construction plans. (Conceptual Master Plan).*
- 4.8-1(b) *When tree removal is necessary, the project applicant shall implement a tree planting restoration program that will plant two trees for every one tree removed which has as a dbh of at least six inches. Plantings shall occur on-site in areas that are designated as open space or preserve areas. (Conceptual Master Plan).*

These measures would reduce the Project's impact by ensuring that oak trees in the Conceptual Master Plan area are avoided and/or replaced at a level to ensure that the Project does not result in a substantial permanent loss of oak trees.

4.8-2 The Project could result in the loss of nesting raptors.

43-Acre Portion of the Subdivision

Several different species of raptors (i.e., red-tailed hawk, red-shouldered hawk, white-tailed kite, and American kestrel) were observed on the project site during field surveys. It is possible that the site provides nesting habitat for these species. Tree removal within the 43 acres would be minimal. In addition, the majority of the trees on this parcel occur along the South Branch of Dead Horse Slough which would be protected by a 100-foot setback. However, as discussed in Impact 4.8-1, some trees could be removed, so nesting raptors could be affected. The RMMRI report provides the following protection for nesting raptors:

5.6.2 Nesting Raptors

To reduce potential impacts to nesting raptors to a less-than-significant level, the applicant will ensure that no removal of trees on the project site occurs during the raptor nesting season (March through August). Active raptor nesting sites are protected by the California Department of Fish and Game, and removal or destruction of active raptor nesting sites is considered a violation of CDFG Code (Section 3503.5). If construction is proposed during the raptor nesting season, a qualified biologist should survey the nest to assess nest activity. If the nest is active, no construction activities should occur within 250 feet of the nest until the young have fledged. However, if proposed construction is scheduled during the non-breeding season (September through February), a raptor nest survey is not necessary.

Implementation of Item 5.6.2 of the RMMRI report would protect nesting raptors from disturbance. Therefore, this is considered a *less-than-significant impact*.

Conceptual Master Plan

As stated above, several different species of raptors (i.e., red-tailed hawk, red-shouldered hawk, white-tailed kite, and American kestrel) were observed on the project site during field surveys. It is possible that the site provides nesting habitat for these species. Tree removal, under the Master Plan, could result in the destruction of an active raptor nest. Active raptor nesting sites are protected by the California Department of Fish and Game and removal or destruction of active nesting sites is considered a violation of DFG Code (Section 3503.5). The potential for loss of an active raptor nest is considered to be a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the impact on nesting raptors to a *less-than-significant level* for the Conceptual Master Plan.

- 4.8-2 *To protect any active raptor nest sites, the project applicant shall conduct a raptor survey during the nesting season (March through July). A qualified biologist shall assess the nesting activity on the project site. If active nests are located on-site, no construction activities shall be allowed within 250 feet of the nest until the young have fledged. If construction activities are planned during the non-breeding period (August through February), a raptor nest survey is not necessary. (Conceptual Master Plan)*

This measure will ensure that construction activities do not occur near active nests, so that fledglings are not disturbed by or subject to abandonment due to construction activities.

- 4.8-3 **The Project would result in the loss of seasonal wetlands and/or realignment of creek channels.**

43-Acre Portion of the Subdivision

Implementation of the 43-acre portion of the Subdivision would not affect vernal pools and other seasonal wetlands, because none are present within the 43-acre site. However, one stream crossing may be required for emergency access and could result in fill within the channel of the South Branch of Dead Horse Slough, which is considered jurisdictional waters of the United States. This is considered a *significant impact*.

Conceptual Master Plan

As shown in Figure 4.8-2 and Table 4.8-2, vernal pools are located in the western portion of the project site. Development proposed under the Conceptual Master Plan would result in the fill of these vernal pools and other seasonal wetlands. Because site-specific designs are not available at this time, the extent of fill that could occur has not been determined. Development proposed under the Conceptual Master Plan (such as stream overcrossings) may also result in fill within the channel of the South Branch of Dead Horse Slough. The potential for fill of any vernal pools, other seasonal wetlands, or streams (such as the South Branch of Dead Horse Slough), which are jurisdictional waters of the United States, is considered to be a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measures would reduce the magnitude of impacts associated with the fill of jurisdictional waters of the United States to a *less-than significant level*.

- 4.8-3(a) *The project applicant shall avoid to the maximum extent feasible, vernal pools, seasonal wetlands and other waters of the United States, as shown in Figure 4.8-2. (43-acre portion of the Subdivision and Conceptual Master Plan)*

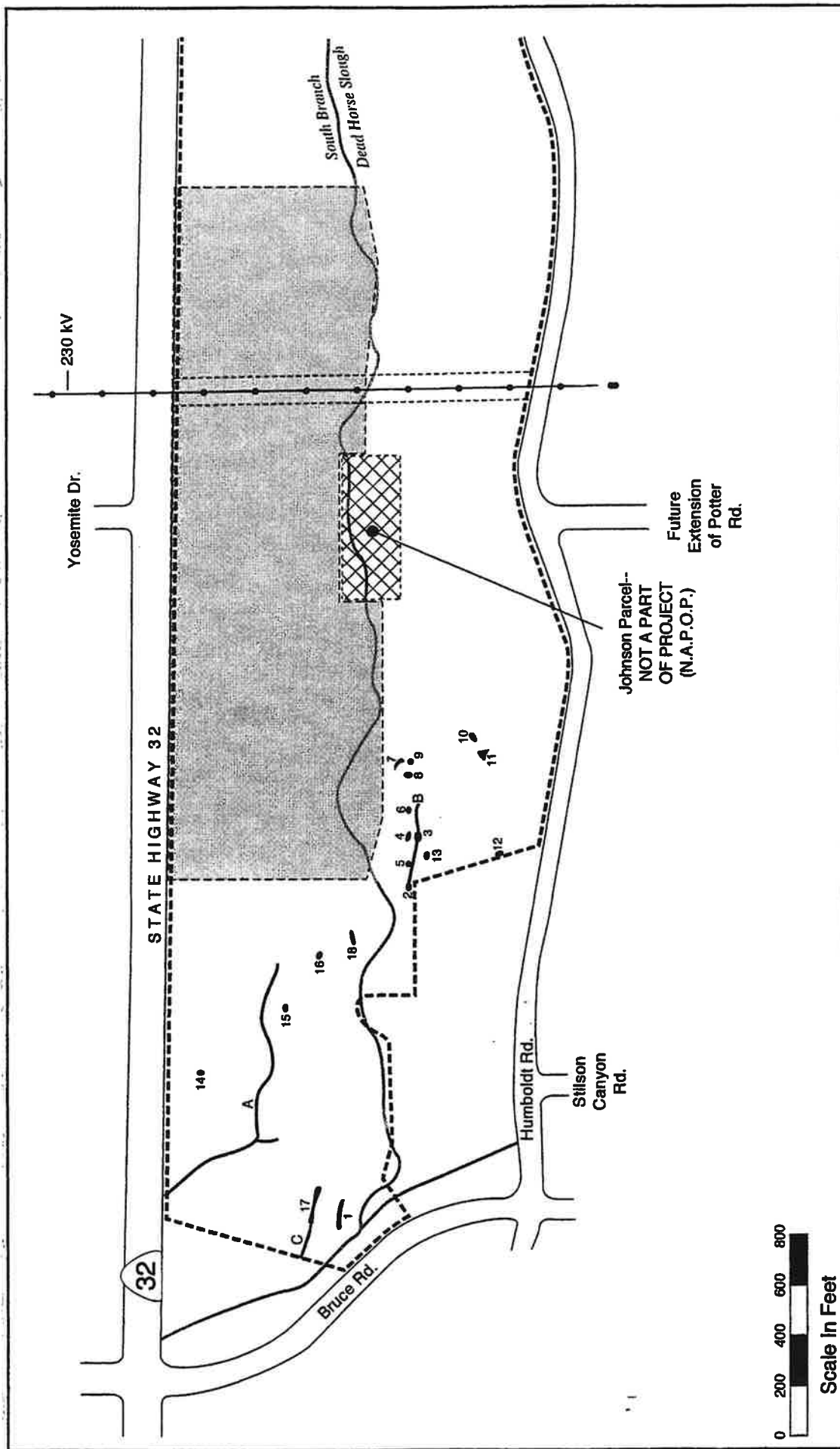


Figure 4.8-2

**Project Site Vernal Pools,
Seasonal Wetlands, and
Other Waters of the U.S.**



Swales

Vernal Pools (Locations are approximate)

43-Acre Portion of the Subdivision

Conceptual Master Plan Project Boundary

Power Lines

SOURCE: Simpson
Environmental, 1996;
EIP Associates, April
2000.

10049-Vernal-Wetland

TABLE 4.8-2

**VERNAL POOLS, SEASONAL WETLANDS AND OTHER
WATERS OF THE UNITED STATES**

Wetland Type	Map Label	Area	
		(Square feet)	(Acre)
Vernal Pool	1	3,300	0.076
	2	540	0.012
	3	570	0.013
	4	500	0.011
	5	120	0.003
	6	414	0.010
	7	360	0.008
	8	325	0.007
	9	270	0.006
	10	630	0.014
	11	7,747	0.178
	12	425	0.010
	13	90	0.002
	14	450	0.010
	15	300	0.007
	16	180	0.004
	17	2,430	0.056
	18	1,020	0.023
	Subtotal:	19,671	0.452
Swale	A	27,400	0.629
	B	1,900	0.044
	C	810	0.019
	Subtotal:	30,110	0.691
Waters of the U.S.	Dead Horse Slough	40,648	0.933
	Total:	89,409	2.067
SOURCE: Simpsons Environmental, January 1996, revised March 1996.			

4.8-3(b) *For waters of the United States that will be filled, the project applicant shall ensure that no net loss of wetlands occurs. Measures to achieve no net loss may include preservation, creation on-site or off-site, and/or purchase of credits in an approved mitigation bank. This measure may be implemented by first demonstrating that no alternative to the project, which avoids fill of jurisdictional waters while meeting the purpose and need of the project, can be feasibly implemented (Clean Water Act Section 404(b)(1)). This measure may be further implemented by obtaining a Clean Water Act Section 404 permit from the Corps and conducting all measures required as provisions of the permit. (Conceptual Master Plan)*

4.8-3(c) *The project applicant shall obtain a Streambed Alteration Agreement for all stream crossings, and comply with the terms of those agreements. (43-acre portion of the Subdivision and Conceptual Master Plan)*

These measures would reduce the project impact by ensuring that there is no net loss of wetland or stream habitat value.

4.8-4 The Project could result in the loss of habitat for federally-listed vernal pool crustaceans.

43-Acre Portion of the Subdivision

There are no vernal pools or other seasonal wetland habitats that could support vernal pool crustaceans within the boundaries of the 43-acre site. Therefore, development of the 43 acres would have *no impact* on federally-listed vernal pool crustaceans.

Conceptual Master Plan

The vernal pools located in the western portion of the project site may represent suitable habitat for federally-listed vernal pool crustaceans. Listed vernal pool crustaceans (vernal pool fairy shrimp, conservancy fairy shrimp, and vernal pool tadpole shrimp) are adapted to the seasonal ponding and drying associated with vernal pools in the Central Valley. Surveys to determine the presence or absence of vernal pool crustaceans have not been completed. Therefore, it is not known whether these species occur in the Conceptual Master Plan area. Construction and/or other activities that fill or disturb vernal pools could therefore reduce or degrade habitat for federally-listed vernal pool crustaceans. This loss of habitat is considered a *significant impact*.

Mitigation Measure

For the Conceptual Master Plan, implementation of the following mitigation measure would reduce the impact on vernal pool species to a *less-than-significant level*.

4.8-4(a) *The project applicant shall complete the USFWS's two-year survey protocol for federally-listed vernal pool crustaceans or the applicant may assume federally-listed vernal pool crustaceans are present and comply with Mitigation Measure 4.8-4(c)*

below. If an absence finding is determined and accepted by the USFWS, then no further mitigation shall be required for federally-listed vernal pool crustaceans. (Conceptual Master Plan)

4.8-4(b) *Implement Mitigation Measures 4.8-3(a) and (b).*

4.8-4(c) *If federally-listed vernal pool crustaceans are found to be present within vernal pools affected by the Project, the project applicant shall provide for no net loss of habitat value. Measures to ensure no net loss may include on-site or off-site creation and/or preservation of vernal pool crustacean habitat at ratios ranging from 2:1 to 5:1, depending on the affected habitat and where creation or preservation occurs. Mitigation could also involve the purchase of mitigation credit through an accredited mitigation bank. This mitigation may be implemented through the USFWS requirements of the Programmatic Biological Opinion on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California. (Conceptual Master Plan)*

These measures would ensure no net loss of habitat values for federally-listed vernal pool crustaceans.

4.8-5 The Project could result in the loss of habitat for rare wetland and/or vernal pool plant species.

43-Acre Portion of the Subdivision

The 43-acre portion of the Subdivision site does not support vernal pools, unique or special habitats, or unique soil types that could potentially support rare plant species. Therefore, the 43-acre portion of the Subdivision would have *no impact* on rare plant species.

Conceptual Master Plan

Development associated with the Conceptual Master Plan would occur in areas with vernal pools and seasonal wetlands that could support rare wetland plant species. However, to date, surveys have not revealed the presence of any rare plant species on the project site. In addition, although surveys for late-germinating species (e.g., *Orcuttia* spp.) have not been conducted (Beak, 1995; Foothill Associates, 1998), these species are unlikely to occur on the project site due to the shallow depth and small size of the existing vernal pools. Nonetheless, habitat for several species is present within the vernal pools that exist in the western portion of the Conceptual Master Plan area. The Project (consistent with the General Plan designation) includes this area as commercial. Commercial development, including buildings, parking lots and landscaping, could require fill of the vernal pools and wetlands in the project site. The potential loss of habitat for rare plant species is considered a *significant impact*.

Mitigation Measure

For the Conceptual Master Plan, implementation of the following mitigation measure will reduce the impact on rare wetland and vernal pool plant species to a *less-than-significant* level.

- 4.8-5(a) *Prior to development of areas that support vernal pools and seasonal wetlands (shown in Figure 4.8-2), the project applicant shall conduct surveys to identify and delineate any special-status plant species populations within the designated development areas, proposed stream crossings, and heavy equipment staging areas. (Conceptual Master Plan)*
- 4.8-5(b) *Vernal pools and wetlands that are to be retained shall be clearly marked with highly visible fencing to protect and delineate the special-status plant population(s). The fenced area shall be free of parking, material storage, vehicular access, etc. (Conceptual Master Plan)*
- 4.8-5(c) *For vernal pools and wetland areas that are to be filled or disturbed pursuant to California Fish and Game Code Chapter 10. Native Plant Protection, §1913 paragraph (c), the applicant shall notify the California Department of Fish and Game at least ten (10) days in advance of ground disturbing activities to allow for salvage of special-status plant species. (Conceptual Master Plan)*
- 4.8-5(d) *Require replacement wetland construction.*
- 4.8-5(e) *Comply with Mitigation Measure 4.8-4(c).*

These measures would protect rare plant species that would be retained, and ensure no net loss of habitat for rare plants that would be destroyed due to the Project.

4.8-6 Implementation of the Project could result in the loss of suitable habitat for the valley elderberry longhorn beetle (VELB).

43-Acre Portion of the Subdivision

There are no recorded occurrences of elderberry shrubs within the 43-acre portion of the Subdivision. Therefore, development of the 43-acre portion of the Subdivision would result in *no impact* on the valley elderberry longhorn beetle.

Conceptual Master Plan

The valley elderberry longhorn beetle (VELB) is listed by the USFWS as a threatened species, and is protected by the Federal Endangered Species Act. Valley elderberry longhorn beetles depend entirely on elderberry shrubs for food and reproduction. Elderberry shrubs are located in the steeper eastern portion and the western portion of the Conceptual Master Plan area. These

elderberry shrubs are suitable habitat for valley elderberry longhorn beetle. At this time it is not known whether the Project would be designed to avoid these shrubs. The potential loss of elderberry shrubs and associated valley elderberry longhorn beetle habitat are therefore considered a *significant impact*.

Mitigation Measure

For the Conceptual Master Plan, implementation of the following mitigation measure would reduce the impact on VELB to a *less-than-significant level*.

- 4.8-6(a) *The project applicant shall ensure through surveys conducted by a qualified biologist and protective fencing if applicable, that direct and indirect disturbance (such as trenching or placement of fill within the dripline) of all elderberry shrubs is avoided. (Conceptual Master Plan)*
- 4.8-6(b) *Should elderberry shrubs be affected by the Project, the project applicant shall obtain the necessary authorization/permit from the USFWS for take of the species and develop and implement an on-site VELB mitigation plan in accordance with the most current USFWS guidelines to compensate for the loss of VELB habitat. The applicant shall ensure no net loss of VELB habitat. The mitigation plan may include relocation of elderberry shrubs, planting of elderberry shrubs, and monitoring of relocated and planted elderberry shrubs, or purchase of credits in an approved VELB habitat bank. (Conceptual Master Plan)*

These measures would reduce the impact on VELB by ensuring no net loss of VELB habitat.

Cumulative Impacts and Mitigation Measures

The context for the cumulative analysis is buildout of the City's General Plan and development in surrounding grasslands and foothills.

- 4.8-7 The Project would contribute to the cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife.**

Encroachment of urban development into the western foothills of the Sierra Nevada would reduce the number and diversity of plants and wildlife species that currently exist. The Project, in combination with other planned development in western Butte County, including the Chico area, would have a cumulative adverse effect on natural plant communities and resident and migratory wildlife species through the elimination of habitat. Once natural areas are developed for urban uses, plant and animal habitat is gone forever with no ability to compensate for the total loss of foothill natural communities. In addition, as development occurs, "islands" of habitat or "open space" areas are created that isolate natural areas and block the free movement and dispersal of wildlife and plants.

While the Project includes a substantial amount of natural open space preserve, it would also include the following land uses: commercial, multi-family; medium-density; and very low, almost rural residential development. As urban and rural residential development continues to encroach on the foothills and grasslands surrounding the City, habitat would be completely urbanized or divided into parcels that slowly degrade over time as people fence properties, remove vegetation, apply herbicides and pesticides, introduce domestic animals and/or cultivate the land. The Project's contribution to the cumulative loss of habitat for native plants and wildlife is considered a *significant impact*.

The General Plan EIR recognizes that degradation of habitat cannot be avoided entirely, even in Resource Management Areas such as the project site, and the cumulative loss of biological resources would be a significant and unavoidable consequence of buildout of the General Plan. The Project, which will comply with RMA requirements, would contribute to, but not enlarge, this significant cumulative impact on biological resources beyond that recognized in the General Plan. The City determined that the benefits of development under the General Plan outweighed the significant loss of biological resources (Resolution No. 80-94/95).

Mitigation Measure

Implementation of the following mitigation measures would reduce, but not eliminate, the Project's contribution to the cumulative loss of habitat. Therefore, the cumulative impact would remain *significant and unavoidable*.

4.8-7 *Implement Mitigation Measures 4.8-1 through 4.8-6.*

These measures would reduce the Project contribution to the cumulative loss of biological resources by ensuring no net loss of biological habitat through avoidance and replacement of habitat value.

ENDNOTES

1. Foothill Associates Environmental Consultants. Nov. 1998. *Resource Management, Monitoring, and Reporting Information*. Oak Valley Project, Chico California. City of Chico, pp. 1 through 17.
2. Fugro McClelland (West), Inc. 1993. *Final Environmental*. *Ibid*.
3. *Ibid*.
4. Mayer, Kenneth and Laudenslayer, William Jr., Editors. *A Guide to Wildlife Habitats of California*. California Department of Forestry and Fire Protection. 1988. pp. 86, 87, 118, 119, 128, 129, 130, 131, 138, and 139.
5. Beak Consultants Incorporated, 1995. *Final Report: California Park South, Chico Evaluation of Natural Habitats, Wildlife and Sensitive Species*, 1995.
6. Simpson Environmental, *Wetland Delineation*, Oak Valley Project East, October 1995.
7. Babcock, Keith W. *Home Range and Habitat Use of Breeding Swainson's Hawks in the Sacramento Valley of California*, Journal of Raptor Research 29(3):193-197, September 1995.
8. Beak Consultants Incorporated, 1995. *Final Report: California Park South, Chico Evaluation of Natural Habitats, Wildlife and Sensitive Species*, 1995.
9. California Department of Fish and Game, *Fish and Game Code of California*, Gould Publications, Altamonte Springs, FL., 1998.
10. D. Lungren. Opinion of the Attorney General concerning the interpretation of "harm" and "take" under the State Endangered Species Act, No. 94-605, May 15, 1995.

4.9 AESTHETICS AND VISUAL RESOURCES

4.9 AESTHETICS AND VISUAL RESOURCES

INTRODUCTION

This section describes the existing visual characteristics of the project area and the anticipated visual features of the proposed future development under the Oak Valley Subdivision and Conceptual Master Plan. Views to and from the Project site are described, along with distinctive features found on the site.

Specific uses or building designs are not analyzed; rather, the general visual effects of introducing residential and other development under the Project are described. Topics include the potential loss of visual resources, effects on views, compatibility with the visual characteristics of surrounding uses, and the likelihood that sensitive receptors will be disturbed by light and glare generated or reflected by new structures. Both the initial 43-acre portion of the Subdivision and the Conceptual Master Plan are evaluated using the site's existing conditions as the baseline.

ENVIRONMENTAL SETTING

The location of photographs appearing in this section are presented in Figure 4.9-1, Viewpoint Location Map.

Regional Visual Resources

The City of Chico is located in a transition area between the Sacramento Valley to the west and foothills of the Cascade Mountain Range to the east. The dominant visual features in the Chico area are agricultural lands to the west of the urbanized area, the foothills to the east of the urbanized area, Bidwell Park and smaller creekside greenways within the City of Chico, and some urban features of the downtown area including historic buildings, the California State University campus and attractive streetscapes. Human-made development is evident throughout the region and reflects a variety of residential, commercial and industrial land uses.

Long-range views within the region include numerous important landmarks and landscape features, including portions of the Sierra Nevada, and the Sutter Buttes. Chico's eastside is characterized by grassy areas rising into Oak covered foothills. Historic stone walls are often found framing these landscapes.

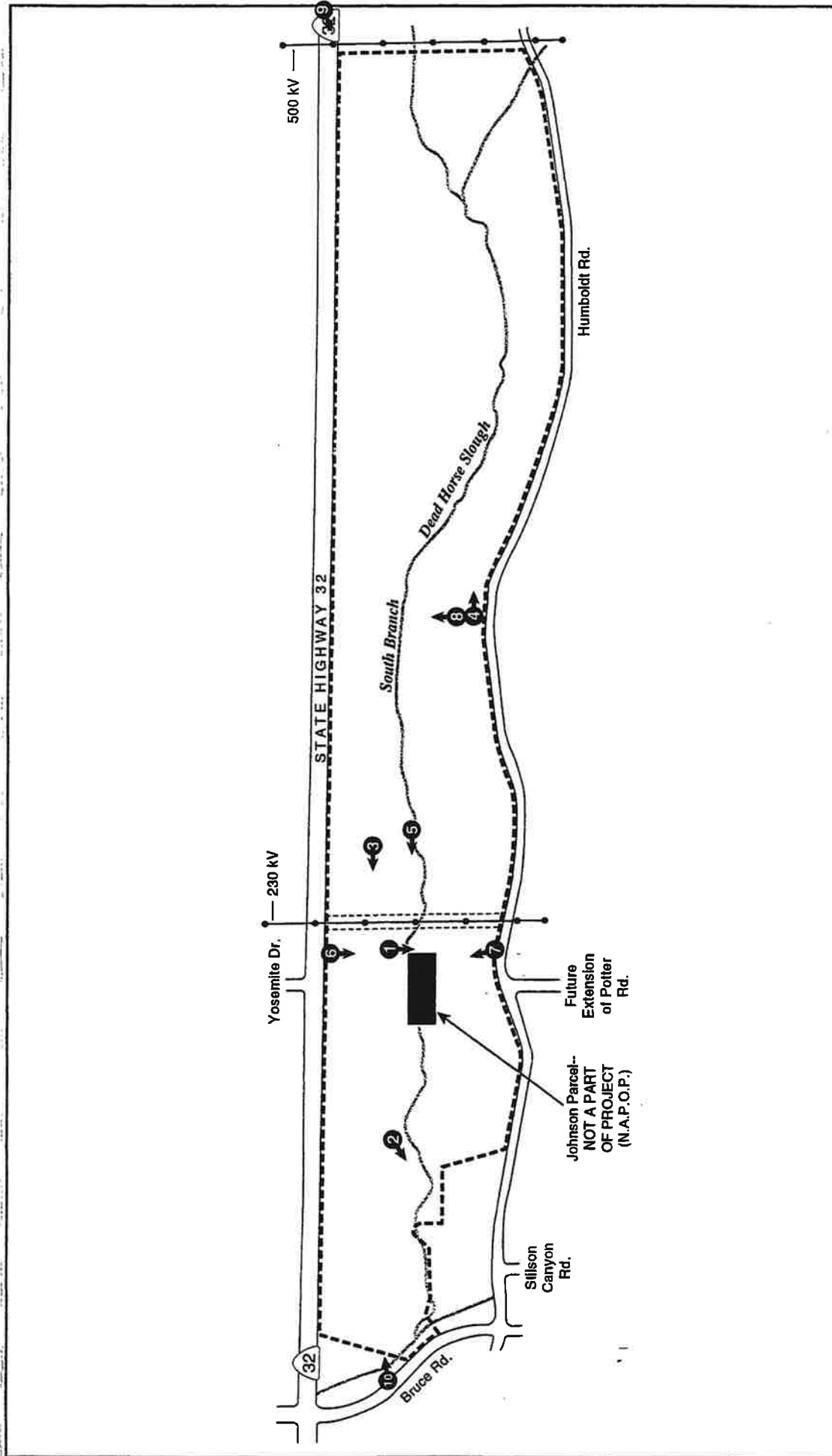


Figure 4.9-1

Viewpoint Location Map



- Viewpoints
- Project Boundary
- Power Lines



0 200 400 600 800
Scale in Feet

SOURCE: EIP Associates, March 2000.

10049-Base

Visual Features of the Project Site

The Project site and surrounding vicinity are comprised primarily of rolling grasslands and oak woodland, transected by Little Chico Creek to the south of the project area. The project site is bisected by the south branch of Dead Horse Slough. The topography varies by approximately 350 feet. The site was visited in early spring when the vegetative cover consisted of green non-native annual grassland and wildflowers. Photographs of the site indicate that the grasses turn brown during the summer, and greenery is concentrated in the riparian habitat along the creeks. The site is grazed by cattle for four months of the year.

Human-Made Features

The most notable human-made feature on the Project site is the Humboldt Road Burn Dump, which is currently surrounded with a wire fence installed by the Department of Toxic Substances Control to limit access. In addition, the approximately 5-acre Johnson property is located south of the 43-acre portion of the Oak Valley Subdivision and is bisected by Dead Horse Slough. This parcel contains discarded waste such as metal canisters and automobile tires (see Figure 4.9-2). The Humboldt Road Burn Dump site is undeveloped and principally covered with non-native grasses and weed species and an indeterminate amount of soil (see Figure 4.9-3). Electrical lines bisect the project site, running north to south.

Natural Features

As stated earlier, the project site is dominated by rolling grasslands and the south branch of Dead Horse Slough. In addition, the project site contains groves or ribbons of oak trees in an east-west direction generally along the northern and southern edges of the site (see Figure 4.9-4).

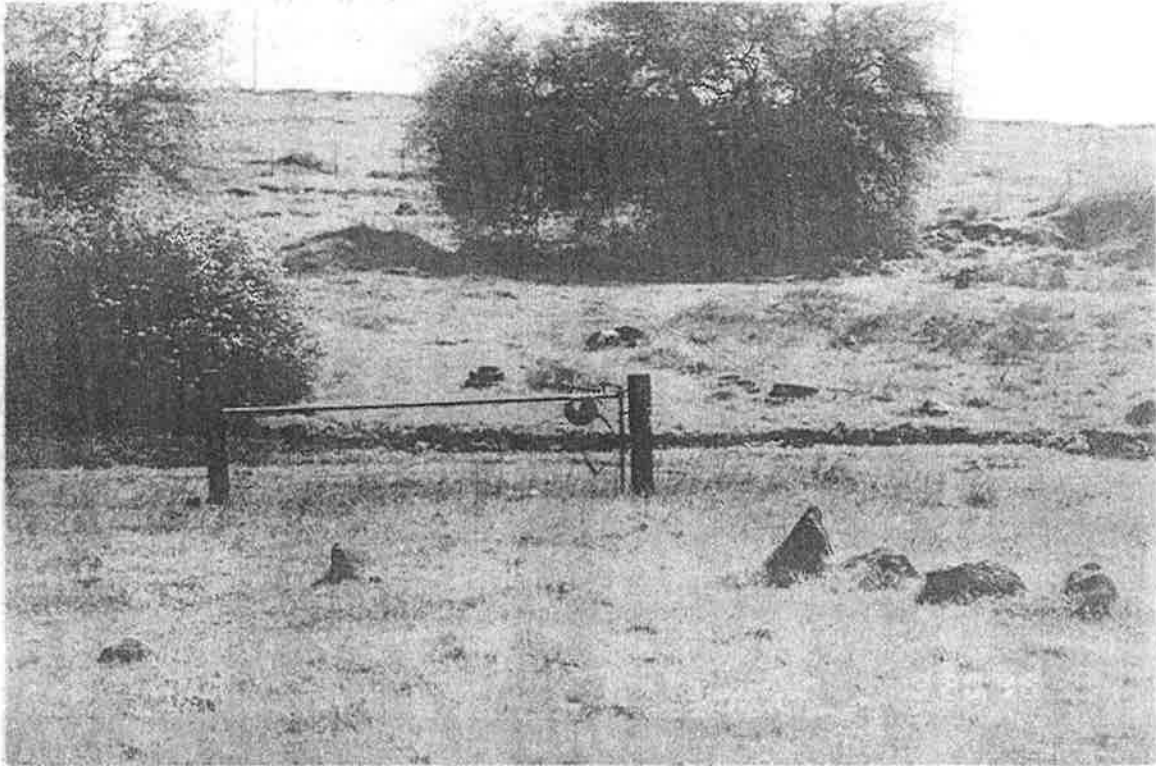
Dead Horse Slough Corridor

The project site is bisected by the south branch of Dead Horse Slough which is bordered by Valley-Foothill riparian habitat and Blue Oak woodland. The Slough is surrounded by a concentration of volcanic rocks and by a varying amount of native oak trees on the banks (see Figure 4.9-5). The banks along most of Dead Horse Slough are level with the slough, ascending upwards on either side.

Views from the Project Site

The areas surrounding the project site consist mostly of vacant grasslands with scattered woodlands and residential uses. The area northeast of the Project site consists of vacant grasslands to the east. High-density housing, including a congregate care facility, and low-density housing are located to the west. The areas to the south and east of the project site consist of vacant grasslands and oak woodlands. The area to the west of the project site is vacant grassland. Farther west is the urban center of Chico.

The views from the site vary depending on the elevation. Generally, elevations near the banks of Dead Horse Slough are lower than elevations on State Route 32 or Humboldt Road.

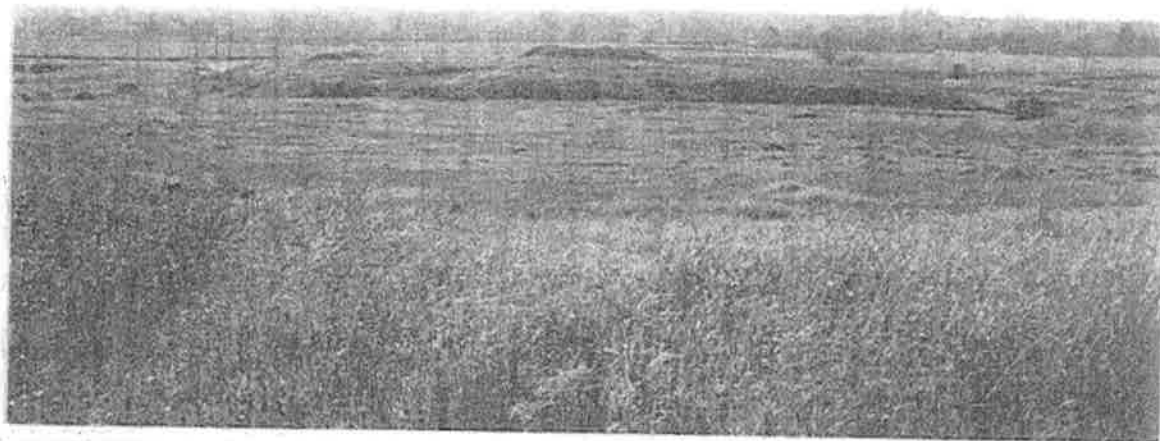


SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-2
Viewpoint 1: Former Johnson
Property Dump Site



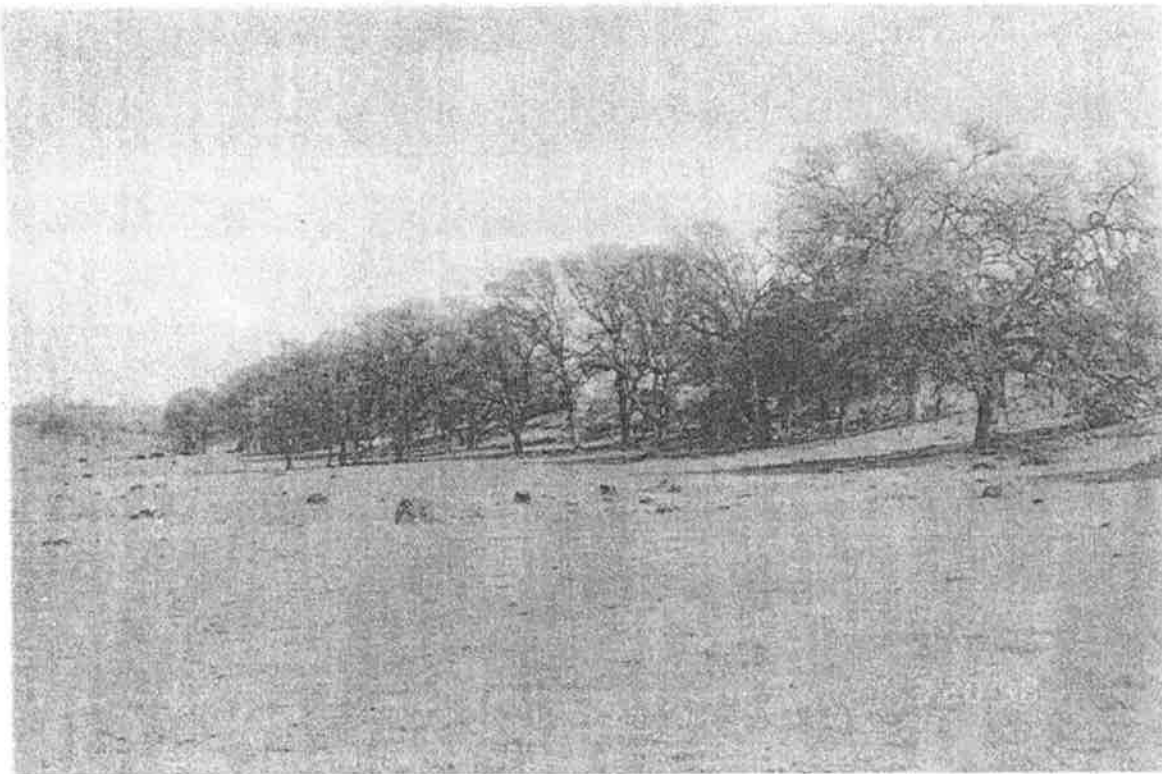
SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-3

**Viewpoint 2: Former Humboldt
Road Burn Dump**



SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-4
Viewpoints 3 and 4: Existing Oak
Trees on Northern and
Southern Project Edges



SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-5
Viewpoint 5: Dead Horse Slough

Long-Range Views

Long-distance views from the project site include the urban center of the City of Chico to the west and the foothills to the north. Middle-distance views from the project site include vacant land to the south and east. A prominent portion of the viewshed contains the 230 kV transmission lines in the center of the project site and the two 500 kV transmission lines to the east of the project site.

Views to the north of the project site include the cars on State Route 32, the residential community, and the distant foothills to the north of SR 32 (see Figure 4.9-6). The residential community consists of one- and two-story houses and the three-story congregate care facility. Views to the south are generally consistent from all areas on the project site and consist of a short-range view to the top of Humboldt Road. Long-range views to the west are generally consistent and include the project site and the City of Chico. Views to the east consist mostly of the project site, the 500 kV transmission lines and a microwave tower north of SR 32. Because elevations are higher to the east, the long-range view is generally terminated at the 500 kV lines.

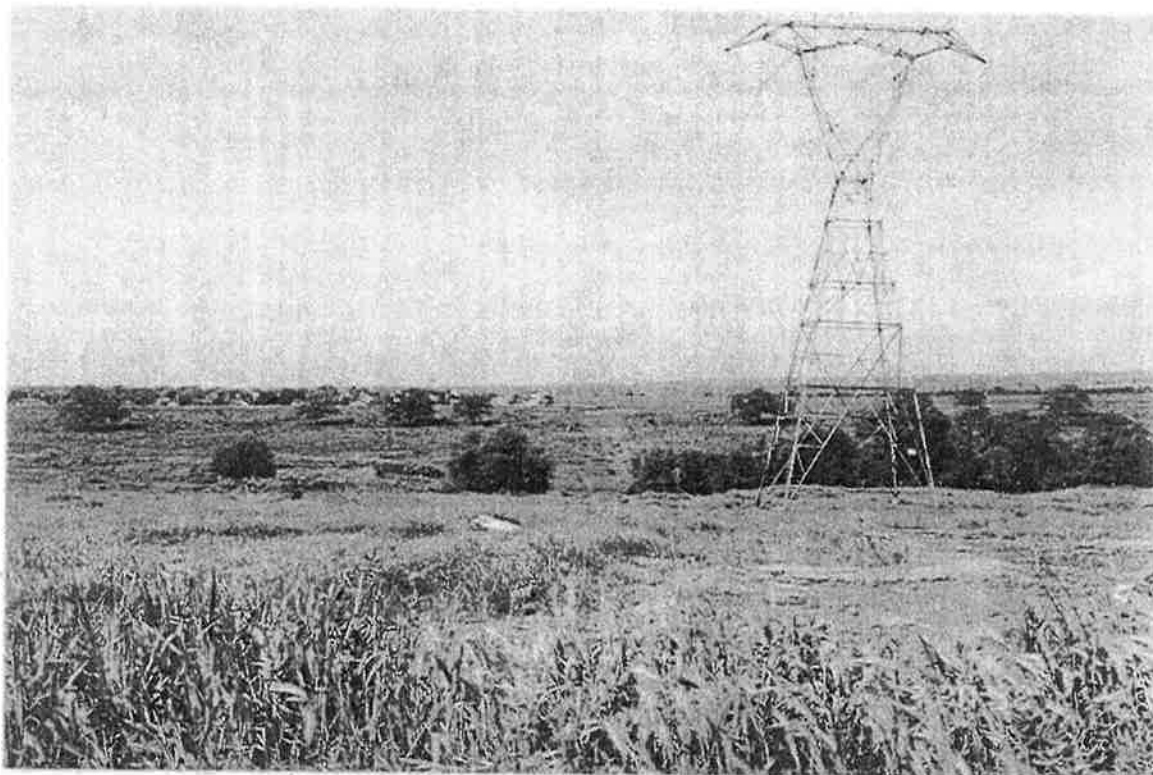
Short-Range Views

On the eastern portion of the site, views to the north are shorter and include the slough and the bank leading to State Route 32 (see Figure 4.9-7). Immediate views from the lower elevations on the site along Dead Horse Slough and on the northern portion of the site are primarily of the site itself. Because elevations rise to the top of Humboldt Road and then level off, there are no long-distance views to the south from areas on the site or from State Route 32 (see Figure 4.9-8). Immediate views to the east include a portion of the foothills with trees.

Views of the Project Site from Surrounding Areas

The existing views of the project site consist mainly of grassland, the Dead Horse Slough corridor, and oak woodland. Views onto and across the project site from the surrounding area vary depending on elevation. However, because it is undeveloped grassland, views of the project site generally extend into the distance where the topography is relatively flat.

Long-range views onto and across the Project site from the eastern edge of the site on Humboldt Road are generally consistent and encompass the project area (including the 230 kV lines), open grassland and woodland to the northeast and east, and open grassland mixed with development to the northwest and west. Western views across the project site are obscured by the topography and trees along the eastern end of the project site (see Figure 4.9-9). Long-range views onto and across the site from State Route 32 consist of the project site to the south, the project site and foothills to the east, and the project site and the City of Chico to the west. Long-range eastern views onto and across the project site from Bruce Road, adjacent to the project site, include the entire project site, the two 500 kV lines to the east of the site, the microwave tower, and the foothills to the east of the project site (see Figure 4.9-10).



SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-6
Viewpoint 6: View to the South
Across Project Site

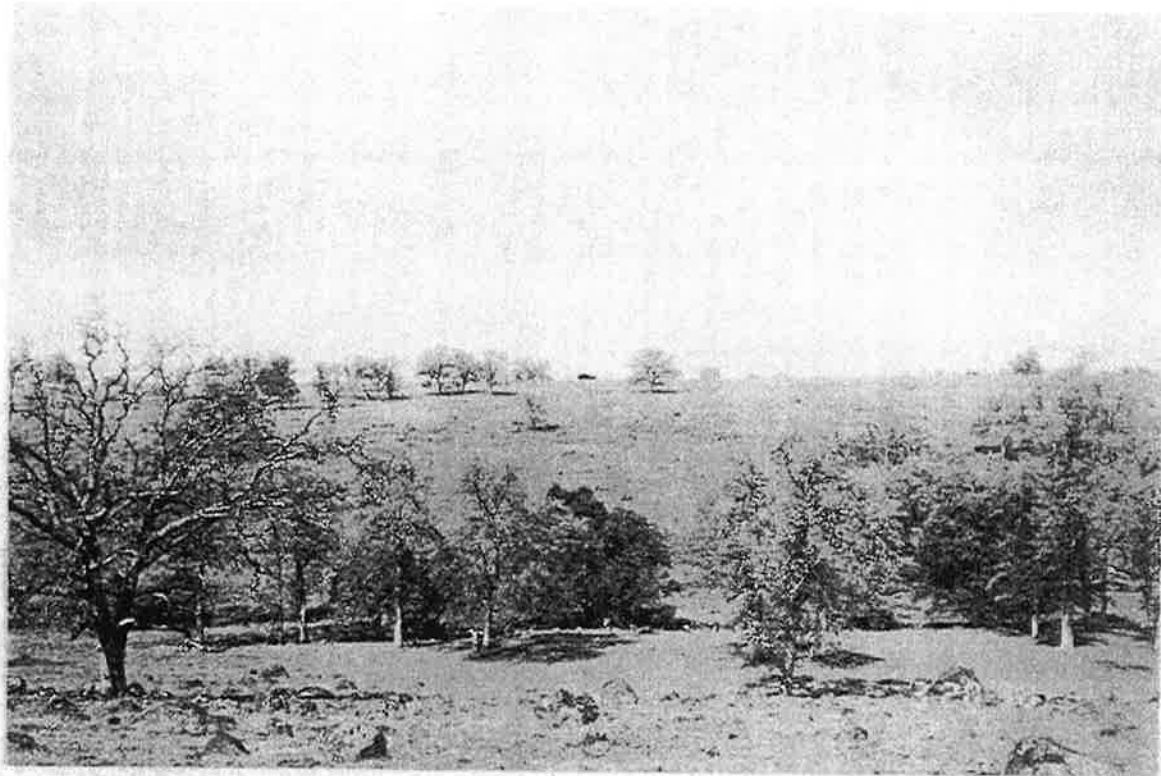
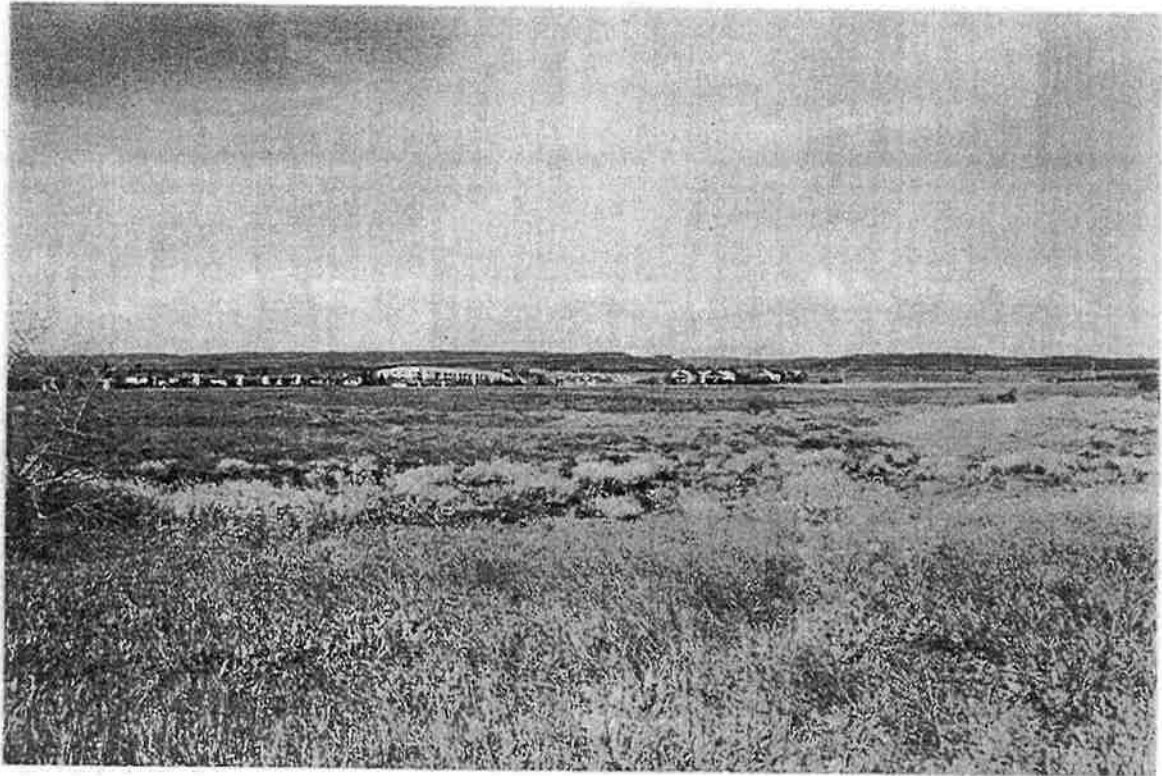


Figure 4.9-7
Viewpoint 7: View to the North
Across Project Site

SOURCE: EIP Associates, April 2000.

10049-Photos





SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-8
Viewpoint 8: View to the North
from Lower Elevation

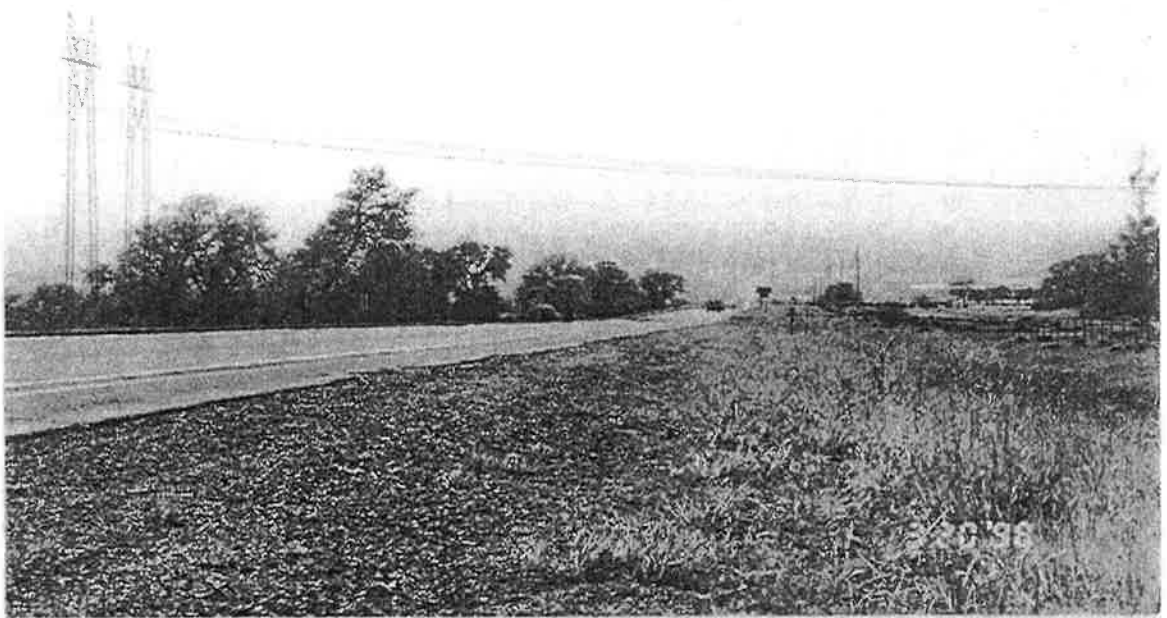
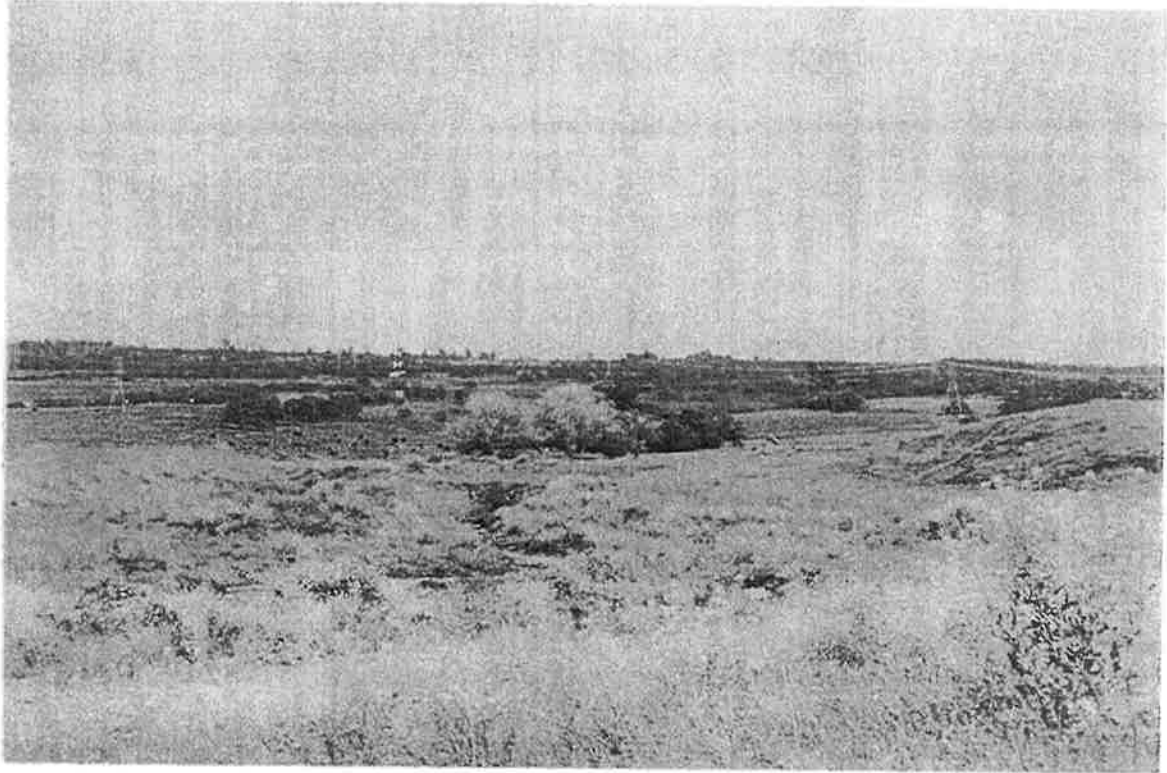


Figure 4.9-9
Viewpoint 9: View to the West
Across Project Site

SOURCE: EIP Associates, April 2000.

10049-Photos





SOURCE: EIP Associates, April 2000.

10049-Photos



Figure 4.9-10
Viewpoint 10: View to the East
Across Project Site

Long-range northern and eastern views onto and across the project site are also visible from points further south on Bruce Road, from the intersection of Highway 99 and SR 32, and Little Chico Creek. There is a prominent view of the project site from a bike trail along the south bank of Little Chico Creek.

REGULATORY SETTING

There are no permits related to visual resources that must be obtained as part of the project approval process. However, visual and aesthetic resource related goals and policies from the City of Chico General Plan require visual analysis and possible mitigations. The City adopted general design standards for development in the foothills. Relevant design criteria from the City's Title 19 Land Use and Development Regulations and Chapter 19R66, Foothill Design Criteria, were reviewed for this section of the EIR.

City of Chico General Plan Goals and Policies

The City of Chico General Plan contains policies regarding City and residential form, and foothill development. The following goals and guiding policies from the General Plan are applicable to the visual impacts of the Project:

Creek-Oriented Visual Policies

- CD-G-8 Extend new street patterns that heighten the sense of the creeks and are connected to existing patterns of development.
- CD-G-11 Heighten the visual prominence of the creek corridors which help to establish a sense of orientation and identity within the city.
- CD-G-12 Open up creeks to public view and access.
- PP-I-3 Adopt design guidelines for development adjacent to creeks.

Foothill-Oriented Visual Policies

- CD-G-71 Blend foothill development with the surrounding landscape and topography, and diminish its visual prominence, from the valley floor.
- CD-G-72 In foothill areas, allow for streets that are kept to the minimum dimension necessary for access and parking in order to reduce the need for grading.
- CD-G-73 Encourage the careful location of new roads buildings and other development to provide maximum view corridors, to the extent other objectives, such as solar orientation and circulation patterns, are not diminished.
- CD-G-74 Discourage the development of highly visible or intrusive structures.

- CD-G-75 Limit the extent and amount of grading in foothill areas, and where grading occurs, emulate the contours of the natural slope.
- CD-G-76 Consider view corridors and vistas in the design of parks and creekside greenways.
- LU-1-62 Establish special design and development standards for buildings within the foothills.
- LU-1-66 Require visual simulations of proposed development.

City of Chico Municipal Code

Title 19 Land Use and Development Regulations of the Chico Municipal Code is intended to implement many of the goals and policies of the Chico General Plan regarding the physical development of the City. Title 19 is intended to promote and protect the public health, safety, and general welfare of the citizens through the adoption of a City Zoning Map and regulations pertaining to individual zoning classifications established by the map. Title 19 also contains development standards. Section 19.66.050R of the Municipal Code contains the Foothill Design Criteria. The criteria included in Section 19R.66 are listed below.

Foothill Design Criteria (Chico Municipal Code - Title 19 R, Land Use)

- A. Terrain alteration - The project shall be designed to fit the terrain rather than altering the terrain to fit the project. Development patterns which form visually protruding horizontal bands or steeply cut slopes for roads or lots shall be avoided.
- B. Street layout - Streets shall follow the natural contours of the terrain where possible to minimize the need for grading. Cul-de-sacs and loop roads are encouraged where necessary to fit the natural topography subject to the approval of the City Engineer and Fire Department.
- C. Site and structure design - Site design should utilize varying setbacks, structure heights, split-level foundations, and retaining walls to blend structures into the terrain.
- D. Lot line locations - Where possible, lot lines shall be placed at the top of slope areas to help ensure that the slope will not be neglected.
- E. Location of structures - Structures should be sited in a manner that will:
 - 1. Minimize the creation of flat pads by using compact, split-level designs;
 - 2. Preserve vistas from public places; and
 - 3. Preserve to the extent feasible visually significant rock outcroppings, natural hydrology, native plant materials, and areas of visual significance.
- F. Architectural Design - Buildings should be designed with the following principles in mind:
 - 1. Building forms should be scaled to complement the character of the foothills and to avoid excessively massive forms that dominate views of the foothills;
 - 2. Building facades should change plane and use overhangs as a means to create changing shadow lines to further break up massive forms.

3. Wall surfaces facing towards viewshed areas should be minimized through the use of single-story elements, setbacks, roof pitches, and landscaping.
 4. Roof pitches should generally be placed to follow the angle of the slope; but variation should be provided to avoid a monotonous appearance.
- G. Colors and Materials - A harmonious mixture of materials, color, and forms should be used to blend structures with the natural appearance of the foothills:
1. Based upon the graphic principle that dark colors recede and light color project, medium to dark earth tone colors should be used for building elevations and roof materials in view-sensitive areas;
 2. Surface materials should be rough-textured to blend with the coarseness of landscaping and natural vegetation. Textured stucco, wood, natural brick, and coarse block are appropriate; and
 3. Roof materials should be rough-textured and be a Class B material as defined in the Uniform Building Code. Roof colors should utilize darker tones, including browns, gray, greens and terra cotta. Bright colors should be avoided.
- H. Exterior Lighting - Night views of the foothills should not be dominated by an array of bright lights. Lighting within view-sensitive areas should be properly shielded to avoid glare and the spill of light to surrounding areas. Low-level lighting and the use of multiple low fixtures is encouraged, as opposed to the use of fewer, but taller fixtures.
- I. Retaining walls - Large retaining walls in a uniform plane shall be avoided. Break retaining walls into elements and terraces, and use landscaping to screen them from view. Generally, no retaining wall should be higher than five feet.
- J. Open space preservation - Open space may be preserved by reducing the width of street improvements, using common driveways and clustering units subject to the approval of the City Engineer and Fire Department.
- K. Slope restoration - Transitional slopes shall be replanted with non-invasive, but self-sufficient trees, shrubs and ground cover that are compatible with existing surrounding vegetation to enhance the blending of manufactured and natural slopes.
- L. Reduced street widths - Streets may be designed without parking lanes when the result is a substantial decrease in cutting and/or filling. Off-street parking areas shall be provided at a ratio of one additional space per dwelling unit if parking is allowed on one side of the adjacent street and two additional spaces per dwelling unit if there is no on-street parking. Streets may be reduced as provided for in Title 18R, Design Criteria and Improvement Standards.
- M. Preservation of ridgelines - Ridgelines should be preserved as much as possible. Structures located adjacent to prominent ridgelines should complement, rather than provide a stark contrast with, the natural landform(s). Through careful placement, development can help preserve vistas and landforms, and maintain positive visual impact.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

The impacts of the proposed 43-acre portion of the Subdivision and Conceptual Master Plan are analyzed in relation to existing conditions, which are primarily undeveloped grassland and woodland, and in relation to the proposed foothill standards for development of the 43 acres. The positive or negative value attached to changes in visual character is largely subjective. This EIR does not seek to assign a judgement of "good" or "bad" change; rather, it identifies any substantive change as significant. The 43-acre portion of the subdivision is analyzed at a project-specific level of detail. Because specific development details are not available for the Conceptual Master Plan, it is analyzed programmatically.

A description of the project site was constructed from visits to the project site, aerial photographs, site photographs, and topographic maps. The City of Chico General Plan, as well as other applicable planning documents, were reviewed to determine what visual elements have been deemed valuable by the community. The analysis focuses on the manner in which development could change the visual elements or features that exist on the project site.

A three-dimensional model of the 43-acre portion of the project was created using the existing topography, recent aerial photography, and general building masses representing the commercial and residential development. The three-dimensional model was rotated to approximate the view from four critical vantage point locations. Taking into consideration the topography, viewshed analyses identified the portions of the project area that will be visible to a viewer from the vantage points to anticipate the impact of the buildings on views.

The visual effects of construction activities are not evaluated in this section because they would be intermittent and temporary. The entire site is not anticipated to be developed in a single construction season, and views of construction activities would vary depending on where such activities were focused.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative aesthetic impacts are considered significant if implementation of the Project would:

- substantially change the existing visual character (day or night) of the site, including alterations to the natural terrain or topography;
- substantially degrade the view of the project site from public vantage points and road corridors, particularly State Route 32, Humboldt Road and surrounding residential areas;
- introduce uses that are visually incompatible with existing or planned uses in areas that have visual access to the Plan Area;

- create new sources of light and/or glare that would directly illuminate adjacent and nearby residences or public uses or create nuisances on roadways or surrounding areas;
- contribute to a cumulative alteration of aesthetic characteristics of Butte County by increasing urban-type development in existing rural and natural areas; or
- contribute to the cumulative introduction of artificial light into rural areas.

Project Impacts and Mitigation Measures

4.9-1 The Project would convert undeveloped landscape to urban development.

43-Acre Portion of the Subdivision

The proposed initial 43-acre portion of the Subdivision would urbanize a segment of the undeveloped project site. The visual character of the project site is dominated by open, rolling grasslands, and is visible from a variety of viewpoints, some well-traveled, such as parts of State Route 32. Residential areas have been developed to the immediate northwest and further south of the project site. Development of the project area would be an extension of this urban edge. The 43-acre portion of the subdivision would include approximately nine acres of open space (see Chapter 3, Project Description), primarily along Dead Horse Slough, which would retain much of its natural character. Nonetheless, the 43-acre portion of the Subdivision would substantially and permanently alter the visual character of the project area by introducing a roadway network and structures into an undeveloped area, converting the existing grasslands to development, and adding bridges across Dead Horse Slough.

The City of Chico General Plan EIR identified the conversion of open space in the Planning Area as a significant impact. The City found that the benefits of implementing the General Plan to provide for the project population growth outweighed the change in visual character (Resolution 81-94-95, adopted 11/16/94). Compliance with the City of Chico General Plan policies would reduce the visual impacts of residential and commercial uses in the foothill area of Chico, but the conversion of rural open space to a residential area would remain a *significant impact*.

Conceptual Master Plan

The visual resources associated with the Project site include open rolling grassland, varied topography, the existing rock wall, riparian habitat along Dead Horse Slough, and the groves of mature native Blue Oak trees. Development of the entire Project site would convert the existing visual character to new residential areas, streets, and commercial uses. The Conceptual Master Plan includes urbanized development, with approximately 87.5 acres of open space, including the preservation of an approximately 100-foot creekside greenway on both sides of Dead Horse Slough. Most of the existing visual resources, such as the slough and oak trees, would be preserved in the open space area. In addition, subsequent developers would be required to submit specific foothill standards that comply with City design standards. However, development of the Conceptual Master Plan would substantially and permanently alter the open, rural visual character of the project site by introducing a roadway network, houses, and commercial uses.

The majority of grasslands on the site would be developed, and the open space areas would be surrounded by development and would lose their undeveloped character. As stated above, the City considered the change in visual character in the adoption of the General Plan. Nonetheless, this is considered a *significant impact*.

Mitigation Measures

Implementation of the following mitigation measure would reduce the magnitude of the urbanization of the Project site's visual character, but the impact would remain *significant and unavoidable*.

- 4.9-1 *Development of both the Conceptual Master Plan and the 43-acre portion of the Subdivision shall be consistent with the City's adopted development standards and the Foothill Design Criteria for project areas which are at the 250-foot and above elevation line. Development of both the Conceptual Master Plan and the 43-acre portion of the subdivision shall also be consistent with City of Chico lighting standards and the City's architectural review process for commercial development. (Conceptual Master Plan and 43-Acre portion of the subdivision).*

Implementation of the City's Foothill Design Criteria would reduce the change in visual character by retaining much of the site's topography, using setbacks, sensitive building design and other elements to blend structures into the terrain, preserving vistas from public places, and retaining visually significant features. While these standards will make new development more compatible with some aspects of the project site's natural features (e.g., topography), there are no measures to fully mask or blend development so that the post-development visual character of the site is not substantially altered.

- 4.9-2 The Project would alter views visible from surrounding areas, including State Route 32, Humboldt Road, and the bike trail along Little Chico Creek.

43-Acre Portion of the Subdivision

The initial 43-acre portion of the Subdivision would be located immediately south of State Route 32 and would consist of approximately 317 residential units. The Project would be visible from sensitive areas, such as State Route 32, and a bike trail along Little Chico Creek.

The project site is visible from both directions on State Route 32. The three-dimensional model indicates that the residential units in the 43-acre portion of the Subdivision would be most visible to travelers along Highway 32. The proposed road alignment would also allow intermittent views for eastbound traffic through the development to Dead Horse Slough to the south.

Bruce Road is currently a two-lane, major city arterial connecting Skyway in the southeast portion of Chico to Manzanita Avenue in the northeast. The project site is visible to northbound traffic on Bruce Road. According to the three-dimensional model, the view of the development would be substantially hidden by the existing burn dump from the intersection of Bruce Road and Humboldt Road. As the viewpoint is moved farther east along Humboldt Road, the road

gradually rises in elevation and increasingly more of the development would become visible in the distance. Some of the views to the residential areas immediately north of Highway 32 would be partially obscured by the Project. However, from this location, the Project would not obscure distant views because the development site is lower in elevation.

Adherence to the City of Chico General Plan policies would reduce the impact on surrounding views by requiring residential development to be compatible with the character of the eastern foothills. However, the General Plan EIR identified new development in the foothills as a potentially significant impact because it would substantially alter the open, undeveloped visual quality of the foothills as viewed from existing urban areas. The City found that the benefits of implementing the General Plan to provide for the project population growth outweighed the change in visual character (Resolution 81-94-95, adopted 11/16/94). The project contribution to this change is considered a *significant impact*.

Conceptual Master Plan

The project site is visible to travelers on State Route 32. This two-lane roadway is primarily rural in character with low traffic volumes consisting of mainly local and recreational type traffic. State Route 32 from Interstate 5 to Yosemite Drive east of Chico is the major access route for Chico urban area residents between Interstate 5 and SR 99. Traffic Volumes (1998) on SR 32 through Chico were 6,500 vehicles per day east of Highway 99.¹

The Conceptual Master Plan would develop a large portion of the entire Project site, including the 43 acres of the Subdivision, with commercial buildings and residential units. Some visual resources would be preserved in open space areas. The Conceptual Master Plan includes the preservation of an approximately 100-foot creekside greenway on both sides of Dead Horse Slough, a 60-foot setback from State Route 32 and the preservation of the existing groves of oak trees on the north portion of the 43-acre portion of the Subdivision.

The design of commercial and residential units proposed with the Conceptual Master Plan is unknown at this time. Adherence to the General Plan policies regarding foothill development would reduce the impact on surrounding viewsheds by requiring residential development to be compatible with the character of the eastern foothills. Nevertheless, project development would result in permanent visible change to the existing character of the project site as viewed from State Route 32 and other local roads. Also, as stated in the General Plan EIR, new development in the foothills would substantially alter the open, undeveloped visual quality of the foothills as viewed from existing urban areas and Bidwell Park. This is considered a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the magnitude of this impact, but the impact on views of the Project site would remain *significant and unavoidable*.

4.9-2 *Implement Mitigation Measure 4.9-1, as shown below:*

4.9-1 *Development of both the Conceptual Master Plan and the 43-acre portion of the Subdivision shall be consistent with the City's adopted development standards and the Foothill Design Criteria for project areas which are at the 250-foot and above elevation line. Development of both the Conceptual Master Plan and the 43-acre portion of the subdivision shall also be consistent with City of Chico lighting standards and the City's architectural review process for commercial development. (Conceptual Master Plan and 43-Acre portion of the subdivision).*

4.9-3 Project nightlighting could contribute to existing ambient light, which would alter existing nighttime views of and from the project site.

43-Acre Portion of the Subdivision

The initial 43-acre portion of the Subdivision includes only residential buildings, which are not likely to use tall or powerful lights. Nonetheless, street and residential lighting would introduce a new source of light visible from offsite, thereby changing the Project site's nighttime visual character. Compliance with the Foothill Design Criteria would minimize lighting impacts. However, any exterior lighting would change the current appearance of undeveloped land and, as such, is considered a *significant impact*.

Conceptual Master Plan

Within the Conceptual Master Plan, new residential and commercial development would require lights, and the introduction of artificial light into a rural area would contribute to a change in that area's character. In addition, lighting can be a nuisance if it spills into backyards or homes. Residential buildings, such as those anticipated under the Master Plan, are not likely to be large enough to generate substantial lighting effects. However, the commercial area proposed for the western edge of the project site would include lights in parking areas and in and around buildings for both safety and convenience. Compliance with the City lighting standards and the architectural review process for commercial development would ensure that exterior lighting be designed to minimize lighting impacts. However, because implementation of the Conceptual Master Plan would introduce new residential and commercial lighting that would change the current appearance of undeveloped land, this is considered a *significant impact*.

Mitigation Measure

Implementation of the following mitigation measure would reduce the effects of light to a *less-than-significant level*.

4.9-3 Implement Mitigation Measure 4.9-1, as shown below:

- 4.9-1 *Development of both the Conceptual Master Plan and the 43-acre portion of the Subdivision shall be consistent with the City's adopted development standards and the Foothill Design Criteria for project areas which are at the 250-foot and above elevation line. Development of both the Conceptual Master Plan and the 43-acre portion of the subdivision shall also be consistent with City of Chico lighting standards and the City's architectural review process for commercial development. (Conceptual Master Plan and 43-Acre portion of the subdivision).*

Additionally, the Foothill Design Criteria state that lighting should be shielded to prevent glare and spillover, and that low-level and multiple low fixtures should be used rather than fewer tall fixtures. These measures would minimize the obtrusiveness of lighting on the project site.

Cumulative Impacts and Mitigation Measures

The cumulative context for visual resources is the City of Chico and the surrounding foothills and rural areas. Consistent with the City's General Plan, development of the full project site is assumed in this cumulative analysis.

- 4.9-4 **Development of the Project, in combination with other cumulative development, would alter existing views and the visual character of the City of Chico.**

The City of Chico urban area is surrounded by rural agricultural lands to the north, south and west and low foothills to the east. The development of the Project, in combination with the other development in the City, would extend the urban edge by converting currently undeveloped land to urban and suburban uses. Views along rural or scenic highways, such as SR 32 would change with the introduction of residential and commercial development, streets, and nightlighting. The Project would contribute to this alteration.

The General Plan EIR states that implementation of the General Plan would result in the conversion of substantial areas of open space in the Planning Area. The General Plan EIR concluded that implementation of the General Plan is justified due to the fact that continued growth in the Chico Planning Area is expected, and the policies have the potential to improve the degree of guidance and control available to the City in protecting the environment. The timely implementation of the General Plan policies would facilitate increased environmental protection and resource conservation as development occurs over time. However, this would remain a *significant impact*.

Mitigation Measures

Implementation of the following mitigation measure would reduce the magnitude of this impact on the cumulative loss of views and visual character, but the cumulative impact would remain *significant and unavoidable*.

- 4.9-4 *Implement Mitigation Measure 4.9-1. (Conceptual Master Plan and 43-Acre portion of the Subdivision)*

ENDNOTES

1. City of Chico, *Draft Environmental Impact Report for the Chico General Plan*, August, 1994.

4.10 HAZARDS AND HUMAN HEALTH

4.10 HAZARDS AND HUMAN HEALTH

INTRODUCTION

The Project would involve the construction and occupancy of a mixed-use development consisting primarily of residential units and open space for resource protection and passive recreation use and a small amount of commercial acreage. The 340-acre Project site is currently undeveloped, with two 500-kV high-voltage transmission lines parallel to the site along the eastern boundary, outside of the Project site. Portions of the Project site and adjacent properties were historically used for municipal and private waste disposal, including a burn dump. The principal area of waste and private disposal was the former City of Chico/Butte County Burn Dump located on a 10-acre parcel along Humboldt Road just east of Bruce Road. The Burn Dump is adjacent to the Project site. However, smaller areas of waste disposal have also been identified within western portions of the Project site, and a larger area within and adjacent to the Project site is the subject of ongoing investigation for soil and water contamination. Project locations developed under the Conceptual Master Plan or 43-acre portion of the Subdivision could be adjacent to or within areas of known or suspected contamination associated with former waste disposal activities.

At the time the Oak Valley Subdivision and Master Plan Initial Study (see Appendix A) was prepared, it was assumed that the Burn Dump and adjacent properties would be remediated before the Project would begin. As of April 2000, a schedule for implementing the remedial actions has not been finalized. As currently planned, the Humboldt Road Burn Dump Remediation Project (HRBDRP) would be performed as a separate action under the oversight of the Regional Water Quality Control Board (RWQCB). Project-specific environmental effects associated with remediation of the burn dump site were evaluated in the Humboldt Road Burn Dump Restoration Project Draft EIR prepared for that project in 1997-98 as part of the regulatory approval process for that site. Mitigation measures to reduce significant impacts that could occur as part of the remedial actions were also identified in the Humboldt Road Burn Dump Restoration Project Draft EIR. Although remedial actions would be undertaken separately and independently from the Project, implementation of HRBDRP activities are related to the Project to the extent that construction and occupancy of the Project could occur prior to, during, or after remediation. Therefore, potential impacts related to the timing of the HRBDRP as it relates to Project development are also evaluated in this section. This section of the EIR includes an overview of laws and regulations applicable to the cleanup of contaminated sites and summarizes the current status of site characterization and cleanup efforts.

The Initial Study (please see Appendix A) concluded that implementation of existing local, State, and federal laws and regulations would ensure that exposure to hazardous materials used, generated, stored, or transported during project construction and operation would reduce

potential human health risks associated with them, and impact would be less than significant. Potential effects related to electromagnetic fields generated by on-site high-voltage transmission lines and fire hazards were also evaluated in the Initial Study and were determined to be less than significant because there is no conclusive evidence of significant, adverse health effects. Therefore, these issues are not evaluated in the EIR.

Definitions

Within the discussion in this section, specific terms are used to identify certain locations within the Project site. Because additional boundaries have been delineated for regulatory purposes within the Project site in conjunction with remedial actions unrelated to the Project itself and these boundaries do not always coincide with the configuration of proposed land uses, the following definitions apply:

"Project site" refers to the entire 340 acres proposed under the Conceptual Master Plan, which includes the 43-acre portion of the Subdivision (see Figure 3-2). The Project site includes approximately 80 acres of the 157-acre HRBDRP site.

The "HRBDRP site" refers to an approximately 157-acre area delineated by the Department of Toxic Substances Control (DTSC) for purposes of remediation. Additional information regarding the delineation of the 157-acre site, parcels, status of remedial activities, and location maps are presented in the Environmental Setting, below. A fenced and posted area by order of the DTSC has been delineated for approximately 60 acres of the 157 acres. The fenced and posted area includes some land that would be developed under the Conceptual Master Plan (exclusive of the 43-acre portion of the Subdivision).

The "City/County Humboldt Road Burn Dump" (Burn Dump) refers to the 10-acre parcel formerly managed by the City of Chico and Butte County. The former City/County Burn Dump is within the HRBDRP site. However, the Burn Dump parcel (APN 11-3-15) is not within the 340-acre Project site but is immediately adjacent to it.

The "43-Acre Portion of the Subdivision" is adjacent to but not within the fenced and posted area. The location of the 43-acre portion of the Subdivision within the Conceptual Master Plan area is shown in Figure 3-2.

REGULATORY BACKGROUND

A number of federal, State and local laws have been enacted to regulate the management of hazardous materials and wastes. Implementation of these laws and the management of hazardous materials is regulated independently of the CEQA process through programs administered by various agencies at the federal, State, and local levels. An overview of the key hazardous materials laws and regulations that apply to redevelopment of portions of the HRBDRP site and adjacent properties within the Project site are briefly described in this section. Additional information is presented in Appendix M.

Management of Soil and Groundwater Contamination

The oversight of hazardous materials release sites often involves several different agencies that may have overlapping authority and jurisdiction. The California Department of Toxic Substances Control (DTSC) and California Regional Water Quality Control Board (RWQCB) are the two primary State agencies responsible for issues pertaining to hazardous materials release sites. Although DTSC has provided regulatory oversight of HRBDRP site investigations in the past, the RWQCB was designated as the Administering Agency by Cal-EPA on December 11, 1997 (Cal-EPA Site Designation Committee Resolution No. 97-16), pursuant to Assembly Bill (AB) 2061 legislation. As Administering Agency, the RWQCB's duties include administering all local and State laws, ordinances, regulations, and standards applicable to investigation and remedial activities at the site. The Administering Agency must consult with other agencies ("Appropriate Agencies" or "Support Agencies") when issuing permits or other authorizations not normally within its jurisdiction. Air quality issues related to remediation and construction at contaminated sites are also subject to federal and State laws and regulations that are administered at the local level. The Butte County Air Quality Management District (BCAQMD) regulates both criteria air pollutants and toxic air contaminants under the provisions of various federal and State air laws and regulations.

Investigation and remediation activities that would involve potential disturbance or release of hazardous materials must comply with applicable federal, State, and local hazardous materials laws and regulations (see Appendix M). At any time during construction or occupancy, the Project developer and contractors are responsible for knowledge of and complying with applicable hazardous materials management regulations.

The Polanco Act, which is codified in the California Health and Safety Code gives redevelopment agencies, such as the Greater Chico Urban Area Redevelopment Project Area (GCUARPA), the authority to take actions it determines to be necessary to remedy or remove a release of hazardous wastes on, under, or from property within its project area. In return, the redevelopment agency, developers of the formerly contaminated property, and subsequent owners receive limited immunity from further cleanup liability. The GCUARPA has as one of its statutory redevelopment agency purposes remediation of the City/County Burn Dump and elimination of any consequential "blighting effects" that municipal operation and cessation of operation of the Burn Dump may have had on nearby private properties.

Landfill Closure

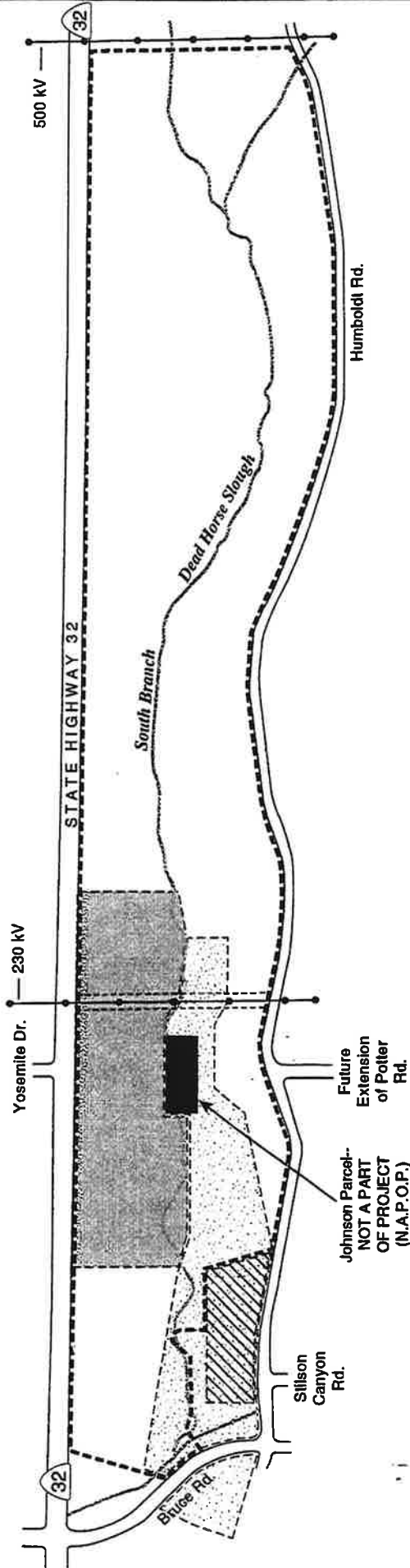
In addition to the regulations noted above, the restoration of the City/County Burn Dump would be governed by State laws and implementing regulations pertaining to landfill closure. The Porter-Cologne Water Quality Act (1969) provides for coordinated regulatory controls over all activities that may affect water quality. This includes the establishment of waste discharge requirements for discharges to the state's waters, including groundwater. Portions of this act are implemented as regulations in Title 27 of the California Code of Regulations (CCR). Title 27 includes, but is not limited to, state regulations for the disposal and/or management of various types of waste as it relates to the protection of surface and groundwater. It also addresses solid waste landfills, and includes specific design, construction, and closure requirements for landfills geared to reduce the risk of surface and groundwater contamination.

ENVIRONMENTAL SETTING

The 340-acre Project site is located approximately three miles east of Downtown Chico in Butte County, California. The site is bounded by State Route 32 to the north, high-voltage transmission lines to the east, Humboldt Road to the south, and Bruce Road to the west (see Figure 3-1). The Project site is characterized by gently rolling grasslands and is used for seasonal grazing. It consists of several parcels under private ownership. A small portion of the southwest quadrant of the Project site was historically used for waste disposal, and is adjacent to the former City/County Humboldt Road Burn Dump (Burn Dump) and other private properties used for the same purpose, as described below. In addition, in 1982 the City installed a sewer system in the western part of the Project site. The line is generally parallel to the northern and western boundary of the Burn Dump. Figure 4.10-1 illustrates the locations of the City/County Burn Dump and the 157-acre HRBDRP site relative to the 43-acre portion of the Subdivision and the Conceptual Master Plan boundaries.

A number of documents have been prepared that include the history of disposal site operations, the results of soil and groundwater studies, and proposed remediation.¹ The results of these investigations and conclusions and recommendations regarding health and environmental risks and recommended actions were presented in several documents, including, but not limited to: *Humboldt Road Burn Dump Environmental Restoration Plan* (March 1997), *Human Health Risk Analysis for Humboldt Road Burn Dump* (January 1997), *Focused Remedial Investigation Summary Report, Humboldt Road Burn Dump* (May 1996), *Border Zone Property - Preliminary Endangerment Assessment* (May 1995), and *Remedial Action Strategy Plan, Humboldt Road Disposal Site* (October 1993). These reports, along with agency correspondence concerning the results of investigations and plans to clean up contaminated areas, are available for public review at the City of Chico Department of Public Works, 411 Main Street, Chico, California. The most recent compilation of waste disposal history, results of testing to date, and rationale for locations and types of additional testing are presented in *Draft Work Plan, Additional Site Characterization, Humboldt Road Burn Dump, Chico, California* (EMKO Environmental, August 1999), which also may be reviewed at the same location.

There were three principal areas of waste disposal and ten or more smaller areas. As shown in Figure 4.10-2, the largest is the former City/County Burn Dump, a 10-acre site along Humboldt Road that is estimated to contain 237,000 cubic yards of burn dump debris. The Burn Dump was operated by the City of Chico (and jointly for several years by the City of Chico and Butte County) as a dump for household and commercial waste from the early 1890s until the mid-1960s. Management of disposal operations at the City/County dump was contracted to private parties. The mode of operation was to dump, burn, and level the refuse in a cyclic fashion. The dump ceased operation in 1965 when Butte County opened the Neal Road Landfill. A soil cover of unknown thickness was reportedly applied to the Burn Dump after it ceased operation. The property was sold to a private party in 1980. Unregulated dumping and burning of domestic and commercial waste was performed on parcels adjacent to the City/County dump for a similar period of operation. To the east, a smaller, private burn dump covers 5 acres and is estimated to contain 38,000 cubic yards. West of the Bruce Road extension lies the third largest area of discrete disposal, with approximately 30,000 cubic yards of waste covering the Mulkey, City of Chico,



NOTE: For illustrative purposes only.



43-Acre Portion of the Subdivision



Conceptual Master Plan Project Boundary



Fenced and Posted Humboldt Road Burn Dump Site Boundary (approximately 60 acres)



Humboldt Road City/County Dump (approximately 10 acres)

SOURCE: EMKO Environmental, Draft Work Plan, Additional Site Characterization, Humboldt Road Burn Dump, Chico, California, August 1998, Figure 3; EIP Associates, March 2000.

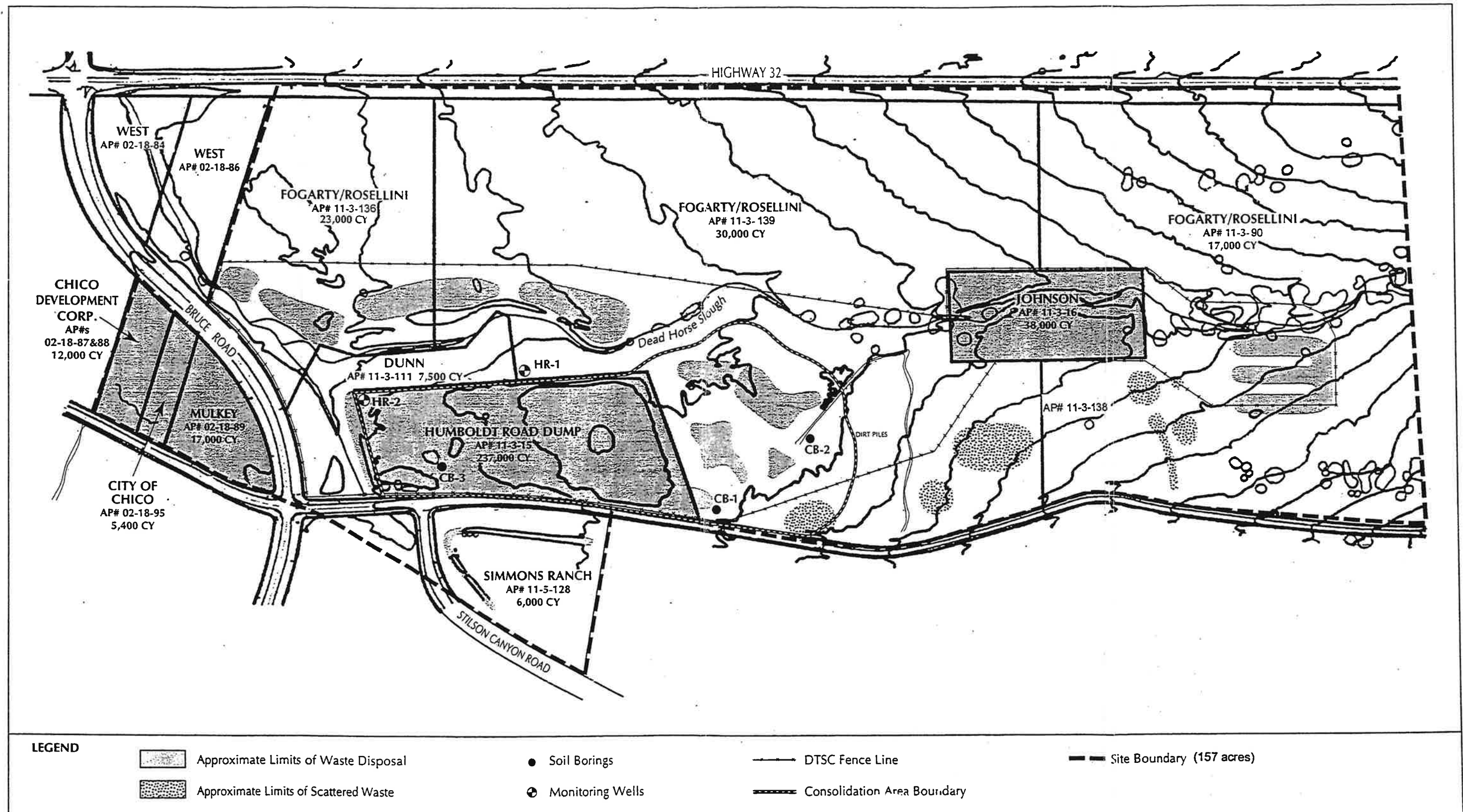


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Scale In Feet

10049-Base

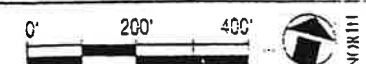
**Figure 4.10-1
Location of
Former Humboldt
Road City/County
Burn Dump
and Fenced
Area and Posted Area**





Source: Metcalf & Eddy, 1996.

Figure 4.10-2
Humboldt Road Burn Dump Remediation Project Site
Approximate Limits of Waste Disposal



and Chico Development Corporation properties. A few smaller areas of mounded and scattered debris are present within the Project site in the vicinity of the former Burn Dump. Approximately 6,000 cubic yards of burn dump residue were excavated to construct the Bruce Road extension. At the request of the property owner, this material was placed on a portion of the Simmons Ranch property south of Humboldt Road and is outside the Project site. According to City sources, the property owner did not know the soil was contaminated when he requested placement of the soil.

Known Areas of Contamination Within and Adjacent to the Project Site

The potential for hazardous constituents in the burn dump material at the HRBDRP site was first identified by the RWQCB in September 1987. In August 1987, grading of the road bed for the extension of Bruce Road to State Route 32 dissected the westerly extent of the waste disposal area. Excavated material from this road cut was subsequently used by an adjacent landowner, without involvement or agreement by the City, to construct a stock pond on property to the east of the intersection of Humboldt Road and Stilson Canyon Road (APN 11-5-128). The parcel containing the stock pond levee is not within the Project site but is separated from it by Humboldt Road to the south. As a result of soil sampling conducted by the DTSC and others, DTSC issued Fence and Post Orders in March 1992 to the various owners of the affected properties in the area. The specific fenced and posted area delineated by the Orders is shown in Figure 4.10-2 and is considered the "source area" for purposes of HRBDRP site remediation.

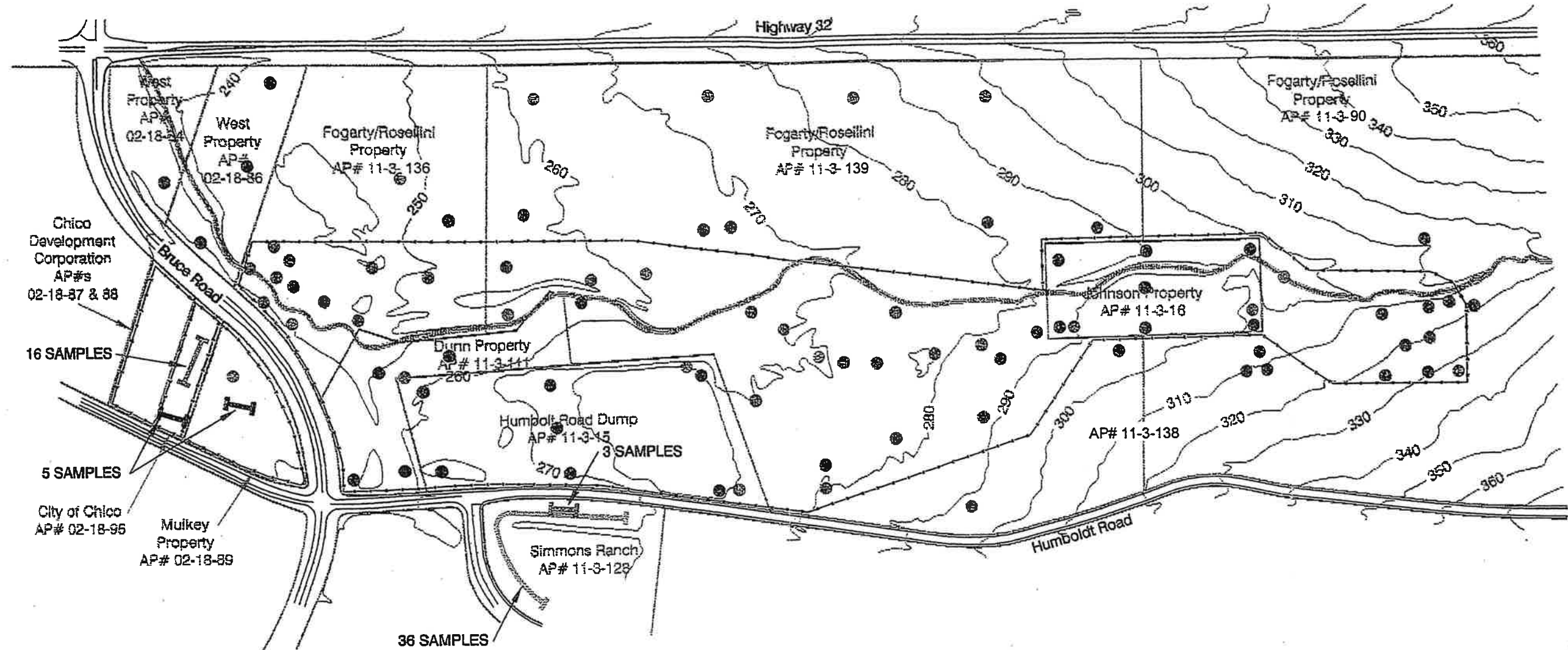
Within the Project site, the fenced and posted area encompasses portions of the Fogarty/Rosellini parcels APNs 11-3-89, 11-3-112, and 11-3-129 (based on Assessor Parcel Numbers [APN] assigned at the time the Orders were issued). The proposed 43-acre portion of the Subdivision is located immediately north of and contiguous with the fenced and posted property.

Other properties are included within fenced and posted areas, but are not within the Project site. These include: the Johnson property (APN 11-3-16), which is adjacent to the Project site and is entirely within the fenced area; the Humboldt Road Dump (APN 11-3-15) and Dunn property (APN 11-3-111) to the south; and Chico Development Corporation (APN 02-18-87 and 88), City of Chico (APN 02-18-95), and Mulkey (APN 02-18-89), which are west of Bruce Road. The Simmons Ranch property is not within the fenced and posted area.

Table 4.10-1 summarizes parcel numbers within the Project site as they are currently recorded and whether the parcel is within the fenced and posted area.

Results of HRBDRP Site Investigations

A significant amount of site characterization of the Burn Dump and HRBDRP site has been performed. Most of the testing was either conducted by the DTSC or the RWQCB under their direction. Over 200 soil, soil gas, surface water, and groundwater samples have been collected and analyzed from the 157-acre area that encompasses the HRBDRP site, including testing within the Project site. Figure 4.10-3 shows the locations where soil samples have been collected. As shown



LEGEND

- - DTSC, 12/90, 9/91
- - ROSELLINI, 3/89, 12/90, 5/91
- - DRAKE, 8/89, 6/90, 3/91
- - RWQCB, 9/87, 1/93
- - CITY OF CHICO, 6/92, 11/92, 10/95

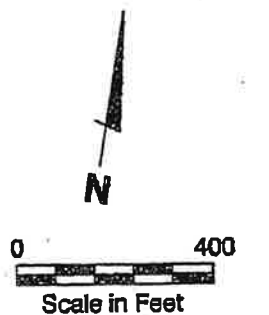


Figure 4.10-3
Approximate Location of Existing Sample Points
Humboldt Road Burn Dump Remediation Project Site

TABLE 4.10-1

**RELATIONSHIP OF PROPOSED SUBDIVISION PARCELS TO
60-ACRE HUMBOLDT ROAD BURN DUMP FENCED AND
POSTED AREA SITE BOUNDARIES**

Assessor's Parcel Number	Within Fenced and Posted Area?	Proposed Use
011-030-136	Yes (partially)	Commercial
011-030-138	Yes (partially)	Open space and residential
011-030-139	No	Residential
011-030-090	No	Residential
Source: Compiled from Metcalf & Eddy Map of Development Sites May 1995, Assessor's Map No. 11-03, Butte County (revised August 1997), and Oak Valley Vesting Tentative Subdivision Map.		

in Figure 4.10-3, some soil samples have also been collected and tested from the 43-acre portion of the Subdivision. Testing between east of the fenced and posted area and the eastern boundary of the Project site was limited because there was no documented evidence that disposal activities occurred in this area or that other sources of potential contamination are present.² However, additional testing on the Project site in the area surrounding the former dump site to approximately one-quarter mile east will be recommended by EMKO Environmental, the City's consultant regarding the HRBDRP. (see "Current Status of Burn Dump Remediation Activities," below). A summary of test results to date, as compiled in the most recent document concerning the HRBDRP (the August 1999 *Draft Work Plan* prepared by EMKO Environmental), is provided below for informational purposes.

The majority of samples were submitted for metals testing. Limited testing has been conducted for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), chlorinated pesticides and polychlorinated biphenyls (PCBs), herbicides, bioassays, pH, and soil physical testing. The 1993 *Remedial Action Strategy Plan* included a comprehensive summary of field investigations conducted prior to that time. The plan noted that the principal concern in the waste material was lead. Analytical results showed that lead concentrations across the HRBDRP site ranged from less than 100 milligrams per kilogram (mg/kg) to 82,000 mg/kg. As indicated in Figure 4.10-3, reported concentrations of lead in samples obtained from the 43-acre portion of the Subdivision were less than 100 mg/kg. Figure 4.10-4 illustrates the range of lead concentrations in tested locations. All of the samples tested for lead were collected from the surface or near-surface. To date, no samples have been collected from waste material or native soils below these depths. However, the results indicate the lead in the waste material is relatively insoluble, and surface water quality and groundwater quality has not been affected by lead. Low levels (less than 1 mg/kg of the pesticide DDT degradation product 4,4-DDE and several polycyclic aromatic hydrocarbons (PAHs) (up to 0.08 mg/kg) were also detected in a few waste samples collected from the material used for the stock pond dike on the Simmons property (outside the Project site). No other analyzed constituents have been detected in samples collected to date. Some of the RWQCB sampling results do suggest, however, that inorganic potential water pollutants, such as nitrate and sulfate, are likely to be leaching from the waste material into Dead Horse Slough. In 1995, the DTSC directed the City to conduct additional sampling for specific

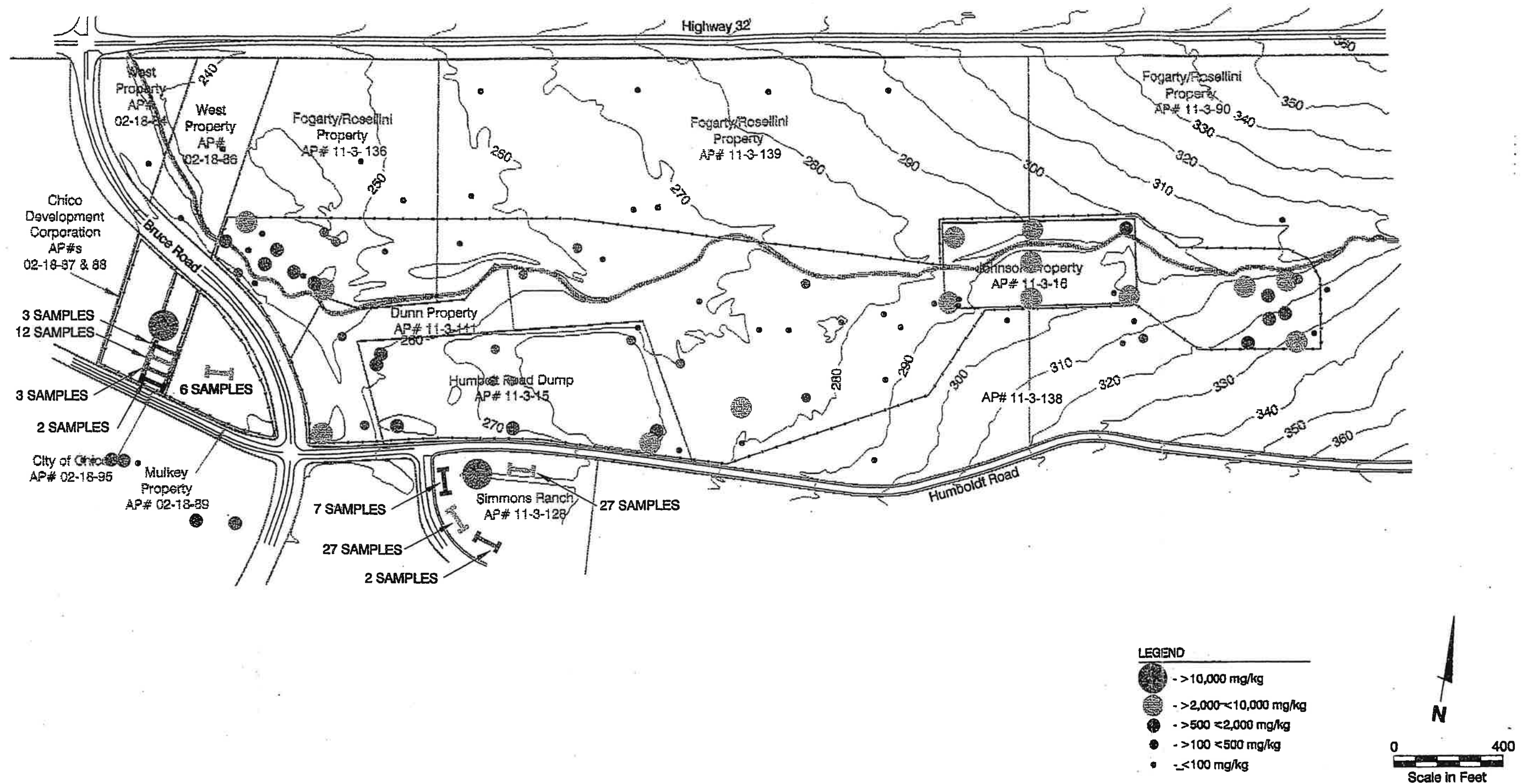


Figure 4.10-4
Summary of Lead Results in Soil
Humboldt Road Burn Dump Remediation Project Site

4.10-10

constituents in specific area. These constituents included heavy metals, VOCs using soil-gas survey techniques, and pesticides. The DTSC specifically eliminated dioxins and PAHs from the sampling requirements until confirmation sampling is conducted after remediation. The additional testing verified that metals present at elevated levels are not soluble. Chlorinated pesticides were not detected above DTSC action levels, except for a single detection of dieldrin. PCBs were not detected in waste samples. Heptane was detected in the soil-gas survey (limited to a depth of 24 inches due to underlying bedrock material), which is potentially consistent with the presence of heavier hydrocarbon components, such as solvents or kerosene.

No testing has been conducted on waste material at depth within the larger disposal piles at the HRBDRP site. Other constituents such as VOCs could be present. Testing for total recoverable petroleum hydrocarbons (TRPH), SVOCs and PAHs, and dioxins has not been performed. Testing has also not been conducted for asbestos, which was a common component of building materials during the time in which the Burn Dump was operated.³

Proposed Cleanup Activities at the HRBDRP Site

A plan was developed in 1997 to clean up the waste materials from the former dump site and nearby waste disposal areas (*Humboldt Road Burn Dump Environmental Restoration Plan*, prepared by Metcalf & Eddy, March 1997, for the City of Chico). The entire 157-acre "source site," which includes portions of the proposed Conceptual Master Plan area, would be managed as part of the HRBDRP. The following information is provided for informational purposes to disclose the current status of remediation efforts and agency involvement. As indicated below, the environmental effects associated with implementation of the proposed remediation activities were the subject of a separate environmental review, which has not been certified.

The Environmental Restoration Plan (ERP) for the Humboldt Road Burn Dump was developed in cooperation with the property owners and State agencies. By participating in the Site Designation Program, the City of Chico is currently responsible for implementing the ERP as a voluntary action. To date, neither the RWQCB nor the DTSC have issued cleanup orders for the site, and the ERP has not been approved for implementation. A revised or new ERP will need to be prepared. Cleanup actions performed as part of the ERP would be implemented separately from the Project when the ERP is approved and could occur prior to or during Project development, including occupancy.

A human health risk analysis for the HRBDRP was completed in 1997 (*Human Health Risk Analysis for Humboldt Road Burn Dump*, prepared by Metcalf and Eddy). The chemicals of potential concern used in the risk assessment were limited to arsenic and lead because the other constituents tested were either not detected, were detected at low levels, or concentrations did not exceed screening criteria for potential health risk. After additional evaluation in the health risk assessment, arsenic concentrations were determined not to pose an unacceptable risk. However, lead concentrations in excess of 225 mg/kg were determined to present a health risk under a residential or commercial land use scenario.⁴ The ERP identified the specific level of cleanup and required sampling necessary to ensure remediation efforts would protect human health and the environment. The ERP proposed regrading the 10-acre Burn Dump and consolidating waste gathered from other portions of the HRBDRP site in an area just east of the Burn Dump to create a 20-acre area covered with an impermeable cap consisting of a foundation layer, a geosynthetic

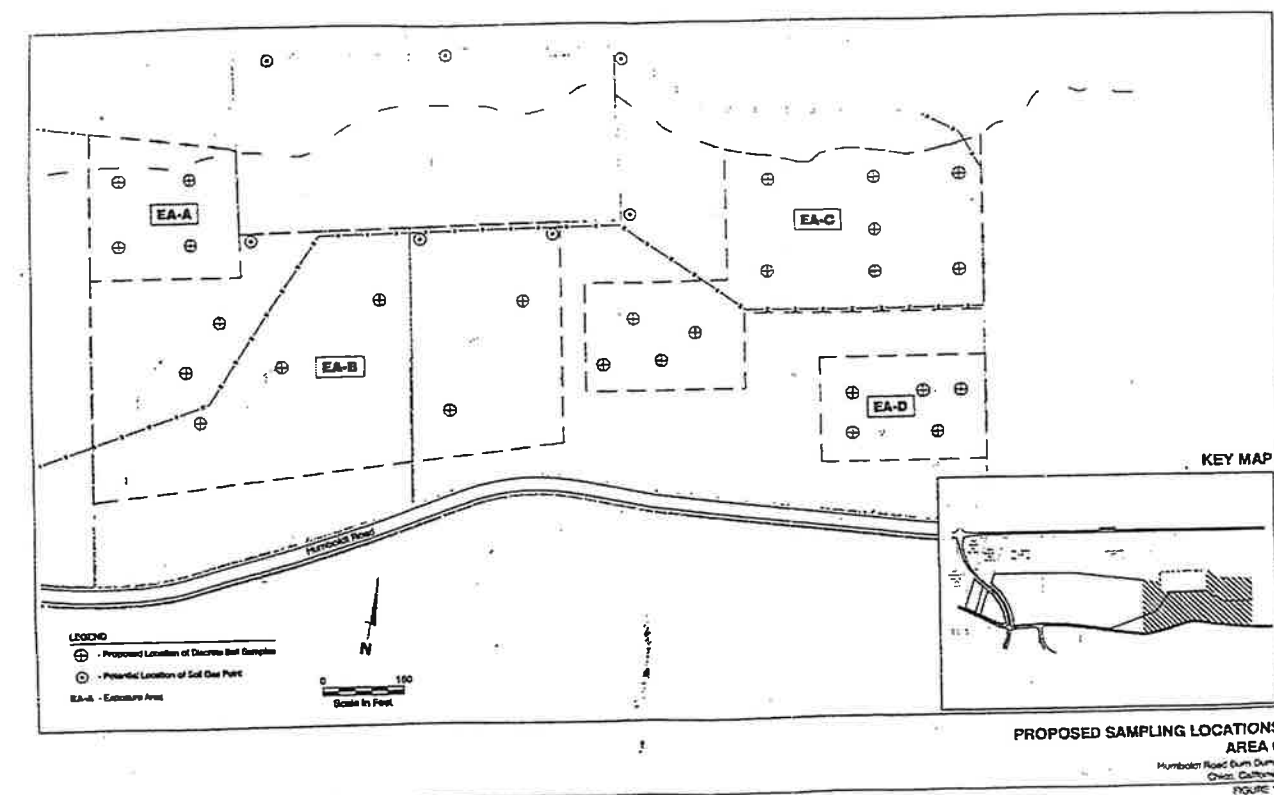
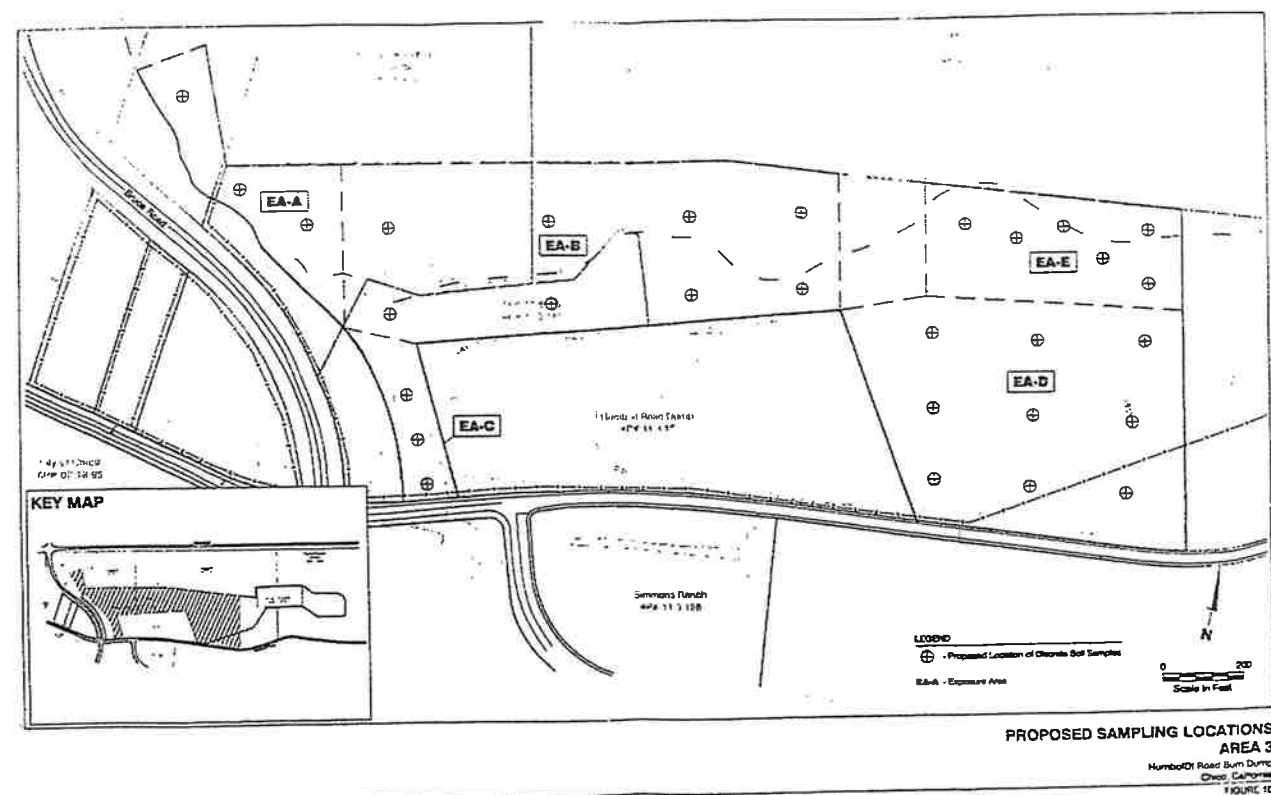
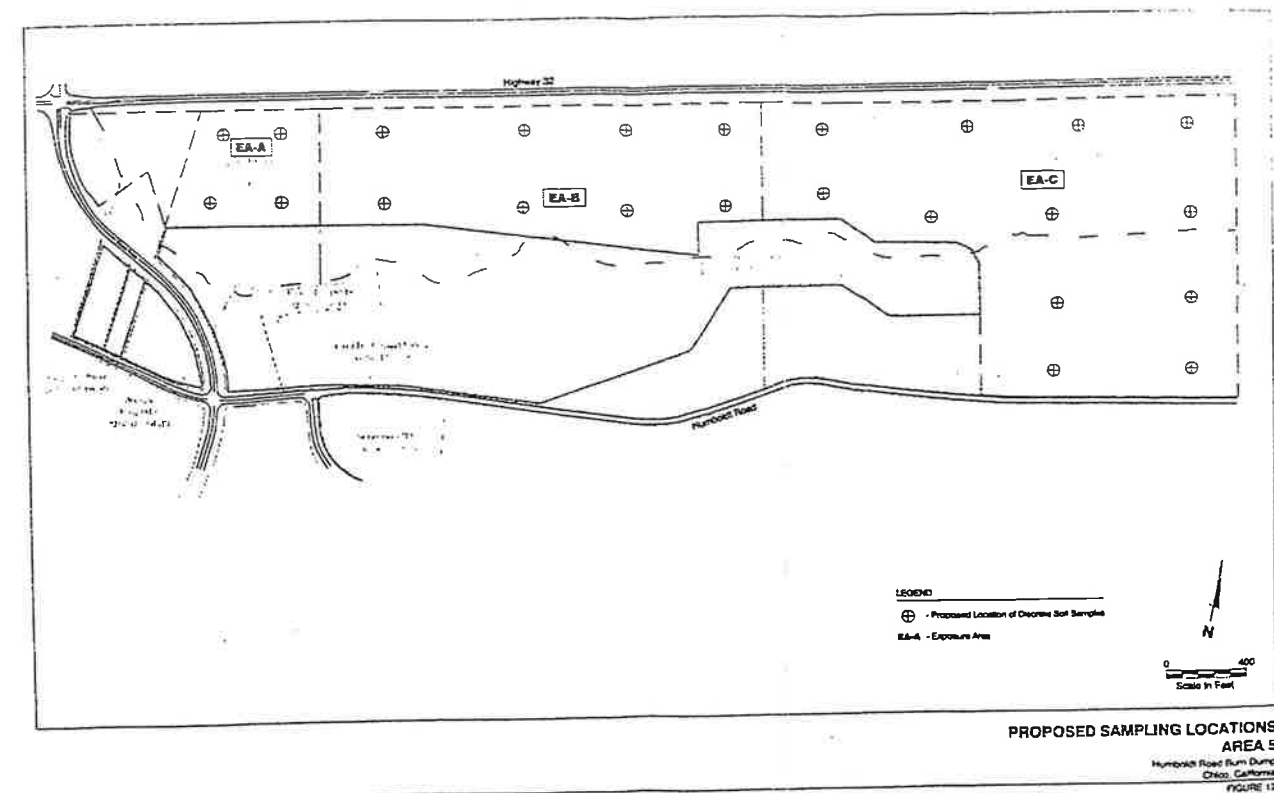
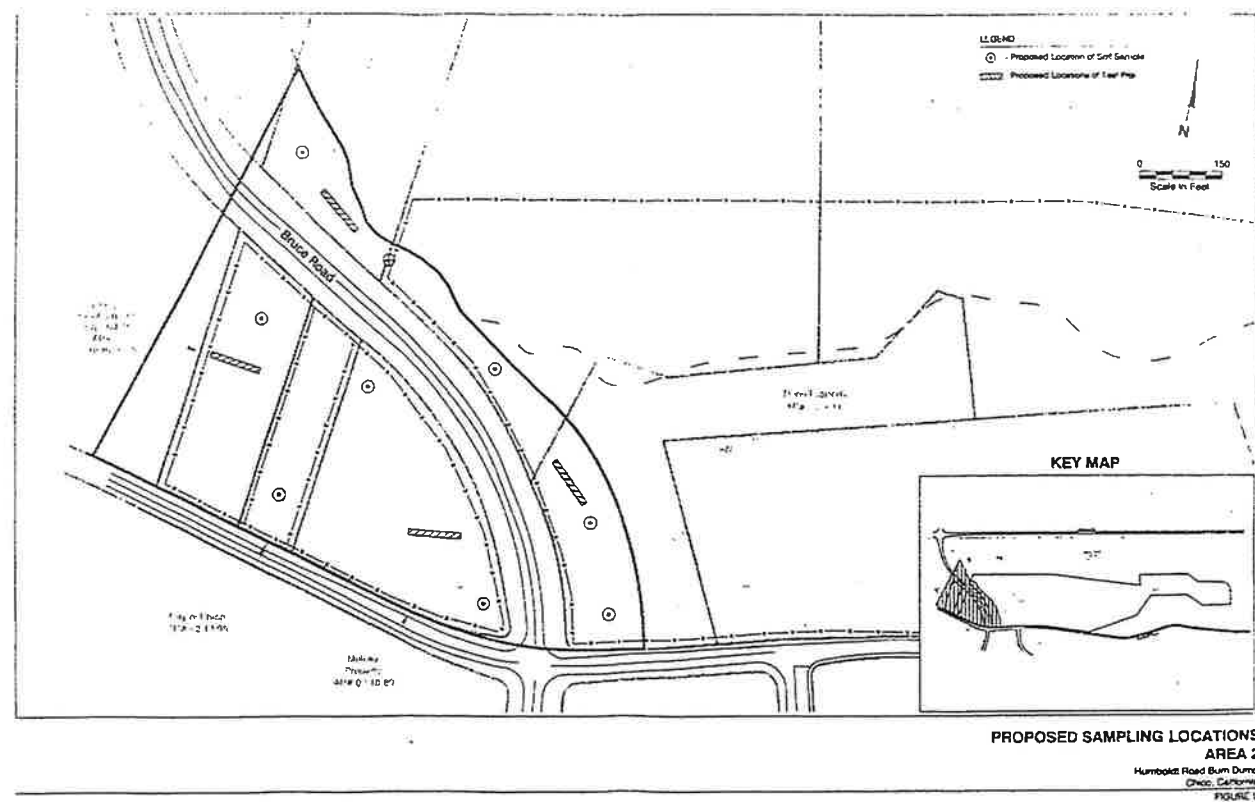
liner, and additional clean soil and vegetation. Grading activities would be limited to areas of identified waste. Waste removal would include some soil disturbance surrounding the waste piles to allow for maneuvering of heavy equipment. Soil disturbance from grading and construction of the cap would be limited from 50 to 75 feet surrounding the waste piles. The ERP also proposed restoring Dead Horse Slough on the Burn Dump site and other areas damaged by removing the waste, post-remediation soil testing, post-closure monitoring of the containment system for approximately 20 years. Following the remediation project, the consolidation site would remain as permanent open space (non-irrigated passive park) managed by the City of Chico, consistent with the General Plan designation. Figure 4.10-2 illustrates the locations of waste piles and boundary of the proposed consolidation area.

The ERP was the subject of a Draft EIR released for public review in September 1997 (*Draft Environmental Impact Report, Humboldt Road Burn Dump Restoration Project, Chico, California*, SCH #97062073). The EIR analyzed potential human health impacts related to hazardous substances that could be encountered or released during remediation and restoration activities and identified mitigation measures to reduce the impacts. A Final EIR was prepared in February 1998 but has not been certified. During the development of the EIR for the HRBDRP, several individuals who reside in the vicinity of the Project site expressed concern regarding the adequacy of site characterization studies, both in terms of the geographical extent of testing and the compounds analyzed, as well as proposed mitigation to control potential airborne contaminants (primarily lead) that could be released during the HRBDRP activities. In addition, the BCAQMD has indicated that it would require testing for dioxins and furans before issuing any permits for the HRBDRP.

Current Status of Burn Dump Remediation Activities

The City of Chico has retained a consultant (EMKO Environmental) to assist with review of the process and additional site characterization for the HRBDRP. Several public meetings have been held, and the City's consultant has made some recommendations regarding the HRBDRP, including the need for additional testing within the HRBDRP site. Field activities proposed for additional studies include soil gas testing, collection of soil samples from excavations and/or soil borings, collection of water samples from within waste piles, and collection of surface water and sediment samples from Dead Horse Slough. Samples would be collected from several locations within the Project site, including the 43-acre portion of the Subdivision (see Figure 4.10-5). Although the specific chemical constituents tested would depend on the location and potential for their occurrence, the *Draft Work Plan* proposes soil and water samples be tested for metals, VOCs, SVOCs, chlorinated pesticides and PCBs, dioxins and furans, TRPH, asbestos, and general chemistry.⁵ The *Draft Work Plan*, prepared by EMKO Environmental, was made available for public and State and local agency review and comment in August 1999. Additional agency consultation and public outreach efforts regarding the draft work plan and its implementation have continued, and an amended work plan was submitted to the RWQCB in January 2000. Soil and water testing began in March 2000, with the final document to be completed in June.

As of March 2000, a final EIR for Burn Dump remediation has not yet been prepared. Because the ERP has yet to be finalized and the EIR for that project has not been certified, a schedule for remediation has not been established. Consequently, the timing of remediation relative to the



SOURCE: EMKO Environmental, Work Plan Additional Site Characterization
Humboldt Road Burn Dump, Chico, California, Figures 9, 10, 11, 12.

**Figure 4.10-5
Humboldt Road Burn Dump Remediation
Project Site Proposed Sampling Locations**

Project remains unknown. It is also possible that additional conditions may be imposed on the remediation activities as more information is developed when the draft work plan is implemented. However, if the remediation activities are completed and certification by the State regulatory agency with approval authority over the cleanup is given, those portions of the HRBDRP site within the Conceptual Master Plan Project site would be suitable for future intended uses such as those described for the Project.

Status of Agency Actions Concerning the HRBDRP

One of the mechanisms by which the RWQCB as Administering Agency is able to coordinate all applicable regulations is to organize a "Consultative Work Group." The Consultative Work Group consists of staff from each agency with regulatory involvement in cleanup of the site and are the individuals who actually develop the necessary permits and conduct necessary oversight of the remedial activities. The initial meeting of the HRBDRP Consultative Work Group was held on January 27, 1998. At that time, involved agencies were provided the proposed cleanup plan and requested to communicate their requirements to the RWQCB in its role as Administering Agency. Since the initial meeting of the Consultative Work Group, additional information on the site has been made available to the RWQCB by the public. Many of the issues raised by concerned individuals and agencies such as the BCAQMD fall under the regulations or expertise of the DTSC. In a letter dated November 23, 1998, the RWQCB indicated that it intends to convene a second meeting of the Consultative Work Group to address these issues "in the near future."⁶ According to the RWQCB's letter, issues that will be discussed at the meeting of the Consultative Work Group include adequacy of site characterization and controls to protect human health during remediation, adequacy of the post-cleanup sampling plan, appropriateness of planned land uses after cleanup, and identification and discussion of any border zone issues.

The City of Chico has been evaluating its role as a participant in the Site Designation Program. As of April 2000, the City Council has not provided direction to City staff regarding the City's participation in the Site Designation Program. The City Council is not expected to provide further direction until site characterization is complete.

Border Zone Property Determinations

Border zone property is defined by the California Health and Safety Code as "any property designated as border zone property pursuant to Section 25229 that is within 2,000 feet of a significant disposal of hazardous waste, and the wastes so located are a significant existing or potential hazard to present or future public health or safety on the land in question." Section 25232 of the Health and Safety Code defines the land use restrictions and criteria under which residential development, schools, daycare, and hospital/nursing facilities may be constructed on such properties. The determination remains in effect until DTSC has approved the removal of land use restrictions according to the procedures set forth in Section 25234 of the Health and Safety Code. Additional information on Border Zone Property law is included in Appendix M.

As of March 2000, two applications for border zone property determinations have been submitted to DTSC for property within 2,000 feet of the HRBDRP site. An application for a border zone determination for Sierra Sunrise Village, located north of State Route 32 within 1,300 feet of the HRBDRP site, was submitted to DTSC in September 1993. According to information presented

in the *Humboldt Road Disposal Site Remedial Action Strategy Plan*, Sierra Sunrise has received a release from any border zone setbacks or deed restrictions.⁷ The application for the second border zone determination was prepared for the Drake/Simmons and Fogarty/Rosellini properties in May 1995. These parcels are located immediately adjacent to the HRBDRP site. Because of the amount of site characterization work that had been completed, an abbreviated checklist approach to the border zone property determination for the HRBDRP site was approved by DTSC.⁸ A Preliminary Endangerment Assessment (PEA) was submitted with the request for a determination. DTSC reviewed the PEA in conjunction with proposed development plans, including water supply infrastructure. In September 1995, DTSC issued a response letter, concluding that there is no significant health threat to future residents of the proposed development resulting from the development's proximity to the former burn dump. The DTSC indicated that the border zone designation was not warranted for the properties, provided the property owners adhered to certain conditions. These conditions included: (1) recording of proposed "parcel splits" (officially boundary line modifications) to separate the southern part of the parcels that contain waste materials from northern portions that do not (i.e., Fogarty/Rosellini), and (2) the parcel containing the stock pond levee (APN 11-5-128) must remain undeveloped until that property is remediated. Although portions of the parcels south of the fence delineating the former dump and containing scattered waste piles were not specifically included in the border zone property determination, DTSC acknowledged the property owners' intent to remove the waste piles prior to any development. DTSC concurred with that proposal as part of its determination, noting that the southern portions (i.e., areas within the fenced and posted area) will not be available for development until remediated.⁹

In February 2000, DTSC staff formally responded to a request from an individual to revoke the September 1995 border zone determination for the Drake/Simmons and Fogarty/Rosellini properties. DTSC reaffirmed its previous conclusion, stating that the majority of the parcels specified in the determination do not present a significant threat from future residential development, and that investigation and remediation activities are in progress pursuant to Health and Safety Code requirements and through the Site Designation Process. DTSC noted, however, that the degree of site characterization must be acceptable to all involved agencies, and if contaminants are discovered that pose a significant threat, there will have to be an appropriate cleanup or property deed restrictions to control future land use.¹⁰

The boundary line modification required by DTSC and completed by the Project applicant has been formally recorded. Based on completion of the first condition imposed by DTSC, it is assumed development in the northern portions of the parcel(s) north of the fenced and posted site (i.e., the 43-acre portion of the Subdivision) can proceed without any restrictions related to Border Zone Property law. As noted above, however, final resolution of border zone issues is subject to further discussion at a future Consultative Work Group meeting. The parcel containing the stock pond levee (adjacent to the Project site) has not been remediated, and the Project would not involve any development on that parcel.

IMPACTS AND MITIGATION MEASURES

Method of Analysis

This section presents a qualitative analysis of potential hazards and human health impacts as they relate to development of a known contaminated site. The analysis is based on a review of published information contained in existing technical reports that pertain to the site, agency correspondence, and applicable regulatory requirements. The analysis of potential effects related to the proposed 43-acre portion of the Subdivision is evaluated at a project level, while implementation of the Conceptual Master Plan (which includes approximately 80 acres of the unremediated HRBDRP site and 30 acres within the fenced and posted area) is evaluated programmatically.

For purposes of the analysis, it is conservatively assumed that remediation of the HRBDRP site and confirmation sampling would not occur prior to certification of this EIR and project approval. Until resolution of technical issues that will be addressed by the Consultative Work Group and issuance of enforcement orders, if any, it is also conservatively assumed that conclusions based on current assumptions regarding the extent of contamination or risks to the public on a site-wide basis may be modified pending review of existing data or development of new information. It is also assumed that portions of parcels falling within the footprint of the DTSC fence line are considered undevelopable until after the HRBDRP activities have been performed to agency satisfaction. Once remediation has been completed, potential exposure routes would be through the discovery of previously undetected wastes on those parcels or by the inadvertent uncovering of capped waste that may have been left in place. The assumed exposure scenario for parcels and portions of parcels located outside the HRBDRP site would be through exposure to fugitive dust emissions during remediation.

Standards of Significance

For the purpose of this EIR, project-specific and cumulative hazards and human health impacts may be deemed significant if implementation of the Project would:

- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment due to development or occupancy of a site with known or previously unidentified soil or groundwater contamination; or
- interfere with remediation of contaminated sites on or off the Project site.

Project-Specific Impacts and Mitigation Measures

4.10-1 Development of the Project could expose construction workers, nearby residents, and future occupants to hazards associated with contaminated soils.

In general, the analytical testing has demonstrated that the principal contaminant of concern in residual materials from the various waste disposal activities within the HRBDRP site is inorganic lead. Inorganic lead contamination appears to be distributed within the waste materials present, and lead concentrations exceeding health risk-based criteria is present in several locations within the fenced and posted area. The measured concentrations of lead make the soil unsuitable for residential development or any other land uses that would allow direct human contact with the soil. Although low levels of lead (less than 100 mg/kg) were detected in borings in the 43-acre portion of the Subdivision, the lead levels do not exceed health risk-based cleanup criteria established in the ERP (225 mg/kg). Nevertheless, additional testing is proposed in the 43-acre portion of the Subdivision.

Specific conditions for development and occupancy of the 43-acre portion of the Subdivision and the Conceptual Master Plan area with regard to soil contamination have not been developed, but will be, pending additional testing. Additionally, as noted in the Setting, the RWQCB has consulted with the DTSC to identify additional actions to address the adequacy of HRBDRP site characterization and proposed cleanup efforts. Resolution of those issues could generate additional data or information that indicates there may be a greater or lesser risk of exposure to contamination than previously identified. If contamination were to remain undetected, health or safety risks would be more likely to be experienced by workers or the public because risk-reducing precautions would probably not be taken. Therefore, it is possible that construction and occupancy of the Project could result in a significant hazard to the public or the environment through reasonably foreseeable conditions involving the potential release of hazardous materials.

43-Acre Portion of the Subdivision

Construction of the 43-acre portion of the Subdivision would involve site preparation activities such as excavation, trenching, and/or grading that would result in soil disturbance. The proposed 43-acre portion of the Subdivision is immediately adjacent to and north of fenced and posted locations at the HRBDRP site and other locations where scattered waste and contaminated soils have been identified. As noted in the Environmental Setting, there is no documented evidence to date that debris or contaminated soils are present in the proposed 43-acre portion of the Subdivision that would present a health risk, including that portion of the proposed Potter Road alignment that would be constructed in the 43-acre portion of the Subdivision. There are currently no documented regulatory restrictions on development in that area. However, as also noted, the adequacy of HRBDRP site characterization studies completed to date is pending additional review; therefore, it is possible that previously unidentified waste or contamination related to past disposal site activities may be found in the 43-acre portion of the Subdivision during subsequent investigation. Additionally, until the southern portion of Potter Road is extended to Humboldt Road, the proposed western temporary access road connecting the 43-acre portion of the Subdivision to Bruce Road would pass through the western part of the fenced and

posted area which has not yet been remediated. Connection and extension to the existing sewer line installed in 1982 could also involve earthwork within the HRBDRP site. Additional testing is proposed for the service line area.

If previously unidentified chemical compounds are present in soil in sufficiently elevated concentrations at locations in the 43-acre portion of the Subdivision or locations within permanent or temporary roadway alignments where soil-disturbing construction activities would take place, construction workers, persons living in the vicinity of or traveling past the Project site, or visitors could be exposed to potential hazards associated with the chemicals unless appropriate precautions are taken. Human exposure to contaminants in soil could occur from inhalation of construction-generated dust containing elevated levels of metals (e.g., lead) or byproducts of combustion (e.g., dioxins and furans), or from direct contact with the contaminants in soil or runoff containing contaminants. Direct contact with groundwater is not considered a pathway because shallow groundwater is not used for domestic or industrial purposes and no excavations to groundwater depth exist or are planned. Further, results to date indicate that groundwater has not been affected by site contaminants.

The specific human health or ecological effect would depend of the precise nature of building activities and contamination at each site. Generally, since long-term health effects usually occur with exposures continuing over many years, it is more likely that adverse human health effects, if any, from construction activities would be acute (short-term) in nature. Adverse acute health effects, for example, could range from respiratory irritation to diseases that could affect internal organs. If contaminants exceeding risk-based levels were to remain in soil, extended periods (several months or years) of direct contact with or inhalation of contaminated dust could result in chronic (long-term) adverse human health effects such as cancer. Under post-development conditions, however, the presence of structures, roadways, or landscaping would substantially reduce the risk because contaminated soils, if any, would be covered and the contaminants would be less likely to become airborne or enter surface runoff.

As discussed in Chapter 4.8 (Biological Resources), the Project site could support a variety of avian, terrestrial, and aquatic species. These ecological communities could also be exposed to adverse effects during site development unless the activities are effectively managed. Construction dust and surface water runoff from construction sites would potentially affect biological organisms through contact with contaminants in soil or water. As above, post-development effects would be limited. The potential for exposure to contaminated soils is considered a *significant impact*.

Conceptual Master Plan

Parcels that could be developed under the Conceptual Master Plan include approximately 30 acres of the fenced and posted area and other properties not included in the 43-acre portion of the Subdivision or HRBDRP site. As stated in the Environmental Setting, the HRBDRP site has not been remediated. There may also be other locations within the Conceptual Master Plan area containing previously unidentified waste or soil contamination related to past disposal site activities. Similar to the 43-acre portion of the Subdivision, construction activities that disturb contaminated soils or encounter debris during development of the Conceptual Master Plan could result in adverse human health or ecological effects. Long-term effects could also occur, although

the risk would be substantially reduced, as discussed above. The potential for exposure to contaminated soils is considered a *significant impact*.

Mitigation Measure

Potential risks associated with development of a known or potentially contaminated site can be safely managed through the implementation of risk management plans (RMPs). These plans describes how risks to the public and environment can be reduced to levels that do not exceed health risk-based criteria. In addition, they describe mechanisms to ensure successful implementation, enforcement and monitoring necessary to continuously manage these risks. RMPs are used to outline the processes and procedures that would be followed by owners of sites to reduce any risks. RMPs are typically submitted to the agency with formal oversight authority for management of contaminants identified at a site, although there is no regulatory requirement to do so. RMPs prepared for the Project would be submitted to the agency with enforcement authority over the site (either the RWQCB or DTSC, as appropriate) for review and comment.

Implementation of the following mitigation measures, which would apply to both the 43-acre portion of the Subdivision and Conceptual Master Plan, would reduce impacts to *less-than-significant levels*.

- 4.10-1(a) *Prior to development within any portion of the 157-acre HRBDRP site that would be developed under the Project, prior to the remediation of the HRBDRP, Project developers shall develop a Risk Management Plan that identifies specific actions that will be used prior to, throughout construction (to final build-out), and occupancy to protect human health and the environment from potential exposure to hazardous materials that could be present in soil within the portions of the 157-acre HRBDRP site that would be developed as part of the Project. It is intended that the approved RMP shall function as a "performance standard" specifying the minimum acceptable performance goals to ensure that risks to the public and environment during Project development can be reduced to levels that do not exceed health risk-based criteria. Should the results of planned soil testing in the 43-acre portion of the Subdivision indicate that development (construction and occupancy) would not result in the exposure of people to increased risk of adverse health effects (as evidenced by regulatory agency concurrence), the RMP will not need to specifically address the 43-acre portion of the Subdivision except where infrastructure improvements (e.g., sewer or temporary roadways) adjacent to and within the 157-acre HRBDRP site are necessary to accommodate development of the 43-acre portion of the subdivision, as identified in Mitigation Measure 4.10-1(e).*

For locations for which the RMP is necessary, the plan shall address, but would not be limited to, the following elements: (43-Acre Portion of the Subdivision and Conceptual Master Plan)

- (1) *identification of potential contaminants that are present and the risk the contaminants would pose to human and ecological populations during construction and occupancy. The risk evaluation shall follow the most recent established procedures and guidelines set forth by EPA and DTSC that are in effect at the time the risk assessment is prepared;*
- (2) *decision criteria for soil management (e.g., transport, on-site reuse, or off-site disposal) and methods to safely, and in accordance with all applicable laws and regulations, manage site soils during construction where exposure to contaminants that could exceed acceptable risk levels is likely. Protocols shall address, at a minimum: dust controls and monitoring, standards for fill, stockpiling and excavation, and stormwater runoff controls;*
- (3) *identification of emergency contingency planning measures in the event of an unanticipated release or where previously unidentified subsurface hazards may be encountered (e.g. buried hazardous debris) during construction or occupancy;*
- (4) *regular monitoring during construction and occupancy to evaluate and document the effectiveness of site controls;*
- (5) *periodic coordination throughout site development with appropriate agencies with jurisdiction over the project, as appropriate, for any necessary regulatory concurrences, permits, or approvals for activities in which contaminated soils would require on-site management during construction through build-out;*
- (6) *decision criteria for post-development controls (e.g., access restrictions to soil, prohibitions on shallow groundwater use, establishment of protocols for future subsurface maintenance, construction, or repair). Should the need for post-development conditions be identified, the Project developers shall ensure enforcement of such controls through development and recording a restrictive covenant as an Environmental Restriction and Covenant pursuant to California Civil Code Section 1471. As part of any future property transfer of property title of any portion of the Project site, the City shall require current property owners to provide a copy of the Risk Management Plan to each of their future transferees (by having a note placed on the approved Final Subdivision Map); and*
- (7) *notification to future owner/occupants that the Risk Management Plan contains specific requirements for construction, maintenance, or repair activities and obligates property owners to provide like notice to contractors and occupants.*

- (b) *As part of the Risk Management Plan, where required by OSHA, a site health and safety plan that meets applicable OSHA requirements shall be prepared and in place prior to commencing work on any locations where the need for risk management measures has been identified. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*
- (c) *In the event additional investigation or remediation beyond that already anticipated in the HRBDRP is identified through implementation of one or more of the steps outlined above, the Risk Management Plan shall be amended to include any specific requirements imposed by the regulatory agencies with oversight responsibility for the remedial actions. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*
- 4.10-1(d) *Development of portions of the HRBDRP site within the Conceptual Master Plan area shall not occur until: (1) the locations to be developed are remediated to levels that are protective of human health and the environment, taking into account the land uses within and adjacent to the site, potential exposure pathways, and receptors; and (2) remediated locations have received regulatory closure from the agency with jurisdiction over the cleanup. (Conceptual Master Plan only)*
- 4.10-1(e) *Near-term or interim infrastructure development activities (e.g., the westerly temporary access road) shall only be allowed when it can be demonstrated that construction and use of such features would not result in an increased risk of adverse effects on human health and the environment. If the need for risk management measures is identified, the Risk Management Plan (Mitigation Measure 4.10-1[a]) shall be amended accordingly. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*
- 4.10-1(f) *Until such time that equally effective mitigation is adopted for the HRBDRP (through agency approval of a plan and/or mitigation measures adopted in conjunction with a certified EIR for the HRBDRP), the City shall verify through its review of HRBDRP reports that all required post-closure monitoring of the HRBDRP is performed and all other conditions set forth by the agency have been implemented. In the event post-closure monitoring indicates a known or likely situation in which human health or the environment could be adversely affected, the City shall verify through its review of HRBDRP reports that appropriate action has been taken in accordance with applicable laws and regulations to remedy the situation, coordinating such action with the appropriate agencies and providing notice to potentially affected individuals living or working in the area. (43-acre Portion of the Subdivision and Conceptual Master Plan)*

If additional subsurface sampling in the Project site (as a result of Mitigation Measure 4.10-1(c) or subsequent direction from the RWQCB or DTSC) reveals contamination that would require additional risk management actions, remediation of soil could be necessary to prevent a human health or environmental hazard during construction or occupancy. In that case, additional

measures beyond those identified for the HRBDRP or in the Construction Risk Management Plan for the Project would be developed and implemented. The current regulatory view (implemented by the State and federal regulators with jurisdiction) regarding site redevelopment where chemical constituents are present in the soil or groundwater is that cleanup and future site use should be based on actual and reasonably projected risks presented by individual sites. This site-specific, risk-based decision making process is often referred to as "Risk Based Corrective Action," or RBCA. The RBCA approach is marked by a focus on planned land uses, a recognition that all sites do not present the same risk, the understanding that the actual risks posed by a site are a function of the populations that could be present and the activities they could be engaged in, and an acknowledgment that many risks can be reduced and/or eliminated through the implementation of risk management measures. Additional information on the RBCA approach is included in Appendix M.

The type of remediation and methods, site controls, and monitoring activities appropriate to a specific remedial activity, if such a need is identified, would be included in individual plans developed for remedial activities. Based on the information available at this time, it would be speculative to identify any specific cleanup actions that could occur in the future. However, to obtain agency concurrence with decisions regarding soil management, the plans would include risk-reduction objectives, an assessment of the potential hazard, and a description of the health and safety measures designed to protect the construction workers and general public who could be exposed to potential hazards associated with the type of remedial activity at that particular location. Methods to control site access, to minimize airborne contaminants, to reduce the potential for spills or inadvertent releases of contaminated soil, transportation and disposal (e.g., if excavated materials are to be removed from the Project site), and to properly site and operate any monitoring or cleanup equipment (e.g., monitoring wells, soil treatment areas) and emergency procedures would also be specified in the plans subject to agency review.

All remedial actions would be required to comply with applicable federal, State, and local laws and regulations, which would sufficiently protect human health and the ecological environment from potential effects due to remediation activities. Risk-based standards would be enforced on any new remediation activities. Moreover, the major hazards-related effects of environmental cleanup associated with any remediation, if necessary, would be beneficial over the long term. Remediation, or effective management, of contamination would eliminate the health threats posed by hazardous wastes and prevent workers and the public from encountering such materials in the event of any future excavation at the site. Management of soil contamination would also eliminate a potential local source of groundwater contamination. Consequently, effective risk management would be beneficial in the long run. Implementation of appropriate risk management measures would also allow for localized cleanup of contamination, while other site preparation activities could proceed. Therefore, there would be no new significant effects on people or the environment due to any additional remedial activities that could take place during construction or occupancy beyond those already identified.

4.10-2 Implementation of HRBDRP activities concurrently with development of the Project could expose Project occupants or visitors to hazardous substances.

43-Acre Portion of the Subdivision

Because there are no hazardous materials-related development restrictions on the proposed 43-acre portion of the Subdivision and the schedule for implementation of the burn dump ERP has not been finalized, it is possible the 43-acre portion of the Subdivision could be constructed and occupied in advance of or during the HRBDRP activities.

As the 43-acre portion of the Subdivision is developed, an increasingly greater number of people would be present in the Project site. Through the free movement of residents, visitors, and routine transport of goods and services through the Project site, individuals could be exposed to potential risks associated with chemicals in soil that could be encountered during later phases of site development, particularly when HRBDRP activities are implemented. In addition, if contamination initially discovered at one location is determined (through additional investigation or confirmation sampling) to be more extensive, a greater remediation effort than assumed for the HRBDRP may be necessary.

As discussed in Impact 4.10-1, unmitigated releases of hazardous materials in excess of risk-based standards could result in adverse short-term or long-term human health or environmental effects. Generally, the greatest risk of exposure would occur during waste removal and soil consolidation activities. For example, disturbance of soil at the HRBDRP site could increase on- and off-site airborne concentrations of lead. Increasing airborne lead levels would be considered a health hazard for on-site and off-site construction workers, residents, and visitors. Uncontrolled runoff containing contaminated soil could also present hazards. Thus, the Burn Dump restoration activities and simultaneous development of other portions of the Project site, such as the 43-acre portion of the Subdivision, could result in potential exposure of new occupants or visitors in the area to contaminants that could be released during HRBDRP activities. This is considered a *significant impact*.

Conceptual Master Plan

Depending on the schedule for the HRBDRP, it is possible that construction and occupancy could occur in other portions of the Conceptual Master Plan area adjacent to the HRBDRP site. As with the 43-acre portion of the Subdivision, people occupying the Project site could be exposed to contaminants during remediation of the HRBDRP site if controls were not in place to minimize such hazards during remediation. This is considered a *significant impact*.

Mitigation Measures

Implementation of the following mitigation measures would reduce this impact to a *less-than-significant* level.

- 4.10-2(a) *The City and Applicant(s) shall coordinate with the agency with oversight and approval authority of the HRBDRP to ensure controls are in place to protect project occupants from potential hazards associated with remediation activities*

if occupancy occurs prior to remediation at the HRBDRP site. Such controls would include, but would not be limited to: mitigation measures identified in the EIR prepared for the Environmental Restoration Plan, and any other controls imposed by regulatory agencies in conjunction with the approval of remediation plan(s) or issuance of permits for the HRBDRP. (43-Acre Portion of the Subdivision and Conceptual Master Plan)

- 4.10-2(b) *Until such time that equally effective mitigation is adopted for the HRBDRP cleanup (through agency approval of a plan and/or mitigation measures adopted in conjunction with a certified EIR for the HRBDRP), the City shall verify the effectiveness of HRBDRP site remediation site controls through regular site inspections, review of relevant data, documentation compiled by the remediation contractor, and establishment of a notification process. In the event remediation site controls are determined to provide less than the required level of environmental protection, the City shall immediately coordinate with the remediation contractor to remedy the situation and shall provide appropriate notification to potentially affected individuals living or working in the area. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*

Because the HRBDRP site restoration plan has not been approved and mitigation measures proposed in the EIR for the HRBDRP site restoration project have not been adopted, controls would need to be in place during development of the Project to ensure occupants and visitors would not be exposed to remediation-related hazards. Until such controls are approved and in use, implementation of Mitigation Measure 4.10-2(a) would ensure that occupants of the 43-acre portion of the Subdivision or Conceptual Master Plan area would not be unduly exposed to potential hazards associated with remediation of the HRBDRP site. Ongoing monitoring (4.10-2(b)) would ensure that the remediation site controls are effective and would provide a mechanism to take corrective action, should it be necessary to protect public health and the environment.

4.10-3 Construction of the Project could interfere with remediation efforts.

43-Acre Portion of the Subdivision and Conceptual Master Plan

As discussed in Impact 4.10-2, development of other portions of the Project site could occur simultaneously with implementation of the HRBDRP (or at other location(s), if any, determined through subsequent investigations). In addition to earth-disturbing activities, construction would involve the movement of people and equipment throughout the Project site to deliver items and to remove materials such as soil and debris. Unless planned and coordinated with site remediation activities, Project construction could inadvertently spread contaminated soil on-site or off-site if haul routes that avoid the active remediation area(s) are not clearly identified. There is also an increased risk of damaging or interfering with remediation site controls such as soil containment areas, monitoring wells, or air sampling devices. Such incidents could interfere with remediation efforts, resulting in delays. They could also compromise the effectiveness of measures

intended to control inadvertent releases of contaminants to the environment, which could result in an increased risk of exposure to adverse human health or ecological effects. This is considered a *significant impact*.

Mitigation Measures

Implementation of the following measures would reduce this impact to a *less-than-significant level*.

- 4.10-3(a) *All Project contractors shall coordinate with the City, RWQCB, DTSC, or other involved agencies, as appropriate, to assure that construction activities shall not interfere with any adjacent and/or on-site remediation activities or unduly delay either project development or site remediation. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*
- 4.10-3(b) *The Project developers shall ensure that the integrity and effectiveness of site controls established for HRBDRP site remediation activities are not adversely affected by Project construction. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*

Implementation of Mitigation Measure 4.10-3 would ensure Project developers and their contractors are aware of the timing, locations, and types of remediation activities so that construction activities do not inadvertently or adversely affect HRBDRP activities, and that remediation contractors are aware of planned construction activities. Such efforts would ensure that contaminated materials would not be inadvertently encountered (e.g., infrastructure improvements involving trenching through the Project site) and that soils or contaminated materials are not inappropriately moved or used within the site.

4.10-4 Throughout the life of the Project, changes in land use could expose people or ecological communities to increased risk of adverse effects due to the presence of hazardous substances in soils at the Project site.

43-Acre Portion of the Subdivision and Conceptual Master Plan

Throughout the life of the Project, uses in the Project site may change from those that were originally approved (e.g., redevelopment of a location from non-residential to residential uses). Such changes could result in excavation for structures or for infrastructure improvements. Original cleanup levels or risk management measures for that location may or may not be adequate for the new uses. In addition, over time, acceptable levels of risk may change as new information about hazardous substances and human health and environmental effects is developed. A change in use that differs from current assumptions could result in increased exposure to contaminants above current risk-based levels and could increase the risk of exposure of people and ecological communities to adverse effects. This is considered a *significant impact*.

Mitigation Measures

Implementation of the following measures would reduce this impact to a *less-than-significant level*.

- 4.10-4(a) *Rezone applications or other proposed changes in the current land use designations shall include identification and analysis of potential soil contamination. (43-Acre Portion of the Subdivision and Conceptual Master Plan)*
- 4.10-4(b) *Implement Mitigation Measures 4.10-1(a) through 4.10-1(f). (43-Acre Portion of the Subdivision and Conceptual Master Plan)*

Implementation of Mitigation Measure 4.10-4 would provide a mechanism to ensure that changes in land use, if any, from those assumed for site cleanup purposes would reflect current scientific information, and to take necessary steps to protect future construction and maintenance workers, occupants, and visitors.

Cumulative Impacts and Mitigation Measures

4.10-5 The Project, in combination with other cumulative development, could result in exposure to hazardous materials.

For any projects in the Chico Urban Area that would involve redevelopment of an existing site historically used for industrial or some commercial/retail uses in which soil or groundwater contamination may have occurred, the potential exists for release of hazardous materials during construction and/or remediation of those sites, similar to the Project. For individuals not involved in construction activities, the greatest potential source of exposure to contaminants would be airborne emissions, primarily through construction-generated dust. (Other potential pathways, such as direct contact with contaminated soils or groundwater would not pose as great a risk to the public because such exposure scenarios would typically be confined to the construction zones.)

To the extent that construction of the Project could result in an incremental increase in risk from contaminant-related air emissions, the Project, in combination with other remediation projects in the Chico Urban Area, would not result in any cumulative significant effects. This assumption is based on implementation of site-specific risk management controls and compliance with applicable laws and regulations pertaining to hazardous materials management at the other locations. Moreover, it is extremely unlikely that any one individual outside of any particular Project site construction zone would be exposed to maximum levels of construction-generated contaminated air emissions (if any) for the entire development period, even if controls were not in place. Due to atmospheric dispersion, chemical concentrations decrease as the distance from the source increases. Thus, the incremental contribution of each additional source that could increase emissions at a specific location would differ relative to the location of a given person; an

individual who is directly outside the construction zone of one source would be unlikely to be exposed to maximum levels from another source. Additional risks that could be posed by other construction or remediation projects where contaminants could be disturbed would not significantly increase the risks to individuals. Consequently, the actual risks that might be realized by any one individual exposed to potential impacts from the development of the Project site, in combination with other construction or remediation projects in which contaminated soils are present, would be minimal and would not create a significant adverse hazard. Therefore, cumulative construction- or remediation-related effects due to soil contamination would be *less than significant*, assuming implementation of appropriate controls at redevelopment projects.

Mitigation Measures

4.10-5 *None required.*

ENDNOTES

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2. Andrew Kopania, Ph.D., EMKO Environmental, personal communication, December 29, 1999.
3. EMKO Environmental, *Draft Work Plan, Additional Site Characterization, Humboldt Road Burn Dump, Chico, California*, August 1999, Section 3.4
4. Metcalf & Eddy, *Humboldt Road Burn Dump Environmental Restoration Plan*, March 1997, p. 17.
5. EMKO Environmental, *Draft Work Plan, Additional Site Characterization, Humboldt Road Burn Dump, Chico, California*, August 1999, Table 6.
6. California Regional Water Quality Control Board, "Status of Humboldt Road Burn Dump Restoration Project Under the AB 2061 Program, Chico, Butte County," letter from James C. Pedri, Executive Officer, Shasta Cascade Watershed, to Tom Lando, City Manager, City of Chico, November 23, 1998.
7. Metcalf & Eddy, *Humboldt Road Disposal Site Remedial Action Strategy Plan*, October 1993, p. 15.
8. Metcalf & Eddy, *Humboldt Road Disposal Site Remedial Action Strategy Plan*, October 1993, p. 15.
9. Barbara Coler, California Department of Toxic Substances Control, *Fogarty/Rosellini and Drake/Simmons Properties (Humboldt Road, Chico) Final Border Zone Property*

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5. STATUTORILY REQUIRED SECTIONS

5.1 GROWTH-INDUCING IMPACTS

5.1 GROWTH-INDUCING IMPACTS

Introduction

As required by California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report (EIR) must include a discussion of the ways in which a proposed project could directly or indirectly foster economic development or population growth, and how that growth would, in turn, affect the surrounding environment (see CEQA Guidelines Section 15126.2(d)). Growth can be induced in a number of ways, including the elimination of obstacles to growth, or through the stimulation of economic activity within the region. The discussion of removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval. Under CEQA, induced growth is not considered necessarily detrimental or beneficial (see CEQA Guidelines Section 15126.2(d)). Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth, in some other way, could significantly affect the environment.

Implementation of the Project (both the proposed 43-acre portion of the Subdivision and Conceptual Master Plan) would facilitate the development of land currently used for seasonal grazing in the City of Chico. The Project is consistent with General Plan land use designations, and the project area would be developed as a Special Development Area under the General Plan Policies LU-I-62 through LU-I-68. The project would be consistent with the General Plan zoning, and no new zoning or a change in use designation is proposed which may increase development in adjacent lands.

Infrastructure, Services, and Public Uses

The Project would include provisions to extend infrastructure into the project site, including the extension of water, sewer, energy, and telecommunication services. Roadway connections to State Route 32, Humboldt Road, and Bruce Road would also be constructed. However, infrastructure development would be limited to that necessary for the Project. Water, sewer, energy, and telecommunication service would be sized to only accommodate project development. The water supply line located along Yosemite Avenue and Bruce Road would connect to existing water supply lines along the northern and western parts of the project site to the proposed 43-acre portion of the Subdivision and Conceptual Master Plan area. This normal extension of services is anticipated in the General Plan and is not expected to increase the rate of adjacent development.

Economic Growth

The Project has the potential to foster new economic growth through increased residential development. The 43-acre portion of Subdivision and Conceptual Master Plan would extend the City's urban core into an undeveloped area. Under full buildout, an increase in population of approximately 2.34 persons per dwelling unit is anticipated as a result of project development. This would result in a population growth of approximately 700 persons for the 43-acre portion of the Subdivision and approximately 3,100 persons for the full Conceptual Master Plan. The additional residents could increase demand for supporting commercial services.

The Project would also provide some additional employment opportunities, primarily through the development of 109,000 square feet of commercial space. Construction jobs could lead to short-term, temporary increases in population and employment, depending on local labor force conditions. These employment opportunities would not be large, and would not exceed employment projections of the General Plan. While the Project is not anticipated to substantially increase permanent employment opportunities, the success of the Oak Valley development could encourage future population and housing growth; however, this would not be considered an exclusive effect of the Project.

The Project includes development and services that is anticipated in the General Plan, and the Project is not anticipated to substantially increase permanent employment opportunities. For these reasons, the Project would not induce growth beyond the levels assumed in adopted City plans and analyzed in prior environmental documents. The growth resulting from the project would be consistent with the City of Chico General Plan.

5.2 CUMULATIVE IMPACTS

5.2 CUMULATIVE IMPACTS

Introduction

CEQA requires that an EIR contain an assessment of the cumulative impacts that could be associated with the proposed project. This assessment involves examining project-related effects on the environment in the context of similar effects that have been caused by past or existing projects, and the anticipated effects of future projects. Even when project-related impacts are individually minor, the cumulative effects of these impacts, in combination with the impacts of other projects, could be significant under CEQA and must be addressed [CEQA Guidelines, §15355(b)].

Development Considered in Cumulative Impact Analysis

The level of development assumed for the cumulative analysis for the Project is the growth that is projected to occur within the Chico Planning Area at buildout under the City of Chico General Plan. The cumulative analysis in the General Plan is based on a summary of projections that consider social and physical conditions in Chico and the surrounding area. The City is physically separated from communities east and west, and is expected to remain independent from communities located north and south (along State Route 99). Consequently, development in Chico is not expected to affect most environmental resources in other communities and development in other communities is not expected to affect most environmental resources in Chico. Therefore, the potential for cumulative impacts related to the following areas are considered to be the same as those for the proposed General Plan: land use and community character (including visual resources); transportation; noise; soils; geology and seismicity; cultural resources; safety (including hazards); wastewater; police and fire protection; schools; parks and recreation; community and medical services; and telephone, cable, natural gas and electricity. Development under the General Plan, in combination with growth in other regions, could result in cumulative impacts in the following areas: air quality; hydrology; flooding and water quality; biological resources; and water supply.¹

Subsequently, the cumulative context for the land use, transportation, noise, solid waste, schools, visual resources, and hazards for this Draft EIR is buildout of the Conceptual Master Plan and the development planned under the General Plan. Because of the planning implications, cumulative impacts with just the 43-acre portion of the Subdivision are described for transportation and noise. The context for the biological resources cumulative analysis is buildout of the Conceptual Master Plan and buildout of the City's General Plan and development in surrounding grasslands and foothills. The cumulative context for the hydrology analysis includes buildout of the Conceptual Master Plan in combination with buildout of other development in the Little Chico Creek drainage shed. The cumulative context for water supply is buildout of the Conceptual Master Plan and other development within the Butte Water Basin.

Cumulative Impact Assessment

By definition, cumulative impacts are the sum of impacts resulting from more than one project. The potential for cumulative impacts to occur exists in virtually all of the environmental subject areas examined by the EIR. Although impacts may have been individually less than significant when considered in the context of a single project, the combined effect (cumulative effect) may be significant.

Significant cumulative impacts would occur for land use, transportation, air quality, noise, water supply, hydrology and drainage, biological resources, and visual resources. Impacts in all areas except land use, air quality, water supply, biological resources, and visual resources are mitigable to a less-than-significant level with the measures identified in Chapter 4. Significant and less-than-significant cumulative impacts are identified in each section of Chapter 4.

Cumulative Impacts

The following significant cumulative impacts were mitigated to a less-than-significant level:

- 4.3-4 The development of the Project in conjunction with cumulative development would increase traffic congestion on the local roadways.
- 4.5-4 Residents of the Project could be exposed to high levels of cumulative traffic noise.
- 4.7-2 Increased impervious surface cover associated with development of the Project, in combination with buildout of other development in the Little Chico Creek drainage shed, could cumulatively contribute to localized flooding and exceed existing drainage capacity.

The following significant and unavoidable cumulative impacts were identified in Chapter 4 of this DEIR:

- 4.4-3 Operational emissions resulting from project-related energy consumption and motor vehicle trip generation, along with cumulative land use development in the City of Chico could further contribute to criteria air pollutant emissions in Butte County.
- 4.6-3 The Project in combination with buildout of the General Plan, would contribute to cumulative demand on existing water supply sources.
- 4.8-7 The Project, would contribute to the cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife.
- 4.9-4 Development of the Project, in combination with other cumulative development, would alter existing views and the visual character of the City of Chico.

ENDNOTES

1. City of Chico, *Draft Environmental Impact Report for the Chico General Plan*, August 1994, pg. 5-2.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Under CEQA, an EIR must analyze the extent to which a plan's primary and secondary effects would commit resources to uses that future generations will probably be unable to reverse (CEQA Guidelines Section 15126.2(c)). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of a project would generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing of the proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Determining whether the Project would result in significant irreversible environmental changes requires a determination of whether key resources would be degraded or destroyed with little possibility of restoring them.

Implementation of the Project would result in the long-term commitment of resources of the project area to urban land use. The most notable significant irreversible impacts are a conversion of undeveloped land to urban uses; a cumulative reduction in natural vegetation and wildlife communities; commitment of energy resources in the form of natural gas and electricity; alteration of the visual character of the project area; and increased generation of pollutants from short-term construction activities and long-term woodburning activities; construction activities. These irreversible impact are unavoidable consequences of urban growth, and are appropriately discussed in the relevant sections in Chapter 4 of this EIR.

5.4 SIGNIFICANT UNAVOIDABLE IMPACTS

5.4 SIGNIFICANT UNAVOIDABLE IMPACTS

According to the CEQA Guidelines (Section 15126.2(b)), an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented. Such impacts are unavoidable because it has been determined that either no mitigation, or only partial mitigation, is feasible, without imposing an alternative design on the project.

The potential environmental impacts that would result from implementation of the Project are summarized in Table 2-1. In most cases, impacts that have been identified would be less than significant after application of relevant General Plan policies. In some instances, incorporation of the mitigation measures described in Table 2-1 would reduce the impacts to levels that are less than significant. Those impacts which cannot be feasibly mitigated to a less-than-significant level would remain as significant unavoidable adverse impacts. These impacts include the following:

Project-Specific Significant and Unavoidable Impacts

- 4.4-1 Construction of the Project would generate criteria air pollutants which exceed the BCAQMD thresholds.
- 4.4-2 The Project's total operational activities would violate BCAQMD's adopted air quality thresholds for KOGs.
- 4.9-1 The Project would convert undeveloped landscape to urban development.
- 4.9-2 The Project would alter views visible from surrounding areas, including State Route 32, and Humboldt Road and the bike trail along Little Chico Creek.

Cumulative Significant and Unavoidable Impacts

- 4.4-3 Operational emissions resulting from project-related energy consumption and motor vehicle trip generation, along with cumulative land use development in the City of Chico could further contribute to criteria air pollutant emissions in Butte County.
- 4.6-3 The Project, in combination with buildout of the General Plan, would contribute to cumulative demand on existing water supply sources.
- 4.8-7 The Project would contribute to the cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife.

- 4.9.4 Development of the Project, in combination with other cumulative development, would alter existing views and the visual character of the City of Chico.

6. ALTERNATIVES ANALYSIS

6. ALTERNATIVES ANALYSIS

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6 of the CEQA Guidelines, is to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Further, the Guidelines state that "the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." An EIR must describe a range of reasonable alternatives to the Project (or to its location) that could feasibly attain most of the basic objectives of the project. The feasibility of an alternative may be determined based on a variety of factors including, but not limited to, site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site accessibility and control (CEQA Guidelines Section 15126.6(f)(1)).

The choice of alternatives is guided primarily by the need both to reduce or eliminate project impacts and to achieve project objectives. The objectives of the project were used to identify appropriate alternatives. As stated in Chapter 3, Project Description, the Project objectives are:

I. General Plan Consistency

1. To implement the City of Chico General Plan goals and policies related to the Project site as a "Special Development Area" and other goals and policies which relate to the land use designations as set forth in the general plan.
2. To provide housing and commercial development at appropriate densities and intensities which are compatible with the natural character of the area. This will be accomplished by providing increased densities and intensities on the westerly portions of the site and clustering and open space areas on the easterly portions of the Project site.
4. To preserve the existing native vegetation and use native plants for new landscaping where feasible and appropriate.
5. To provide adequate public facilities while providing for a variety of housing types and affordability to meet the community's future housing needs.
6. To protect historic and environmental resources by providing scenic views and the existing native vegetation to the greatest extent feasible, and dedicating open space for the preservation of special environmental resources such as Dead Horse Slough.
7. To provide pedestrian and bicycle paths for the enjoyment of the Project site's natural setting and provide alternative modes of transportation for internal circulation and links to bicycle and pedestrian facilities offsite as well.

8. To carefully plan the development of the Project site to ensure that the designated Resource Management Area (Dead Horse Slough) is preserved while providing a public resource and amenity for the residents of the Project site and the Chico community.

II. Design Flexibility

9. To incorporate natural resources such as the mature oak trees, the existing slough and its riparian habitat and unique topographical features within the site plans for the Project development.
10. To incorporate street designs which complement the topography with minimized roadway widths and paved areas including the design of informal curved streets with a "rural" quality.
11. To site residential uses among the existing ribbons of trees and open spaces throughout the site, minimize light and glare, incorporate drainage features, and vary the orientation, locations, designs and colors of houses to provide aesthetic interest.

III. Phased Implementation

12. To establish economically feasible development in phases over time to provide adequate infrastructure with appropriate offsite and onsite improvements.
13. To provide a conceptual plan for designated land uses with environmental guidelines and mitigations which can be assessed at each development phase over the buildout of the Project site.
14. To present a Conceptual Master plan for the comprehensive planning and environmental assessment for the 340 acre Project site and a project specific phase for a 43-acre subdivision comprised of mixed-density residential uses including multi-family, attached housing and single family units.

The significant and unavoidable impacts that would result from project implementation are:

- Conversion of undeveloped landscape to urban development;
- Cumulative conversion of undeveloped land and alteration of existing views and visual character;
- Increased air emissions due to construction and operation;
- Cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife;
- Alteration of views from surrounding areas, including State Route 32 and Humboldt Road;
- Cumulative demand for water supply, resulting in reduction of groundwater quantity and quality.

ALTERNATIVES CONSIDERED AND ELIMINATED FROM FURTHER ANALYSIS

The significant and unavoidable impacts of the Project are related to the loss of resources and alteration of site characteristics that would result from developing the project site, regardless of the ultimate land uses. Other significant impacts (e.g., air emissions) are the result of the level of development proposed. Substantially changing the type of use to, for example, industrial or

primarily commercial development, would not reduce the amount of acreage that would be developed. Further, the City's General Plan assumes that the project site would be developed with land uses that are similar to those proposed in the Conceptual Master Plan. The objectives of the project also reflect the City's intention to develop the site in residential and commercial uses. For these reasons, alternatives that would deviate substantially from the uses anticipated in the General Plan were not considered in this analysis. Also, those alternatives that would be located outside the City limits or in an area without similar characteristics (e.g., visual quality) were not considered further.

ALTERNATIVES ANALYZED

This section provides a description of the alternatives to the Project analyzed in this DEIR and presents a discussion of impact areas for which significant and unavoidable impacts were identified and specific impacts that differ in significance and/or severity from those associated with the Project. For the most part, significant impacts of the alternatives can be mitigated by measures identified in Chapter 4, which contains the environmental analysis of the Project.

The City may adopt an alternative in lieu of the Project, and this chapter is intended to assist decision-makers in their assessment of appropriate use of the project area. As such, the five alternatives that are analyzed in this EIR provide options for project area development. The alternatives are:

- **Alternative 1, No Project Alternatives.** The No Project/No Development Alternative assumes that no development would occur on the project site. The No Project/No Action Alternative assumes denial of the Conceptual Master Plan and the 43-acre portion of the Subdivision and subsequent development on the site would implement the current General Plan designations on the site.
- **Alternative 2, 43-acre Subdivision Only,** which assumes denial of the full Conceptual Master Plan and large lot subdivision, but approval of the proposed 43-acre portion of the Subdivision. Under this alternative, subsequent development applications for the remainder of the project site could be submitted implementing the current General Plan designations and policies.
- **Alternative 3, Partial Master Plan,** which assumes construction of the Conceptual Master Plan, but with all the allowable density concentrated on the western half of the Project site. The eastern portion of the project site would remain undeveloped.
- **Alternative 4, Reduced Density,** which assumes fewer residential units but on the same acreage as the Project.
- **Alternative 5, Off Site,** which assumes the same type and level of development in the Project would occur on vacant land directly south of the Project site, south of Humboldt Road.

Impacts of the Alternatives

Alternative 1: No Project

CEQA requires the evaluation of the comparative impacts of the "No Project" alternative (CEQA Guidelines Section 15126.6(e)(1)). The No Project/No Development Alternative describes an alternative in which no development would occur on the site and the uses on the site would remain as under current conditions. Under the No Project/No Development Alternative, the project site would likely continue to be used primarily for cattle grazing. The site-specific impacts of the No Project/No Development alternative are best described by the conditions presented in the existing setting sections of Chapter 4 of this DEIR.

The No Project/No Development alternative would produce no changes on the project site, effectively eliminating those project impacts discussed in this EIR. No conversion of open space, visual impacts, air quality impacts or cumulative loss of biological resources would result from the Project.

The No Project/No Action Alternative assumes that the Conceptual Master Plan and the Oak Valley Subdivision would be denied and the site would be developed consistent with the current General Plan designations for the site, including Very Low Density Residential, Low Density Residential, Medium Density Residential, Medium and High Density Residential, Community Commercial, and Open Space for Environmental Conservation/Safety overlay. Based on these designations, development on the site would include approximately 1,881 dwelling units, 185,566 square feet of commercial space, and 16.4 acres of open space.

Land Use

The Project would convert undeveloped open space to urban uses. The Project land use designations are consistent with the City's General Plan and, except for design-related policies, the Project is consistent with General Plan land use policies. Because specific building design has not been determined for either the 43-acre portion of the Subdivision or the full Conceptual Master Plan, consistency with design-related policies cannot be determined at this time. This significant impact could be reduced to a less-than-significant level with Mitigation Measure 4.2-2, which requires that building design meet specific General Plan standards.

The No Development Alternative would leave the project site in an undeveloped state; impacts associated with the loss of open space would not occur. Because no development would occur, the No Development Alternative would not be inconsistent with General Plan design policies. However, it should be noted that the No Project/No Development would not further the goals of the General Plan, which designates the project site for development to provide for future growth within the urban growth limits. Based on the above discussion, the impacts under the No Development Alternative would be less severe than those identified under the Project.

Under the No Action Alternative, the project site would be developed with low- and medium-density residential and community commercial uses, as is currently designated by the General Plan. As such, the No Action Alternative would be consistent with the General Plan. Similar to the Project, potential inconsistencies with design-related policies could be reduced to a less-than-significant level with mitigation identified in the Land Use section of the EIR. Therefore, Land Use impacts under the No Action Alternative would be very similar to those identified for the Project.

Transportation/Circulation

Development of the Conceptual Master Plan would increase traffic and result in unacceptable service levels at the East 8th Street/Fir Street Intersection and on the northbound and southbound approaches of Fir Street at the intersection with East 9th Street. Service levels would also exceed local standards under cumulative conditions. These significant impacts could be reduced to less-than-significant levels by roadway improvements identified in Mitigation Measures 4.3-1 and 4.2-8. No impacts were identified for the 43-acre portion of the subdivision. In addition, implementation of both the Master Plan and the 43-acres could degrade safety conditions along Highway 32 and on Bruce Road. Mitigation Measure 4.3-2 would reduce these traffic impacts to a less-than-significant level.

Under the Project, potential impacts on pedestrians and bicyclists would be considered significant; however, Mitigation Measure 4.3-3 would reduce any potential conflicts to a less-than-significant level.

The site would not be developed under the No Development Alternative, so there would be no increase in traffic and no impact on area roadways. Similarly, there would not be any increase in demand for transit services or bicycle or pedestrian facilities. For these reasons, impacts under the No Project/No Development Alternative would be less severe than impacts identified under the Project.

Under the No Action Alternative, development would be more intense than under the Project (approximately 1,881 dwelling units and 185,566 square feet of commercial space). The increase in intensity of development under this alternative would result in a corresponding increase in trips generated and reductions in levels of service. Therefore, impacts on traffic under this alternative would be more severe than those identified under the Project.

Air Quality

Construction-related air emissions and emissions from project operation (primarily due to wood burning devices) would be significant and unavoidable impacts under the Project, even with mitigation. There would be no impact on air quality under the No Development Alternative because no construction or other activities that create air pollutants would occur. Therefore, impacts under the No Development Alternative would be less severe than impacts identified under the Project.

Development would be more intense under the No Action Alternative compared to the Project, so there would be more construction-related emissions, as well as increased traffic emissions. Therefore, impacts under the No Action Alternative would be more severe than the Project.

Noise

Under the Project, an increase in vehicle trips associated with the project would not result in a significant increase in noise levels at existing noise-sensitive areas. This was determined to be a less-than-significant project and cumulative impact. Onsite noise levels were determined to be a significant impact of Project implementation, because some residential areas could be exposed to excessive noise levels from traffic. Mitigation Measure 4.5-2 would reduce impacts to a less-than-significant level, by requiring a combination of setbacks and barriers to reduce noise levels. The cumulative impact of traffic noise on project residents was also determined to be a significant impact. Compliance with Mitigation Measure 4.3-2 would reduce the impact to a less-than-significant level for both existing and cumulative conditions.

Under the No Development Alternative, no development would occur on the project site; therefore, the existing noise environment would not be affected, and new residences would not be exposed to unacceptable noise levels. Impacts under the No Development Alternative would be less severe than impacts identified under the Project.

Development would be more intense under the No Action Alternative compared to the Project, so there would be an increase in traffic noise compared to the Project. The increase in traffic would not be enough to substantially increase noise levels at off-site receptors (normally a 3dB increase requires a doubling of traffic volumes, so this impact would remain less than significant. The increase in traffic noise could enlarge onsite noise contours, so the onsite impact would be more severe than under the Project. Mitigation measures identified for the Project would reduce noise impacts for this alternative to a less-than-significant level, but because traffic noise would be greater, impacts under the No Action Alternative would be more severe than the Project.

Public Services and Utilities

The Project would increase demand for utilities, including water supply, schools, and solid waste disposal. Demand for each of these services and utilities would be less than significant, or could be mitigated to less-than-significant levels with measures identified in Chapter 4.6.

The No Development Alternative would not increase demand for any utilities. Therefore, impacts under the No Development Alternative would be less severe than impacts under the Project.

The No Action Alternative would include more residential units and more commercial space than the Project, so there would be a corresponding increase in demand for public services. Because the site was assumed for development at this intensity in the General Plan this impact would also be less than significant after mitigation; however, impacts under the No Action Alternative would be more severe than the Project.

Hydrology and Drainage

The Project would increase impervious surface area, which would result in additional stormwater runoff. The increase in stormwater runoff would be considered potentially significant; however, Mitigation Measure 4.7-1, which requires that facilities be constructed to ensure no net increase in runoff, would reduce the impact on storm drainage to a less-than-significant level.

There would be no increase in impervious surface under the No Development Alternative, so there would be no impact on storm drainage. Therefore, impacts under the No Development Alternative would be less severe than impacts under the Project.

Development would be more intense under the No Action Alternative compared to the Project, so the amount of impervious surfaces would be greater compared to the Project. Implementation of Mitigation Measure 4.7-1 would also reduce the impact for this alternative to a less-than-significant level. However, because this alternative would result in more impervious surface than the Project, this alternative would require more facilities to control flows. Therefore, impacts under the No Action Alternative would be more severe than the Project.

Biological Resources

The project site supports grassland, riparian and wetland habitats. Most of the riparian habitat, including Blue Oak Woodland is located along Dead Horse Slough, which bisects the project site. While the 43-acre portion of the Subdivision site does not contain any wetlands, the western portion of the Project site contains vernal pools. The Conceptual Master Plan also contains elderberry shrubs, which can provide habitat for valley elderberry longhorn beetle (VELB). The 43-acre site does not contain vernal pools or VELB habitat.

Development of the both the 43-acre site and the Conceptual Master Plan would require the removal of oak trees, primarily where roadways will cross Dead Horse Slough. The removal of oak trees would be reduced to a less-than-significant impact with implementation of Mitigation Measure 4.8-1, requiring that oaks be avoided where feasible, and replaced if removed. Impacts on raptors which could use the oak trees for nesting would be reduced to a less-than-significant level with Mitigation Measure 4.8-2, which requires pre-construction surveys during the nesting season and avoidance of occupied nests.

The Conceptual Master Plan could result in the loss of wetlands, including vernal pools, and the resulting loss of habitat for special-status plants and crustaceans which use these habitats. Mitigation Measures 4.8-3 through 4.8-5 would reduce these impacts to a less-than-significant level by requiring no net loss of wetland habitat through avoidance and/or re-creation of affected wetlands, surveys for special-status species, and, where these species occur, avoidance, salvage, and/or recreation of habitat. Similarly, impacts on VELB would be reduced to a less-than-significant level by avoiding elderberry shrubs, or, where avoidance is not possible, replacing the elderberry shrubs at levels that would ensure no net loss of habitat (Mitigation Measure 4.8-6). The Project would also result in significant and unavoidable cumulative impacts on biological resources due to the cumulative loss and degradation of foothill woodland, grassland, and riparian habitat supporting native plants and wildlife.

Under the No Development Alternative, loss of biological resources, including oak trees, wetlands, riparian habitat, nesting habitat, and elderberry shrubs, would not occur, because there would be no development of the project site. Therefore, impacts on biological resources under the No Development Alternative would be less severe than impacts under the Project.

Development would be more intense under the No Action Alternative compared to the Project, so the developed area be greater, potentially affecting more biological resources. Implementation of mitigation measures identified for the Project would reduce impacts for this alternative to a less-than-significant level by ensuring no net loss of habitat. However, because this alternative would affect more area than the Project, impacts under the No Action Alternative would be more severe than the Project.

Aesthetics and Visual Resources

The Project would convert the visual character of the project site from undeveloped open space environment to an urban landscape. This impact would be significant and unavoidable. Cumulative alteration of existing views and the visual character of Chico would also be a significant and unavoidable impact. The Project would be visible from sensitive areas such as State Route 32, a designated scenic highway, and a bike trail along Little Chico Creek. These impacts could be reduced through compliance with the City's Foothills Design Standards (Mitigation Measure 4.9-1); however, the impacts would remain significant and unavoidable.

Under the No Development Alternative, none of the visual impacts described above would occur, because the project site would retain its undeveloped character. Therefore, impacts under the No Development Alternative would be less severe than impacts under the Project.

Both the Project and No Action Alternative would change the site from undeveloped open space to urban uses. Because the character of the site would be fundamentally changed under either scenario, the impacts for each would remain significant. However, development would be more intense under the No Action Alternative, which provides for less open space, so impacts under the No Action Alternative would be slightly more severe than the Project.

Hazards and Human Health

The project site contains areas with contaminated soils and is adjacent to a former burn dump. If construction and occupation of the 43-acre portion of the Subdivision and/or Conceptual Master Plan occurs prior to or during remediation of contaminated soils, construction workers and residents could be exposed to contaminants. In addition, project construction activities could interfere with remediation of contaminated sites. These impacts would be less than significant with implementation of Mitigation Measures 4.10-1 through 4.10-4, which provide for investigation of areas where undetected contaminants could be present, preparation and implementation of a Risk Management Plan, coordination with jurisdictions involved with regulation, remediation of hazardous materials, and site controls during and after remediation.

Under the No Development Alternative, there would be no construction activities, so there would be no interference with remediation activities and no construction workers or residents would be exposed to contaminated soils. Therefore, impacts related to hazardous materials would be less severe under the No Development alternative than under the Project.

Like the project, the No Action Alternative would potentially result in exposure of construction workers and residents to hazardous materials. Impacts associated with hazardous materials under the No Action Alternative would be reduced to less-than-significant levels with implementation of Mitigation Measures 4.10-1 through 4.10-4, similar to the Project. However, this alternative would include more development, and therefore, more ground disturbance, as well as more residents, impacts under the No Action Alternative would be more severe than the Project.

Alternative 2: 43-Acre Portion of the Subdivision Only

Alternative 2 assumes development of the 43-acre portion of the project site as proposed under the Project. Development on the remainder of the site would occur as allowed under the current General Plan designations for the site. As stated in the Project Description, the 43-acre portion would include a total of 87 low density single-family homes on 10 acres, 98 medium density duplex units on 5.6 acres, and 132 multi-family high density units on 8 acres. Portions of the residential units would be designed in a clustered concept, consistent with the requirements for City of Chico General Plan Special Development Areas. Approximately 8 acres would be designated for buffers, setbacks, and open space and the remaining 10.5 acres would be designated for road right-of-way.

The remainder of the site could be developed consistent with the existing General Plan designations for the site. Current General Plan designations for the site include Very Low Density Residential, Low Density Residential, Medium Density Residential, Medium and High Density Residential, Community Commercial, and Open Space for Environmental Conservation/Safety overlay. As stated above, the 43-acre portion of the site would be developed with 317 units, which is less than the General Plan designation for this area (the General Plan assumption of 5.6 dwelling units per acre for Low Density Residential and 14 dwelling units per acre for Medium Density Residential yields approximately 430 units). In total, Alternative 2 would include 1,958 dwelling units (317 units for the 43-acre site and General Plan designations on the remainder of the site would allow for 1,641 units), 185,566 square feet of commercial space, and 16.4 acres of open space.

Land Use

Under Alternative 2, the conversion of the site from undeveloped to a developed environment would be similar to that of the Project because the entire site would be developed. The conversion of the site would remain a significant and unavoidable impact. Consistency with General Plan policies would remain less than significant with Mitigation Measure 4.2-1, similar to the Project. Mitigation Measure 4.2-2 would also be required.

Transportation/Circulation

Alternative 2 would generate more vehicle trips than the full Conceptual Master Plan, because the alternative would include more development. Consequently, Alternative 2 would result in more congestion. The roadway improvements identified in Mitigation Measure 4.3-1 would be required under this alternative. Under cumulative conditions, traffic improvements identified in Mitigation Measure 4.3-4 would also be required to ensure that service levels on local roadways continued to meet City standards. Mitigation Measure 4.3-3 would be required to ensure pedestrian or bicycle safety on Humboldt Road. Improvements to SR 32 would also be needed to ensure that storage was adequate to maintain safety conditions were acceptable (Mitigation Measure 4.3-2). Because this alternative includes more development than the Project, traffic impacts would be more severe than those identified for the Project.

Air Quality

Because it would generate more vehicle trips and disturb more acres, Alternative 2 would generate more air emissions, relative to the Project. Construction-related and operational air emissions would continue to be significant and unavoidable under Alternative 2, even with Mitigation Measures 4.4-1 and 4.4-2.

Alternative 2 would contribute to cumulative emissions, which would impede attainment of regional air quality standards. Because Alternative 2 would contribute more air emissions, this significant and unavoidable impact would be more severe under Alternative 2 than under the Project.

Based on the above discussion, impacts under Alternative 2 would be of the same type as those identified for the Project, but the impact would be more severe.

Noise

Alternative 2 would generate more traffic than the Project, so there would be more noise associated with vehicle traffic. Under the Project, traffic would not increase enough to create significant impacts at offsite sensitive receptors. Because Alternative 2 would produce more vehicle trips, noise levels associated with this alternative could also be higher. However, the increase would not be expected to be enough to exceed noise thresholds.

Alternative 2 would result in more vehicle trips, so traffic noise impacts on project residents would be more severe than under the Project. Compliance with Mitigation Measures 4.5-2 would reduce impacts associated with this alternative. The cumulative increase in traffic would also be more severe under this alternative; therefore, the impact would be considered more severe than the Project. Compliance with Mitigation Measure 4.5-2 would ensure that impacts would be reduced to less-than-significant levels.

Based on the above discussion, impacts under Alternative 2 would be more severe than those identified for the Project.

Public Services and Utilities

Under Alternative 2, development would be more intense than proposed for the Project; therefore, demand for water, solid waste, and school facilities would be increased relative to the Project.

Water

Alternative 2 would have a higher water demand than the Project, due to the increase in the number of residential units to be developed. Because this alternative would include approximately 113 units less than assumed under the General Plan, it is assumed that the demand for water supply would not exceed the current water supply. As with the Project, an extension of Cal Water's water distribution water infrastructure would still be required. Compliance with Mitigation Measure 4.6-2 would ensure that adequate infrastructure would be available to serve the project, and would reduce the impact to a less-than-significant level.

Solid Waste

Although Alternative 2 would generate more solid waste than the Project, there would be sufficient capacity at the Neal Road Landfill to accommodate development under this alternative. As with the Project, the impact would be considered less than significant and no mitigation would be required. This impact would be more severe than the Project.

Schools

Alternative 2 would generate more school-age children than under the Project; however, developers of residential units would be required to pay impact fees to the school district, and additional schools are planned for the area. As with the Project, the impact would be considered less than significant and no mitigation would be required.

Based on the above discussion, impacts under Alternative 2 would be more severe than under the Project.

Hydrology and Drainage

More area would be developed under Alternative 2 than under the Project; therefore, Alternative 2 would result in the creation of more impervious surface area in an area than the Project. Alternative 2 could also contribute to localized flooding and exceed existing drainage capacity. Compliance with Mitigation Measure 4.7-1 would be required for this alternative to ensure that post-development drainage flows would be reduced to pre-development conditions. Compliance with Mitigation Measure 4.7-1 would ensure the impact would be less than significant.

Based on the above discussion, impacts under Alternative 2 would be more severe than those identified for the Project.

Biological Resources

Impacts on biological resources identified under the Project include loss of trees and riparian habitat, loss of vernal pools and habitat for vernal pool species including vernal pool crustaceans, loss of habitat for the VELB, and loss of nesting raptor habitat. Alternative 2 would include development that is more intense than the Project, and would develop the entire site, including the portions of the site that contain vernal pools and elderberry shrubs. Therefore, there would be more of an impact on these habitats and the species associated with them. This would increase the severity of impacts on the biological resources that exist on the site. Similar to the Project, Alternative 2 would preserve a majority of the mature trees that exist on the site and implementation of the Resource Management, Monitoring, and Reporting Information Report (RMMRI) would reduce any impacts on trees and raptor nesting sites to a less-than-significant level. Because roadways could cross creek channels, Mitigation Measure 4.8-3 would be required under this alternative to reduce any impacts to a less-than-significant level. The loss of habitat under this alternative would contribute to a significant and unavoidable cumulative impact on biological resources.

Based on the above discussion, impacts under Alternative 2 would be more severe than those identified for the Project.

Aesthetics and Visual Resources

Development under Alternative 2 would convert undeveloped land to developed urban uses. Like development under the Project, the visual character of the area would be changed. The impact would be more severe under Alternative 2, because this alternative would include more development. The change in the environment and the change in views would be a significant and unavoidable impact under this alternative even with compliance with the City's Foothill Design Standards (Mitigation Measure 4.9-1). The impact associated with the creation of light would be more severe under Alternative 2, but would be reduced with Mitigation Measure 4.9-3. This impact would be less than significant under both Alternative 2 and the Project. However, the cumulative change in visual character would remain a significant and unavoidable impact.

Based on the above discussion, impacts under Alternative 2 would be more severe than those identified for the Project.

Hazards and Human Health

More construction workers and residents would be at risk under this alternative because of the increase in development, so hazards associated with contaminated soils would also be considered significant under this alternative. Compliance with Mitigation Measure 4.10-1 would be required to reduce the significance of this impact to a less-than-significant level. The exposure of workers to potential hazards would also remain significant under Alternative 2 as would potential disturbance with ongoing site remediation efforts. Mitigation Measures 4.10-2 and 4.10-3 would reduce these impacts to a less-than-significant level. Mitigation Measure 4.10-4 would ensure that future changes in land uses would not result in significant impacts due to exposure to contaminants.

Overall, impacts under this alternative would be more severe than the Project.

Alternative 3: Partial Master Plan

This alternative assumes construction of both the 43-acre portion of the Subdivision and the Conceptual Master Plan and large parcel subdivision with approximately the same number of residential units as described under the Project. However, development would be concentrated in the western, flatter portion of the project site, which is also closer to the City's urban core (see Figure 6-1). Approximately 62 acres designated R-20 (Zoned RS, Residential Subdivision for 20,000 square foot minimum parcel size) under the Project and 73 acres of R-1 (Low Density Residential) would be retained as open space. The 485 residential units that are assumed for the eastern portion of the project site under the Project would be added to the western half of the project site on approximately 205 acres. The average residential density of the project would change from approximately 3.9 dwelling units per acre to 6.5 dwelling units per acre. The open space and commercial designations in the western portion of the project site would be the same as those of the Project.

Land Use

Under Alternative 3, the conversion of the site from undeveloped to a developed environment would be less severe because approximately 135 fewer acres proposed for development under the Project would be developed. Consistency with General Plan policies would be less than significant under Alternative 3, similar to the Project, and Mitigation Measure 4.2-2 would still be required.

Based on the above discussion, impacts under Alternative 3 would be similar in nature to those identified for the Project, but would be less severe, because fewer acres would be disturbed.

Transportation/Circulation

The number of trips generated by Alternative 3 would be similar to the Project, because the number of residential units and the amount of commercial development would be the same. Therefore, impacts on most roadways would be the same. However, the circulation system for the project site would need to accommodate higher volumes, and the number of connections to Highway 32 that would be allowed under Caltrans standards may not have the capacity to ensure that intersections with the highway operate at acceptable levels. Access to both Bruce Road and Humboldt Road would be provided, and Mitigation Measures 4.3-2 and 4.3-3 would be required to reduce safety-related impacts to a less-than-significant level.

Based on the above discussion, under Alternative 3 traffic impacts could be slightly more severe than under the Project.

Air Quality

Construction-related air emissions (primarily PM₁₀) would be slightly lower under Alternative 3, because fewer acres would be disturbed. Nonetheless, Mitigation Measure 4.4-1 would be required to reduce construction impacts and the impact would remain significant and unavoidable. Traffic and other operational air emissions would be similar to the Project, and

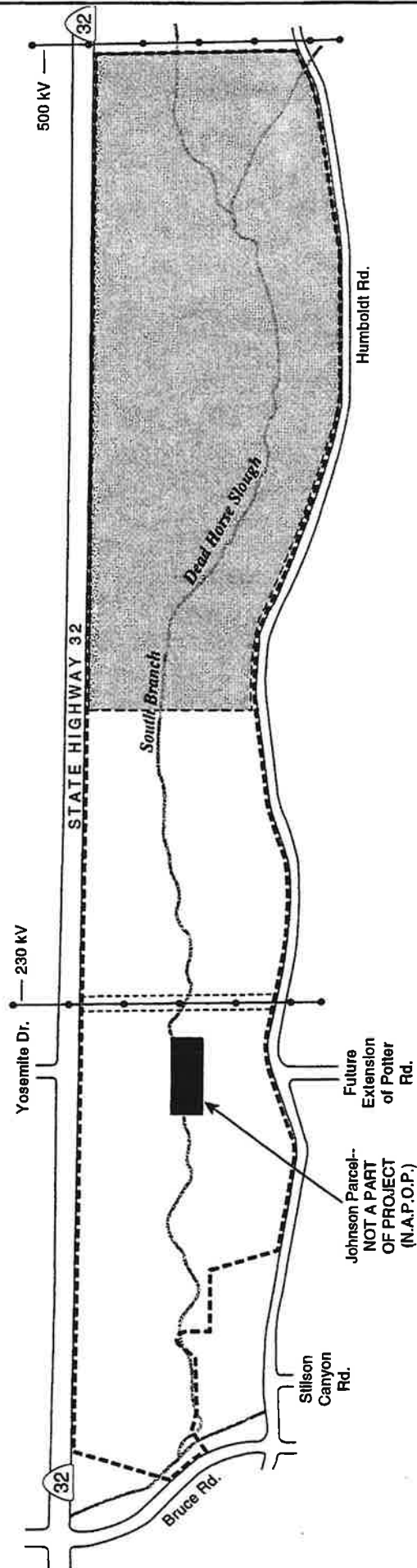


Figure 6-1
Alternative 3
Partial
Master Plan



Area to Remain Undeveloped and Retained
as Open Space

Conceptual Master Plan Project Boundary

Power Lines

SOURCE: EIP Associates, March 2000.



0 200 400 600 800
Scale In Feet

10049-Base

would remain significant and unavoidable even with Mitigation Measure 4.4-2. In addition, the higher densities provided in Alternative 3 may provide more opportunities for trip reduction measures, such as the use of transit and locating residential uses in proximity to commercial uses.

Based on the above discussion, impacts under Alternative 3 would be very similar to those identified under the Project, but would be slightly less severe because construction emissions would be lower.

Noise

Noise levels would be essentially identical to the Project because the primary source of noise, automobile traffic, would be very similar.

Public Services and Utilities

Under Alternative 3, the same amount of residential and commercial development would occur, so demand for water, solid waste services, and school facilities would be the same as the Project.

Hydrology and Drainage

Like the Project, development of Alternative 3 would result in the creation of impervious surface area. However, a substantially smaller area would be developed. Similar to the Project, development in this area could contribute to localized flooding and exceed existing drainage capacity. Compliance with Mitigation Measure 4.7-1 would still be required for this alternative to ensure that post-development drainage flows would be reduced to pre-development conditions. Compliance with Mitigation Measure 4.7-1 would ensure the impact would be reduced to less than significant.

Based on the above discussion, impacts under Alternative 3 would be similar to those identified under the Project; however, the impacts would be less severe because a smaller area would be developed.

Biological Resources

Impacts on biological resources identified under the Project include loss of trees and riparian habitat, loss of vernal pools and habitat for vernal pool species including vernal pool crustaceans, loss of habitat for the VELB, and loss of nesting raptor habitat. Alternative 3 would eliminate development in the eastern portion of the site and fewer stream crossings would likely be required, which would decrease the severity of impacts on the biological resources that exist on the site. However, the nature of impacts under this alternative would be very similar to the Project. The loss of trees, raptor habitat, loss of wetlands and wetland habitat, and the loss of VELB habitat would all be significant impacts under this alternative. Compliance with Mitigation Measures 4.8-1 through 4.8-6 would reduce these impacts to a less-than-significant level. The loss of resources under this alternative would contribute to a significant and unavoidable cumulative impact, but would be slightly less severe than under the Project.

Based on the above discussion, biological impacts under Alternative 3 would be similar to what was identified under the Project. However, the impacts would be considered slightly less severe because less area would be developed.

Aesthetics and Visual Resources

Similar to the Project, development under Alternative 3 would convert undeveloped land for developed urban uses. Like development under the Project, the change in the visual character of the area would be considered a significant impact, even with compliance with the City's Foothills Design Standards. Visually, Alternative 3 would vary from the Project in two ways. First, fewer acres would be converted, so the change in the environment and the change in views would occur in a smaller area. In particular, views of the foothills would not be as affected by development because less development would occur in the eastern portion of the site. This would reduce the severity of the impact, relative to the Project. At the same time, in order to accommodate the increased density on the western portion of the site, development of the western portion would be more dense with taller structures, and less likely to maintain views of oak stands and Dead Horse Slough. So, for the western portion of the project site, Alternative 3 would be more severe than the Project. The impact associated with the creation of light under Alternative 3 would also be reduced, but would still require Mitigation Measure 4.9-3. The cumulative impact on aesthetics and visual resources would remain significant and unavoidable.

Based on the above discussion, impacts under Alternative 3 would be somewhat less severe than those identified under the Project because less of the site would be converted to developed uses. Views from the western portion of the site may be blocked by taller structures. However, the overall visual impact would be similar to the Project.

Hazards and Human Health

Similar to the Project, hazards associated with contaminated soils would also be considered significant under this alternative. Although fewer acres would be disturbed, the same number of residents would occupy the project site, all of whom would occupy the area closest to the burn dump. Compliance with Mitigation Measure 4.10-1 would also be required to reduce the significance of the impact of potential exposure to a less-than-significant level. The exposure of workers to potential hazards would also remain significant under Alternative 3, as would potential disturbance with ongoing site remediation efforts. Mitigation Measures 4.10-2 and 4.10-3 would still be required to reduce impacts to a less-than-significant level. Mitigation Measure 4.10-4 would reduce cumulative impacts to a less-than-significant level, the same as the Project.

Overall, impacts under this alternative would be slightly more severe than the Project due to proximity of all of the residents to the burn dump.

Alternative 4: Reduced Density

The Reduced-Density Alternative provides fewer residential units overall by reducing the densities on certain parcels. The Reduced Density Alternative would require the rezoning of the easternmost 80 acres of the project site, currently designated as RS-20, to a residential density of

0.2 units per acre (1 unit per 5 acres), resulting in the development of 16 residential units on the eastern portion of the project site compared to 200 units under the Project.

Alternative 4 would result in a total of 1,140 residential units compared to 1,324 units under the Project. All parcel boundaries would remain the same as for the Project; however, the densities would be reduced on certain parcels, resulting in the lower number of dwelling units. The commercial uses and open space would be the same as those under the Project (see Figure 6-2).

For this analysis, it is assumed that the roadway system and infrastructure would be the same as those planned for the Project, except that it is assumed that the 16 residential units on the eastern portion of the site would be developed using rural standards. The General Plan allows development up to 0.2 units per acre to use septic systems if Butte County standards are met¹. The use of septic systems versus City sewer would lessen the impact on the sewer system compared to the Project and compliance with County standards would ensure that there would be no water or soil impacts (for the Project, these issues were evaluated in the Initial Study in Appendix A).

Land Use

Alternative 4 would develop the same area as the Project, but fewer units would be developed in the easternmost portion of the site. The conversion of the site from undeveloped to a developed environment would be similar to the Project, but fewer acres would be developed under this alternative. Consistency with General Plan policies would remain less than significant under Alternative 4, similar to the Project, and Mitigation Measure 4.2-3 would still be required.

Based on the above discussion, impacts under Alternative 4 would be very similar to those identified for the Project, but because fewer acres would be disturbed, the impacts would be slightly less severe.

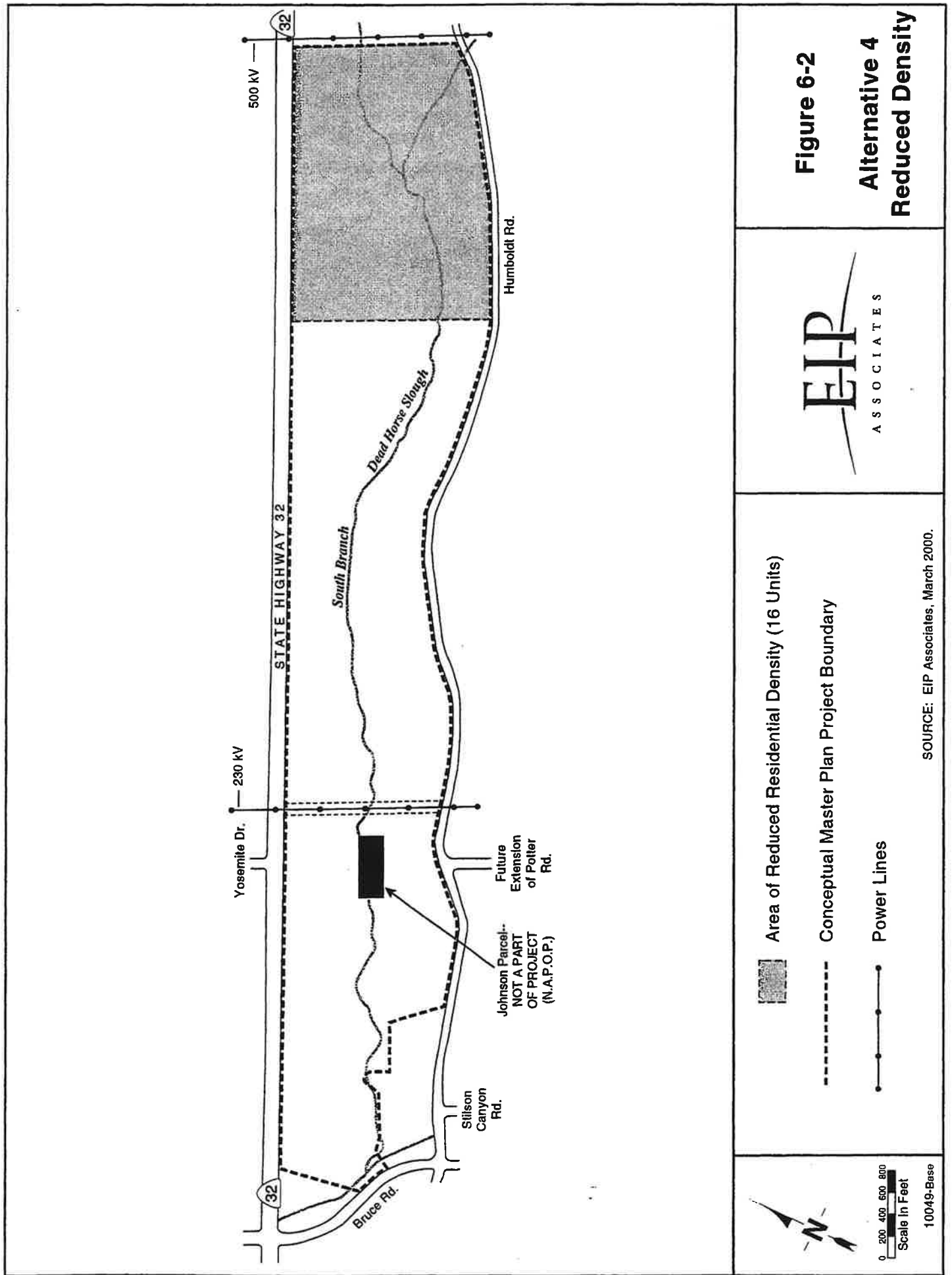
Transportation/Circulation

The number of trips generated by Alternative 3 would be slightly lower than the Project, due to the reduction of residential units. Impacts on most roadways would be the same, but slightly reduced. Mitigation Measures 4.3-1 and 4.3-4 would be required to ensure acceptable service levels on local roadways. Access to both Bruce Road and Humboldt Road would be provided, and Mitigation Measures 4.3-2 and 4.3-3 would be required to reduce safety-related impacts to a less-than-significant level.

Based on the above discussion, traffic impacts under Alternative 3 could be essentially the same as under the Project.

Air Quality

Alternative 4 would contribute slightly fewer air emissions, relative to the Project, because fewer dwelling units would be constructed and there would be a reduction in vehicle trips. However, the impacts under this alternative would be very similar to the Project. It is anticipated that the



significant and unavoidable air quality impact attributed to an increase in air emissions identified under the Project would remain significant and unavoidable under this alternative. Mitigation Measure 4.4-1 would still be required to reduce the severity of the impact, but it would remain significant and unavoidable. It is also anticipated that the operational impacts would be slightly less severe under this alternative because 184 fewer units would be developed. However, similar to the project, operational impacts would remain short-term significant and unavoidable and Mitigation Measure 4.4-2 would still be required.

Alternative 4 would also contribute to cumulative emissions, which would impede attainment of regional air quality standards; therefore, this significant and unavoidable impact would remain.

Based on the above discussion, impacts under Alternative 4 would be similar to those identified under the Project, but would be slightly less severe because fewer vehicle trips would be generated and fewer operational-related air impacts would occur.

Noise

Development proposed under Alternative 4 would result in a total of 184 fewer residential units than proposed the Project. Noise associated with vehicle traffic would be similar to the Project, but since fewer vehicle trips would occur under this alternative, noise would be slightly less. Therefore, noise impacts on nearby off-site sensitive receptors would be less than significant, similar to the Project. Because Alternative 4 would result in fewer traffic trips, noise impacts on residents of the project would also be less severe than the Project. However, to ensure no impacts would occur on residents, Mitigation Measure 4.5-2 would still be required. Cumulative impacts would be similar to the Project; therefore, Mitigation Measure 4.5-2 would be required to reduce any cumulative impacts to a less-than-significant level.

Based on the above discussion, impacts under Alternative 4 would be similar to those identified under the Project, but less severe in magnitude.

Public Services and Utilities

Under Alternative 4, 184 fewer residential units would be developed; therefore, demand for water, solid waste, and school facilities would be proportionately decreased relative to the Project. Utility and public service impacts are described below.

Water

Alternative 4 would have a lower water demand than the Project, due to the decrease in the number of residential units to be developed. As with the Project, the demand for water supply would not exceed the current water supply; however, an extension of Cal Water's water distribution water infrastructure would still be required. Compliance with Mitigation Measure 4.6-2 would ensure that adequate infrastructure would be available to serve the project. Under Alternative 4, the impact on infrastructure would also be reduced to less than significant with implementation of Mitigation Measure 4.6-1.

Solid Waste

As with the Project, the impact of Alternative 4 on solid waste service would be considered less than significant and no mitigation would be required. However, Alternative 4 would generate less solid waste than the Project, so the impact would be less severe.

Schools

As with the Project, the impact of Alternative 4 on schools would be considered less than significant and no mitigation would be required. However, because Alternative 4 would generate fewer school-age children than the Project, the impact would be less severe.

Based on the above discussion, impacts under Alternative 4 would be less severe than those identified for the Project.

Hydrology and Drainage

Development of Alternative 4 would result in the creation of impervious surface area, similar to the Project; however, due to the lower density in the easternmost portion of the site, fewer acres would actually be developed. Similar to the Project, development of the area could incrementally contribute to localized flooding and exceed existing drainage capacity. Compliance with Mitigation Measure 4.7-1 would be required for this alternative to ensure that post-development drainage flows would be reduced to pre-development conditions. Compliance with Mitigation Measure 4.7-1 would ensure the impact would be reduced to a less-than-significant level.

Based on the above discussion, impacts under Alternative 4 would be similar to impacts identified for the Project; however, the impacts would be considered less severe because fewer acres would be developed with impervious surface.

Biological Resources

Impacts on biological resources identified under the Project include loss of trees and riparian habitat, loss of vernal pools and habitat for vernal pool species including vernal pool crustaceans, loss of habitat for the VELB, and loss of nesting raptor habitat. Alternative 4 would develop a similar portion of the project site but would include only 16 dwelling units instead of 200 in the easternmost portion of the site. The reduction in housing density could allow areas of sensitive habitat to be avoided, decreasing impacts on biological resources. However, because the extent of loss of biological resources is not known at this time, the loss of trees, including raptor habitat, loss of wetlands and wetland habitat including vernal pool crustaceans, and the loss of VELB habitat would be significant impacts under this alternative. Compliance with Mitigation Measures 4.8-1 through 4.8-6 would be required to reduce impacts, but the loss of biological resources under this alternative would contribute to a significant and unavoidable cumulative impact.

Based on the above discussion, impacts under Alternative 4 would be similar to those identified for the Project for the western portion of the site. However, the impacts would be considered less severe because fewer acres would be developed.

Aesthetics and Visual Resources

Development of Alternative 4 would also convert undeveloped land for developed urban uses. Like development under the Project, the change in the visual character of the area would be considered a significant impact, and no mitigation would be available. The impact would be considered less severe under Alternative 4, because less area would be converted to urban uses; however, the change in the environment and the change in views would remain a significant and unavoidable impact under this alternative. Views of the site from the foothills would not be as significantly affected by project development because less development would occur in the eastern portion of the site. This would reduce the severity of the impact, relative to the Project. The impact associated with the creation of light under Alternative 4 would also be less severe than the Project because of less development on the eastern portion of the site. These impacts would also be reduced with Mitigation Measure 4.9-3; however, the cumulative impact on aesthetics and visual resources would remain significant and unavoidable.

Based on the above discussion, impacts under Alternative 4 would be less severe than those identified under the Project because views of the site from the foothills would not be as disrupted.

Hazards and Human Health

Development on the western portion of the site under this alternative would be similar to the Project, so hazards associated with contaminated soils on that portion of the site would be similar. There are no known areas of contaminated soils on the eastern portion of the site, but there is still potential to encounter areas of contaminated soils during construction in this area. Development would be less dense on the eastern portion of the site under this alternative, so if areas of contamination are present, impacts due to exposure to contaminated soils would be less severe for this area. Because construction would occur in the western portion of the site with known areas of contamination, the impact would be considered significant under this alternative, similar to the Project. Compliance with Mitigation Measure 4.10-1 would be required to reduce the significance of the impact to a less-than-significant level under this alternative. The exposure of workers to potential hazards would also remain significant under Alternative 4, as would potential disturbance with ongoing site remediation efforts. Mitigation Measure 4.10-2 and Mitigation Measure 4.10-3 would be required, which would reduce impacts to a less-than-significant level. Mitigation Measure 4.10-4 would reduce cumulative impacts to a less-than-significant level, the same as the Project.

Although there are no known areas of contaminated soils in the eastern portion of the site, the potential for areas of contamination does exist. Therefore, impacts under this alternative could be less severe than the Project, because fewer acres would be developed in the eastern portion of the project site.

Alternative 5: Off-Site Alternative

One of the requirements of CEQA is the assessment of the comparative environmental impacts of alternative locations for the "project." The situations where alternative locations must be evaluated are governed by the "rule of reason" and have been addressed by the courts.

The most influential case law that provides direction on the inclusion or exclusion of different site alternatives is the December 31, 1990 Supreme Court Decision in Citizens of Goleta Valley v. Board of Supervisors 52 Cal. 3d 553 (1990 (Goleta II)). In Goleta II, the Supreme Court suggested that the rationale for analysis of alternative sites was tied, in part, to the availability of another site to accommodate the project and to the consistency of the project with the local General Plan. In doing so, the Supreme Court reaffirmed the value of the General Plan as the primary local land use planning tool.

In choosing an alternative location, consideration was given to areas that are within the City and would reduce significant effects of the Project. The location selected for this Off-Site Alternative is the 397-acre site south of the project site, south of Humboldt Road and north-east of Stilton Canyon Road (see Figure 6-3). The site is currently zoned for Single-family Residential, Medium-density Residential, and Suburban Residential (1 acre lot minimum), and is currently used for grazing.

The Off-Site Alternative would leave the Project site in an undeveloped state and would instead develop the alternative site. The number of dwelling units and square footage for commercial and other non-residential uses are assumed to be the same as the Project.

Land Use

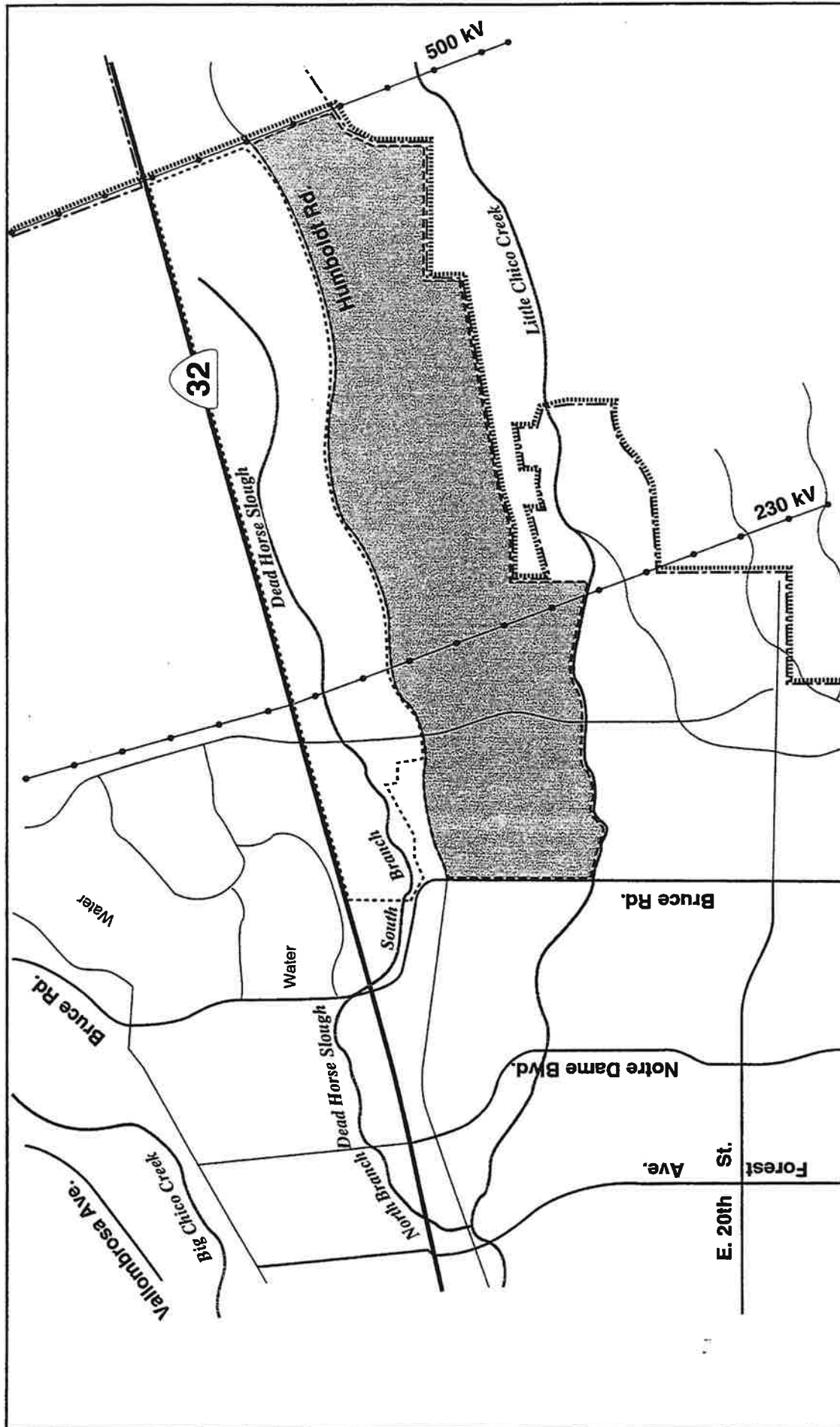
Because development of this site would also convert undeveloped land to developed uses, the land use impacts under this alternative would be similar to those of the Project. There would be no impacts under the Project for land use under this alternative similar to the Project. However, implementation of Mitigation Measure 4.2-2 would be required under this alternative to ensure that City standards are met.

Transportation

Impacts associated with transportation and circulation would be similar to impacts identified for the Project. Because the size of the development would be the same as the Project, cumulative impacts would be similar to those identified for the Project. Mitigation Measures identified for the Project would also be required of this alternative to reduce impacts to a less-than-significant level. However, the measures would be altered to reflect the roadways affected by the alternative.

Air Quality

Air quality impacts would be similar to the Project because this alternative would include the same amount of development as the Project and the same number of acres would be disturbed. The number of vehicle trips and residential units would be the same, so operational emissions would not change. Therefore, as with the Project, even with mitigation, construction and operational air quality impacts would remain significant and unavoidable under this alternative.



SOURCE: City of Chico General Plan Land Use Map, 1994; EIP Associates, March 2000.

NO Scale

Project Site

Urban Development Area

Current (1994) Sphere of Influence

Off-site Alternative Boundaries

EIP ASSOCIATES

Figure 6-3
Alternative 5
Off-Site Location

Noise

Noise impacts would be reduced compared to the Project, due to the distance of the alternative site from State Route 32 and the associated noise. Due to some internal differences in circulation that would be required because of site configuration under this alternative, traffic conditions, and therefore internal noise conditions, would also differ. Mitigation measures identified for the Project, revised to reflect roadways affected by the alternative, would reduce noise impacts under this alternative to a less-than-significant level.

Because the alternative site would be beyond 60 dB L_{dn} contours for State Route 32, noise impacts under this alternative would be less severe than the Project.

Public Services and Utilities

Similar to the Project, the existing and planned supply of domestic water and wastewater treatment capacity would be adequate to serve Alternative 5. Development in this area would require a water distribution system and wastewater conveyance be designed to meet the needs of the alternative, similar to the Project. Mitigation Measure 4.6-2 would still be required to ensure that water infrastructure was adequate. Because the number of units and amount of commercial acreage would be the same under this alternative, the effect on the availability of landfill space or schools would be the same as identified for the project.

Overall, effects on public services and utilities would be the same as those identified for the Project.

Hydrology and Drainage

Development of this area would increase the amount of impervious surface compared to existing conditions, which could result in localized flooding and impacts on drainage. The amount of development would be the same as the Project; therefore, it is assumed that the amount of new impervious surface in the alternative would be the same as the Project. Because any development would be required to comply with the standards set forth by the City, which requires no net increase in stormwater flows, both the Project and Off-Site Alternative would be required to reduce stormwater flows to pre-project conditions. Therefore, impacts under the alternative would be the same as the Project, and Mitigation Measure 4.7-1 would still be required.

Biological Resources

The alternative site contains blue oak, which are limited to the eastern portion of the site, Butte County Meadowfoam, a State and federally listed plant species that occurs in a few areas on the western portion of the site, and riparian habitat along Little Chico Creek. However, because the alternative site contains approximately 50 acres more area than the Project site, the potential for avoidance of sensitive biological resources is increased. Therefore, the potential loss of biological resources would be reduced under this alternative and development of this alternative would result in fewer biological impacts than the Project. Mitigation Measures 4.8-1 through 4.8-6 would be required of this alternative, with one exception: Mitigation Measure 4.8-3(c), requiring a Streambed Alternative Agreement, would not be needed because no streams would be affected.

Visual Resources

Development of the site would result in the introduction of urban development in a rural, undeveloped area, similar to the Project. The alternative site would be adjacent to existing residential uses to the south, but development of the alternative site would change the visual character of the area, similar to the Project. Development of the alternative site would result in the same impacts on the visual character of the area, and Mitigation Measures 4.9-1 and 4.9-2 would be required. The effects on visual resources would be somewhat less severe than under the Project, because the alternative site is not as visible from SR 32, and Dead Horse Slough would not be affected.

Hazards and Human Health

The alternative site is adjacent to the southern boundary of the Project site separated by Humboldt Road, which contains the Humboldt Road Burn Dump Site. Therefore, there would be some potential for exposure to contaminants from this facility and there is also potential for contamination on this site, due to the proximity of the burn dump. However, unlike the Project, this alternative is further removed from the former City/County burn dump site. Mitigation measures identified for the Project would reduce impacts for this alternative associated with the presence of hazardous materials on the adjacent property. Although there is potential for contaminated areas on the alternative site, the severity of impacts identified for the Project would be less on the alternative site because of the proximity of the burn dump to the Project site.

Environmentally Superior Alternative

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(d)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states that "if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. For the Oak Valley Project, the Partial Master Plan Alternative would be environmentally superior to the Project and the other alternatives (with the exception of the No Project Alternative) because it would contain the greatest amount of open space, so it would have the least severe impacts on open space conversion, visual quality, and biological resources.

ENDNOTES

1. City of Chico, *City of Chico General Plan*, November 1994, page 3-16.

7. BIBLIOGRAPHY

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Pat Rafter, CUSD Accounting Technician, EIP personal communication, March 1998.

8. *EIR AUTHORS AND PERSONS CONSULTED*

8. EIR AUTHORS AND PERSONS CONSULTED

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APPENDICES

APPENDIX A

NOTICE OF PREPARATION (NOP)

**INITIAL STUDY AND NOTICE OF
PREPARATION FOR THE OAK
VALLEY SUBDIVISION AND
CONCEPTUAL MASTER PLAN
ENVIRONMENTAL IMPACT
REPORT**

Prepared for:

The City of Chico

Prepared by:

EIP Associates

March 1998

NOTICE OF PREPARATION

TO: Responsible and Trustee Agencies
Interested Parties

FROM: City of Chico
Community Development Department
411 Main Street, Second Floor
Chico, CA 95928

SUBJECT: NOTICE OF PREPARATION (NOP) FOR THE OAK VALLEY SUBDIVISION
AND CONCEPTUAL MASTER PLAN ENVIRONMENTAL IMPACT REPORT

LEAD AGENCY: City of Chico
Community Development Department
411 Main Street, Second Floor
Chico, CA 95928

CONTACT: Pam Figge
Consulting Senior Planner

CONSULTING FIRM: EIP Associates
1200 Second Street, Ste. 200
Sacramento, CA 95814

CONTACT: Adrienne Graham
Senior Project Manager

The City of Chico has required preparation of an Environmental Impact Report (EIR) for the Oak Valley Subdivision project including a project-level analysis for a 43-acre portion of the site, and a program-level analysis for the full project (CEQA Guidelines §15168). Land use entitlements requested for the 43-acre portion will be a vesting tentative map, and a planned development use permit. Land use entitlements for the full project, including the 43-acre portion, will be a vesting tentative map, a Conceptual Master Plan and a statutory Development Agreement. As the lead agency, the City of Chico is requesting comments regarding the appropriate scope and content of the EIR based on your agency's statutory responsibilities to the proposed project. Your agency will use this EIR when considering relevant permits or other approvals for the project.

The project description and location are summarized below. The environmental issues to be addressed in the EIR are: land use; transportation and circulation; air quality; noise; utilities; biological resources; hydrology and water quality; aesthetics/visual resources; and other considerations required by CEQA. The EIR will evaluate the environmental effects of immediate development of the 43-acre site in accordance with its vesting tentative map and planned development use permit, and the environmental effects of future development of the rest of the project property in accordance with the Conceptual Master Plan and vesting tentative map. An Initial Study and Environmental Checklist are attached to this NOP.

In compliance with limits mandated by State law, your responses must be sent at the earliest possible date, but no later than April 27, 1998.

PLEASE SEND RESPONSE TO: Ms. Pam Figge at the address listed above. If you have any questions, please contact Ms. Figge at (916) 895- 4889. Please include the name of the agency contact person in your comments.

PROJECT TITLE: Oak Valley Subdivision

ASSESSOR'S PARCEL NUMBERS: 11-030-089 and 112; 11-030-090

PROJECT LOCATION:

The proposed project site is located on 340 acres in the southeast quadrant of the City of Chico in the foothill region of the Cascade Mountain Range. The project site is within the Chico City limits and is approximately 3 miles from downtown Chico (see Figure 1). The site is bordered by State Highway 32 to the north, Humboldt Road to the south, and Bruce Road to the west. Two Pacific Gas and Electric (PG&E) 500 kV transmission lines are located at the site's eastern boundary, just outside the project site.

PROJECT DESCRIPTION:

Project Setting

The project site is undeveloped land characterized by gently rolling topography with non-native annual grasslands and blue oak woodlands/savanna. The site is currently used for seasonal grazing activities. The elevation of the site ranges from 600 feet to 250 feet sloping southwesterly from east to west on the north side of Dead Horse Slough and north easterly from Humboldt Road to the slough. The western portion of the site is relatively flat becoming increasingly steeper towards the eastern edge of the site. The site is bisected from east to west by Dead Horse Slough, a seasonal drainage course. Portions of the former Humboldt Road burn dump site are located in the southwestern portion of the site, contiguous to the remaining portions outside the limits of the project. The Western Area Power Administration (WAPA) 230 kV transmission lines bisect the site in a north-south direction east of the Yosemite Drive intersection along the north side of State Highway 32.

Vegetation on the site consists of non-native annual grasslands with areas of blue oak woodland and blue oak savanna. The oak woodlands are characterized by a mature tree canopy dominated by blue oaks with some interior live oaks and gray pines. Fremont cottonwoods are found in the eastern portion of the site. The oak savanna is similar to the blue oak woodland, but has a less dense tree canopy. Approximately 0.14 acres of vernal pools and 2.4 acres of seasonal wetlands are located in the western portion of the site.

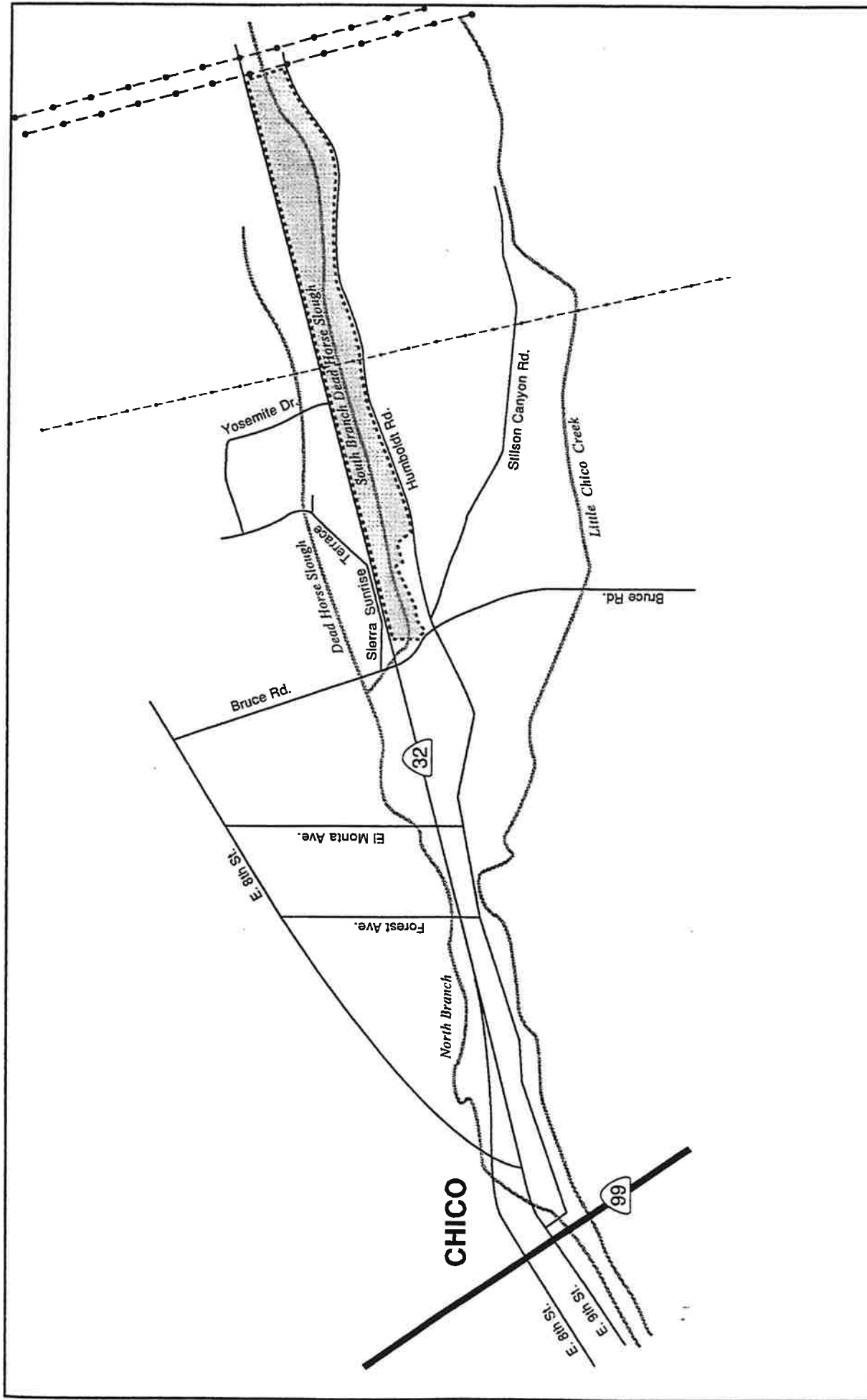


Figure 1
Project Location Map



Project Site
 230 kV Power Lines
 500 kV Power Lines
 Stream courses

SOURCE: EIP Associates,
March 1998.



96069-Area

Soils on the site consist of shallow toomes/pentz substrate with Tuscan Formation, a nearly impermeable lava cap containing volcanic conglomerate and layers of tuff-breccia underlying the toomes/pentz substrate.

Surrounding land uses include a high density senior citizen residential complex and single family residences on the north side of State Highway Route 32, west of the 230kV power lines. Vacant lands are located to the north (east of the power lines), east, south and west of the project site. The remainder of the Humboldt Road burn dump site is located southerly of the western portion of the project site and on a five-acre "island" parcel completely surrounded by the project, contiguous to those portions of the former burn dump within the project.

Proposed Project

The project applicant proposes to develop a 43-acre subdivision with a mix of low, medium and high density residential units and open space. The 43-acre subdivision would include a total of 101 low density single-family homes on 11.4 acres, 96 medium density duplex units on 5 acres, and 103 multi-family high density units on 6.56 acres. A portion of the residential units would be designed in clusters, consistent with the policies suggested for special Development Areas set forth in the Chico General Plan. Green belts to preserve open space, existing oak trees, and scenic vistas are also proposed. Approximately 9 acres would be designated for buffers, setbacks, and open space with 11 acres planned for road right-of-ways.

The Conceptual Master Plan, including the 43-acre subdivision, would include 230 acres of single and multi-family residential units, 87.5 acres designated as open space for resource protection and passive recreation use, and 10 acres of community commercial uses. The Master Plan would include a total of approximately 864 single-family units, and 260 multi-family units. In addition, 200 lower density residential units would developed using the clustered housing concept. The Conceptual Master Plan also provides for 109,000 square feet of community commercial uses on 14.8 acres.

As stated above, the project site contains portions of the 137-acre Humboldt road burn dump site. A restoration plan has been initiated to remediate the waste materials from the former dump activities by on-site consolidation and capping. The dump remediation project is the subject of a Draft EIR (SCH #97062073) released in September 1997 and a Final EIR completed in February 1998. The plan proposes the consolidation of all waste materials from the former burn dump operations onto 21.7 acres. The 21.7 acre consolidation site is located along Humboldt Road, just east of Bruce Road, and consists of the 10 acre former City owned burn dump and 11.7 acres of the project site which will be dedicated to the City of Chico. Following the restoration project, the consolidation site may remain as permanent open space, consistent with the General Plan designation. The remainder of the area formerly constrained by the burn dump waste, including portions of the project site, will be able to move forward with development proposals consistent with the City's General Plan and standards.

Public Facilities and Services

Proposed infrastructure for both the 43-acre subdivision and the Conceptual Master Plan includes the following:

1. **Access and Circulation:** The project site would be served by an internal road system that provides for internal circulation for vehicles, pedestrians, bicycles and access to existing City streets and State Highway 32. Primary access to the site would be directly from State Highway 32, which would align with Yosemite Drive and continue through the project site as the Potter Road Extension, identified in the General Plan. Other access points being considered are east of the Potter Road extension to Highway 32 and a connection to Bruce Road, along the western boundary of the site. In addition, there would be several access points along Humboldt Road.

For the 43-acre subdivision, no bridge crossings would be required because all development would occur north of Dead Horse Slough. The Conceptual Master Plan provides for four bridges across the slough.

2. **Sanitary Sewer:** The project site is within the boundaries of the Southeast Chico Sewer Assessment District. There is an existing sewer trunk line within the site extending partially along Dead Horse slough. Additional sewer main lines and laterals would be constructed to serve the project.
3. **Water:** Water would be provided to the site through the California Water Service Company (CWSC), the City of Chico's water provider. Implementation of the project would require the extension of CWSC facilities from the western end of the project site. In addition, the project may require water storage tanks, a pump station, and on-site well(s).

Relationship to the City of Chico General Plan

As discussed in the Initial Study (page 3), the proposed project is consistent with the City's General Plan (adopted November 1994), which was subject to an Environmental Impact Report (State Clearinghouse #92123063). The EIR for the proposed project will "tier upon" the 1994 General Plan EIR analysis, and will focus on those impacts that were not addressed in the General Plan EIR; or for which substantial new information shows that an impact will be more significant than described in the General Plan EIR.

Required Discretionary Project Approvals

The following approvals from the City of Chico will be necessary:

- Certification of the EIR;
- Development Agreement for the 43-acre subdivision and Conceptual Master Plan;
- Vesting Tentative Subdivision Map for the 43-acre subdivision;

- Vesting Tentative Subdivision Map to separate the area outside the 43-acre subdivision into large-acre parcels, consistent with zoning;
- Planned Development Use Permit (with Conceptual Master Plan approval as a condition); and
- A grading permit for portions of the property specified in the Vesting Tentative Map and Conceptual Master Plan.

Other Approvals and Agreements

Other agency approvals could include:

- Encroachment Permit (California Department of Transportation);
- Streambed Alteration Agreement (California Department of Fish and Game);
- Storm Water Discharge Permit (State Water Resources Control Board);
- Section 404 Permit (U.S. Army Corps of Engineers and Environmental Protection Agency); and
- Cooperative funding agreements among the property owner, the City of Chico, the Chico Redevelopment Agency and various other agencies, to implement the terms of the requested land use approvals.

ALTERNATIVES:

Up to five (5) alternatives will be analyzed in the EIR, including the No Project Alternative. The alternatives could include a project design based exclusively on site constraints and identified impacts, a "standard" development based on the underlying zoning and General Plan, and a reduced density alternative and an off-site alternative.

BACKGROUND

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ENVIRONMENTAL CHECKLIST

Introduction

The following Initial Study contains the environmental checklist form presented in Appendix I of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Those impacts that are identified as having either no impact or a less-than-significant impact will be analyzed only in the Initial Study (and not in the EIR). Impacts identified as being potentially significant unless mitigation is incorporated will identify appropriate mitigation measures that will reduce the impact to a less-than-significant level. Therefore, impacts that can be reduced to a less-than-significant level with mitigation will also be addressed only in the Initial Study. Those impacts identified as being potentially significant will be addressed in the EIR.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified in this Initial Study. Potentially significant impacts will be evaluated in the EIR and mitigation may be identified in the EIR to reduce the impact.

Potentially Significant Unless Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level. These items will not be addressed in the EIR.

Less-Than-Significant Impact: Any impact that would not be considered significant under existing standards. These items will not be addressed in the EIR.

No Impact: The project would not have any impact. These items will not be addressed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
1. LAND USE AND PLANNING.				
<i>Would the proposal:</i>				
a. Conflict with general plan designation or zoning?	☐	☐	☐	☒
b. Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	☒	☐	☐	☐
c. Be incompatible with existing land use in the vicinity?	☒	☐	☐	☐
d. Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)?	☐	☐	☐	☒
e. Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	☐	☐	☐	☒

Discussion

- a) The City of Chico General Plan (November 1994) Land Use Map (July 1996) designates the site Very Low Density Residential, Low Density Residential, Medium Density Residential, Medium and High Density Residential, and Community Commercial with an Open Space for Environmental Conservation/Safety overlay. The site is zoned Very Low Density Residential (RS-20), Low Density Residential (R-1), Medium Density Residential (R-2), Medium-High Density Residential (R-3) and Community Commercial (CC). The proposed project is consistent with the current land use designation and zoning for the site. Therefore, the *no impact* would occur and this issue will not be further discussed in the EIR.
- b) The project site is located in a Resource Management Area and identified in the Chico General Plan as a "Special Development Area," and must meet standards identified for such areas. This is considered a *potentially significant impact* and will be further evaluated in the EIR.
- c) The project site is located in an area that is adjacent to undeveloped land to the south, east and west. An existing high density senior housing project and low density housing is located north of the site, west of Yosemite Drive. The site is bounded by Highway 32 to the north and Humboldt Road to the south and Bruce Road to the east. A Western Area Power Administration (WAPA) 230 kV transmission line bisects the site in a north-south direction just east of the Yosemite Road intersection with Highway 32, and two PG&E 500 kV transmission lines (Table Mountain #1 and #2) run parallel to each other adjacent to the

eastern boundary of the project site. Residential uses on portions of the proposed project could be incompatible with existing power lines in the vicinity. In addition, the Conceptual Master Plan provides for uses (e.g. commercial and residential) that could be incompatible with each other, depending on site design and other factors. The potential for incompatible land uses is considered a *potentially significant impact*. Any potential incompatibilities with existing and/or planned adjacent uses as well as internal land uses will be discussed in the EIR.

- d) The project site is currently undeveloped and historically has been used for seasonal grazing. Due to the presence of shallow soils and other factors, grazing on the site occurs only a few months out of the year. No portion of the project site is under an Williamson Land Act Contract. Based on a review of the most recent version of the Department of Conservation's Important Farmland Map, no Prime Farmland or Farmland of Local Importance exists on the site.¹ Therefore, *no impact* would occur on Prime Farmland or Farmland of Local Importance. This issue will not be further analyzed in the EIR.
- e) The proposed project would not divide or disrupt the physical arrangement of an established community because there are no established residential areas located within the project site. Therefore, *no impact* would result on the physical arrangement of the community, and this issue will not be evaluated in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
2. POPULATION AND HOUSING.				
<i>Would the proposal:</i>				
a. Cumulatively exceed official regional or local population projections?	☐	☐	☐	☒
b. Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☒	☐	☐	☐
c. Displace existing housing, especially affordable housing?	☐	☐	☐	☒

Discussion

- a) According to the 1997 Department of Finance population rate of 2.36 persons per household in the Chico area, the 43-acre subdivision would generate approximately 700 new residents. The full project, including the Conceptual Master Plan, would generate approximately 3,100 new residents. The 1994 General Plan assumed very low, low, medium, and medium-high density residential development would occur on this site, as proposed with the subject

project. Because the General Plan has accounted for the population associated with development of this site, the anticipated increase in residents would not cumulatively exceed official regional or local population projections, and there would be *no impact*. Therefore, this issue will not be evaluated in the EIR.

- b) As discussed above, under Land Use and in the Project Description, the project site is undeveloped and in an area that has experienced minimal development. Although the General Plan assumes development would occur in this area, the potential growth-inducing effects of the project are considered to be *potentially significant* and will be analyzed in the growth-inducement chapter of the EIR.
- c) As discussed above, the project site is undeveloped. Therefore, *no impact* would occur to displace existing housing because no housing exists on the site. This issue will not be further evaluated in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
3. GEOLOGY.				
<i>Would the proposal result in or expose people to potential impacts involving:</i>				
a. Fault rupture?	☐	☐	☐	☒
b. Seismic ground shaking?	☐	☐	☐	☒
c. Seismic ground failure including liquefaction?	☐	☐	☐	☒
d. Seiche, tsunami, or volcanic hazard?	☐	☐	☒	☐
e. Landslides or mudflows?	☐	☐	☒	☐
f. Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill?	☐	☐	☒	☐
g. Subsidence of the land?	☐	☐	☒	☐
h. Expansive soils?	☐	☐	☒	☐
i. Unique geologic or physical features?	☐	☐	☐	☒

Discussion

- a-c) The project site is located in the Great Valley Geomorphic Province, which is bounded on the west by the Coast Ranges, on the north by the Klamath Mountains, on the east by the Cascades and Sierra Nevada, and on the south by the Tehachapi Mountains. The Great Valley is an asymmetric trough approximately 450 miles long and 50 miles wide that has been filled with a tremendous amount of sediments over the last 200 million years.

The largest geologic structural feature in the area is the Chico Monocline. This feature is a northwest-trending, southwest-dipping fault that extends approximately 45 miles along the northeast side of the Sacramento Valley from Chico to Red Bluff. As a part of this feature, the Tuscan Formation forms a wedge-shaped mass thinning from about 1,600 feet thick in the Cascade Range to approximately 300 feet beneath the Sacramento Valley.

The Alquist-Priolo Special Studies Zones Act of 1972 regulates development near active faults to mitigate the hazard of surface fault rupture and prohibits the development of structures for human occupancy across the traces of active faults. There are no active faults within the Chico Planning Area, including the project site, thus the potential for ground rupture is considered very low. The site is not located within an Alquist-Priolo Special Studies Zone. The Planning Area, including the project site, is rated as a low-intensity earthquake zone. A low-intensity zone is defined by the U.S. Geological Survey (USGS) as an area that is likely to experience an earthquake measuring a maximum of 5.0-5.9 in magnitude on the Richter scale, and a maximum intensity of VI or VII on the Modified Mercalli scale. However, earthquakes generated on the nearby active Cleveland Hill, Last Chance-Honey Lake, and Midland-Sweitzer faults can result in strong groundshaking and Modified Mercalli Intensity VIII to IX effects. The potentially active Monocline fault and Foothills shear zone can result in Modified Mercalli VI to XII effects. Effects associated with Modified Mercalli Intensity VI to IX range from displacement or breakage of small objects, falling plaster or loose bricks, and small slides and cave-ins along sand or gravel banks to damage of buildings, structures, reservoirs, and underground piping.

The project site is located in an area where the potential for ground rupture and/or earthquakes is considered low and all buildings would be constructed according to current uniform building codes (Seismic Zone 3) which require seismic safety precautions be taken to minimize any potential damage from earthquakes. Therefore, issues relating to fault rupture and seismic ground shaking will not be discussed in the EIR as *no impact* would occur.

- d) The project site is not located near an ocean or a lake that would be subject to a tsunami (sea wave produced by submarine earthquake or volcanic eruption) or seiche (oscillation of an enclosed or restricted water body). The closest volcano is Lassen Peak located 50 miles north-northeast of the site. At this distance, during an eruption, heat and consolidated mud flow would not be expected to affect the project site. The impervious layer on the project site is consolidated mud flow from Mt. Lassen. The reoccurrence of such a mud flow is statistically very low; therefore, the impact would be considered *less than significant* and will not be further discussed in the EIR.
- e) Due to the topography of the site, it is unlikely any hazards associated with landslides or mudflows would occur. Although, small-scale slides of earthen material could occur along the banks of Dead Horse Slough, such events would be very small and localized resulting in little, if any, hazard. In addition, according to the Conceptual Master Plan, the project would provide a minimum average 100-foot setback from the high water line along Dead Horse

Slough to preserve existing riparian vegetation. Bicycle and pedestrian paths and low impact recreational uses may be permitted in this corridor, but structures would not be allowed. Due to the topography of the site and setbacks along Dead Horse Slough any impacts associated with landslides or mudflows would be considered *less than significant*. This issue will not be further analyzed in the EIR.

- f) Development of the site would require grading the site for infrastructure improvements, building pads, roads, and for other purposes. All grading activities would be required to comply with site-specific foothill development standards proposed by the City and applicant and Titles 16 (grading) and 18R (subdivision improvements) of the Chico Municipal Code. The City's Grading Ordinance requires measures to minimize construction-related erosion impacts including sediment control measures, runoff control, revegetation, and slope surface stabilization (Chico Municipal Code Section 16R.22.022 et seq.). Compliance with the City's construction standards would reduce any impacts associated with erosion to a *less-than-significant* level. This issue will not be discussed in the EIR.

Grading and changes to site topography could affect the visual character of the project site. Visual impacts will be addressed in the EIR (see Item 13).

- g) Withdrawal of fluids (e.g., groundwater, natural gas, oil) can, in some cases, result in subsidence. As currently proposed, the project would not involve any dewatering activities or any other types of activities that could cause subsidence. Therefore, the chance for subsidence to occur is considered low and the impact is considered *less than significant*. This issue will not be further analyzed in the EIR.
- h) Expansive soils can cause structural damage to foundations, slabs, pavement, and exterior flatwork unless properly identified and managed. Expansive soils swell when they absorb and shrink as they dry. According to Figure 8-2 on page 8-9 of the General Plan, 1967 U.S. Soil Conservation Service Report and General Soil Map, the project site is not located in an area where highly expansive soils or moderate to highly expansive soils exist. A soil investigation will be conducted for each parcel according to City standards (Titles 16R and 18R), and project development will implement any geotechnical recommendations for meeting City standards resulting from the soils investigation. Therefore, this is considered a *less-than-significant impact*.
- i) There are no unique geological or physical features evident on the site. The project site is representative of the Cascade Mountain foothills area which surround the project site. Because there are no unique geologic or physical features on the site, there would be *no impact*. This issue will not be further discussed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
4. WATER.				
<i>Would the proposal result in:</i>				
a. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	☒	☐	☐	☐
b. Exposure of people or property to water-related hazards such as flooding?	☒	☐	☐	☐
c. Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity)?	☐	☐	☒	☐
d. Changes in the amount of surface water in any water body?	☒	☐	☐	☐
e. Changes in currents, or the course or direction of water movements?	☐	☐	☒	☐
f. Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability?	☒	☐	☐	☐
g. Altered direction or rate of flow of groundwater?	☐	☐	☒	☐
h. Impacts to groundwater quality?	☐	☐	☒	☐
i. Substantial reduction in the amount of groundwater otherwise available for public water supplies?	☒	☐	☐	☐

Discussion

- a,d) The proposed project could result in changes in absorption rates, drainage patterns, or the rate and amount of surface runoff. The amount of runoff generated by the proposed project is anticipated to increase due to an increase in impervious surfaces. The project is located along Dead Horse Slough, which is a tributary to Little Chico Creek. Any increase in net peak runoff from the site would increase flood potential in Little Chico Creek and Dead Horse Slough. This is considered to be a *potentially significant impact* and will be discussed in the EIR.
- b) According to the City of Chico General Plan, stormwater runoff can create localized flooding problems in the City of Chico and the western agricultural area. High Sacramento River flood stage can create a backwater in the creek and tributaries which may delay runoff from entering the river. As identified in Figure 8-1 on page 8-5 of the General Plan, the

Sacramento River overflow inundates an area approximately two miles east of the river boundaries. It is anticipated that this volume of water would increase over time with additional urban runoff associated with growth considered under the General Plan. In the western portion of the General Plan Planning Area, capacities of channels are also limited, and potential floodflows are believed to be higher than recorded historical occurrences.²

The proposed project would be constructed along the south fork of Dead Horse Slough, which is a tributary to Little Chico Creek. According to the Federal Emergency Management Act (FEMA) maps, the project site is located in Zone X, which is in an area determined to be outside the 500-year flood plain. The City of Chico General Plan has determined that the site itself is not within the 100-year floodplain. However, because the project could contribute additional runoff to offsite flooding, the impact is considered *potentially significant* and will be further evaluated in the EIR.

- c) Surface water quality can be adversely affected by erosion during construction, or after a project is completed, by urban contaminants in stormwater runoff. As of October 1, 1992, general stormwater discharge permits are required by the State for stormwater discharges associated with construction activities involving the disturbance of five acres or more. Permit applicants are required to prepare and retain at the construction site a Stormwater Pollution Prevention Plan (SWPPP) that describes the site, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary. The project applicant must also obtain a National Pollutant Discharge Elimination System (NPDES) permit from the Central Valley Regional Water Quality Control Board (CVRWQCB) to control both construction and operation activities that may affect water quality in waters of the United States from surface runoff. Also, the project applicant must obtain a General Construction Activity Stormwater Permit. The proposed project must also comply with the City's Stormwater Management Standard Mitigation and Monitoring Program (Best Practices Technical Manual, June 1997). Best Management Practices (BMPs) include the use of grass or lawn filter strips, infiltration trenches, oil/grease separators, and/or retention swales to intercept "first flush" contaminants from the initial 1/2 inch of rainfall for each storm event prior to discharge. Implementation of BMPs and permit requirements would reduce this impact to a *less-than-significant* level. This issue will not be further discussed in the EIR.
- e) The proposed project would not alter the alignment of Dead Horse Slough; therefore, there would be *no impact* on currents, or the course or direction of water movements.
- (g,h) No interception of an aquifer by cuts or excavations would occur as the aquifer is too deep for accidental penetration and beneath the volcanic hardpan. Recharge of the aquifers in the Tuscan formation does not occur on the site, as groundwater beneath the site derives from up gradient recharge areas east of and outside the project area. Seasonal runoff from the site

would not enter the groundwater until flowing off site. As no recharge currently exists onsite, substantial loss of groundwater recharge capability due to any paving of pervious surfaces would not occur. Therefore, this is considered a *less-than-significant impact* and will not be addressed in the EIR.

- f,i) The proposed project would not substantially change the quantity of ground waters through direct additions or withdrawals, as water would be provided through California Water Service Company which is Chico's established water provider. However, one or more wells or other water facilities may be provided onsite. Because onsite wells may be included in the proposed project, this is considered a *potentially significant impact* and will be addressed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
5. AIR QUALITY.				
<i>Would the proposal:</i>				
a. Violate any air quality standard or contribute to an existing or projected air quality violation?	■	☐	☐	☐
b. Exposure sensitive receptors to pollutants?	■	☐	☐	☐
c. Alter air movement, moisture, or temperature, or cause any change in climate?	☐	☐	☐	■
d. Create objectionable odors?	☐	☐	☐	■

Discussion

- a,b) The proposed project is located within the Northern Sacramento Valley Air Basin (NSVAB). Federal and state standards for carbon monoxide, ozone, and particulate matter were exceeded every year in recent years.

Construction

Construction traffic on unpaved roads, as well as activities such as land clearing and grading, would generate significant PM₁₀ emissions. Stationary and mobile construction equipment and employee/delivery vehicles can result in increases in ozone precursor, CO, and particulate emissions. Additional vehicle emissions can occur if construction activities increase traffic congestion. Any controlled burning of vegetative matter generated by land clearing that would occur as part of the construction activities would emit particulates, CO, and other pollutants into the ambient air. Construction-related emissions are considered to be a *potentially significant impact* and will be further addressed in the EIR.

Operation

The proposed project would generate additional air contaminants over what currently exists by a significant increase in vehicular trips per day, and woodburning fireplaces in the homes developed as part of the proposed project. This is considered to be a ***potentially significant impact*** and will be further addressed in the EIR. An evaluation of the project's impacts on the air basin and the effects of the project and cumulative development on the State's Clean Air Plans, the Butte County Congestion Management Plan and the Chico Urban Area Carbon Monoxide Reduction Plan will be analyzed. No CO modeling will occur in the EIR, as carbon monoxide impacts were fully addressed by the City of Chico General Plan EIR, for which the City adopted a Statement of Overriding Considerations, and this project is consistent with the General Plan assumptions. Traffic generation data will be used to estimate potential levels of ozone precursors.

- c) No change to the air movement, moisture, temperature, or change in climate would occur, as no activity such as removing structures or land forms, or filling in existing water bodies, removing all vegetation, or permanent flooding would occur. Therefore, ***no impact*** would occur and this issue will not be discussed in the EIR.
- d) The proposed project would not include industrial or intensive agricultural use; therefore, the project would not create odors or toxic air contaminants. Therefore, ***no impact*** would occur and this issue will not be discussed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
6. TRANSPORTATION/CIRCULATION.				
<i>Would the proposal result in:</i>				
a. Increased vehicle trips or traffic congestion?	■	□	□	□
b. Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	■	□	□	□
c. Inadequate emergency access or access to nearby uses?	□	□	□	■
d. Insufficient parking capacity on-site or off-site?	■	□	□	□
e. Hazards or barriers for pedestrians or bicyclists?	■	□	□	□
f. Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	■	□	□	□
g. Rail, waterborne or air traffic impacts?	□	□	□	■

Discussion

- a) The proposed project would generate an increase in vehicle traffic and congestion along Highway 32, Humboldt Road and Bruce Road, as well as other nearby roadways. Project-generated traffic could cause or contribute to the deterioration of roadway levels of service (LOS) below relevant Caltrans and City guidelines (the City has established a guideline of LOS D or better on arterial and collector streets). This is a *potentially significant impact* and will be further evaluated in the EIR.
- b,e) Development of the proposed project could introduce safety hazards for automobiles, bicyclists, or pedestrians both during construction activities and project operation unless applicable City and Caltrans safety design standards are implemented. The proposed project would be designed to both City and Caltrans standards to eliminate potential safety hazards from occurring. The circulation plans have not yet been completed, so they cannot be evaluated at this time. Therefore, this is considered a *potentially significant impact*. The EIR will evaluate any relevant safety hazards that could result due to project construction and design.
- c) The preliminary site plan for the proposed project includes two access points to Highway 32, one access point to Bruce Road, and eight access points to Humboldt Road. The internal road system would be designed to meet current City fire codes which specify certain conditions be provided to enable safe emergency vehicle accessibility. Adequate emergency access as well as adequate access to nearby uses is provided in the project design; therefore, *no impact* would occur, and this issue will not be discussed further in the EIR.
- d) The proposed project's residential uses will generate demand for parking. For conventional single-family residences, parking is likely to be incorporated into the dwelling unit. However, multi-family units and smaller single-family lots may not have enough space for onsite parking, and require offsite parking lots or other facilities. Because the provisions for parking are not known at this time, the impact on parking capacity is considered *potentially significant*. This issue will be analyzed in the EIR.
- f) Potential conflicts with the existing bicycle use along Humboldt Road and adopted goals and policies from the City's General Plan, as well as any other adopted traffic planning document, cannot be fully analyzed prior to the traffic analysis. Therefore, this is considered to be a *potentially significant impact* and will be further analyzed in the EIR.
- g) Implementation of the proposed project would not adversely affect existing rail, waterborne, or air traffic activities because the project site is not located adjacent to any water body or railroad tracks, nor does the design of the project include any components that could disrupt air traffic. Therefore, *no impact* would occur and this issue will not be further addressed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
7. BIOLOGICAL RESOURCES.				
<i>Would the proposal result in impacts to:</i>				
a. Endangered, threatened or rare species or their habitats (including, but not limited to plants, fish, insects, animals, and birds)?	☒	☐	☐	☐
b. Locally designated species (e.g., heritage trees)?	☒	☐	☐	☐
c. Locally designated natural communities (e.g., oak forest, coastal habitat, etc.)?	☒	☐	☐	☐
d. Wetland habitat (e.g., marsh, riparian and vernal pool)?	☒	☐	☐	☐
e. Wildlife dispersal or migration corridors?	☒	☐	☐	☐

Discussion

- a-e) The potential exists for endangered, threatened or rare species or their habitats to occur on-site. A Draft Evaluation of Natural Habitats, Wildlife, and Sensitive Species was conducted in 1995 and identified 13 sensitive plant species and 10 sensitive animal species with the potential to occur on-site. The Final 1995 Report identified Bidwell's knotweed, Ferruginous hawk, Northern harrier, and vernal pools existing onsite. The project has the potential to affect these species and other, potentially undiscovered species. Therefore, this is considered to be a *potentially significant impact* and will be addressed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
8. ENERGY AND MINERAL RESOURCES.				
<i>Would the proposal:</i>				
a. Conflict with adopted energy conservation plans?	☐	☐	☒	☐
b. Use non-renewable resources in a wasteful and inefficient manner?	☐	☐	☒	☐
c. Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	☐	☐	☒	☐

Discussion

- a,b) All new residential and commercial facilities would be designed to comply with Title 24 of the California Code of Regulations, which require the use of energy-efficient appliances in all new development projects.

The proposed project provides for the construction of new homes and other buildings in accordance with City standards and the Uniform Building Code. A residential development like the proposed project would not be expected to use non-renewable resources in a wasteful and inefficient manner. With compliance with City standards and the UBC, this is considered a *less-than-significant impact* and will not be further evaluated in the EIR.

- c) According to the City of Chico General Plan, the State Division of Mines and Geology has yet to map Butte County's mineral resources. Historically, portions of Butte Creek were mined for gold. Several inactive sand and gravel mines and one stone mine are located within the City of Chico Planning Area. Given the lack of known historic mining within the project site, it is highly unlikely that the proposed project would result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state. Therefore, this is considered a *less-than-significant impact* and will not be further evaluated in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
9. HAZARDS.				
<i>Would the proposal involve:</i>				
a. A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)?	☐	☐	☒	☐
b. Possible interference with an emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
c. The creation of any health hazard or potential health hazard?	☐	☐	☒	☐
d. Exposure of people to existing sources of potential health hazards?	☐	☐	☒	☐
e. Increased fire hazard in areas with flammable brush, grass, or trees?	☐	☒	☐	☐

Discussion

- a) During project construction, oil, diesel fuel, gasoline, hydraulic fluid, and other liquid hazardous materials would be used at the site. If spilled, these substances could pose a risk to the environment and to human health. In the event of a spill, the City of Chico Fire Department, Fire Prevention Bureau is responsible to respond to non-emergency hazardous materials reports. The Butte County Hazardous Materials Response Team is also available to respond to larger scale hazardous materials spills. The use, handling, and storage of hazardous materials is highly regulated by both the Federal Occupational Safety and Health Administration (Fed/OSHA) and the California Occupational Safety and Health Administration (Cal/OSHA). Cal/OSHA is responsible for developing and enforcing work place safety regulations. Both federal and state laws include special provisions/training for safe methods for handling any type of hazardous substance. The City must implement and comply with existing federal and state regulations.

Uses allowed in the residential and commercial portions of the project site are not associated with substantial use, storage, or transportation of hazardous substances. Development of the site is not anticipated to increase the risk of explosion or the release of hazardous substances. Because the construction contractor is required to comply with existing regulations, the risk of accidental explosion or release of any hazardous substances is considered a *less-than-significant impact*, and will not be further analyzed in the EIR.

- b) There are currently no public roadways on-site. Access to the site is available from Highway 32, Bruce Road, and Humboldt Road. During construction, area roads would remain open and accessible in accordance with a Construction Traffic Management Plan required by Caltrans to be prepared by the project applicant. Any traffic restrictions would be coordinated with local law enforcement, fire department, and emergency response providers. Project operations would not result in any decrease in emergency access to the site, nor affect emergency access or evacuation plans for the surrounding areas because development of the site does not involve changing or altering an existing evacuation route. Therefore, the impact is considered *less than significant* and will not be further addressed in the EIR.
- c) Development of the project would result in residential and commercial uses. The project does not include the creation of hazardous or potentially hazardous uses other than those used in households and commercial businesses. During construction activities, hazardous materials such as fuels and solvents would be used. Any hazardous wastes generated during project construction or operation would be disposed of according to the City's Household Hazardous Waste Element and state and federal regulations. Because hazardous wastes are regulated by City, state, and federal requirements for the storage, transportation and disposal, any potential impacts would be *less than significant*. This issue will not be further addressed in the EIR.

- d) There are three existing sources of potential health hazards on the site or within proximity to the site. The former dump site, the 230 kV transmission lines that bisect the project site and the adjacent 500 kV transmission lines that run parallel to the eastern side of the site.

Humboldt Road Burn Dump

The Humboldt Road Burn Dump (HRBD) site is located adjacent to and encompasses a portion of the proposed project site. The HRBD site occupies approximately 150 acres generally bounded by Dead Horse Slough to the north and Humboldt Road and Stilson Canyon Road on the south, with portions of the dump site extending 700 feet west of Bruce Road to 4,000 feet east of Bruce Road. Of the area from Bruce Road eastward, approximately 10 acres are within the proposed project site.

The HRBD site was used as the City dump for household and commercial wastes from the early 1890s until the mid-1960s. The City dump site was a 10-acre parcel located along Humboldt Road (adjacent to the proposed project site). The private dumps were also established and operated on adjacent properties including portions of the project site. The method of disposal operations at the HRBD site was to dump, burn, and then level the refuse. The site was closed in 1965 and the site was covered with an indeterminate amount of soil.³

According to the Draft Environmental Impact Report (SCH #97062073, September 1997) that was prepared for the remediation and restoration of the site, the primary contaminant of concern is inorganic lead found scattered throughout the site. Remediation plans include grading the entire 157-acre dump area adjacent to the original 10-acre dump site and consolidating all the soil and waste materials on approximately 20 acres east of Bruce Road. This 20-acre area would be capped to minimize the infiltration of water and erosion of waste material. This site is designated for a non-irrigated passive recreation park. The remaining 137 acres would be remediated through the removal of contaminated soil. Once remediated, the site is designated for residential housing and commercial use.

According to the Draft EIR, contaminated waste is not expected to adversely affect groundwater resources due to the limited mobility of the hazardous materials and the cemented quality of the geologic formations (Tuscan formation) that exist beneath the project site. Water samples taken from groundwater monitoring wells indicate that no hazardous constituents of the dump site have migrated into the underlying groundwater table.

Because the contaminated areas of the project site would be fully remediated prior to construction of the proposed project, and there are no known health hazards linked to development of the proposed project, the impact is considered *less than significant* and will not be further evaluated in the EIR.

Electromagnetic Fields

Since the early 1970s, the public has become increasingly aware of potential health hazards associated with long-term exposure to electromagnetic fields (EMF) generated by electrical transmission lines. Although some preliminary studies have raised the possibility of hormonal and nerve system changes in living things exposed to EMFs, whether these changes pose potential health risks to humans is unclear. Suspected health risks include the promotion of cancer, birth defects, other reproductive and developmental abnormalities, and various neurological effects, such as chronic depression. Some studies have found a statistical correlation between EMFs and health effects, while others have not. Furthermore, correlation is not necessarily causation, and no causal relationship between EMFs and health effects has been established.⁴

In California, research to evaluate potential health effects was funded under SB 2519, Chapter 1551, Statutes of 1988. Under this bill, the California Public Utilities Commission (CPUC) and the State Department of Health Services (DHS) were to conduct a study of any risks that could be related to exposure to electric and magnetic fields produced by electric utilities facilities. The first phase of the study consisted of a review of the existing literature. As of March 1992, a report to the legislature recommended no regulation of electric and magnetic fields. A second report recommended additional research to identify health effects and a statewide exposure assessment program. The California Energy Commission (CEC) published a staff report summarizing health effects studies from high-voltage transmission lines in July 1992. Based on the CEC's evaluation of these studies, the research results remain inconclusive. In 1993 the Public Utilities Commission (PUC) issued its EMF policy. The PUC also concluded that studies did not show a relationship between EMFs and health effects. The CEC has not established regulatory limits on the allowable strength of electric and magnetic fields from high-voltage transmission lines. Instead, they require utilities to adopt no- and low-cost measures to avoid increasing EMF exposure when economically feasible.⁵ The City of Chico has not established specific setback or buffer requirements; however, General Plan Policy S-G-10 requires the City protect residents from potential dangers associated with electric and magnetic fields.

A 50-foot landscaped setback is provided along the 230 kV lines while a 200-foot landscaped setback is provided along the eastern boundary of the project site adjacent to the 500 kV lines. Because there is no evidence to link EMF to health hazards and the proposed project provides buffers between residential uses and the electrical lines, this impact is considered *less than significant* and this issue will not be further evaluated in the EIR.

- e) The project site is located within the foothills of the Cascade Mountain Range. Development in this dry foothill area would increase the potential for fire hazards. The General Plan requires development in this area incorporate wildland fire provisions specified by Policy S-I-13. The City has not yet developed these standards; therefore, this impact is considered *potentially significant unless mitigation is incorporated*.

Implementation of the following mitigation measures would reduce this impact to a *less-than-significant level*. This issue will not be further addressed in the EIR. As a matter of uniform Citywide land-use policy, the City of Chico will require compliance with the following mitigation:

Mitigation Measure 1

- (a) *Prior to final map approval, the project applicant shall consult with the Chico Fire Department and prepare a wildland fire safety plan that includes standards for development, including use of fire-resistant building and roofing materials, fire resistant buffers around all structures, and fire-resistant landscaping.*
- (b) *Prior to recordation of a final map/final discretionary permit approval, a twenty-foot fire break/non-combustible landscape easement shall be incorporated into the project design in areas directly adjacent to wildland fire areas. The landscape plantings and location of the easement shall be referred to the Chico Fire Department for their recommendations and shall be subject to approval by the City Planning Director.*

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
10. NOISE.				
<i>Would the proposal result in:</i>				
a. Increases in existing noise levels?				
Short-term	☐	☐	☒	☐
Long-term	☒	☐	☐	☐
b. Exposure of people to severe noise levels?				
Short-term	☐	☐	☒	☐
Long-term	☒	☐	☐	☐

Discussion

a-b) Short-Term

The Chico General Plan recommends noise levels of 60 dB or less for single-family residential areas. Anything in the range of 70-75 dB is considered unacceptable. For multi-family residential uses, the acceptable range is 65 dB.

In addition to vehicle traffic generating an increase in noise levels, high voltage transmission lines generate noise due to discharges in the air around the conductors called a "corona." The noise associated with the corona is more pronounced in wet weather. The corona represents

a loss of energy; therefore, efforts are made to control it through transmission line design. Based on information provided by the Western Area Power Authority (WAPA) and compiled by Peter Klaveness & Associates, noise levels were calculated for the existing WAPA 230 kV transmission line that bisects the project site. The highest median noise level immediately below the line was approximately 43 dBA, at a distance of 70 feet the estimated noise level drops to approximately 37 dBA.⁶ The 500 kV transmission lines generated noise levels below 36 dBA on clear days. Maximum foul weather noise levels were estimated to be 56-57 dBA below the lines and are expected to be audible for a distance of more than 1,000 feet from the right-of-way. Because the transmission lines would generate noise levels below City standards, this is considered to be a *less-than-significant impact*.

Construction activities would temporarily increase noise levels in the vicinity of the project site. These activities could disturb residents in nearby homes. Earthmoving, materials handling, stationary, and impact equipment and vehicles would generate noise during site clearing, excavation, grading, and roadway construction. Construction vehicle traffic traveling to the project site would also generate an increase in short-term noise levels. It is anticipated that construction traffic would access the site from either Highway 32 or Humboldt Road.

Increased noise levels experienced at residences could be due to several pieces of different kinds of construction equipment. Since the number, type and location of each kind of equipment that would be used is not known, it is not possible to accurately predict the noise level at nearby residences. However, all construction contractors would be required to conform to the City's Noise Control Ordinance which limits construction activities to between the hours of 7:00 a.m. and 9:00 p.m., Monday through Saturday, and from 10:00 a.m. to 6:00 p.m. on Sundays and holidays. Additionally, the construction noise shall not exceed 83 dBA at a distance of 25 feet from the noise source, or 86 dBA from any point off-site. It is not anticipated that blasting would be necessary for this project; therefore, there would be no short-term exposure to severe noise levels. Due to the distance from the site to the closest receptor it is unlikely that any severe construction-related noise would affect the surrounding area. Compliance with the City's noise ordinance would reduce potential short-term noise impacts to a *less-than-significant level*.

Long-Term

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the state have established ordinances and standards to control noise. The California Department of Health Services' (DHS) Office of Noise Control has studied the correlation of noise levels and their effects on different land uses. As a result, the DHS has established four categories for judging the severity of noise intrusion on specified land uses. These categories are represented in Table 9-1, Land Use Compatibility for Community Noise Environments on page 9-3 of the General Plan. Noise in the "normally acceptable" category places no undue burden on affected receptors and would need no mitigation. As noise rises into the

"conditionally acceptable" range, some mitigation of exposure, as established by an acoustic study, would be warranted. At the next level, noise intrusion is so severe that it is classified "normally unacceptable" and would require extraordinary noise reduction measures to avoid disruption. Finally, noise in the "clearly unacceptable" category is so severe that it can not be mitigated.

Title 24 of the California Administrative Code⁷ establishes standards governing interior noise levels that apply to all new multifamily residential units in California. These standards require that acoustical studies be performed prior to construction at building locations where the existing L_{dn} exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that would limit maximum L_{dn} noise levels to 45 dBA in any inhabitable room. Although there are generally applicable interior noise standards pertinent to all uses, many communities in California have adopted an L_{dn} of 45 as an upper limit on interior noise in all residential units. The U.S. Department of Housing and Urban Development (HUD) has set an L_{dn} of 45 as its goal for interior noise in residential units built with HUD funding. Standard residential construction for single family units typically attenuates noise by 20 decibels; therefore, the exterior L_{dn} should not exceed 65 in order for the California interior standards to be met.

The project site is exposed to noise from traffic on Highway 32, Humboldt Road and Bruce Road. Highway 32 and Bruce Road receive the majority of traffic. Humboldt Road receives very little traffic. Highway 32 and Bruce Road are two-lane roadways. Noise levels measured on February 8, 1995, on the project site approximately 50-feet from the roadway centerline of Highway 32 resulted in noise levels of 67 L_{dn} . Bruce Road levels were slightly lower at 65 L_{dn} .⁸ The noise levels were calculated in terms of the day-night sound level (L_{dn}), a 24-hour average which is calculated by adding 10 dB to nighttime (10:00 pm to 7:00 am) noise levels to account for the greater sensitivity to noise at night. The proposed project would develop noise-sensitive uses (e.g., residential) in proximity to these roadways. Traffic noise associated with the project is considered a *potentially significant impact* and will be further analyzed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
11. PUBLIC SERVICES.				
<i>Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:</i>				
a. Fire protection?	☐	☐	☒	☐
b. Police protection?	☐	☐	☒	☐
c. Schools?	☐	☐	☒	☐

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
d. Maintenance of public facilities, including roads?	☐	☐	☒	☐
e. Other governmental services?	☐	☐	☒	☐

Discussion

- a) The project site is currently within the jurisdiction of the Chico Fire Department (CFD) which operates four fire stations in the city and has plans to add three more stations. The closest station to the project site is station No. 4 located at 2405 Notre Dame Boulevard, approximately 1.75 miles from the site. A new station is planned at Manzanita and Wildwood Avenues, approximately 1.5 miles from the project site. The CFD does not have an adopted staffing ratio per 1,000 people, but has maintained a goal of 1.5/1,000. The City's Insurance Services Office (ISO) rating is 2 on a scale of 1 to 10 (with 1 being the best). The CFD estimates they have a response time of four minutes to 90 percent of the City. The CFD has a mutual aid agreement with the Butte County Fire Department (BCFD) to also provide fire protection services to the city. The BCFD currently maintains four stations with a new station planned in west Chico. The BCFD reports there is a County fire station within seven minutes of any incorporated location in the Chico urban area.⁹

The proposed project would result in the need for additional fire services over that which currently exists. Based on the estimated population of approximately 700 new residents for the 43-acre subdivision, the addition of less than one full-time fire fighter would be required to serve this portion of the project. The Conceptual Master Plan total of approximately 3,100 new residents would require a total of 4.5 full-time fire personnel. This demand would be funded through taxes and other standard City financing mechanisms. In addition, General Plan Policy PP-G-18 requires that new development pay its fair share toward maintaining public service and facilities service levels.

The General Plan performance standard for fire protection is that new development should be within a 4-minute response time (see page 4.13-4 of the General Plan Draft EIR). If a new project is within 1.5 miles of a station, it is assumed to meet the response time standard.

Because financing mechanisms are in place to address increased fire protection services, and the project site is within 1.5 miles of a planned fire station, the impact on fire protection services is considered *less than significant*.

- b) The Chico Police Department (CPD) would provide law enforcement services to the project site. The CPD maintains one main police station located at 1460 Humboldt Road. The station is approximately two miles from the project site. The CPD currently employs 72 sworn officers and averages five to six minutes response time. The CPD guidelines require

1.5 sworn officers per 1,000 residents. Based on the estimated population of 700 new residents for the 43-acre subdivision portion of the project less than one new officer would be required. A total of 4.5 new officers would be required to serve the full project. As with fire protection services, this new demand would be addressed through existing financing processes. The proposed project meets the General Plan performance standard for law enforcement because it is within the current service area (see page 4.13-4 of the General Plan Draft EIR). Because the project site is within the Police Department's service area, and funding mechanisms are in place to address increased demand for law enforcement, this impact is considered *less than significant*.

- c) The project site is located within the Chico Unified School District (CUSD) and would be served by CUSD elementary, intermediate and secondary schools. According to the CUSD, as of September 5, 1997, enrollment for Little Chico Elementary School (K-6) is 701 students with a maximum school capacity of 925 students, Chico Junior High School (7-8) has 1,145 students with a maximum school capacity of 1,261 students, and Chico Senior High School (9-12) has 1,745 students with a maximum school capacity of 1,929 students.

The Chico Unified School District has certain policies that pertain to the development of new schools. They include participation in the State's Class Size Reduction (CSR) requirements for grades K-3, maintaining an average class size of 28.5 students per classroom for grades 4-6, and 34.0 students per classroom for grades 7-12. The emphasis is on maintaining "neighborhood elementary schools." New elementary school sites should contain approximately 12 usable acres of land and student enrollment should not exceed approximately 750 students.¹⁰ The cost of accommodating additional students generated by this project will be offset by the payment of school impact fees to the fullest extent possible, as required and allowed by the California School Facilities Act. Therefore, impacts on schools are considered *less than significant*. This impact will not be further analyzed in the EIR.

- d-e) The project would contribute its "fair share" of taxes (e.g., property, sales) to the City's General Fund which are used as part of the City's operating budget to pay for the maintenance of public facilities, including road improvements and other governmental services. Therefore, the project would have a *less-than-significant impact* on the maintenance of public facilities, and this issue will not be further analyzed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
12. UTILITIES AND SERVICE SYSTEMS. <i>Would the proposal result in a need for new systems or supplies, or substantial alternations to the following utilities:</i>				
a. Power or natural gas?	☐	☐	☒	☐
b. Communications systems?	☐	☐	☒	☐
c. Local or regional water treatment or distribution facilities?	☒	☐	☐	☐
d. Sewer or septic tanks?	☐	☐	☒	☐
e. Storm water drainage?	☒	☐	☐	☐
f. Solid waste disposal?	☒	☐	☐	☐
g. Local or regional water supplies?	☒	☐	☐	☐

Discussion

- a) According to the City of Chico General Plan, PG&E provides natural gas and electric services to the Planning Area, of which the proposed project site is a part. The load planning and forecasting conducted by PG&E estimates the demand for natural gas and electric service under the General Plan would be adequately serviced.¹¹ As development of this project was considered under the General Plan, impacts on power or natural gas are considered to be *less than significant*.
- b) According to the Master Environmental Assessment (MEA) for the Chico General Plan, the Planning Area, of which the proposed project site is a part, is served by Pacific Bell's Chico Exchange, which will be able to serve new development. Chambers Cable provides cable television service to the Planning Area, of which the proposed project is a part. According to the MEA, Chambers Cable would be able to provide service to new development in the Planning Area. Therefore, impacts on communications systems are considered to be *less than significant*.
- c,g) Cal Water is the sole water service agency for the Chico Planning Area. Groundwater is the source of the approximately 7.6 billion gallons of water supplied to the Chico area annually. The groundwater is obtained from 60 wells, approximately 600 feet deep. A new well is required for every 300 to 500 new customers.¹² The project may require water storage tanks, a pump station, and a well. The City of Chico General Plan EIR found that the basin groundwater is in balance, although withdrawals are slowly outpacing groundwater recharge. The proposed project would increase demand for domestic water. This impact is considered *potentially significant*. This issue will be further addressed in the EIR.

- d) The proposed project site is within the boundaries of the Southeast Chico Sewer Assessment District. A sanitary sewer trunk line has been extended to the site with its eastern terminus on the project site. Sanitary sewer main lines and laterals would be constructed to serve the proposed development. These mains and laterals would be designed to reduce the number of crossings of Dead Horse Slough. The Chico Water Pollution Control Plant (WPCP) provides secondary treatment and ultimately discharges treated effluent into the Sacramento River. The WPCP serves development both within and beyond the City limits, including the proposed project site. The WPCP has an existing capacity of 6 mgd, and operates with current average flows of approximately 5.5 mgd. A population of approximately 55,000 is currently served by the WPCP. The WPCP's ultimate design capacity is 16 mgd, which could serve a future population of 160,000. Currently, the plant is undergoing expansion to a 9 MGD capacity.

Development of this site was considered under the City of Chico General Plan; therefore, the population and resultant sewage increase has already been accounted for under the General Plan. As sewer trunk lines are already provided to the site, no off-site sewer construction would occur as a result of the proposed project. With development of the site considered under the General Plan, the WPCP's current expansion, and existing trunk line infrastructure on-site, impacts related to sewer service are considered to be *less than significant*.

- e) Please see the discussions under Items 4(a), (b) and (d). This impact is considered *potentially significant* and will be further evaluated in the EIR.
- f) According to the MEA, all solid waste generated in the Planning Area is disposed of at the Neal Road Landfill. The 101-acre landfill is owned by Butte County and operated by the Neal Road Landfill Company. The landfill has a capacity of approximately 8.5 to 9.0 million cubic yards of solid waste. It is anticipated that the landfill will reach capacity by year 2010. An increase in residential and limited commercial uses resulting from implementation of the proposed project would not affect the capacity of the landfill until after the year 2010.

Assembly Bill 939 requires that 50 percent of solid waste be diverted from landfills by the year 2000. In 1993, a City ordinance (Chico Municipal Code 5.16.085) was passed that requires mandatory curbside recycling of cans, paper, glass, and other materials. The present recycling rate for the City is estimated to be 23 to 24 percent.

The proposed project would generate a total population increase of approximately 3,100 residents. Using a generation rate of 3 pounds per person per day, an increase of 1,700 tons of solid waste per year over existing conditions would result. With mandatory recycling this amount could be reduced by 50 percent to 800 tons per year. Because the project would contribute to the landfill, which will reach capacity in 2010, the impact is considered *potentially significant* and will be further evaluated in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
13. AESTHETICS.				
<i>Would the proposal:</i>				
a. Affect a scenic vista or scenic highway?	☒	☐	☐	☐
b. Have a demonstrable negative aesthetic effect?	☒	☐	☐	☐
c. Create light or glare?	☒	☐	☐	☐

Discussion

- a) City of Chico General Plan Policy CD-I-2 directs the establishment of appropriate sections of State Route 32 for a scenic route. The design of the proposed project indicates a 60-foot setback from State Route 32. However, the proposed project could affect the scenic nature of State Route 32 by converting a currently vacant area characterized as a foothill region with native vegetation to residential and commercial uses. This is considered to be a *potentially significant impact* and will be addressed in the EIR.
- b) The transformation of the proposed project site from rural open space to a predominantly residential development with some commercial uses is considered a significant change in the visual character of the site. The current visual character of the project site is dominated by open, rolling grasslands, trees and riparian shrubs, and historic features, such as a rock wall. The site is visible from several viewpoints, some well-traveled, such as parts of State Route 32. The proposed project would substantially and permanently alter the visual character of the area by introducing an extensive roadway network, houses, commercial uses, and other urban facilities into an undeveloped area. Because new development, unless suitably mitigated, could create a demonstrable negative aesthetic effect relative to existing conditions, this is considered a *potentially significant impact* and will be further examined in the EIR.

Development under the proposed project is subject to General Plan policies LU-I-43, which requires standards for foothill development; LU-I-44, which encourages clustered development to preserve views; and LU-I-45, which encourages new development to not extend east of the project site beyond the 500 kV lines to preserve views and sensitive habitat. CD-G-55 requires integration of special features, such as creeks and rock walls, into new residential development. The EIR will evaluate the proposed project's consistency with these General Plan goals and policies.

- c) Development of the proposed project with night lighting could increase glare. New residential and commercial development would require lights in parking areas and in and around buildings for both safety and convenience. The introduction of artificial light into a rural area would contribute to the change in the area's visual character. In addition, lighting can be a nuisance if it spills into backyards or homes, as it can interfere with sleeping and

other residential activities. Glare is caused by light reflections from pavement, vehicles and building materials such as reflective glass and polished surfaces. During daylight hours, the amount of existing glare depends upon the intensity and direction of sunlight; at night, artificial lighting can create glare. Impacts due to lighting and glare are considered to be *potentially significant* and will be discussed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
14. CULTURAL RESOURCES.				
<i>Would the proposal:</i>				
a. Disturb paleontological resources?	☐	☒	☐	☐
b. Disturb archaeological resources?	☐	☒	☐	☐
c. Affect historical resources?	☐	☐	☒	☐
d. Have the potential to cause a physical change which would affect unique ethnic cultural values?	☐	☐	☐	☒
e. Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☐	☒

Discussion

- a,b) An archaeological evaluation was prepared by Jensen & Associates on August 31, 1995. This report identified three sites as having the potential to be significant archaeological sites as defined by CEQA.

Excavation at Site CPS-1 resulted in the recovery of 201 cultural objects from the site's surface. All the items represent lithic (stone) tools, cores, and debitage (waste flakes), primarily of basalt. This site does not appear to have been visited and used for habitation or directly related domestic activities. Rather, the lithic assemblage represents a tool kit which was manufactured on site presumably for the purpose of extracting and initially processing a variety of seasonally available resources at this location. According to the 1995 Jensen report, useful data concerning local and regional prehistory have been recovered. Additional data recovery is not likely to add to this base of knowledge. Therefore, under CEQA regulations, data recovery completed to date is sufficient mitigation of potential effects that could occur due to implementation of the proposed project.

Excavation at Site CPS-2 failed to identify any evidence of a subsurface cultural component. Only limited basalt waste flakes were documented for the surface. According to the 1995 Jensen report, the site is no longer considered potentially significant according to CEQA criteria. No further research, preservation, or other treatment is warranted and none is recommended for this site.

Site CPS 3 was surveyed, and is described as being circular and comprised of a dark gray "midden" associated with a surface scatter of lithic material distributed over an area extending 18 meters north-south by 18.5 meters east-west. Several small depressions were observed that could represent silted house pit depressions. This site would be preserved *in situ* (in place), with a buffer of 25 feet around the defined site boundary. "Capping" of this site, or other provisions, are not required to ensure intact preservation. However, if access to this site is allowed, the potential for vandalism and destruction would increase and the site could be irreparably disturbed. This is considered a *potentially significant impact unless mitigation is incorporated*.

Implementation of the following mitigation would reduce this impact to a *less-than-significant level*. This issue will not be further addressed in the EIR.

Mitigation Measure 2

Prior to the filing for record of any subsequent maps, the applicant shall provide verification by a qualified archaeologist that site CPS 3, as identified in the Jensen & Associates survey dated November 29, 1994, has been dedicated as an archaeological preserve. The dedicated areas shall be contiguous with other open space portions of the site to avoid easy identification and potential vandalism of the sites.

Given the cultural sensitivity of the project area, it is possible that cultural resources could be present below the current surface of the soil. As with any surface inspection, there is always a remote possibility that previous activities (both natural and cultural) have obscured prehistoric or historic period artifacts or habitation areas, leaving no surface evidence to identify the resources. Construction activities could damage or destroy subsurface cultural resources. This is considered to be a *potentially significant impact unless mitigation is incorporated*.

Implementation of the following mitigation measure would reduce this impact to a *less-than-significant level*. This issue will not be further addressed in the EIR.

Mitigation Measure 3

The project applicant shall inform the contractor(s) selected for the project of the potential presence of subsurface artifacts or human remain, including artifacts or non-native stone (obsidian, fine-grained silicates, basalt), unusual amounts of bone or shell, areas that contain dark-colored sediment that do not appear to have been created through natural processes. In the event of the discovery of any buried archeological or paleontological deposits, construction activities in the vicinity of the find shall be temporarily halted. The City of Chico Community Development Department shall be immediately notified and a qualified archeologist shall be consulted to assess the resource and provide proper management recommendations. Possible management recommendations for important resources could include resource avoidance or data recovery excavations. In addition,

pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, if any bone is discovered that appears to be human, the Butte County Coroner shall be notified. In the event the bone most likely represents a Native American internment, the Native American Heritage Commission shall be notified so the most likely descendants can be identified.

- c) The historic Humboldt Road is located adjacent to the south side of the project site. This roadway has been partially realigned over the years, and paved. The historic dirt trace is not visible or evident anywhere within or adjacent to the project site, as realignment and paving have required significant widening and flattening of the original roadway. Therefore, the proposed project would not affect the historic attributes or qualities of this site.

Other historic resources include a landfill and a rock wall. The historic landfill of the City of Chico is located on a separate parcel adjacent to the southwest corner of the project site. The rock wall is located near the northwestern corner of the project area. The wall extends approximately 200 meters north-south, with one east-west lateral located near the primary wall's south end. Average height of the wall is 1.2 meters, while average width is 1.1 meters. Significant modifications have been made to the feature including restacking collapsed sections, addition of modern materials including 55 gallon steel drums on top of and within portions of the wall, and other post-construction modifications. The feature has been so extensively modified that it retains few of its original historic attributes, and is not considered a significant historic property. The rock wall does have value as a design element, as discussed under Item 13(b).

As Humboldt Road, the landfill, and the rock wall are not considered to be historically significant, implementation of the proposed project would create a *less-than-significant impact*.

- d,e) The proposed project consists of a residential and limited commercial development in a currently undeveloped site which is not linked to any unique ethnic cultural values. Also, no existing religious or sacred uses are located within the project site. Therefore, *no impact* would occur.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
15. RECREATION.				
<i>Would the proposal:</i>				
a. Increase the demand for neighborhood or regional parks or other recreational facilities?	☐	☒	☐	☐
b. Affect existing recreational opportunities?	☐	☐	☐	☒

Discussion

- a) The project site is located adjacent to a future city neighborhood park, as depicted on Figure 5-1, Existing and Proposed Parks and Schools, on page 5-9 of the General Plan. The General Plan requires a minimum of 5 acres of neighborhood, community, and creekside/linear parks per 1,000 residents. The proposed project would generate the addition of approximately 700 new residents for the 43-acre subdivision portion of the project and 3,100 new residents for the Conceptual Master Plan portion of the site, which would increase the demand for parks and other recreational facilities by 3.5 and 15.5 acres respectively. The proposed project includes a total of approximately 87.5 acres designated for undeveloped open space and 11.7 acres of open space on the burn dump site. It is not known at this time how much, if any, of this open space would be considered public park. Therefore, this impact is considered *potentially significant unless mitigation is incorporated*.

Implementation of the following mitigation measure would reduce this impact to a *less-than-significant level*. As a matter of uniform Citywide land-use policy, the City of Chico will require implementation of its parkland dedication policies by conditioning project approval on the following mitigation.

Mitigation Measure 4

The proposed project shall dedicate parkland equivalent to 3.5-acres for the 43-acre subdivision and a total of 15.5-acres for the full Conceptual Master Plan, or pay in lieu fees to the City for the parks requirement.

- b) Because the project would include adequate parks and recreational facilities it is not anticipated to adversely affect existing recreational opportunities. Therefore, *no impact* would occur. This issue will not be addressed in the EIR.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
16. MANDATORY FINDINGS OF SIGNIFICANCE.				
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than- Significant Impact	No Impact
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	☒	☐	☐	☐
c. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐
a) As previously discussed, impacts on biological resources could potentially occur within the project site and will be further evaluated in the EIR.				
b) The proposed project is consistent with the City of Chico General Plan and the growth that was analyzed in the General Plan EIR. As part of the City's overall planning effort, the proposed project would not have an adverse effect on the City's long-term environmental goals, so no impact would occur. However, the growth-inducing effects of the project will be addressed in the EIR. In addition, impacts on biological resources, air quality, noise, and aesthetics will be further evaluated in the EIR.				
c) The proposed project would provide for residential and limited employment growth which, in combination with other projects in the City, could create potentially significant cumulative impacts. Cumulative impacts will be addressed in the appropriate sections of the EIR.				
d) As stated above, the proposed project could contribute to an increase in air emissions and noise levels. This is considered a potentially significant impact and will be addressed in the appropriate sections of the EIR.				

IV. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below potentially would be affected by this project.

- | | |
|--|---|
| ☒ Land Use and Planning | ☐ Hazards |
| ☐ Population and Housing | ☒ Noise |
| ☐ Geological Problems | ☐ Public Services |
| ☒ Water | ☒ Utilities and Service Systems (Water,
Storm Drainage, Solid Waste) |
| ☒ Air Quality | ☒ Aesthetics |
| ☒ Transportation/Circulation | ☐ Cultural Resources |
| ☒ Biological Resources | ☐ Recreation |
| ☐ Energy and Mineral Resources | ☐ None Identified |

V. DETERMINATION

On the basis of this initial evaluation:

- ☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because the project-specific mitigation measures described in Section V have been added to the project. A NEGATIVE DECLARATION will be prepared.
- ☒ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.



Signature

Kim Seidler

Printed Name

March 27, 1998

Date

City of Chico - Community Planning Dept.

For

ENDNOTES

1. City of Chico, *Master Environmental Assessment*, pp. 10-15 through 10-19.
2. City of Chico, *City of Chico General Plan*, November, 1994, p. 8-2, 8-3.
3. City of Chico, *Humboldt Road Burn Dump Restoration Project*, Draft Environmental Impact Report (SCH#97062073), September, 1997.
4. Hileman, Bette, "Health Effects of Electromagnetic Fields Remain Unresolved," *Chemical and Engineering News*, November 8, 1993.
5. Merritt, R.E. and B.J. Schussman, "Fear of Cancer" EMF Litigation Squelched by Court of Appeal. In: *Environmental Monitor*, Spring 1995.
6. Ibid. p.6.
7. State of California, *Code of California Regulations (CCR)*, 1988. *California Noise Insulation Standards, California State Building Code (Part 2, Title 24, CCR), Appendix Chapter 35, Sound Transmission Control*.
8. Peter Klaveness & Associates, *California Park South Noise Study*, p. 4.
9. City of Chico, *Master Environmental Assessment*, p. 19-1.
10. Chico Unified School District, *Twenty-Year Student Housing Master Plan 1996/97 to 2015/16*. March 1996.
11. City of Chico, *City of Chico General Plan*, November, 1994, p. 7-37.
12. City of Chico, *City of Chico General Plan Draft Environmental Impact Report*, August 1994, p. 4.11-4.

APPENDIX B

COMMENTS ON THE NOP



**Butte
Environmental
Council**

Office

116 W. Second Street
Suite 3
Chico, CA 95928
916/891-6424
916/891-6426 Fax

Activities and Events

Environmental Education
Recycling Referrals
Environmental Advocacy
Endangered Species Faire
Bidwell Park Cleanups
Chico Area Creek Cleanups
Wetlands Preservation

Board of Directors

Zoe Barnett
Lynn Barris
Armeda Ferrini
Mark Galey
LaDawn Haws
Chuck Lundgren

General Manager

Barbara Vlamis

Office Manager

Events Coordinator
Mary Muchowski

April 27, 1998

Pam Figge
City of Chico
P.O. Box 3420
Chico, CA 95927



Dear Ms. Figge:

The Butte Environmental Council and the Yahi Group of the Sierra Club are submitting the following comments and questions concerning the NOP for the *Oak Valley Subdivision and Conceptual Master Plan Environmental Impact Report*.

It is acknowledged in the General Plan Environmental Impact Report (CGPEIR) and the Chico General Plan that the foothills of Chico are a valuable community asset.

The eastern foothill edge of the City is more visible than elsewhere. Development, if not properly sited and planned, could take away important views and vistas to the foothills (p. 4.2-3).

Policies proposed for foothill development recognize the unique hillside setting in which urbanization would occur. Policy CD-G-72 expresses the desire to maintain foothill quality to the extent feasible by blending development, respecting natural topography, and minimizing visual prominence of development in these areas (p.4.2-23).

1) With the value of the foothills clearly established in the above documents, will the following mitigation goals and implementation measures from the CGPEIR be applied to this project?

Impact 4.2-3

LU-G-4: Maintain long-term boundaries between urban and agricultural uses in the west, and urban uses and the hillside in the east, and limit expansion north and south to maintain compact urban form. The hillside is generally defined as the area where oak woodland habitat begins, approximately the 200-foot contour [actually begins at the 200- to 300-foot elevation] (see figure 7-1 in the open space and environmental conservation element)[of the general plan]. Multiple approaches to restrict urbanization outside the city's sphere of influence will be used, including large-lot-zoning and possibly acquisition of land for a greenbelt.

LU-I-42: Require residential development in Humboldt Road-foothills area to be clustered on the western portion of the site, and allow for transfer of development rights from the eastern portion of the site to protect the foothills viewshed and sensitive biological habitat.

LU-I-43: Ensure that development in the Humboldt Road-Foothills area is not intrusive and is in keeping with the natural character of the area. Development plans for the area should ensure that:

- Grading is kept to a minimum;
- Native vegetation at the site is preserved and that native plants are used for landscaping where feasible;
- Adequate provisions are made to minimize storm-water overflow and filtration of storm water prior to discharge;
- Perceived development intensity is minimized by locating development in low-visibility areas, keeping building heights low, and setting development away from state route 32;
- Low impact street standards are used;
- Wildland fire provisions, including sprinklers, fire breaks, and fire-resistant plants, are incorporated in the design, and
- Links to bicycle/pedestrian systems are established.

LU-I-46: Allow development in the area to be clustered and ensure that foothill views are protected. The site plan should respect the natural character of the site, consistent with policies and standards in the biological resources section of the open space and environmental conservation element.

CD-G-75: Discourage the development of highly visible or intrusive structures

CD-G-76: Limit the extent and amount of grading in foothill areas, and where grading occurs, emulate the contours of the natural slope.

CD-G-77: Consider view corridors and vistas in the design of parks and creekside greenways.

CD-I-27: Establish special design and development standards for building within the foothills.

CD-I-28: With incentives, encourage more clustered housing/open space projects for the east side.

CD-I-29: Require visual simulations of proposed development.

2) What will be the net discharge of storm water and urban runoff into Dead Horse Slough?

3) What is the City of Chico's funding commitment to provide acceptable level of service for traffic impacts from the proposed project?

4) What is the City of Chico's current policy for development review in Resource Management Areas?

5) When will the Storm Water Management Plan for the City of Chico be started and when is the expected completion date?

6) What is the project proponents contribution to the cleanup of the Humboldt Road Burn Dump? What is the

project proponents expected financial return on this project? Will the City Redevelopment Agency receive some of the expected financial gain from this project for the City's contribution to the Humboldt Road Burn Dump cleanup?

Thank you for the opportunity to provide comments and questions.

Sincerely,

B. Vlamis

Barbara Vlamis, General Manager
Butte Environmental Council

Betty Volker, Chair
Urban Growth Committee
P.O. Box 2012
Chico, CA 95927

April 27, 1988

City of Chico
Community Development Dept.
Pam Figge
411 Main Street, Second Floor
Chico, CA 95928



Re: Oak Valley Subdivision Project.

Dear Pam,

We are writing this letter to you regarding the Oak Valley Subdivision project. We are requesting;

1. That the development sight be more thoroughly tested for old abandoned dumps. We are concerned about toxins in the soil even after the top soil has been removed. We are requesting that the study's of the soil be included in the EIR.
2. We would like to request also for the safety of future landowners, that the developer and agents be required to disclose any and all findings before the sale of properties in writing.
3. We are also requesting a full study of the flooding rain waters and how you plan to deal with the run-off as we the residents of Stilson Canyon are well aware of the heavy run-off waters coming off the hillside. We would like this issue thoroughly discussed in the EIR. We would like to know where these flooding waters will be re-directed? Will they be directed into Dead Horse Slough or Little Chico Creek?
4. We would like to be notified when the final EIR on this project is available. We would also like to be informed of any and all developments regarding this land or any of the properties along Humboldt Road, Bruce Road, or Stilson Canyon Road.

Please call me if you have any information regarding this project.

Most Sincerely,

A handwritten signature in cursive script that reads "Ramona J. Weil".

Ramona J. Weil
Secretary for: Concerned Neighbors of Stilson Canyon
442 Stilson Canyon Rd.
Chico, CA 95928

(530) 891-3505 Ho. (530) 343-6087 Wk.

DEPARTMENT OF TRANSPORTATION

DISTRICT 3
P.O. BOX 911
MARYSVILLE, CA 95901
TDD Telephone (530) 741-4509
FAX (530) 741-5346
Telephone (530) 741-4539



April 23, 1998

JBUT046
Oak Valley Subdivision
Conceptual Master Plan
03-BUT-32 PM-12.4

Ms. Pam Figge
Consulting Senior Planner
City of Chico
Community Development Department
411 Main Street, Second Floor
Chico, CA 95928

Dear Ms. Figge:

We have reviewed the Notice of Preparation (NOP) for the Oak Valley Subdivision and Conceptual Master Plan Environmental Impact Report and have the following comments:

Comments:

State Route (SR) 32 is access controlled in the project vicinity. The Freeway Agreement identifies a single public road access point at Post Mile 12.4, located south and across SR 32 from existing Yosemite Avenue.

The provision of a fourth leg to this tee-intersection would require future signalization, which is not desirable due to the high speeds and the grade of the highway. In addition, safety concerns may result in denial of signalization for this intersection.

The relocation of an SR 32 access point 1,000 feet to the East, which may eliminate the need for signals on SR 32 east of Bruce Road, should be analyzed in an alternative circulation plan for the project. It is realized that access restrictions on SR 32 will require substantial alterations in the project design. The applicant and the City should meet with Caltrans staff prior to the redesign to discuss options. Please contact Tom Meyers at (530) 741-4004 to arrange this meeting.

A traffic study will be needed as part of the Draft Environmental Impact Report. The traffic study will need to examine all intersections between the proposed access to the Oak Valley Project and SR 99 and the capacity of SR 32 between those intersections as well as the SR 99/32 Interchange. The northbound on-ramp from SR 32 to SR 99 is of specific concern as is the merge movement using ramp merge/diverge analysis. The study should use LOS D for minimum acceptable service level for SR 32. Please contact Jim Brake at (530) 741-4363 if there are any questions concerning the traffic study.

Caltrans no longer has funding available for capacity increasing projects since the passage of SB 45. Such improvements are the responsibility of the developer and the City. Local share funds as provided by SB 45 could be utilized. Please contact BCAG for questions regarding local share funding under SB 45.

Ms. Pam Figge
April 23, 1998
Page 2

Please provide this office with a copy of the Draft Environmental Impact Report for our review and comment.

If you have any other questions, please contact Tom Meyers at (530) 741-4004.

Sincerely,



E. A. "LIB" HARAUGHTY, Chief
Office of Transportation Planning Rural

c: Jon Clark, BCAG



BUTTE COUNTY AIR QUALITY MANAGEMENT DISTRICT

2525 Dominic Drive, Suite J
Chico, California 95928

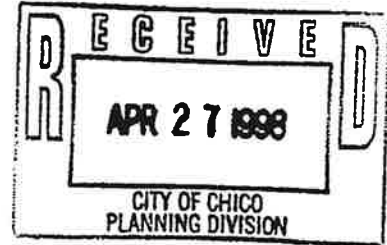
Tel: (530) 891-2882
Fax: (530) 891-2878

LAWRENCE D. ODLE
Air Pollution Control Officer

W. JAMES WAGONER
Asst. Air Pollution Control Officer

April 23, 1998

Pam Figge
City of Chico Community Development Department
411 Main Street, Second Floor
Chico, CA 95928



Re: Notice of Preparation for the Oak Valley Subdivision

Dear Ms. Figge:

The District has reviewed the request for comments for the proposed Oak Valley Subdivision and submits the following recommendations.

The District recommends utilizing the District's Indirect Source Review Guidelines as a tool to assess the air quality impacts from the proposed project. The mobile source emission impacts can be quantified using the computer model URBEMIS5. The air quality analysis should be determined for full build-out of the project impacts as identified in the Conceptual Master Plan.

The District will be pleased to review and provide comments during the draft environmental impact report analysis. Thank you for the opportunity to comment on the proposed project. If you have any questions or comments please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Gail Williams".

Gail Williams
Air Quality Planner

Chico Unified School District

Where
STUDENTS
are the
FIRST
Priority

April 8, 1998

Pam Figge
Consulting Senior Planner
City of Chico
Community Development Department
411 Main Street, Second Floor
Chico, CA 95928

Dear Ms. Figge:

I am responding to a copy of the Initial Study and Notice of Preparation for the Oak Valley Subdivision and Conceptual Master Plan Environmental Impact Report. A portion of the information contained in the **Issue 11, Public Services, Discussion C** section is incorrect. The following revisions and information should be included in the document:

Revision of Capacities and Enrollment Figures

1. The enrollment for Little Chico Creek Elementary School (K-6) is 659 students with a maximum school capacity of 701 students*. This change is due to the District's participation in the Class Size Reduction Program.
2. The maximum school capacity for Chico Junior High School (7-8) is 1252 students*.
3. The maximum school capacity for Chico Senior High School (9-12) is 1905 students*.

*This information will be reflected in the District's Twenty-Year Student Housing Master Plan 1998/99 to 2017/18 which is currently under development.

Revision of Impacts

Based upon District student generation rates, the Oak Valley proposed subdivision will generate the following additional school age children:

Phase 1 -- 300 residential units x .43 (District student yield factor) = 130 students

Master Plan -- 1324 residential units x .43 (District student yield factor) = 571 students

District capacities and growth projections based upon local births indicate an impact on District facilities.

Summary

The District requires that the impact of this project be mitigated to the fullest extent allowed by law. Recognition is given to the limitations on mitigation imposed by Mira, Hart, and Murietta. Should the law change or the project require any legislative approval, the District requires full mitigation.

Sincerely,



Michael Weissenborn, Manager
Facilities Planning Department

APPENDIX C

*DESCRIPTION OF INTERSECTION CAPACITY ANALYSIS
METHODOLOGIES*

DESCRIPTION OF SIGNALIZED INTERSECTION CAPACITY ANALYSIS 1994 HCM OPERATIONS METHOD

Background

The operations method of intersection capacity analysis found in Chapter 9, "Signalized Intersections," of the *Highway Capacity Manual, Special Report No. 209*, Transportation Research Board, 1994, was used for this analysis. This method is used in most analyses of existing conditions or for future situations in which traffic, geometric, and control parameters are well established by projections and trial designs.

This method addresses the capacity and level of service of intersection approaches, and the level of service of the intersection as a whole. In this method, capacity and level of service are evaluated separately, and are not related to each other in a simple one-to-one fashion. Capacity is evaluated in terms of the ratio of demand flow rate to capacity (volume-to-capacity ratio), while level of service is evaluated on the basis of average stopped delay per vehicle (seconds/vehicle).

The capacity of the intersection as a whole is not addressed by this method; the design and signalization of intersections focuses on the accommodation of the major movements and approaches comprising the intersection. Capacity is, therefore, only meaningful as applied to these major movements and approaches. Capacity analysis results in the computation of volume-to-capacity ratios for individual movements and a composite volume-to-capacity ratio for the sum of critical movements or lane groups within the intersection. The volume-to-capacity ratio is the actual or projected rate of flow on an approach or designated group of lanes during a peak 15-minute interval divided by the capacity of the approach or designated group of lanes.

Input Data

The input data necessary to use this methodology includes lane geometrics, traffic volumes, signal timing, vehicle type distribution, percent grade, pedestrians, peak hour factors, parking activity, and arrival type per approach.

Level of Service

Level of service is based on the average stopped delay per vehicle for various movements within the intersection. While volume-to-capacity affects delay, there are other parameters that more strongly affect it, such as the quality of progression, length of green phases, cycle lengths, and others. Thus for any given volume-to-capacity ratio, a range of delay values may result, and vice-versa. See the table "Level of Service Criteria for Signalized Intersections" for the relationship between the level of service and stopped delay per vehicle.

Because delay is a complex measure, its relationship to capacity is also complex. It is possible, for example, to have delays in the range of Level of Service F while the volume-to-capacity ratio is below 1.00, perhaps as low as 0.75-0.85. Very high delays can occur at such volume-to-capacity ratios when some combination of the following conditions exists: the cycle length is long; the lane group in question has a long red time; and/or the signal progression for the subject movement is poor.

The reverse is also possible. A saturated approach or lane group with a volume-to-capacity equal to 1.00 may have low delays if the cycle length is short, and/or the signal progression is favorable for the subject movement. Acceptable delay levels do not automatically ensure that capacity is sufficient. The analyst must consider the results of the capacity analysis module and the level of service module to obtain a complete picture of existing or projected intersection operations.

For example, if a left-turning vehicle on the major street and a through vehicle from the minor street are waiting to cross the major traffic stream, the first available gap of acceptable size would be taken by the left-turning vehicle. The minor street through vehicle must wait for the second available gap. In aggregate terms, a large number of such left-turning vehicles could use up so many of the available gaps that minor street through vehicles are severely impeded or unable to make safe crossing movements.

Level of Service

The level of service criteria is shown below. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position. Note that the level of service criteria for two-way stop-controlled intersections are different than for signalized intersections primarily because drivers expect different levels of performance from different kinds of transportation facilities. An unsignalized intersection is designed to carry less traffic and have shorter delays, hence the thresholds for a stop-controlled intersection are lower than for a signalized intersection.

LEVEL OF SERVICE CRITERIA FOR TWO-WAY STOP-CONTROLLED INTERSECTIONS

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 5
B	>5 and ≤ 10
C	>10 and ≤ 20
D	>20 and ≤ 30
E	>30 and ≤ 45
F	>45

Reference: *Highway Capacity Manual, Special Report No. 209*, Third Edition, Transportation Research Board, 1994

Using this same criteria, the average approach delay for all vehicles on a particular approach or for the intersection as a whole can be computed as the weighted average of the total delay estimates for each individual movement on the specific approach or for all approaches, respectively.

Estimation of Queue Lengths

Theoretical studies and empirical observations have demonstrated that the probability distribution function for queue lengths for any minor movement at an unsignalized intersection is a function of the capacity of the movement and the movement's degree of saturation. An estimate of the 95th percentile queue length for minor movements is provided in the calculations.

APPENDIX D

*INTERSECTION LEVEL OF SERVICE CALCULATIONS EXISTING
CONDITIONS*

A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)
Intersection #1 Bruce Road/Humbolt Road

Average Delay (sec/veh): 0.7 Worst Case Level of Service: B
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0

Volume Module:
Base Vol: 15 300 11 19 256 1 0 2 11 10 13 26
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Base: 15 300 11 19 256 1 0 2 11 10 13 26
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 15 300 11 19 256 1 0 2 11 10 13 26
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 15 300 11 19 256 1 0 2 11 10 13 26

Adjusted Volume Module:
Grade: 0% 0% 0% 0%
Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
PCE Adj: 1.10 1.00 1.00 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10
Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Adj Vol.: 17 300 11 21 256 1 0 2 12 11 14 29

Critical Gap Module:
MoveUp Time: 2.1 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Critical Gap: 5.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Capacity Module:
Conflict Vol: 257 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Potential Cap.: 1293 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Adj Cap: 1.00 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Move Cap.: 1293 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Level of Service Module:
Stopped Del: 2.6 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
LOS by Move: A A A A A A A A A A A A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shrd StpDel: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shared LOS: A A A A A A A A A A A A
ApproachDel: 0.1 0.2 4.1 5.6

Traffic 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)
Intersection #1 Bruce Road/Humbolt Road

Average Delay (sec/veh): 0.7 Worst Case Level of Service: B
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Uncontrolled Uncontrolled Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0

Volume Module:
Base Vol: 3 330 11 18 328 1 1 7 31 11 5 16
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Base: 3 330 11 18 328 1 1 7 31 11 5 16
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 3 330 11 18 328 1 1 7 31 11 5 16
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 3 330 11 18 328 1 1 7 31 11 5 16

Adjusted Volume Module:
Grade: 0% 0% 0% 0%
Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
PCE Adj: 1.10 1.00 1.00 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10
Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Adj Vol.: 3 330 11 20 328 1 1 8 34 12 6 18

Critical Gap Module:
MoveUp Time: 2.1 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Critical Gap: 5.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Capacity Module:
Conflict Vol: 329 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Potential Cap.: 1195 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Adj Cap: 1.00 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Move Cap.: 1195 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Level of Service Module:
Stopped Del: 3.0 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
LOS by Move: A A A A A A A A A A A A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shrd StpDel: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shared LOS: A A A A A A A A A A A A
ApproachDel: 0.0 0.2 4.8 6.5

Traffic 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Deer Creek Hwy/Yosemite Drive

Average Delay (sec/veh): 0.8 Worst Case Level of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Right: Include Include Include Include

Lanes: 0 0 0 0 1 0 0 1 1 0 0 0 0 0 1 0 1

Volume Module:

Base Vol: 0 0 0 0 72 25 78 0 0 269 2

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Adj: 0 0 0 0 72 25 78 0 0 269 2

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 0 0 72 25 78 0 0 269 2

Reduct Vol: 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 0 0 0 72 25 78 0 0 269 2

Adjusted Volume Module:

Grade: 0% 0% 0% 0%

% Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

% Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Tick/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 0 0 0 79 28 78 0 0 269 2

Critical Gap Module:

MoveUp Time: XXXX XXXX XXXX XXXX 2.6 2.1 XXXX XXXX XXXX XXXX

Critical Gap: XXXX XXXX XXXX XXXX 5.5 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX XXXX XXXX XXXX 269 271 XXXX XXXX XXXX XXXX

Potent Cap: XXXX XXXX XXXX XXXX 1012 1273 XXXX XXXX XXXX XXXX

Adj Cap: XXXX XXXX XXXX XXXX 1.00 1.00 XXXX XXXX XXXX XXXX

Move Cap: XXXX XXXX XXXX XXXX 1012 1273 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX XXXX XXXX XXXX 3.8 2.9 XXXX XXXX XXXX XXXX

LOS by Move: A A A A A A A A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Deer Creek Hwy/Yosemite Drive

Average Delay (sec/veh): 0.9 Worst Case Level of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Right: Include Include Include Include

Lanes: 0 0 0 0 1 0 0 1 1 0 0 0 0 0 1 0 1

Volume Module:

Base Vol: 0 0 0 0 46 86 201 0 0 104 1

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Adj: 0 0 0 0 46 86 201 0 0 104 1

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 0 0 46 86 201 0 0 104 1

Reduct Vol: 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 0 0 0 46 86 201 0 0 104 1

Adjusted Volume Module:

Grade: 0% 0% 0% 0%

% Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

% Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Tick/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 0 0 0 51 95 201 0 0 104 1

Critical Gap Module:

MoveUp Time: XXXX XXXX XXXX XXXX 2.6 2.1 XXXX XXXX XXXX XXXX

Critical Gap: XXXX XXXX XXXX XXXX 5.5 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX XXXX XXXX XXXX 104 105 XXXX XXXX XXXX XXXX

Potent Cap: XXXX XXXX XXXX XXXX 1226 1528 XXXX XXXX XXXX XXXX

Adj Cap: XXXX XXXX XXXX XXXX 1.00 1.00 XXXX XXXX XXXX XXXX

Move Cap: XXXX XXXX XXXX XXXX 1226 1528 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX XXXX XXXX XXXX 3.0 2.5 XXXX XXXX XXXX XXXX

LOS by Move: A A A A A A A A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Level of Service Computation Report											
1994 HCM Operations Method (Base Volume Alternative)											
Intersection #3 Deer Creek Hwy/Bruce Road											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.481								
Loss Time (sec):	0 (Y/R = 4 sec)	Average Delay (sec/veh):	18.0								
Optimal Cycle:	44	Level of Service:	C								
Approach: North Bound South Bound East Bound West Bound											
Movement: L T R L T R L T R L T R											
Control: Protected Protected Protected Protected											
Rights: Include Include Include Include											
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0											
Lanes: 1 0 0 1 0 1 0 1 0 1 0 1											
Volume Module:											
Base Vol:	137	209	32	12	208	255	156	69	34	42	247
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	137	209	32	12	208	255	156	69	34	42	247
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	137	209	32	12	208	255	156	69	34	42	247
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	137	209	32	12	208	255	156	69	34	42	247
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	137	209	32	12	208	255	156	69	34	42	247
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.98	0.98	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.97
Lanes:	1.00	0.87	0.13	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.17
Final Sat:	1805	1615	247	1805	1900	1615	1805	1900	1615	1805	1533
Capacity Analysis Module:											
Vol/Sat:	0.08	0.13	0.13	0.01	0.11	0.16	0.09	0.04	0.02	0.02	0.16
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.16	0.46	0.46	0.02	0.33	0.33	0.18	0.31	0.31	0.20	0.33
Volume/Cap:	0.48	0.28	0.28	0.28	0.33	0.48	0.48	0.12	0.07	0.12	0.48
Level of Service Module:											
Delay/Veh:	25.8	10.8	10.8	31.9	16.5	17.9	24.7	15.8	15.6	21.1	17.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.8	10.8	10.8	31.9	16.5	17.9	24.7	15.8	15.6	21.1	17.5
DesignQueue:	7	6	1	1	8	10	7	3	1	2	10

Level of Service Computation Report											
1994 HCM Operations Method (Base Volume Alternative)											
Intersection #3 Deer Creek Hwy/Bruce Road											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.426								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	15.6								
Optimal Cycle:	40	Level of Service:	C								
Approach:				North Bound	South Bound	East Bound	West Bound				
Movement:				L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:				Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected
Rights:				Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:				0	0	0	0	0	0	0	0
Lanes:				1	0	0	1	0	1	0	1
Volume Module:											
Base Vol:	68	274	58	32	211	181	295	202	124	26	108
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	68	274	58	32	211	181	295	202	124	26	108
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	68	274	58	32	211	181	295	202	124	26	108
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	68	274	58	32	211	181	295	202	124	26	108
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	68	274	58	32	211	181	295	202	124	26	108
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.97	0.97	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.98
Lanes:	1.00	0.83	0.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89
Final Sat.:	1805	1521	322	1805	1900	1615	1805	1900	1615	1805	1662
Capacity Analysis Module:											
Vol/Sat:	0.04	0.18	0.18	0.02	0.11	0.11	0.16	0.11	0.08	0.01	0.06
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.12	0.42	0.42	0.04	0.35	0.35	0.38	0.47	0.47	0.06	0.15
Volume/Cap:	0.32	0.43	0.43	0.43	0.32	0.32	0.43	0.23	0.16	0.23	0.43
Level of Service Module:											
Delay/Veh:	26.5	13.4	13.4	32.5	15.6	15.6	14.9	10.1	9.8	28.9	25.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	26.5	13.4	13.4	32.5	15.6	15.6	14.9	10.1	9.8	28.9	25.5
Design Queue:	3	9	2	2	8	7	11	6	4	1	5

AM Existing

Fri Nov 13, 1998 15:13:47

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A.M. Peak Hour - Existing Conditions

Oak Valley EIR
City of ChicoLevel of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 0.778
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 18.9
Optimal Cycle: 84 Level of Service: C

Approach:

L - T - R L - T - R L - T - R L - T - R

Movement:

L - T - R L - T - R L - T - R L - T - R

Control:

Permitted Include Protected Include Protected Include

Rights:

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes:

0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 323 50 48 6 53 126 34 208 189 102 556 11

Growth Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base:

323 50 48 6 53 126 34 208 189 102 556 11

User Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume:

323 50 48 6 53 126 34 208 189 102 556 11

Reduced Vol:

0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol:

323 50 48 6 53 126 34 208 189 102 556 11

PCF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PCF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol:

323 50 48 6 53 126 34 208 189 102 556 11

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/turn:

0.48 0.48 0.48 0.80 0.90 0.90 0.95 1.00 0.85 0.95 1.00 1.00

Lanes:

0.77 0.12 0.11 1.00 0.30 0.70 1.00 1.00 1.00 0.98 0.02

Final Sat.:

701 108 104 1520 506 1204 1805 1900 1615 1805 1863 37

Capacity Analysis Module:

Vol/Sat: 0.46 0.46 0.46 0.00 0.10 0.10 0.02 0.11 0.12 0.06 0.30 0.30

Crit Moves:

Green/Cycle: 0.59 0.59 0.59 0.59 0.59 0.59 0.02 0.27 0.27 0.13 0.38 0.38

Volume/Cap:

0.76 0.76 0.76 0.01 0.18 0.18 0.78 0.40 0.43 0.43 0.78 0.78

Level of Service Module:

Delay/Veh: 14.9 14.9 14.9 5.4 6.0 6.0 68.7 19.3 19.6 26.5 21.2 21.2

User Delay:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh:

14.9 14.9 14.9 5.4 6.0 6.0 68.7 19.3 19.6 26.5 21.2 21.2

DesignVeh:

8 1 1 0 1 3 2 9 8 5 21 0

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PM Existing

Fri Nov 13, 1998 15:11:52

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P.M. Peak Hour - Existing Conditions

Oak Valley EIR
City of ChicoLevel of Service Computation Report
1994 HCM Operations Method (Base Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 0.740
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 18.5
Optimal Cycle: 71 Level of Service: C

Approach:

L - T - R L - T - R L - T - R L - T - R

Movement:

L - T - R L - T - R L - T - R L - T - R

Control:

Permitted Include Protected Include Protected Include

Rights:

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes:

0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 318 78 110 6 62 48 87 501 367 70 276 9

Growth Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base:

318 78 110 6 62 48 87 501 367 70 276 9

User Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume:

318 78 110 6 62 48 87 501 367 70 276 9

Reduced Vol:

0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol:

318 78 110 6 62 48 87 501 367 70 276 9

PCF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PCF Adj:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol:

318 78 110 6 62 48 87 501 367 70 276 9

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/turn:

0.61 0.61 0.61 0.78 0.93 0.93 0.95 1.00 0.85 0.95 1.00 1.00

Lanes:

0.63 0.15 0.22 1.00 0.56 0.44 1.00 1.00 1.00 0.97 0.03

Final Sat.:

727 178 252 1482 996 771 1805 1900 1615 1805 1840 60

Capacity Analysis Module:

Vol/Sat: 0.44 0.44 0.44 0.00 0.06 0.06 0.05 0.26 0.23 0.04 0.15 0.15

Crit Moves:

Green/Cycle: 0.59 0.59 0.59 0.59 0.59 0.59 0.10 0.36 0.36 0.05 0.31 0.31

Volume/Cap:

0.74 0.74 0.74 0.01 0.11 0.11 0.48 0.74 0.64 0.74 0.48 0.48

Level of Service Module:

Delay/Veh: 12.6 12.6 12.6 5.4 5.8 5.8 29.2 21.2 19.0 47.1 18.6 18.6

User Delay:

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh:

12.6 12.6 12.6 5.4 5.8 5.8 29.2 21.2 19.0 47.1 18.6 18.6

DesignVeh:

8 2 3 0 1 1 4 19 4 11 0

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A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)
Intersection #5 East 8th Street/Fir Street

Average Delay (sec/veh): 7.6 Worst Case Level of Service: F

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 1 0 0 0 0 0 0 1 1 0 1

Volume Module: >> Count Date: 17 Oct 1997 <<
Base Vol.: 117 213 0 0 3 307 0 0 0 0 4 967 12
Growth Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Adj.: 117 213 0 0 3 307 0 0 0 0 4 967 12
User Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj.: 0.85 0.85 0.85 0.93 0.93 0.93 1.00 1.00 1.00 0.74 0.74 0.74
PHF Volume: 137 250 0 0 3 329 0 0 0 0 5 1303 16
Reduct Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 137 250 0 0 3 329 0 0 0 0 5 1303 16

Adjusted Volume Module:
Grade: 0%
Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX
PCE Adj.: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.00 1.00 1.00 1.00 1.00
Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX
Adj Vol.: 151 275 0 0 4 362 0 0 0 0 6 1303 16

Critical Gap Module:
MoveUp Time: 3.4 3.3 XXXX XXXX 3.3 2.6 XXXX XXXX XXXX 2.1 XXXX XXXX
Critical Gap: 4.0 3.5 XXXX XXXX 6.0 5.5 XXXX XXXX XXXX 5.0 XXXX XXXX

Capacity Module:
Conflict Vol.: 1310 1325 XXXX XXXX 1309 652 XXXX XXXX XXXX 0 XXXX XXXX
Potential Cap.: 458 552 XXXX XXXX 224 647 XXXX XXXX XXXX 1714 XXXX XXXX
Adj Cap.: 0.43 0.98 XXXX XXXX 0.98 1.00 XXXX XXXX XXXX 1.00 XXXX XXXX
Move Cap.: 198 544 XXXX XXXX 221 647 XXXX XXXX XXXX 1714 XXXX XXXX

Level of Service Module:
Stopped Del: 57.1 12.2 XXXX XXXX 16.5 11.3 XXXX XXXX XXXX 2.1 XXXX XXXX
LOS by Move: F C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: XXX XXX XXXX XXXX XXXX 636 XXX XXX XXXX XXX XXX XXXX
Shrd StpDel: XXX XXX XXXX XXX XXX XXX 11.3 XXX XXX XXXX XXX XXX XXXX
Shared LOS: C
ApproachDel: 28.2 11.3 0.0 0.0

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P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)
Intersection #5 East 8th Street/Fir Street

Average Delay (sec/veh): 5.7 Worst Case Level of Service: C

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign
Rights: Include Include Include Include
Lanes: 1 0 1 0 0 0 1 0 0 0 0 0 0 1 1 0 1

Volume Module: >> Count Date: 17 Oct 1997 <<
Base Vol.: 165 281 0 0 6 216 0 0 0 0 2 669 7
Growth Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Adj.: 165 281 0 0 6 216 0 0 0 0 2 669 7
User Adj.: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj.: 0.75 0.75 0.75 0.80 0.80 0.80 1.00 1.00 1.00 0.93 0.93 0.93
PHF Volume: 221 376 0 0 7 269 0 0 0 0 2 719 8
Reduct Vol.: 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol.: 221 376 0 0 7 269 0 0 0 0 2 719 8

Adjusted Volume Module:
Grade: 0%
Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX
PCE Adj.: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.00 1.00 1.00 1.00 1.00
Cycl/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX
Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX
Adj Vol.: 243 413 0 0 8 296 0 0 0 0 2 719 8

Critical Gap Module:
MoveUp Time: 3.4 3.3 XXXX XXXX 3.3 2.6 XXXX XXXX XXXX 2.1 XXXX XXXX
Critical Gap: 4.0 3.5 XXXX XXXX 6.0 5.5 XXXX XXXX XXXX 5.0 XXXX XXXX

Capacity Module:
Conflict Vol.: 724 728 XXXX XXXX 721 359 XXXX XXXX XXXX 0 XXXX XXXX
Potential Cap.: 667 750 XXXX XXXX 457 911 XXXX XXXX XXXX 1714 XXXX XXXX
Adj Cap.: 0.66 1.00 XXXX XXXX 1.00 1.00 XXXX XXXX XXXX 1.00 XXXX XXXX
Move Cap.: 443 749 XXXX XXXX 456 911 XXXX XXXX XXXX 1714 XXXX XXXX

Level of Service Module:
Stopped Del: 16.1 9.6 XXXX XXXX 8.0 5.6 XXXX XXXX XXXX 2.1 XXXX XXXX
LOS by Move: C B
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: XXX XXX XXXX XXX XXX XXX 887 XXX XXX XXXX XXX XXX XXXX
Shrd StpDel: XXX XXX XXX XXX XXX XXX 5.7 XXX XXX XXXX XXX XXX XXXX
Shared LOS: B
ApproachDel: 12.0 5.7 0.0 0.0

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A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 East 9th Street/Fir Street

Average Delay (sec/veh): 2.1

North Case Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Right-of-Way: 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0 0

Lanes: 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0 0

Volume Module: >> Count Date: 17 Oct 1997 <<

Base Vol: 0 103 3 2 5 0 213 434 125 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Adj: 0 103 3 2 5 0 213 434 125 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHE Adj: 0.76 0.76 0.76 0.44 0.44 0.44 0.86 0.86 0.86 1.00 1.00 1.00

PHE Volume: 0 136 4 5 11 0 240 506 146 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 136 4 5 11 0 240 506 146 0 0 0 0

Adjusted Volume Module:

Grade: 0% 0% 0% 0% 0% 0% 0% 0%

1 Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

1 Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Tick/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 150 4 5 13 0 273 506 146 0 0 0 0

Critical Gap Module:

Moveup Time: XXXX 3.3 2.6 3.4 3.3 XXXX 2.1 XXXX XXXX XXXX XXXX

Critical Op: XXXX 3.8 5.5 4.3 6.0 XXXX 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX 827 326 822 900 XXXX 0 XXXX XXXX XXXX XXXX

Potent Cap: XXXX 673 947 591 368 XXXX 1714 XXXX XXXX XXXX XXXX

Adj Cap: XXXX 533 947 391 291 XXXX 1714 XXXX XXXX XXXX XXXX

Move Cap: XXXX 533 947 391 291 XXXX 1714 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX 9.1 3.8 9.3 12.9 XXXX 2.5 XXXX XXXX XXXX XXXX

LOS by Move: A B C A A A A A A A A A A A A A A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX 540 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shld SpdDel: XXXX XXXX 8.9 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: B B B B B B B B B B B B B B B B

Approachdel: 8.9 11.9 0.7 0.0

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P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report
1994 HCM Unsignalized Method (Base Volume Alternative)

Intersection #6 East 9th Street/Fir Street

Average Delay (sec/veh): 5.4

North Case Level of Service: E

Approach: North Bound South Bound East Bound West Bound

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Right-of-Way: 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0 0

Lanes: 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0 0

Volume Module: >> Count Date: 16 Oct 1997 <<

Base Vol: 0 150 6 4 5 0 275 964 94 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Adj: 0 150 6 4 5 0 275 964 94 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHE Adj: 0.62 0.62 0.62 0.75 0.75 0.75 0.92 0.92 0.92 1.00 1.00

PHE Volume: 0 242 10 5 7 0 300 1050 102 0 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 0 242 10 5 7 0 300 1050 102 0 0 0 0

Adjusted Volume Module:

Grade: 0% 0% 0% 0% 0% 0% 0% 0%

1 Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

1 Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Car PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Tick/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 267 11 6 7 0 330 1050 102 0 0 0 0

Critical Gap Module:

Moveup Time: XXXX 3.3 2.6 3.4 3.3 XXXX 2.1 XXXX XXXX XXXX XXXX

Critical Op: XXXX 3.8 5.5 4.3 6.0 XXXX 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX 1401 576 1471 1452 XXXX 0 XXXX XXXX XXXX XXXX

Potent Cap: XXXX 482 707 374 189 XXXX 1714 XXXX XXXX XXXX XXXX

Adj Cap: XXXX 335 707 101 131 XXXX 1714 XXXX XXXX XXXX XXXX

Move Cap: XXXX 335 707 101 131 XXXX 1714 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX 37.4 5.2 37.8 28.9 XXXX 2.5 XXXX XXXX XXXX XXXX

LOS by Move: E D A A A A A A A A A A A A A A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX 342 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shld SpdDel: XXXX XXXX 36.2 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: E E E E E E E E E E E E E E E E

Approachdel: 36.2 32.9 0.6 0.0

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1994 HCM Operations Method (Base Volume Alternative)											
Intersection #7 East 8th Street/Hwy 99 NB On Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.352								
Loss Time (sec):	0 (V+R = 4 sec)	Average Delay (sec/veh):	6.4								
Optimal Cycle:	22	Level of Service:	B								
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Permitted	Permitted	Permitted	Permitted							
Rights:	Include	Include	Include	Include							
Min. Green:	0	0	0	0							
Lanes:	0	0	0	0							
Volume Module: >> Count Date: 17 Oct 1997 <<											
Base Vol:	0	203	0	0	0	0	0	0	0	888	495
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Initial Bse:	0	203	0	0	0	0	0	0	0	888	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	0	203	0	0	0	0	0	0	0	888	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Final Vol.:	0	203	0	0	0	0	0	0	0	932	0
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.00
Final Sat.:	0	1900	0	0	0	0	0	0	0	3800	1900
Capacity Analysis Module:											
Vol/Sat:	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Crit Moves:	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00
Green/Cycle:	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00
Volume/Cap:	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00
Level of Service Module:											
Delay/Veh:	0.0	17.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	17.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0
DesignQueue:	0	8	0	0	0	0	0	0	0	17	0

Level of Service Computation Report											
1994 HCM Operations Method (Base Volume Alternative)											
Intersection #7 East 8th Street/Hwy 99 NB On Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.357								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	9.1								
Optimal Cycle:	22	Level of Service:	B								
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Permitted	Permitted	Permitted	Permitted							
Rights:	Include	Include	Include	Ignore							
Min. Green:	0	0	0	0							
Lanes:	0	0	0	0							
Volume Module: >> Count Date: 17 Oct 1997 <<											
Base Vol:	0	290	0	0	0	0	0	0	0	687	378
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Initial Bse:	0	290	0	0	0	0	0	0	0	687	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Adj:	0.97	0.96	0.96	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.00
PHF Volume:	0	301	0	0	0	0	0	0	0	717	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.00
Final Vol:	0	301	0	0	0	0	0	0	0	753	0
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.00
Final Sat:	0	1900	0	0	0	0	0	0	0	3800	1900
Capacity Analysis Module:											
Vol/Sat:	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Crit Moves:	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00
Green/Cycle:	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00
Volume/Cap:	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00
Level of Service Module:											
Delay/Veh:	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0
DesignQueue:	0	10	0	0	0	0	0	0	0	20	0

AM Existing

Mon Nov 16, 1998 12:05:10

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A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Base Volume Alternative)

Intersection #8 East 8th Street/Hwy 99 SB Off Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.500

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 8.9

Optimal Cycle: 29 Level of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module: >> Count Date: 17 Oct 1997 <<

Base Vol: 0 0 0 0 295 160 0 0 0 0 0 1003 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 0 0 295 160 0 0 0 0 0 1003 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 0.92 0.92 0.92 1.00 0.84 0.84 0.84 0.84 0.84

PHF Volume: 0 0 0 0 322 174 0 0 0 0 0 1197 0

Reduced Vol: 0 0 0 0 322 174 0 0 0 0 0 1197 0

PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 0 0 322 174 0 0 0 0 0 1257 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/Lane: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Final Sat.: 0 0 0 0 1900 1615 0 0 0 0 0 3800 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Crit Moves: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Level of Service Module:

Delay/Veh: 0.0 0.0 0.0 0.0 17.5 15.9 0.0 0.0 0.0 0.0 0.0 5.7 0.0

User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 0.0 0.0 17.5 15.9 0.0 0.0 0.0 0.0 0.0 5.7 0.0

DesignQueue: 0 0 0 0 12 7 0 0 0 0 0 26 0

Traffix 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

PM Existing

Mon Nov 16, 1998 12:07:04

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P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Base Volume Alternative)

Intersection #8 East 8th Street/Hwy 99 SB Off Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.589

Loss Time (sec): 35 (Y+R = 4 sec) Average Delay (sec/veh): 11.5

Optimal Cycle: 35 Level of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 0 0 1 0 1 0 0 0 0 0 0 0

Volume Module:

Base Vol: 0 0 0 0 494 190 0 0 0 0 0 1007 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 0 0 494 190 0 0 0 0 0 1007 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 0.91 0.91 0.91 1.00 0.92 0.92 0.92 0.92 0.92

PHF Volume: 0 0 0 0 546 210 0 0 0 0 0 1091 0

Reduced Vol: 0 0 0 0 546 210 0 0 0 0 0 1091 0

PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PCF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 0 0 546 210 0 0 0 0 0 1146 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adj/Lane: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Final Sat.: 0 0 0 0 1900 1615 0 0 0 0 0 3800 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Crit Moves: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Green/Cycle: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Volume/Cap: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Level of Service Module:

Delay/Veh: 0.0 0.0 0.0 0.0 12.5 9.8 0.0 0.0 0.0 0.0 0.0 11.4 0.0

User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 0.0 0.0 12.5 9.8 0.0 0.0 0.0 0.0 0.0 11.4 0.0

DesignQueue: 0 0 0 0 17 6 0 0 0 0 0 34 0

Traffix 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

Level of Service Computation Report									
1994 HCM Operations Method (Base Volume Alternative)									
Intersection 99 East 9th Street/Hwy 99 NB Off Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.635						
Lost Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.1						
Optimal Cycle:	39	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Right:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 0 1 0 1	0 0 0 0 0	0 1 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Lanes:	0 0 1 0 1	0 0 0 0 0	0 1 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
>> Count Date: 17 Oct 1998 <<									
Volume Module:									
Base Vol:	0 450 145	0 0 0	0 1186	0 0 0	0 1186	0 0 0	0 1186	0 0 0	0 1186
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 450 145	0 0 0	0 1186	0 0 0	0 1186	0 0 0	0 1186	0 0 0	0 1186
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.91 0.91 0.91	1.00 1.00 1.00	0.87 0.87 0.87	1.00 1.00 1.00	0.87 0.87 0.87	1.00 1.00 1.00	0.87 0.87 0.87	1.00 1.00 1.00	0.87 0.87 0.87
PHF Volume:	0 493 159	0 0 0	0 1360	0 0 0	0 1360	0 0 0	0 1360	0 0 0	0 1360
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 493 159	0 0 0	0 1360	0 0 0	0 1360	0 0 0	0 1360	0 0 0	0 1360
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Final Vol:	0 493 159	0 0 0	0 1428	0 0 0	0 1428	0 0 0	0 1428	0 0 0	0 1428
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 1.00 0.85	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Lanes:	0 0 1 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Final Sat:	0 1900 1615	0 0 0	0 3800	0 0 0	0 3800	0 0 0	0 3800	0 0 0	0 3800
Capacity Analysis Module:									
Vol/Sat:	0.00 0.26 0.10	0.00 0.00 0.00	0.00 0.00 0.38	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00
Crit Moves:	0.00 0.41 0.41	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00
Green/Cycle:	0.00 0.41 0.41	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00
Volume/Cap:	0.00 0.64 0.24	0.00 0.00 0.00	0.00 0.64 0.00	0.00 0.00 0.00	0.00 0.64 0.00	0.00 0.00 0.00	0.00 0.64 0.00	0.00 0.00 0.00	0.00 0.64 0.00
Level of Service Module:									
Delay/Veh:	0.0 16.5 12.6	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 16.5 12.6	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0	0.0 0.0 0.0	0.0 9.1 0.0
DesignQueue:	0 17 5	0 0 0	0 0 36	0 0 0	0 0 36	0 0 0	0 0 36	0 0 0	0 0 36

Level of Service Computation Report									
1994 HCM Operations Method (Base Volume Alternative)									
Intersection 99 East 9th Street/Hwy 99 NB Off Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.454						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	9.4						
Optimal Cycle:	26	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0 0 1 0 1	0 0 0 0 0	0 1 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Lanes:	0 0 1 0 1	0 0 0 0 0	0 1 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0 299 71	0 0 0	0 719 0	0 0 0	0 719 0	0 0 0	0 719 0	0 0 0	0 719 0
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	0 299 71	0 0 0	0 719 0	0 0 0	0 719 0	0 0 0	0 719 0	0 0 0	0 719 0
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	0.84 0.84 0.84	1.00 1.00 1.00	0.75 0.75 0.75	1.00 1.00 1.00	0.75 0.75 0.75	1.00 1.00 1.00	0.75 0.75 0.75	1.00 1.00 1.00	0.75 0.75 0.75
PHF Volume:	0 356 84	0 0 0	0 964 0	0 0 0	0 964 0	0 0 0	0 964 0	0 0 0	0 964 0
Reduced Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Reduced Vol:	0 356 84	0 0 0	0 964 0	0 0 0	0 964 0	0 0 0	0 964 0	0 0 0	0 964 0
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.05 1.05 1.05	1.00 1.00 1.00	1.05 1.05 1.05	1.00 1.00 1.00	1.05 1.05 1.05	1.00 1.00 1.00	1.05 1.05 1.05
Final Vol:	0 356 84	0 0 0	0 1012 0	0 0 0	0 1012 0	0 0 0	0 1012 0	0 0 0	0 1012 0
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 1.00 0.85	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Lanes:	0 0 1 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Final Sat:	0 1900 1615	0 0 0	0 3800 0	0 0 0	0 3800 0	0 0 0	0 3800 0	0 0 0	0 3800 0
Capacity Analysis Module:									
Vol/Sat:	0.00 0.19 0.05	0.00 0.00 0.00	0.00 0.27 0.00	0.00 0.00 0.00	0.00 0.27 0.00	0.00 0.00 0.00	0.00 0.27 0.00	0.00 0.00 0.00	0.00 0.27 0.00
Crit Moves:	0.00 0.41 0.41	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00
Green/Cycle:	0.00 0.41 0.41	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00	0.00 0.00 0.00	0.00 0.59 0.00
Volume/Cap:	0.00 0.45 0.13	0.00 0.00 0.00	0.00 0.45 0.00	0.00 0.00 0.00	0.00 0.45 0.00	0.00 0.00 0.00	0.00 0.45 0.00	0.00 0.00 0.00	0.00 0.45 0.00
Level of Service Module:									
Delay/Veh:	0.0 14.0 11.7	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0
User DelAdj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
AdjDel/Veh:	0.0 14.0 11.7	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0	0.0 0.0 0.0	0.0 7.6 0.0
DesignQueue:	0 12 3	0 0 0	0 0 25	0 0 0	0 0 25	0 0 0	0 0 25	0 0 0	0 0 25

A.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Base Volume Alternative)

Intersection #10 East 9th Street/Hwy 99 SB On Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.271
Loss Time (sec): 20 (Y+R - 4 sec) Level of Service: B
Optimal Cycle: 20 Average Delay (sec/Veh): 6.0
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 0 0 2 0 1 0 0 0 0

Volume Module: >> Count Date: 17 Oct 1997 <<

Base Vol: 0 0 0 0 0 582 300 0 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bae: 0 0 0 0 0 582 300 0 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Pfr Adj: 1.00 1.00 1.00 0.89 0.89 0.85 0.85 0.00 1.00 1.00 1.00
Pfr Volume: 0 0 0 0 0 155 0 0 0 684 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
Mfr Adj: 1.00 1.00 1.00 1.00 1.00 1.05 0.00 1.00 1.00 1.00 1.00
Final Vol.: 0 0 0 0 0 155 0 0 0 716 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 2.00 1.00 0.00 0.00
Final Sat.: 0 0 0 0 1900 0 3800 1900 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.00 0.00 0.19 0.00 0.00 0.00 0.00
Clt Moves: 0.00 0.00 0.00 0.00 0.00 0.30 0.00 0.00 0.70 0.00 0.00
Green/Cycle: 0.00 0.00 0.00 0.00 0.27 0.00 0.00 0.27 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.27 0.00 0.00 0.27 0.00 0.00 0.00

Level of Service Module:

Delay/Veh: 0.0 0.0 0.0 0.0 0.0 17.2 0.0 0.0 3.6 0.0 0.0
User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 17.2 0.0 0.0 3.6 0.0 0.0
DesignVeh: 0 0 0 0 0 6 0 0 13 0 0

P.M. Peak Hour - Existing Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Base Volume Alternative)

Intersection #10 East 9th Street/Hwy 99 SB On Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.369
Loss Time (sec): 0 (Y+R - 4 sec) Level of Service: A
Optimal Cycle: 23 Average Delay (sec/Veh): 3.9
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted
Rights: Include Include Ignore Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 0 0 1 0 0 0 2 0 1 0 0 0 0

Volume Module: >> Count Date: 16 Oct 1997 <<

Base Vol: 0 0 0 0 0 113 0 0 987 415 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bae: 0 0 0 0 0 113 0 0 987 415 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Pfr Adj: 1.00 1.00 1.00 0.86 0.86 0.86 0.91 0.91 0.00 1.00 1.00
Pfr Volume: 0 0 0 0 0 131 0 0 1087 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00
Mfr Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.05 0.00 1.00 1.00 1.00
Final Vol.: 0 0 0 0 0 131 0 0 1141 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Lanes: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 2.00 1.00 0.00 0.00
Final Sat.: 0 0 0 0 0 1900 0 3800 1900 0 0

Capacity Analysis Module:

Vol/Sat: 0.00 0.00 0.00 0.00 0.07 0.00 0.00 0.30 0.00 0.00 0.00
Clt Moves: 0.00 0.00 0.00 0.00 0.19 0.00 0.08 0.81 0.00 0.00 0.00
Green/Cycle: 0.00 0.00 0.00 0.00 0.37 0.00 0.00 0.37 0.00 0.00 0.00
Volume/Cap: 0.00 0.00 0.00 0.00 0.37 0.00 0.00 0.37 0.00 0.00 0.00

Level of Service Module:

Delay/Veh: 0.0 0.0 0.0 0.0 0.0 23.3 0.0 0.0 1.6 0.0 0.0
User Delay: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 0.0 0.0 0.0 0.0 0.0 23.3 0.0 0.0 1.6 0.0 0.0
DesignVeh: 0 0 0 0 0 6 0 0 13 0 0

APPENDIX E

*INTERSECTION LEVEL OF SERVICE CALCULATIONS -
EXISTING PLUS PROJECT CONDITIONS*

Level of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Level Of Service Computation Report

1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Bruce Road/Humbolt Road													
Average Delay (sec/veh):		1.0		Worst Case Level of Service: B									
Movement:		North Bound		South Bound		East Bound		West Bound		L - T - R		L - T - R	
Control:	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Lanes:	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0	0 0 1 1 0 0
Volume Module:													
Base Vol:	3 330 11	18 328 1	1 7 31	11 5 16									
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00									
Initial Base:	3 330 11	18 328 1	1 7 31	11 5 16									
Added Vol:	0 53 0	0 29 14	26 0 0	0 0 0									
PassingVol:	0 0 0	0 0 0	0 0 0	0 0 0									
Initial Fut:	3 383 11	18 357 15	27 7 31	11 5 16									
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00									
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00									
PHF Volume:	3 383 11	18 357 15	27 7 31	11 5 16									
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0									
Final Vol:	3 383 11	18 357 15	27 7 31	11 5 16									
Adjusted Volume Module:													
Grade:	0%												
% Truck/Cars:	xxxx xxxx	xxxx xxxx	xxxx xxxx	xxxx xxxx									
A Truck/Comb:	xxxx xxxx	xxxx xxxx	xxxx xxxx	xxxx xxxx									
PCE Adj:	1.10 1.00 1.00	1.10 1.00 1.00	1.10 1.10 1.10	1.10 1.10 1.10									
Cycl/Car PCE:	xxxx xxxx	xxxx xxxx	xxxx xxxx	xxxx xxxx									
Truck/Cmb PCE:	xxxx xxxx	xxxx xxxx	xxxx xxxx	xxxx xxxx									
Adj Vol:	3 363 11	20 357 15	30 8 34	12 6 18									
Critical Gap Module:													
Moveup Time:	2.1 xxxx xxxxx	2.1 xxxx xxxxx	3.4 3.3 2.6	3.4 3.3 2.6									
Critical Gap:	5.0 xxxx xxxxx	5.0 xxxx xxxxx	6.5 6.0 5.5	6.5 6.0 5.5									
Capacity Module:													
Capacity Vol:	372 xxxx xxxxx	394 xxxx xxxxx	765 780 365	793 782 389									
Potent Cap:	1140 xxxx xxxxx	1113 xxxx xxxxx	372 425 905	368 424 880									
Adj Cap:	1.00 xxxx xxxxx	1.00 xxxx xxxxx	0.95 0.97 1.00	0.93 0.97 1.00									
Move Cap:	1140 xxxx xxxxx	1113 xxxx xxxxx	354 414 905	342 413 860									
Level Of Service Module:													
Stopped Del:	3.2 xxxx xxxxx	3.3 xxxx xxxxx	11.0 8.8 4.1	10.9 8.8 4.2									
LOS by Move:	A	A	A	A									
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT									
Shared Cap:	xxxx xxxx xxxxx	xxxx xxxx xxxxx	xxxx 510 xxxxx	xxxx 512 xxxxx									
Shrd StpDel:	xxxx xxxx xxxxx	xxxx xxxx xxxxx	xxxx 7.5 xxxxx	xxxx 7.2 xxxxx									
Shared LOS:	B	B	B	B									
ApproachDel:	0.0	0.2	7.5	7.2									

Intersection #1 Bruce Road/Humbolt Road												
Average Delay (sec/veh):		0.7		Worst Case Level of Service: B								
Approach:		Northbound		Southbound		Eastbound		Westbound				
L	T	R	L	T	R	L	T	R	L	T	R	
Control:		Uncontrolled		Uncontrolled		Stop Sign Include		Stop Sign Include		Stop Sign Include		
Signs:		0 1 0 0		0 0 1 0 0		0 0 1 0 0		0 0 1 0 0		0 0 1 0 0		
Volume Module:												
Base Vol:		15	300	11	19	256	1	0	2	11	10	13
Growth Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:		15	300	11	19	256	1	0	2	11	10	13
Added Vol:		0	14	0	0	46	23	7	0	0	0	0
Passerby Vol:		0	0	0	0	0	0	0	0	0	0	0
Initial Adj:		15	314	11	19	304	24	7	2	11	10	13
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:		15	314	11	19	304	24	7	2	11	10	13
Reduct Vol:		0	0	0	0	0	0	0	0	0	0	0
Final Vol:		15	314	11	19	304	24	7	2	11	10	13
Adjusted Volume Module:												
Grade:		0%										
Cycle/Cars:		xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb:		xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
PCE Adj:		1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10
Car PCE:		xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb PCE:		xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Adj Vol:		17	314	11	21	304	24	8	2	12	11	14
Critical Gap Module:												
Min Group Time:		2.1	xxxx	xxxxxx	2.1	xxxx	xxxxxx	3.4	3.3	2.6	3.4	3.3
Critical Gap:		5.0	xxxx	xxxxxx	5.0	xxxx	xxxxxx	6.5	6.0	5.5	6.5	6.0
Capacity Module:												
Conflict Vol:		328	xxxx	xxxxxx	689	675	316	676	482	320	676	482
Potential Cap:		1196	xxxx	xxxxxx	1208	483	958	430	679	954	430	679
Adj Cap:		1.00	xxxx	xxxxxx	0.92	0.96	1.00	0.96	0.96	1.00	0.96	0.96
Volume Cap:		1196	xxxx	xxxxxx	1200	xxxx	xxxxxx	389	464	958	411	460
Level of Service Module:												
Stopped Del:		3.0	xxxx	xxxxxx	3.0	xxxx	xxxxxx	9.4	7.8	3.8	9.0	8.0
LOS by Move:		A	.	.	A	.	.	.	.	.	.	.
Movement:		LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR
Shared Cap:		xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	591	xxxx	xxxxxx	xxxx	614
Shared Spdel:		xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	6.2	xxxx	xxxxxx	6.0	xxxx
Shared LOS:		.	.	.	.	.	.	.	.	.	.	.
ApproachDel:		0.1										

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A.M. Peak Hour - Existing Plus Proposed Project Conditions
Oak Valley BIR
City of Chico

Level of Service Computation Report											
1994 HCM Unsignalized Method (Future Volume Alternative)											
Intersection #2 Deer Creek Hwy/Yosemite Drive											
Average Delay (sec/veh):		2.9		Worst Case Level of Service:							
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled							
Right:	Include	Include	Include	Include							
Lanes:	1 0 0 0 0	1 0 0 0 1	1 0 0 1 0	0 1 0 0 1							
Volume Module:											
Base Vol:	0	0	0	0	25	78	0	0	269	2	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	0	0	0	0	72	25	78	0	269	2	
Added Vol:	155	0	0	0	0	0	0	45	0	0	
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	155	0	0	0	72	25	78	45	0	269	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Volume:	155	0	0	0	72	25	78	45	0	269	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	
Final Vol:	155	0	0	0	72	25	78	45	0	269	2
Adjusted Volume Module:											
Grade:	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Grade/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00	
Cycl/Cat PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Trck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Adj Vol:	171	0	0	0	79	28	78	45	0	269	2
Critical Gap Module:											
Movement Time:	3.4	xxxx	xxxx	xxxx	2.6	2.1	xxxx	xxxx	xxxx	xxxx	
Critical Gap:	6.5	xxxx	xxxx	xxxx	5.5	5.0	xxxx	xxxx	xxxx	xxxx	
Capacity Module:											
Conflict Vol:	431	xxxx	xxxx	xxxx	269	271	xxxx	xxxx	xxxx	xxxx	
Potent Cap:	596	xxxx	xxxx	xxxx	1012	1273	xxxx	xxxx	xxxx	xxxx	
Adj Cap:	0.91	xxxx	xxxx	xxxx	1.00	1.00	xxxx	xxxx	xxxx	xxxx	
Move Cap:	541	xxxx	xxxx	xxxx	1012	1273	xxxx	xxxx	xxxx	xxxx	
Level of Service Module:											
Stopped Del:	9.3	xxxx	xxxx	xxxx	3.8	2.9	xxxx	xxxx	xxxx	xxxx	
LOS by Move:	B	A	A	A	A	A	A	A	A	A	
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shared LOS:	A	A	A	A	A	A	A	A	A	A	
ApproachDel:	9.3	3.8	0.5	0.0							
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P.M. Peak Hour - Existing Plus Proposed Project Conditions
Oak Valley BIR
City of Chico

Level of Service Computation Report																
1994 HCM Unsignalized Method (Future Volume Alternative)																
Intersection #2 Deer Creek Hwy/Yosemite Drive																
Average Delay (sec/veh):	1.8				Worst Case Level of Service: B											
Approach:	North Bound		South Bound		East Bound		West Bound									
Movement:	L	T	R		L	T	R	L	T	R	L	T	R			
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Right:	Include				Include				Include				Include			
Lanes:	1	0	0	0	1	0	0	1	1	0	0	1	0	0	1	
Volume Module:																
Base Vol:	0	0	0		0	0	46	86	201	0	0	104	1			
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	0	0	0		0	0	46	86	201	0	0	104	1			
Added Vol:	93	0	0		0	0	0	0	0	171	0	0	0			
PasserbyVol:	0	0	0		0	0	0	0	0	0	0	0	0			
Initial Fut:	93	0	0		0	0	46	86	201	171	0	104	1			
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	93	0	0		0	0	46	86	201	171	0	104	1			
Reduct Vol:	0	0	0		0	0	0	0	0	0	0	0	0			
Final Vol:	93	0	0		0	0	46	86	201	171	0	104	1			
Adjusted Volume Module:																
Grade:	0%				0%				0%				0%			
Grade/Cars:	xxxx				xxxx				xxxx				xxxx			
Truck/Comb:	xxxx				xxxx				xxxx				xxxx			
PCE Adj:	1.10	1.10	1.10		1.10	1.10	1.10	1.10	1.00	1.00	1.10	1.00	1.00			
Cycl/Cat PCE:	xxxx				xxxx				xxxx				xxxx			
Trck/Comb PCE:	xxxx				xxxx				xxxx				xxxx			
Adj Vol:	102	0	0		0	0	51	95	201	171	0	104	1			
Critical Gap Module:																
Movement Time:	3.4	xxxx	xxxx	xxxx	2.6	2.1	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Critical Gap:	6.5	xxxx	xxxx	xxxx	5.5	5.0	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Capacity Module:																
Conflict Vol:	500	xxxx	xxxx	xxxx	104	105	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Potent Cap:	544	xxxx	xxxx	xxxx	1226	1528	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Adj Cap:	0.91	xxxx	xxxx	xxxx	1.00	1.00	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Move Cap:	497	xxxx	xxxx	xxxx	1226	1528	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Level of Service Module:																
Stopped Del:	8.9	xxxx	xxxx	xxxx	3.0	2.5	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
LOS by Move:	B	A	A	A	A	A	A	A	A	A	A	A	A			
Movement:	LT	LT-R	RT		LT	LT-R	RT		LT	LT-R	RT		LT	LT-R	RT	
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shared LOS:	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
ApproachDel:	8.9				3.0		0.5							0.0		
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P.M. Peak Hour - Existing plus Proposed Project Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #3 Deer Creek Hwy/Bruce Road									
Cycle (sec):	100					Critical Vol./Cap. (X):	0.527		
Loss Time (sec):	0 (Y+R = 4 sec)					Average Delay (sec/veh):	18.6		
Optimal Cycle:	48					Level of Service:	C		
Approach: North Bound South Bound East Bound West Bound									
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	1	0	1	0
Volume Module:									
Base Vol:	137	209	32	12	208	255	156	69	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	137	209	32	12	208	255	156	69	34
Added Vol:	0	0	21	9	0	0	15	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	137	209	53	21	208	255	156	84	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	137	209	53	21	208	255	156	84	34
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	137	209	53	21	208	255	156	84	34
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.97	0.97	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.80	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat:	1805	1470	373	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:									
Vol/Sat:	0.08	0.14	0.14	0.01	0.11	0.16	0.09	0.04	0.21
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.14	0.41	0.41	0.03	0.30	0.30	0.16	0.23	0.33
Volume/Cap:	0.53	0.35	0.35	0.35	0.37	0.53	0.53	0.19	0.53
Level of Service Module:									
Delay/Veh:	27.2	13.2	13.2	31.9	18.0	19.7	26.1	20.1	19.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	27.2	13.2	13.2	31.9	18.0	19.7	26.1	20.1	19.6
DesignQueue:	7	7	2	1	6	10	7	4	1

P.M. Peak Hour - Existing plus Proposed Project Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #3 Deer Creek Hwy/Bruce Road									
Cycle (sec):	100					Critical Vol./Cap. (X):	0.522		
Loss Time (sec):	0 (Y+R = 4 sec)					Average Delay (sec/veh):	17.4		
Optimal Cycle:	48					Level of Service:	C		
Approach: North Bound South Bound East Bound West Bound									
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	1	0	0	1	0	1	0	1	0
Volume Module:									
Base Vol:	68	274	58	32	211	181	295	202	124
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	68	274	58	32	211	181	295	202	124
Added Vol:	0	0	79	36	0	0	56	0	43
PasserbyVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	68	274	137	68	211	181	295	258	124
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	68	274	137	68	211	181	295	258	124
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	68	274	137	68	211	181	295	258	124
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	1.00	0.85	0.95	1.00	0.85
Lanes:	1.00	0.67	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat:	1805	1203	602	1805	1900	1615	1805	1900	1615
Capacity Analysis Module:									
Vol/Sat:	0.04	0.23	0.23	0.04	0.11	0.11	0.16	0.14	0.06
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.13	0.44	0.44	0.07	0.38	0.38	0.31	0.38	0.38
Volume/Cap:	0.29	0.52	0.52	0.52	0.29	0.29	0.52	0.35	0.52
Level of Service Module:									
Delay/Veh:	25.7	13.8	13.8	31.9	14.0	14.0	18.9	14.3	13.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	25.7	13.8	13.8	31.9	14.0	14.0	18.9	14.3	13.3
DesignQueue:	3	9	5	4	7	6	12	9	4

A.M. Peak Hour - Existing plus Proposed Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 0.814
Loss time (sec): 0 (Y/R = 4 sec) Average Delay (sec/Veh): 19.9
Optimal Cycle: 100 Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol:	323	50	48	6	53	126	34	208	189	102	556	11
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bst:	323	50	48	6	53	126	34	208	189	102	556	11
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	323	50	48	6	53	126	34	222	189	102	603	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	323	50	48	6	53	126	34	222	189	102	603	16
Reduced Vol:	323	50	48	6	53	126	34	222	189	102	603	16
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	323	50	48	6	53	126	34	222	189	102	603	16

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.47	0.47	0.47	0.78	0.90	0.90	0.95	1.00	0.85	0.95	1.00	1.00
Lanes:	0.77	0.12	0.11	1.00	0.30	0.70	1.00	1.00	1.00	0.97	0.93	0.03
Final Sat.:	688	106	102	1482	506	1204	1805	1900	1615	1805	1851	49

Capacity Analysis Module:

Vol/Sat:	0.47	0.47	0.47	0.00	0.10	0.10	0.02	0.12	0.12	0.06	0.33	0.33
Crit Moves:	0.58	0.58	0.58	0.58	0.58	0.58	0.02	0.29	0.29	0.14	0.40	0.40
Green/Cycle:	0.81	0.81	0.81	0.01	0.18	0.18	0.01	0.41	0.41	0.41	0.81	0.81
Volume/Cap:	0.81	0.81	0.81	0.01	0.18	0.18	0.01	0.41	0.41	0.41	0.81	0.81

Level of Service Module:

Delay/Veh:	17.6	17.6	17.6	5.8	6.5	6.5	77.7	19.0	19.0	26.1	22.0	22.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	17.6	17.6	17.6	5.8	6.5	6.5	77.7	19.0	19.0	26.1	22.0	22.0
DesignQueue:	8	1	1	0	1	1	9	8	8	5	22	1

P.M. Peak Hour - Existing plus Proposed Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 0.767
Loss time (sec): 0 (Y/R = 4 sec) Average Delay (sec/Veh): 18.7
Optimal Cycle: 80 Level of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 1 0 0 1 0 0 1 0 1 0 1

Volume Module:

Base Vol:	318	78	110	6	62	48	87	501	367	70	276	9
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bst:	318	78	110	6	62	48	87	501	367	70	276	9
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	318	78	110	6	62	48	87	552	367	70	304	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	318	78	110	6	62	48	87	552	367	70	304	12
Reduced Vol:	318	78	110	6	62	48	87	552	367	70	304	12
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	318	78	110	6	62	48	87	552	367	70	304	12

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.61	0.61	0.61	0.70	0.93	0.93	0.95	1.00	0.85	0.95	0.99	0.99
Lanes:	0.63	0.15	0.22	1.00	0.56	0.44	1.00	1.00	1.00	0.96	0.96	0.04
Final Sat.:	727	178	252	1330	956	771	1805	1900	1615	1805	1810	71

Capacity Analysis Module:

Vol/Sat:	0.44	0.44	0.44	0.01	0.06	0.06	0.05	0.29	0.23	0.04	0.17	0.17
Crit Moves:	0.57	0.57	0.57	0.57	0.57	0.57	0.10	0.38	0.38	0.05	0.33	0.33
Green/Cycle:	0.77	0.77	0.77	0.01	0.11	0.11	0.50	0.77	0.60	0.77	0.50	0.50
Volume/Cap:	0.77	0.77	0.77	0.01	0.11	0.11	0.50	0.77	0.60	0.77	0.50	0.50

Level of Service Module:

Delay/Veh:	18.3	14.3	14.3	6.0	6.4	6.4	29.7	21.0	17.3	50.7	17.8	17.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.3	14.3	14.3	6.0	6.4	6.4	29.7	21.0	17.3	50.7	17.8	17.8
DesignQueue:	8	2	3	0	2	1	4	21	13	4	12	0

Level of Service Computation Report														
1994 HCM Unsignalized Method (Future Volume Alternative)														
Intersection #5 East 8th Street/Fir Street														
Average Delay (sec/veh): 9.0 Worst Case Level of Service: F														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled														
Rights: Include Include Include Include														
Lanes: 1 0 1 0 0 0 0 1 0 0 0 0 0 0 1 0 1														
Volume Module: >> Count Date: 17 Oct 1997 <<														
Base Vol:	117	213	0	0	3	307	0	0	0	0	4	967	12	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	117	213	0	0	3	307	0	0	0	0	4	967	12	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	117	213	0	0	3	307	0	0	0	0	4	1014	12	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.85	0.85	0.85	0.93	0.93	0.93	1.00	1.00	1.00	0.74	0.74	0.74	0.74	
PHF Volume:	137	250	0	0	3	329	0	0	0	0	5	1367	16	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Final Vol:	137	250	0	0	3	329	0	0	0	0	5	1367	16	
Adjusted Volume Module:														
Grade:	0%													
% Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Trck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Adj Vol:	151	275	0	0	4	362	0	0	0	0	6	1367	16	
Critical Gap Module:														
MoveUp Time:	3.4	3.3	xxxx	xxxx	3.3	2.6	xxxx	xxxx	xxxx	2.1	xxxx	xxxx	xxxx	
Critical Gp:	4.0	3.5	xxxx	xxxx	6.0	5.5	xxxx	xxxx	xxxx	5.0	xxxx	xxxx	xxxx	
Capacity Module:														
Conflict Vol:	1374	1388	xxxx	1372	603	xxxx	xxxx	xxxx	xxxx	0	xxxx	xxxx	xxxx	
Potent Cap:	440	535	xxxx	xxxx	208	624	xxxx	xxxx	xxxx	1714	xxxx	xxxx	xxxx	
Adj Cap:	0.41	0.98	xxxx	xxxx	0.98	1.00	xxxx	xxxx	xxxx	1.00	xxxx	xxxx	xxxx	
Move Cap:	180	525	xxxx	xxxx	204	624	xxxx	xxxx	xxxx	1714	xxxx	xxxx	xxxx	
Level of Service Module:														
Stopped Del:	76.9	13.1	xxxx	xxxx	17.9	12.1	xxxx	xxxx	xxxx	2.1	xxxx	xxxx	xxxx	
LOS by Move:	F	C								A				
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	612	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	12.2	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shared LOS:						C								
ApproachDel:	35.7				12.2					0.0				

Level of Service Computation Report														
1994 HCM Unsignalized Method (Future Volume Alternative)														
Intersection #5 East 8th Street/Fir Street														
Average Delay (sec/veh): 5.8 Worst Case Level of Service: C														
Approach: North Bound South Bound East Bound West Bound														
Movement: L - T - R L - T - R L - T - R L - T - R														
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled														
Rights: Include Include Include Include														
Lanes: 1 0 1 0 0 0 0 1 0 0 0 0 0 0 1 0 1														
Volume Module: >> Count Date: 17 Oct 1997 <<														
Base Vol:	165	281	0	0	6	216	0	0	0	0	2	669	7	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	165	281	0	0	6	216	0	0	0	0	2	669	7	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	165	281	0	0	6	216	0	0	0	0	2	697	7	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.75	0.75	0.75	0.80	0.80	0.80	1.00	1.00	1.00	1.00	0.93	0.93	0.93	
PHF Volume:	221	376	0	0	7	269	0	0	0	0	2	749	8	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	
Final Vol:	221	376	0	0	7	269	0	0	0	0	2	749	8	
Adjusted Volume Module:														
Grade:	0%													
% Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
% Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Trck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Adj Vol:	243	413	0	0	8	296	0	0	0	0	2	749	8	
Critical Gap Module:														
MoveUp Time:	3.4	3.3	xxxx	xxxx	3.3	2.6	xxxx	xxxx	xxxx	2.1	xxxx	xxxx	xxxx	
Critical Gp:	4.0	3.5	xxxx	xxxx	6.0	5.5	xxxx	xxxx	xxxx	5.0	xxxx	xxxx	xxxx	
Capacity Module:														
Conflict Vol:	755	758	xxxx	xxxx	751	374	xxxx	xxxx	xxxx	0	xxxx	xxxx	xxxx	
Potent Cap:	654	739	xxxx	xxxx	440	895	xxxx	xxxx	xxxx	1714	xxxx	xxxx	xxxx	
Adj Cap:	0.66	1.00	xxxx	xxxx	1.00	1.00	xxxx	xxxx	xxxx	1.00	xxxx	xxxx	xxxx	
Move Cap:	431	737	xxxx	xxxx	439	895	xxxx	xxxx	xxxx	1714	xxxx	xxxx	xxxx	
Level of Service Module:														
Stopped Del:	17.0	9.9	xxxx	xxxx	8.3	5.7	xxxx	xxxx	xxxx	2.1	xxxx	xxxx	xxxx	
LOS by Move:	C	B								A				
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	870	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	5.8	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	
Shared LOS:						B								
ApproachDel:	12.6				5.8					0.0				

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #7 East 8th Street/Hwy 99 NB On Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.360						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.3						
Optimal Cycle:	23	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Right:	Include	Include	Include	Include	Include	Include	Include	Include	Ignore
Min. Green:	0 0 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 2 0 1
Lanes:	0 0 1 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 2 0 1
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0 203	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 888 495
Growth Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 0.00
Initial Bse:	0 203	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 888 0
Added Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 29 17
PasserbyVol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	0 203	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 917 0
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 0.00
PHF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 0.00
PHF Volume:	0 203	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 917 0
Reduced Vol:	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 0.00
MUF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 0.00
Final Vol:	0 203	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 963 0	0 0 0
Saturation Flow Module:									
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900	1900 1900
Adjustment:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00
Lanes:	0.00 1.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00
Final Sat:	0 1900	0 0	0 0	0 0	0 0	0 0	0 0	0 3800 1900	0 0 0
Capacity Analysis Module:									
Vol/Sat:	0.00 0.11	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.25	0.00
Crit Moves:	0.00 0.30	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.70	0.00
Green/Cycle:	0.00 0.30	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.36	0.00
Volume/Cap:	0.00 0.36	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.36	0.00
Level of Service Module:									
Delay/Veh:	0.0 18.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 3.8	0.0
User Delay:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00
AdjDel/Veh:	0.0 18.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 3.8	0.0
DesignQueue:	0 8	0 0	0 0	0 0	0 0	0 0	0 0	0 0	17

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #7 East 8th Street/Hwy 99 NB On Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.362						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	9.1						
Optimal Cycle:	23	Level of Service:	B						
Approach:	L - T - R	North Bound	South Bound	East Bound	West Bound				
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Ignore
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1	0	0	0	0	0	0
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0	290	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	290	0	0	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	290	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.96	0.96	1.00	1.00	1.00	1.00	0.96	0.96
PHF Volume:	0	301	0	0	0	0	0	0	736
Reduced Vol:	0	301	0	0	0	0	0	0	0
Reduced Vol:	0	301	0	0	0	0	0	0	736
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MUF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05
Final Vol.:	0	301	0	0	0	0	0	0	773
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
Final Sat.:	0	1900	0	0	0	0	0	0	3800
Capacity Analysis Module:									
Vol/Sat:	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Crit Moves:	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.56
Green/Cycle:	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.36
Volume/Cap:	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.36
Level of Service Module:									
Delay/Veh:	0.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0	7.8
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0	7.8
DesignQueue:	0	10	0	0	0	0	0	0	20

Level of Service Computation Report												
1994 HCM Operations Method (Future Volume Alternative)												
Intersection #8 East 8th Street/Hwy 99 SB Off Ramp												
Cycle (sec):	100	Critical Vol./Cap. (X):		0.572								
Loss Time (sec):	0 (Y/R = 4 sec)	Average Delay (sec/veh):		9.1								
Optimal Cycle:	34	Level of Service:		B								
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Rights:	Include	Include	Include	Include								
Min. Green:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0								
Lanes:	0 0 0 0	0 0 1 0	0 0 0 0	0 0 0 0								
Volume Module:	>> Count Date: 17 Oct 1997 <<											
Base Vol:	0	0	295	160	0	0	0	0	1003	0		
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bae:	0	0	295	160	0	0	0	0	1003	0		
Added Vol:	0	0	0	5	0	0	0	0	20	0		
PasserbyVol:	0	0	0	0	0	0	0	0	0	0		
Initial Pcr:	0	0	0	0	0	0	0	0	0	0		
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PBF Adj:	1.00	1.00	0.92	0.92	1.00	1.00	1.00	0.84	0.84	0.84		
PBF Volume:	0	0	327	174	0	0	0	0	11221	0		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0		
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PCF Volume:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05		
Final Vol.:	0	0	327	174	0	0	0	0	11282	0		
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adj/turn:	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	0.85	0.85		
Lanes:	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.98		
Final Sat.:	0	0	1900	1615	0	0	0	0	273203	0		
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.17	0.11	0.00	0.00	0.00	0.40	0.40		
Crit Moves:	0.00	0.00	0.00	0.30	0.30	0.00	0.00	0.00	0.70	0.70		
Green/Cycle:	0.00	0.00	0.00	0.57	0.36	0.00	0.00	0.00	0.57	0.57		
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.57		
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	20.1	17.9	0.0	0.0	0.0	5.1	5.1		
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:	0.0	0.0	0.0	20.1	17.9	0.0	0.0	0.0	5.1	5.1		
DesignQueue:	0	0	0	13	7	0	0	0	0	24		

Level of Service Computation Report													
1994 HCM Operations Method (Future Volume Alternative)													
Intersection #8 East 8th Street/Hwy 99 SB Off Ramp													
Cycle (sec):	100	Critical Vol./Cap. (X):		0.659									
Loss Time (sec):	0 (Y/R = 4 sec)	Average Delay (sec/veh):		12.2									
Optimal Cycle:	42	Level of Service:		B									
Approach:	North Bound	South Bound	East Bound	West Bound									
Movement:	L - T - R	L - T - R	L - T - R	L - T - R									
Control:	Permitted	Permitted	Permitted	Permitted									
Rights:	Include	Include	Include	Include									
Min. Green:	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0									
Lanes:	0 0 0 0	0 0 1 0	0 0 0 0	0 1 0 0									
Volume Module:													
Base Vol:	0	0	494	190	0	0	0	0	1007	0			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Base:	0	0	494	190	0	0	0	0	1007	0			
Added Vol:	0	0	0	19	0	0	0	0	6	12			
Added Vol:	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	0	0	0	0	0	0	0	0	0	0			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PBF Adj:	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	0.92	0.92		
PBF Volume:	0	0	0	567	210	0	0	0	0	71104	0		
Reduced Vol:	0	0	0	0	0	0	0	0	0	0			
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PCF Volume:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00		
Final Vol.:	0	0	567	210	0	0	0	0	71159	0			
Saturation Flow Module:													
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adj/turn:	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	0.85	0.85	1.00		
Lanes:	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	1.99	0.00		
Final Sat.:	0	0	0	1900	1615	0	0	0	19	3211	0		
Capacity Analysis Module:													
Vol/Sat:	0.00	0.00	0.00	0.30	0.13	0.00	0.00	0.00	0.36	0.36	0.00		
Crit Moves:	0.00	0.00	0.00	0.45	0.45	0.00	0.00	0.00	0.55	0.55	0.00		
Green/Cycle:	0.00	0.00	0.00	0.66	0.29	0.00	0.00	0.00	0.66	0.66	0.00		
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.00		
Level of Service Module:													
Delay/Veh:	0.0	0.0	0.0	15.1	11.2	0.0	0.0	0.0	11.0	11.0	0.0		
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:	0.0	0.0	0.0	15.1	11.2	0.0	0.0	0.0	11.0	11.0	0.0		
DesignQueue:	0	0	0	19	7	0	0	0	0	32	0		

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection 99 East 9th Street/Hwy 99 NB Off Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.458						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	9.4						
Optimal Cycle:	27	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R					
Control:	Permitted	Permitted	Permitted	Permitted					
Rights:	Include	Include	Include	Include					
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1	0	0	0	0	1	0
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0	299	71	0	0	0	719	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	299	71	0	0	0	719	0	0
Added Vol:	0	0	3	0	0	0	0	11	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	299	74	0	0	0	730	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	1.00	1.00	0.75	0.75	0.75	1.00
PHF Volume:	0	356	98	0	0	0	979	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	356	98	0	0	0	979	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00
Final Vol.:	0	356	98	0	0	0	1027	0	0
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	0.00	0.00	0.00	2.00	0.00	0.00
Final Sat.:	0	1900	1615	0	0	0	3800	0	0
Capacity Analysis Module:									
Vol/Sat:	0.00	0.19	0.05	0.00	0.00	0.00	0.27	0.00	0.00
Crit Moves:	0.00	0.41	0.41	0.00	0.00	0.00	0.59	0.00	0.00
Green/Cycle:	0.00	0.41	0.41	0.00	0.00	0.00	0.59	0.00	0.00
Volume/Cap:	0.00	0.46	0.13	0.00	0.00	0.00	0.46	0.00	0.00
Level of Service Module:									
Delay/Veh:	0.0	14.2	11.9	0.0	0.0	0.0	7.5	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	14.2	11.9	0.0	0.0	0.0	7.5	0.0	0.0
DesignQueue:	0	12	3	0	0	0	25	0	0

Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection 99 East 9th Street/Hwy 99 NB Off Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.649						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.1						
Optimal Cycle:	41	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	Permitted Include	Permitted Include	Permitted Include	Permitted Include	
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	
Right:	Include	Include	Include	Include	Include	Include	Include	Include	
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	0	0	0
Volume Module: >> Count Date: 17 Oct 1998 <<									
Base Vol:	0	450	145	0	0	0	1186	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	450	145	0	0	0	1186	0	0
Added Vol:	0	0	10	0	0	0	41	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	450	155	0	0	0	1227	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	1.00	1.00	0.87	0.87	1.00	1.00
PHF Volume:	0	493	170	0	0	0	1407	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	493	170	0	0	0	1407	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00
Final Vol.:	0	493	170	0	0	0	1477	0	0
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	0.00	0.00	0.00	2.00	0.00	0.00
Final Sat.:	0	1900	1615	0	0	0	3800	0	0
Capacity Analysis Module:									
Vol/Sat:	0.00	0.26	0.11	0.00	0.00	0.00	0.39	0.00	0.00
Crit Moves:	0.00	0.40	0.40	0.00	0.00	0.00	0.60	0.00	0.00
Green/Cycle:	0.00	0.40	0.40	0.00	0.00	0.00	0.60	0.00	0.00
Volume/Cap:	0.00	0.65	0.26	0.00	0.00	0.00	0.65	0.00	0.00
Level of Service Module:									
Delay/Veh:	0.0	17.1	13.0	0.0	0.0	0.0	8.9	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	17.1	13.0	0.0	0.0	0.0	8.9	0.0	0.0
DesignQueue:	0	18	6	0	0	0	37	0	0

Level of Service Computation Report												
1994 HCM Operations Method (Future Volume Alternative)												
Intersection #10 East 9th Street/Hwy 99 SB On Ramp												
Cycle (sec):	100	Critical Vol./Cap. (X):		0.291								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):		6.8								
Optimal Cycle:	20	Level of Service:		B								
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Right:	Include	Include	Ignore	Include								
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	
Lanes:	0	0	0	0	1	0	0	0	2	0	1	
Volume Module: >> Count Date: 17 Oct 1997 <<												
Base Vol:	0	0	0	0	139	0	582	300	0	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Adj:	0	0	0	0	139	0	582	0	0	0	0	
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	0	0	0	0	0	0	0	0	0	0	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PRF Adj:	1.00	1.00	1.00	1.00	0.89	0.89	0.85	0.85	0.00	1.00	1.00	
PRF Volume:	0	0	0	0	6	166	0	0	0	0	0	
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	
PC2 Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	
MUF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.00	1.00	1.00	1.00	
Final Vol:	0	0	0	0	6	166	0	0	725	0	0	
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adj/Adj:	1.00	1.00	1.00	1.00	0.90	0.90	1.00	1.00	1.00	1.00	1.00	
Lanes:	0	0	0	0	0.03	0.97	0.00	0.00	2.00	1.00	0.00	
Final Sat:	0	0	0	0	60	1650	0.00	0	3800	1900	0	
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.19	0.00	0.00	0.00	
Crit Moves:	0.00	0.00	0.00	0.35	0.35	0.00	0.00	0.65	0.00	0.00	0.00	
Green/Cycle:	0.00	0.00	0.00	0.29	0.29	0.00	0.00	0.29	0.00	0.00	0.00	
Volume/Cap:	0.00	0.00	0.00	0.29	0.29	0.00	0.00	0.29	0.00	0.00	0.00	
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	15.5	15.5	0.0	0.0	4.8	0.0	0.0	0.0	
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
AdjDel/Veh:	0.0	0.0	0.0	15.5	15.5	0.0	0.0	4.8	0.0	0.0	0.0	
DesignQueue:	0	0	0	0	0	0	0	15	0	0	0	

Level of Service Computation Report												
1994 HCM Operations Method (Future Volume Alternative)												
Intersection #10 East 9th Street/Hwy 99 SB On Ramp												
Cycle (sec):	100	Critical Vol./Cap. (X):		0.401								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):		4.8								
Optimal Cycle:	24	Level of Service:		A								
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Right:	Include	Include	Ignore	Include								
Min. Green:	0	0	0	0	0	2	0	1	0	0	0	0
Lanes:	0	0	0	0								
Volume Module: >> Count Date: 16 Oct 1997 <<												
Base Vol:	0	0	0	113	0	987	415	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Initial Adj:	0	0	0	0	0	987	0	0	0	0	0	0
Added Vol:	0	0	0	19	6	0	0	22	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	19	119	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
PRF Adj:	1.00	1.00	1.00	0.86	0.86	0.86	0.91	0.91	0.00	1.00	1.00	1.00
PRF Volume:	0	0	0	22	138	0	0	1111	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PC2 Adj:	1.00	1.00	1.00	22	138	0	0	1111	0	0	0	0
MUF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Final Vol:	0	0	0	1.00	1.00	1.00	1.00	1.05	0.00	1.00	1.00	1.00
	0	0	0	22	138	0	0	1167	0	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/Adj:	1.00	1.00	1.00	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.14	0.86	0.00	0.00	2.00	2.00	0.00	0.00	0.00
Final Sat.:	0	0	0	235	1475	0	0	3600	1900	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.09	0.00	0.00	0.31	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.00	0.00	0.23	0.23	0.00	0.00	0.77	0.00	0.00	0.00	0.00
Green/Cycle:	0.00	0.00	0.00	0.40	0.40	0.00	0.00	0.40	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	21.3	21.3	0.0	0.0	2.6	0.0	0.0	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	21.3	21.3	0.0	0.0	2.6	0.0	0.0	0.0	0.0
DesignQueue:	0	0	0	1	6	0	0	15	0	0	0	0

APPENDIX F

*INTERSECTION LEVEL OF SERVICE CALCULATIONS -
EXISTING PLUS PROJECT BUILDOUT CONDITIONS*

Level of Service Computation Report									
1994 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #1 Bruce Road/Humbolt Road									
Average Delay (sec/veh):	5.4 Worst Case Level Of Service: D								
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled		Uncontrolled		Uncontrolled		Uncontrolled		
Rights:	Include		Include		Include		Include		
Lanes:	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0
Volume Module:									
Base Vol:	3 330 11	18 328 1	1 7 31	11 5 16					
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00					
Initial Bse:	3 330 11	18 328 1	1 7 31	11 5 16					
Added Vol:	0 58 168	16 41 17	32 88 0	91 48 9					
PasserbyVol:	0 0 0	0 0 0	0 0 0	0 0 0					
Initial Fut:	3 388 179	34 369 18	33 95 31	102 53 25					
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00					
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00					
PHF Volume:	3 388 179	34 369 18	33 95 31	102 53 25					
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0					
Final Vol:	3 388 179	34 369 18	33 95 31	102 53 25					
Adjusted Volume Module:									
Grade:	0%				0%				0%
Truck/Cars:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX				
Truck/Comb:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX				
PCE Adj:	1.10 1.00 1.00	1.10 1.00 1.00	1.10 1.00 1.00	1.10 1.00 1.00	1.10 1.00 1.00				
Cycl/Car PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX				
Truck/Comb PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX				
Adj Vol:	3 368 179	37 369 18	36 105 34	112 58 28					
Critical Gap Module:									
MoveUp Time:	2.1 XXXX XXXX	2.1 XXXX XXXX	3.4 3.3 2.6	3.4 3.3 2.6					
Critical Gp:	5.0 XXXX XXXX	5.0 XXXX XXXX	6.5 6.0 5.5	6.5 6.0 5.5					
Capacity Module:									
Conflict Vol:	387 XXXX XXXX	567 XXXX XXXX	932 902 378	956 902 478					
Potent Cap:	1121 XXXX XXXX	920 XXXX XXXX	306 333 891	296 367 793					
Adj Cap:	1.00 XXXX XXXX	1.00 XXXX XXXX	0.81 0.94 1.00	0.68 0.94 1.00					
Move Cap:	1121 XXXX XXXX	920 XXXX XXXX	246 314 891	203 346 793					
Level of Service Module:									
Stopped Del:	3.2 XXXX XXXX	4.1 XXXX XXXX	16.9 16.4 4.2	35.4 12.3 4.7					
LOS by Move:	A	A	LT - LTR - RT	LT - LTR - RT					
Shared Cap:	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX					
Shrd StpDel:	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX					
Shared LOS:	A	A	C	D					
ApproachDel:	0.0	0.4	14.1	24.3					

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Level of Service Computation Report										
1994 HCM Unsignalized Method (Future Volume Alternative)										
Intersection #1 Bruce Road/Humboldt Road										
Average Delay (sec/veh):	4.3		Worst Case Level of Service: C							
Approach:	North Bound	South Bound	East Bound	West Bound						
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	
Lanes:	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	0 0 1 0 0	
Volume Module:										
Base Vol:	15 300 11	19 256 1	0 2 11	10 13 26						
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00						
Initial Bse:	15 300 11	19 256 1	0 2 11	10 13 26						
Added Vol:	0 17 47	4 39 28	9 25 0	149 78 14						
PasserbyVol:	0 0 0	0 0 0	0 0 0	0 0 0						
Initial Fut:	15 317 58	23 295 29	9 27 11	159 91 40						
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00						
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00						
PHF Volume:	15 317 58	23 295 29	9 27 11	159 91 40						
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0						
Final Vol:	15 317 58	23 295 29	9 27 11	159 91 40						
Adjusted Volume Module:										
Grade:	0%		0%							
Truck/Cycle/Cars:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX						
Truck/Comb:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX						
PCE Adj:	1.10 1.00 1.00	1.10 1.00 1.00	1.10 1.10 1.10	1.10 1.10 1.10						
Cycl/Car PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX						
Truck/Comb PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX						
Adj Vol:	17 317 58	25 295 29	10 30 12	175 100 44						
Critical Gap Module:										
MoveUp Time:	2.1 XXXX XXXX	2.1 XXXX XXXX	3.4 3.3 2.6	3.4 3.3 2.6						
Critical Gp:	5.0 XXXX XXXX	5.0 XXXX XXXX	6.5 6.0 5.5	6.5 6.0 5.5						
Capacity Module:										
Conflict Vol:	324 XXXX XXXX	375 XXXX XXXX	759 723 310	713 708 346						
Potent Cap:	1201 XXXX XXXX	1136 XXXX XXXX	395 456 965	409 464 925						
Adj Cap:	1.00 XXXX XXXX	1.00 XXXX XXXX	0.76 0.96 1.00	0.90 0.96 1.00						
Move Cap:	1201 XXXX XXXX	1136 XXXX XXXX	293 435 965	370 443 925						
Level of Service Module:										
Stopped Del:	3.0 XXXX XXXX	3.2 XXXX XXXX	12.7 8.8 3.8	17.0 10.2 4.1						
LOS by Move:	A	A	LT - LTR - RT	LT - LTR - RT						
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT						
Shared Cap:	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX						
Shrd StpDel:	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX	XXXX XXXX XXXX						
Shared LOS:	A	A	B	C						
ApproachDel:	0.1	0.2	8.4	13.1						

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Level of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Deer Creek Hwy/Yosemite Drive

Average Delay (sec/vch): 7.1 Worst Case Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 1 0 0 0 0 1 0 0 1 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Added Vol: 297 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 297 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 297 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 297 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Adjusted Volume Module:

Grade: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

% Cycle/Cars: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

% Truck/Comb: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Cat PCE: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

Truck/Comb PCE: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

Adj Vol: 327 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Critical Gap Module:

Moveup Time: 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1

Critical Gap: 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0

Capacity Module:

Conflict Vol: 495 503 290 292 503 503 290 292 503 503 290 292 503 503 290 292

Potent Cap: 547 594 987 1244 547 594 987 1244 547 594 987 1244 547 594 987 1244

Adj Cap: 0.89 0.97 1.00 1.00 0.89 0.97 1.00 1.00 0.89 0.97 1.00 1.00 0.89 0.97 1.00 1.00

Move Cap: 488 577 987 1244 488 577 987 1244 488 577 987 1244 488 577 987 1244

Level of Service Module:

Stopped Del: 18.7 6.3 3.9 3.0 18.7 6.3 3.9 3.0 18.7 6.3 3.9 3.0 18.7 6.3 3.9 3.0

LOS by Move: C A A A C A A A C A A A C A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: 577 577 577 577 577 577 577 577 577 577 577 577 577 577 577 577

Shd StpDel: 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7

Shared LOS: 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7

ApproachDel: 18.7 4.1 0.4 0.0 18.7 4.1 0.4 0.0 18.7 4.1 0.4 0.0 18.7 4.1 0.4 0.0

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Level of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Deer Creek Hwy/Yosemite Drive

Average Delay (sec/vch): 4.1 Worst Case Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 1 0 0 0 0 1 0 0 1 0 0 1 0 0 0 1

Volume Module:

Base Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Base: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Added Vol: 183 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 183 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 183 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol: 183 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Adjusted Volume Module:

Grade: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

% Cycle/Cars: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

% Truck/Comb: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Cat PCE: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

Truck/Comb PCE: 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%

Adj Vol: 201 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Critical Gap Module:

Moveup Time: 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1 3.4 3.3 2.6 2.1

Critical Gap: 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0 6.5 6.0 5.5 5.0

Capacity Module:

Conflict Vol: 667 803 117 118 667 803 117 118 667 803 117 118 667 803 117 118

Potent Cap: 435 435 1208 1506 435 435 1208 1506 435 435 1208 1506 435 435 1208 1506

Adj Cap: 0.86 0.91 1.00 1.00 0.86 0.91 1.00 1.00 0.86 0.91 1.00 1.00 0.86 0.91 1.00 1.00

Move Cap: 373 373 1208 1506 373 373 1208 1506 373 373 1208 1506 373 373 1208 1506

Level of Service Module:

Stopped Del: 10.0 10.0 3.1 2.6 10.0 10.0 3.1 2.6 10.0 10.0 3.1 2.6 10.0 10.0 3.1 2.6

LOS by Move: C A A A C A A A C A A A C A A A

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: 377 377 377 377 377 377 377 377 377 377 377 377 377 377 377 377

Shd StpDel: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0

Shared LOS: 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0

ApproachDel: 10.0 5.0 0.4 0.3 10.0 5.0 0.4 0.3 10.0 5.0 0.4 0.3 10.0 5.0 0.4 0.3

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Level Of Service Computation Report

1994 HCM Unsignalized Method (Future Volume Alternative)

Source Name (Locality)	Most Crustal Level Of Service
Intersection of East 6th Street/1st Street	5

```

***** WOULD CASE BEVER ON SERVICE *****
AVERAGE DELAY (SEC/VENI): 31.0
*****
Approach: North Round South Round East Round West Round
*****

```

	novent events	seven events	five events
Approach:	L - T - R	L - T - R	L - T - R
Movement:	L - T - R	L - T - R	L - T - R

	Control:	Stop sign	Stop sign	Uncontrolled	Uncontrolled
	Rights:	Include	Include	Include	Include
1					
2					
3					
4					
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98					
99					
100					

Lanes:	1	0	1	0	0	0	1	0	0	0	0	0	1	1	0	1
--------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

```

Volume Module: >> Count Date: 17 Oct 1997 <<
Base Vol:      117 213      0      0      3 307
                0      0      0      0      4 967 12

```

[illegible]

Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0

[illegible]

PHF Adj:	0.85	0.85	0.85	0.93	0.93	1.00	1.00	1.00	0.74	0.74
PHF Volume:	137	250	0	0	3	329	0	0	5	1589

[illegible][illegible][illegible]

Cycl/Cat	PCE:
Tact/Omh	PCE:
Cycl/Cat	PCE:
Tact/Omh	PCE:

Adj Vol.:	151	275	0	0	4	362	0	0	0	0	6	1589	16
-----------	-----	-----	---	---	---	-----	---	---	---	---	---	------	----

MoveUp Time:	3.4	3.3	xxxxx	xxxxx	3.3	2.6	xxxxx	xxxxx	2.1	xxxx	xxxxx
Critical Go:	4.0	3.5	xxxxx	xxxxx	6.0	5.5	xxxxx	xxxxx	5.0	xxxx	xxxxx

Capacity Module:

Conflict Vol:	1596	1611	XXXXX	XXXXX	1594	794	XXXX	XXXX	XXXXX	0	XXXX	XXXXX
Potent Cap:	382	477	XXXXXX	XXXXX	XXXX	548	XXXX	XXXX	XXXXX	1714	XXXX	XXXXX

Adj Cap:	0.32	0.94	XXXXX	1.00	XXXXX	XXXXX	1.00	XXXXX	XXXXX
Move Cap.:	122	447	XXXXX	XXXXX	149	548	XXXXX	XXXXX	XXXXX

Level Of Service Module:

```
Stopped Del:419.7 18.1 xxxxx xxxx 24.7 16.3 xxxxx xxxx 2.1 xxxx xxxxxx
LOS by Move: F C * * * * A * *
```

Movement:	Lf - LTR - RT	Lf - LTR - RT	Lf - LTR - RT
Shared Cap.:	xxxx xxxx xxxxx	xxxx xxxx	534

```

Shrd Stpel: xxxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Shared LOS:   *   *   *   *   C   *   *   *   *   *   *
              100%    100%    100%    100%    100%    100%

```

Approachnel: 160.5 16.4 0.0 0.0 0.0

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P.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report

1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 East 9th Street/Fir Street

Average Delay (sec/veh): 2.0 Worst Case Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0

Volume Module: >> Count Date: 17 Oct 1997 <<

Base Vol: 0 103 3 2 5 0 213 434 125 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Base: 0 103 3 2 5 0 213 434 125 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 103 3 2 5 0 213 501 125 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHE Volume: 0.76 0.76 0.76 0.44 0.44 0.86 0.86 0.86 1.00 1.00 1.00
PHE Vol: 0 136 4 5 11 0 248 584 146 0 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol: 0 136 4 5 11 0 248 584 146 0 0 0
Adjusted Volume Module:

Grade: 08 08 08 08

% Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

% Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Cat PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 150 4 5 13 0 273 584 146 0 0 0

Critical Gap Module:

Moveup Time: XXXX 3.3 2.6 3.4 3.3 XXXX 2.1 XXXX XXXX XXXX XXXX

Critical Gap: XXXX 3.8 5.5 4.3 6.0 XXXX 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX 905 365 900 978 XXXX 0 XXXX XXXX XXXX XXXX

Potent Cap: XXXX 643 905 560 335 XXXX 1714 XXXX XXXX XXXX XXXX

Adj Cap: XXXX 0.79 1.00 0.65 0.79 XXXX 1.00 XXXX XXXX XXXX XXXX

Move Cap: XXXX 505 905 362 263 XXXX 1714 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX 9.7 4.0 10.1 14.3 XXXX 2.5 XXXX XXXX XXXX XXXX

LOS by Move: L - LTR - RT L - LTR - RT L - LTR - RT L - LTR - RT

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX 512 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: XXXX XXXX 9.6 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Approach: 9.6 13.1 0.7 0.0

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P.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report

1994 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 East 9th Street/Fir Street

Average Delay (sec/veh): 13.9 Worst Case Level of Service: F

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 0 1 0 1 0 0 0 1 0 0 0 0 0 0

Volume Module: >> Count Date: 16 Oct 1997 <<

Base Vol: 0 150 6 4 5 0 275 964 94 0 0 0
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Base: 0 150 6 4 5 0 275 964 94 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 150 6 4 5 0 275 1204 94 0 0 0
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHE Volume: 0.62 0.62 0.62 0.75 0.75 0.92 0.92 0.92 1.00 1.00 1.00
PHE Vol: 0 242 10 5 7 0 300 1312 102 0 0 0
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Vol: 0 242 10 5 7 0 300 1312 102 0 0 0
Adjusted Volume Module:

Grade: 08 08 08 08

% Cycle/Cars: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

% Truck/Comb: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

PCE Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

Cycle/Cat PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Truck/Comb PCE: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Adj Vol: 0 267 11 6 7 0 330 1312 102 0 0 0

Critical Gap Module:

Moveup Time: XXXX 3.3 2.6 3.4 3.3 XXXX 2.1 XXXX XXXX XXXX XXXX

Critical Gap: XXXX 3.8 5.5 4.3 6.0 XXXX 5.0 XXXX XXXX XXXX XXXX

Capacity Module:

Conflict Vol: XXXX 1662 707 1732 1714 XXXX 0 XXXX XXXX XXXX XXXX

Potent Cap: XXXX 414 607 310 138 XXXX 1714 XXXX XXXX XXXX XXXX

Adj Cap: XXXX 0.65 1.00 0.06 0.65 XXXX 1.00 XXXX XXXX XXXX XXXX

Move Cap: XXXX 270 607 18 90 XXXX 1714 XXXX XXXX XXXX XXXX

Level of Service Module:

Stopped Del: XXXX 94.2 6.0 201.7 43.3 XXXX 2.5 XXXX XXXX XXXX XXXX

LOS by Move: L - LTR - RT L - LTR - RT L - LTR - RT L - LTR - RT

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap: XXXX XXXX 276 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Shared LOS: XXXX XXXX 90.8 XXXX XXXX XXXX XXXX XXXX XXXX XXXX

Approach: 90.8 149.2 0.5 0.0

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Level Of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #7 East 8th Street/Hwy 99 NB On Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.389						
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.0						
Optimal Cycle:	24	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Right:	Include	Include	Include	Include	Include	Include	Include	Include	Ignore
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	0	0	1
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0	203	0	0	0	0	0	0	888
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	203	0	0	0	0	0	0	888
Added Vol:	0	0	0	0	0	0	0	0	135
PasserbyVol:	0	0	0	0	0	0	0	0	78
Initial Fut:	0	203	0	0	0	0	0	0	1023
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
PHF Volume:	0	203	0	0	0	0	0	0	1023
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05
Final Vol:	0	203	0	0	0	0	0	0	1074
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0	0	0	0	0	0	0	0	0
Final Sat:	0	1900	0	0	0	0	0	0	3600
Capacity Analysis Module:									
Vol/Sat:	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.26
Crit Moves:	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.39
Green/Cycle:	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.73
Volume/Cap:	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.39
Level of Service Module:									
Delay/Veh:	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0	3.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0	3.4
DesignQueue:	0	8	0	0	0	0	0	0	18

Level Of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection #7 East 8th Street/Hwy 99 NB On Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):		0.381					
Loss time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):		6.8					
Optimal Cycle:	23	Level of Service:		B					
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Ignore	Ignore
Min. Green:	0	0	0	0	0	0	0	0	0
Lanes:	0	0	0	0	0	0	0	0	1
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0	290	0	0	0	0	0	0	687
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	290	0	0	0	0	0	0	687
Added Vol:	0	0	0	0	0	0	0	0	83
PasserbyVol:	0	0	0	0	0	0	0	0	48
Initial Fut:	0	290	0	0	0	0	0	0	770
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.97	0.96	0.96	1.00	1.00	1.00	1.00	0.96	0.96
PHF Volume:	0	301	0	0	0	0	0	0	804
Reduced Vol:	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05
Final Vol.:	0	301	0	0	0	0	0	0	844
Saturation Flow Module:									
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0	0	0	0	0	0	0	0	0
Final Sat.:	0	1900	0	0	0	0	0	0	3600
Capacity Analysis Module:									
Vol/Sat:	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Crit Moves:	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Green/Cycle:	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Volume/Cap:	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Level of Service Module:									
Delay/Veh:	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0	7.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0	7.3
DesignQueue:	0	10	0	0	0	0	0	0	21

A.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

1994 HCM Operations Method (Future Volume Alternative)												
Intersection #8 East 8th Street/Hwy 99 SB Off Ramp												
Cycle (sec):	100											
Loss Time (sec):	0 (Y+R = 4 sec)											
Optimal Cycle:	38											
Level of Service:												
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Rights:	Include	Include	Include	Include								
Min. Green:	0	0	0	0								
Lanes:	0	0	0	0								
Volume Module:	>> Count Date: 17 Oct 1997 <<											
Base Vol:	0	0	295	160								
Growth Adj:	1.00	1.00	1.00	1.00								
Initial Base:	0	0	295	160								
Added Vol:	0	0	0	0								
PasserbyVol:	0	0	0	0								
Initial Fut:	0	0	320	160								
User Adj:	1.00	1.00	1.00	1.00								
PHF Adj:	1.00	1.00	0.92	0.92								
PHF Volume:	0	0	349	174								
Reduced Vol:	0	0	0	0								
PCF Adj:	1.00	1.00	1.00	1.00								
PCF Volume:	0	0	349	174								
Final Vol:	0	0	349	174								
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900								
Adj/Volume:	1.00	1.00	1.00	1.00								
Lanes:	0.00	0.00	0.00	0.00								
Final Sat.:	0	0	1900	1615								
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.18	0.11								
Crit Moves:	0.00	0.00	0.29	0.29								
Green/Cycle:	0.00	0.00	0.00	0.00								
Volume/Cap:	0.00	0.00	0.00	0.00								
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	21.3								
User Delay:	1.00	1.00	1.00	1.00								
Adj/Delay/Veh:	0.0	0.0	0.0	21.3								
Design/Delay/Veh:	0	0	0	14								

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P.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

1994 HCM Operations Method (Future Volume Alternative)												
Intersection #8 East 8th Street/Hwy 99 SB Off Ramp												
Cycle (sec):	100											
Loss Time (sec):	0 (Y+R = 4 sec)											
Optimal Cycle:	52											
Level of Service:												
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Rights:	Include	Include	Include	Include								
Min. Green:	0	0	0	0								
Lanes:	0	0	0	0								
Volume Module:	>> Count Date: 17 Oct 1997 <<											
Base Vol:	0	0	494	190								
Growth Adj:	1.00	1.00	1.00	1.00								
Initial Base:	0	0	494	190								
Added Vol:	0	0	0	0								
PasserbyVol:	0	0	0	0								
Initial Fut:	0	0	582	190								
User Adj:	1.00	1.00	1.00	1.00								
PHF Adj:	1.00	1.00	0.91	0.91								
PHF Volume:	0	0	643	210								
Reduced Vol:	0	0	0	0								
PCF Adj:	1.00	1.00	1.00	1.00								
PCF Volume:	0	0	643	210								
Final Vol:	0	0	643	210								
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900								
Adj/Volume:	1.00	1.00	1.00	1.00								
Lanes:	0.00	0.00	0.00	0.00								
Final Sat.:	0	0	1900	1615								
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.34	0.13								
Crit Moves:	0.00	0.00	0.47	0.47								
Green/Cycle:	0.00	0.00	0.00	0.00								
Volume/Cap:	0.00	0.00	0.00	0.00								
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	15.8								
User Delay:	1.00	1.00	1.00	1.00								
Adj/Delay/Veh:	0.0	0.0	0.0	15.8								
Design/Delay/Veh:	0	0	0	21								

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Level of Service Computation Report									
1994 HCM Operations Method (Future Volume Alternative)									
Intersection 89 East 9th Street/Hwy 99 NB Off Ramp									
Cycle (sec):	100	Critical Vol./Cap. (X):	0.474						
Loss time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	9.3						
Optimal Cycle:	27	Level of Service:	B						
Approach:	North Bound	South Bound	East Bound	West Bound					
Movement:	L - T - R	L - T - R	L - T - R	L - T - R					
Control:	Permitted	Permitted	Permitted	Permitted					
Rights:	Include	Include	Include	Include					
Min. Green:	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Lanes:	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Volume Module: >> Count Date: 17 Oct 1997 <<									
Base Vol:	0 299 71 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
Initial Bse:	0 299 71 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Added Vol:	0 0 13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
PasserByVol:	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Initial Fut:	0 299 84 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
PBF Adj:	0.84 0.84 0.84 1.00 1.00 1.00 1.00 0.75 0.75 0.75 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
PBF Volume:	0 356 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.05 1.05 1.05 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
Final Vol.:	0 356 100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Saturation Flow Module:									
Sat/Lane:	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900								
Adjustment:	1.00 1.00 0.85 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
Lanes:	0 0 1900 1615 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Final Sat.:	0 1900 1615 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								
Capacity Analysis Module:									
Vol/Sat:	0.00 0.19 0.06 0.00 0.00 0.00 0.00 0.00 0.29 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00								
Crit Moves:	0.00 0.40 0.40 0.00 0.00 0.00 0.00 0.00 0.60 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00								
Green/Cycle:	0.00 0.47 0.16 0.00 0.00 0.00 0.00 0.00 0.47 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00								
Volume/Cap:	0.00 0.47 0.16 0.00 0.00 0.00 0.00 0.00 0.47 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00								
Level of Service Module:									
Delay/Veh:	0.0 14.9 12.6 0.0 0.0 0.0 0.0 0.0 7.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0								
User DelAdj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00								
AdjDel/Veh:	0.0 14.9 12.6 0.0 0.0 0.0 0.0 0.0 7.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0								
DesignQueue:	0 13 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0								

Level of Service Computation Report																
1994 HCM Operations Method (Future Volume Alternative)																
Intersection 89 East 9th Street/Hwy 99 NB Off Ramp																
Cycle (sec):	100	Critical Vol./Cap. (X):	0.696													
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.4													
Optimal Cycle:	47	Level of Service:	B													
Approach:	North Bound	South Bound	East Bound	West Bound												
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted	Permitted
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Min. Green:	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Lanes:	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Volume Module: >> Count Date: 17 Oct 1998 <<																
Base Vol:	0	450	145	0	0	0	0	0	0	0	1386	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	450	145	0	0	0	0	0	0	0	1186	0	0	0	0	0
Added Vol:	0	0	48	0	0	0	0	0	0	0	192	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	450	193	0	0	0	0	0	0	0	1378	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PBF Adj:	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.87	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00
PBF Volume:	0	493	211	0	0	0	0	0	0	0	1580	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.05	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	0	493	211	0	0	0	0	0	0	0	1659	0	0	0	0	0
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Final Sat:	0	1900	1615	0	0	0	0	0	0	0	3900	0	0	0	0	0
Capacity Analysis Module:																
Vol/Sat:	0.00	0.26	0.13	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.37	0.37	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green/Cycle:	0.00	0.70	0.35	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.70	0.35	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Level of Service Module:																
Delay/Veh:	0.0	19.2	14.8	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.2	14.8	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DesignQueue:	0	18	8	0	0	0	0	0	39	0	0	0	0	0	0	0

A.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley FIR
City of Chico

Level of Service Computation Report												
1994 HCM Operations Method (Future Volume Alternative)												
Intersection #10 East 9th Street/Hwy 99 SB on Ramp												
Cycle (sec):	100											
Loss Time (sec):	0 (Y+R = 4 sec)											
Optimal Cycle:	22											
Level of Service:												
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Right:	Include	Include	Ignore	Include								
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0 0											
Lanes:	0 0 0 0 0 0 0 0 0 0 0 0 0											
Volume Module: >> Count Date: 17 Oct 1997 <<												
Base Vol:	0	0	0	0	582	300	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	0	0	0	0	582	300	0	0	0	0	0	0
Added Vol:	0	0	25	42	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Pct:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
PBF Volume:	1.00	1.00	0.89	0.89	0.85	0.85	0.00	1.00	1.00	1.00	1.00	1.00
Reduct Vol:	0	0	28	202	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCB Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
MF Adj:	1.00	1.00	1.00	1.00	1.00	1.05	0.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	28	202	0	754	0	0	0	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.12	0.88	0.00	0.00	2.00	1.00	0.00	0.00	0.00
Final Sat.:	0	0	208	1502	0	3800	1900	0	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.00	0.00	0.40	0.40	0.00	0.00	0.60	0.00	0.00	0.00	0.00
Green/Cycle:	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.33	0.00	0.00	0.00	0.00
Level of Service Module:												
Delay/Veh:	0.0	0.0	13.4	13.4	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDelay/Veh:	0.0	0.0	13.4	13.4	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.0
DesignQueue:	0	0	1	7	0	18	0	0	0	0	0	0

P.M. Peak Hour - Existing plus Buildout of Conceptual Master Plan Conditions
Oak Valley FIR
City of Chico

Level of Service Computation Report												
1994 HCM Operations Method (Future Volume Alternative)												
Intersection #10 East 9th Street/Hwy 99 SB on Ramp												
Cycle (sec):	100											
Loss Time (sec):	0 (Y+R = 4 sec)											
Optimal Cycle:	28											
Level of Service:												
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R								
Control:	Permitted	Permitted	Permitted	Permitted								
Right:	Include	Include	Ignore	Include								
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0 0											
Lanes:	0 0 0 0 0 0 0 0 0 0 0 0 0											
Volume Module: >> Count Date: 16 Oct 1997 <<												
Base Vol:	0	0	0	113	0	987	415	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	0	0	0	113	0	987	415	0	0	0	0	0
Added Vol:	0	0	0	88	26	0	0	104	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Pct:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	1.00	1.00	1.00	0.88	0.86	1.00	1.00	0.91	0.00	1.00	1.00	1.00
PBF Volume:	1.00	1.00	1.00	0.86	0.86	0.86	0.91	0.91	0.00	1.00	1.00	1.00
Reduct Vol:	0	0	0	102	161	0	0	1202	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PCB Adj:	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
MF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.00	1.00	1.00	1.00	1.00
Final Vol.:	0	0	0	102	161	0	1262	0	0	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.39	0.61	0.00	0.00	2.00	1.00	0.00	0.00	0.00
Final Sat.:	0	0	0	653	1047	0	3800	1900	0	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.15	0.15	0.00	0.00	0.33	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.00	0.00	0.32	0.32	0.00	0.00	0.68	0.00	0.00	0.00	0.00
Green/Cycle:	0.00	0.00	0.00	0.49	0.49	0.00	0.00	0.49	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.00	0.00	0.49	0.49	0.00	0.00	0.49	0.00	0.00	0.00	0.00
Level of Service Module:												
Delay/Veh:	0.0	0.0	0.0	18.4	18.4	0.0	0.0	5.0	0.0	0.0	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDelay/Veh:	0.0	0.0	0.0	18.4	18.4	0.0	0.0	5.0	0.0	0.0	0.0	0.0
DesignQueue:	0	0	0	4	6	0	24	0	0	0	0	0

APPENDIX G

*INTERSECTION LEVEL OF SERVICE CALCULATIONS - FUTURE
WITHOUT PROJECT CONDITIONS*

Level of Service Computation Report												
1994 HCM Unsignalized Method (Future Volume Alternative)												
Intersection #2 Deer Creek Hwy/Yosemite Drive												
Average Delay (sec/veh):	1.3	Worst Case Level of Service: C										
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Lanes:	0 1 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0 0
Volume Module:												
Base Vol:	271	605	0	0	580	23	3	0	195	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	271	605	0	0	580	23	3	0	195	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	271	605	0	0	580	23	3	0	195	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	301	672	0	0	644	26	3	0	217	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol:	301	672	0	0	644	26	3	0	217	0	0	0
Adjusted Volume Module:	0%											
Grade:	0%											
Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.10	1.00	1.10	1.00
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Adj Vol:	331	672	0	0	644	26	4	0	238	0	0	0
Critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxx	xxxx	xxxx	xxxx	3.4	xxxx	2.6	xxxx	xxxx	xxxx
Critical Gap:	5.0	xxxx	xxxx	xxxx	xxxx	xxxx	6.5	xxxx	5.5	xxxx	xxxx	xxxx
Capacity Module:												
Conflict Vol:	670	xxxx	xxxx	xxxx	xxxx	xxxx	1631	xxxx	657	xxxx	xxxx	xxxx
Potent Cap:	822	xxxx	xxxx	xxxx	xxxx	xxxx	120	xxxx	643	xxxx	xxxx	xxxx
Adj Cap:	1.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.33	xxxx	1.00	xxxx	xxxx	xxxx
Move Cap:	822	xxxx	xxxx	xxxx	xxxx	xxxx	40	xxxx	643	xxxx	xxxx	xxxx
Level of Service Module:												
Stopped Del:	6.9	xxxx	xxxx	xxxx	xxxx	xxxx	97.6	xxxx	0.4	xxxx	xxxx	xxxx
LOS by Move:	B	A	A	A	A	A	A	A	A	A	A	A
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	524	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	9.8	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	A	A	A	A	A	A	B	A	A	A	A	A
ApproachDel:	2.3	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0

Level of Service Computation Report												
1994 HCM Unsignalized Method (Future Volume Alternative)												
Intersection #1 Bruce Road/Humboldt Road												
Average Delay (sec/veh):	2.4	Worst Case Level of Service: B										
Approach:	North Bound	South Bound	East Bound	West Bound								
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include	Include
Lanes:	0 1 0 0	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 1
Volume Module:												
Base Vol:	271	605	0	0	580	23	3	0	195	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	271	605	0	0	580	23	3	0	195	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	271	605	0	0	580	23	3	0	195	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	301	672	0	0	644	26	3	0	217	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol:	301	672	0	0	644	26	3	0	217	0	0	0
Adjusted Volume Module:	0%											
Grade:	0%											
Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.00	1.10	1.00	1.10	1.00
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Truck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Adj Vol:	331	672	0	0	644	26	4	0	238	0	0	0
Critical Gap Module:												
MoveUp Time:	2.1	xxxx	xxxx	xxxx	xxxx	xxxx	3.4	xxxx	2.6	xxxx	xxxx	xxxx
Critical Gap:	5.0	xxxx	xxxx	xxxx	xxxx	xxxx	6.5	xxxx	5.5	xxxx	xxxx	xxxx
Capacity Module:												
Conflict Vol:	670	xxxx	xxxx	xxxx	xxxx	xxxx	1631	xxxx	657	xxxx	xxxx	xxxx
Potent Cap:	822	xxxx	xxxx	xxxx	xxxx	xxxx	120	xxxx	643	xxxx	xxxx	xxxx
Adj Cap:	1.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.33	xxxx	1.00	xxxx	xxxx	xxxx
Move Cap:	822	xxxx	xxxx	xxxx	xxxx	xxxx	40	xxxx	643	xxxx	xxxx	xxxx
Level of Service Module:												
Stopped Del:	6.9	xxxx	xxxx	xxxx	xxxx	xxxx	97.6	xxxx	0.4	xxxx	xxxx	xxxx
LOS by Move:	B	A	A	A	A	A	A	A	A	A	A	A
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	524	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	9.8	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	A	A	A	A	A	A	B	A	A	A	A	A
ApproachDel:	2.3	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0

P.M. Peak Hour - Future without Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #3 Deer Creek Hwy/Bruce Road

Cycle (sec): 100 Critical Vol./Cap. (X): 0.903
Loss Time (sec): 0 (YR - 4 sec) Average Delay (sec/veh): 25.3
Optimal Cycle: 180 Level of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 40 572 94 146 567 306 477 257 79 56 143 57
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Adj: 40 572 94 146 567 306 477 257 79 56 143 57
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 40 572 94 146 567 306 477 257 79 56 143 57
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 44 636 104 162 630 340 530 286 88 62 159 63
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 44 636 104 162 630 340 530 286 88 62 159 63
PCR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 44 636 104 162 630 340 530 286 88 62 159 63

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adj/turn: 0.95 0.98 0.96 0.95 1.00 0.85 0.85 1.00 0.85 0.95 0.96 0.96
Lanes: 1.00 0.86 0.14 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.72 0.28
Final Sat: 1805 1600 262 1805 1900 1615 1805 1900 1615 1805 1306 518

Capacity Analysis Module:

Vol/Sat: 0.02 0.40 0.40 0.09 0.33 0.21 0.29 0.15 0.05 0.03 0.12 0.12
Clt Move: ****
Green/Cycle: 0.04 0.44 0.44 0.10 0.50 0.50 0.33 0.37 0.37 0.09 0.13 0.13
Volume/Cap: 0.66 0.90 0.90 0.90 0.66 0.42 0.90 0.40 0.15 0.40 0.90 0.90

Level of Service Module:

Delay/Veh: 44.5 26.3 26.3 57.3 13.1 10.3 33.1 15.1 13.4 28.9 50.6 50.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 44.5 26.3 26.3 57.3 13.1 10.3 33.1 15.1 13.4 28.9 50.6 50.6
DesignQueue: 2 22 4 8 19 10 21 10 3 3 8 3

P.M. Peak Hour - Future without Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue

Cycle (sec): 100 Critical Vol./Cap. (X): 3.975
Loss Time (sec): 0 (YR - 4 sec) Average Delay (sec/veh): 10917.6
Optimal Cycle: 180 Level of Service: F

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Permitted Permitted Permitted Permitted Permitted
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol: 616 283 157 20 225 210 295 645 546 153 726 45
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Adj: 616 283 157 20 225 210 295 645 546 153 726 45
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 616 283 157 20 225 210 295 645 546 153 726 45
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 684 314 174 22 250 233 328 717 607 170 807 50
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 684 314 174 22 250 233 328 717 607 170 807 50
PCR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 684 314 174 22 250 233 328 717 607 170 807 50

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adj/turn: 0.18 0.18 0.18 0.57 0.93 0.93 0.95 1.00 0.85 0.95 0.99 0.99
Lanes: 0.58 0.27 0.15 1.00 0.52 0.46 1.00 1.00 1.00 1.00 0.94 0.96
Final Sat: 205 94 52 1083 915 852 1805 1900 1615 1805 1771 110

Capacity Analysis Module:

Vol/Sat: 3.34 3.34 3.34 0.02 0.27 0.27 0.18 0.38 0.38 0.09 0.46 0.46
Clt Move: ****
Green/Cycle: 0.84 0.84 0.84 0.84 0.84 0.84 0.05 0.13 0.13 0.03 0.11 0.11
Volume/Cap: 3.96 3.96 3.96 0.02 0.33 0.33 3.96 2.94 2.94 2.94 3.96 3.96

Level of Service Module:

Delay/Veh: 16371 16371 16371 0.8 1.2 1.2 16645 5912 5843 6140 16430
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 16371 16371 16371 0.8 1.2 1.2 16645 5912 5843 6140 16430
DesignQueue: 7 3 2 0 2 2 18 39 32 9 45 3

P.M. Peak Hour - Future without Project Conditions
Oak Valley EIR
City of Chicago

P.M. Peak Hour - Future without Project Conditions
Oak Valley EIR
City of Chico

1994 HCM Level Of Service Computation Report
Unsignalized Method (Future Volume Alternative)

**Level Of Service Computation Report
1994 HCM Unsignalized Method (Future Volume Alternative)**

Intersection 96 East 9th Street/Fir Street										
Average Delay (sec/vph): OVERFLOW					Worst Case Level of Service: F					
Approach:		North Bound		South Bound		East Bound		West Bound		
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Stop Sign Include		Stop Sign Include		Stop Sign Include		Uncontrolled Include		Uncontrolled	
Right:	0	0	0	1	0	0	0	1	0	0
Thru:	0	0	0	1	0	0	0	1	0	0
Left:	0	0	0	1	0	0	0	1	0	0
Lanes:	0		1		0		1		0	

Intersection #5 East 8th Street/Fir Street									
Average Delay (sec/veh): OVERFLOW				Worst Case Level of Service: F					
Approach:		North Bound		South Bound		East Bound		West Bound	
Movement:		L - T - R	R	L - T - R	R	L - T - R	R	L - T - R	R
Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
Right:	Include	Include	Include	Include	Include	Include	Include	Include	Include
Left:	1 0 1 0	0 0 0 1	0 0 0 1	0 0 0 0	0 0 0 0	0 1 1 0	0 1 1 0	0 1 1 0	0 1 1 0

Volume Module:												
	0	125	6	4	5	0	354	1497	144	0	0	0
Base Vol:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Birth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	0	125	6	4	5	0	354	1497	144	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	125	6	4	5	0	354	1497	144	0	0	0
Initial User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Birth Adj:	0.62	0.62	0.62	0.75	0.75	0.75	0.92	0.92	0.92	1.00	1.00	1.00
PRF Volume:	0	202	10	5	7	0	386	1631	157	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol:	0	202	10	5	7	0	386	1631	157	0	0	0
Adjusted Volume Module:												

Volume Module:													
Base Vol:	155	345	0	0	5	321	0	0	0	0	3	1569	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	155	345	0	0	5	321	0	0	0	0	3	1569	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	155	345	0	0	5	321	0	0	0	0	3	1569	21
Vol User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.80	0.80	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
PHF Volume:	207	461	0	0	6	399	0	0	0	0	3	1685	23
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol:	207	461	0	0	6	399	0	0	0	0	3	1685	23
Adjusted Volume Module:													

Grade:	0A	0B	0C	0D	0E	0F	0G	0H
1/2" Cycle/Cats:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1/2" Truce/Comb:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1/2" PCE Adj:	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.10 1.10
1/2" Cycle/Cat PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1/2" Truce/Comb PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
Adj Vol.:	0 222 11	6 7 0	424 1631 157	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Critical Gap Module:								
Moveup Time:	3.3 2.6	3.4 3.3 XXXXX	2.1 XXXX XXXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
Critical Gp:	3.0 5.5	4.3 6.0 XXXXX	5.0 XXXX XXXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX

Grade:	04	01	06	06
1/2 Cycle/Cars:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1/2 Truck/Comb:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1 PCE Adj:	1.10 1.10 1.10	1.10 1.10 1.10	1.10 1.00 1.00	1.10 1.00 1.00
1 Cycle/Car PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
1 Truck/Comb PCE:	XXXX XXXX	XXXX XXXX	XXXX XXXX	XXXX XXXX
Adj Vol:	228 507 0	0 7 439	0 0 0	4 1665 23
Critical Gap Module:				
MoveUp Time:	3.4 3.3 XXXXX	3.3 2.6 XXXXX	XXXXX XXXXX	2.1 XXXX XXXXX
Critical Gap:	4.0 3.5 XXXXX	XXXXX 6.0 5.5	XXXXX XXXX XXXX	5.0 XXXX XXXX

Capacity Module:												
Conflict Vol:	xxxx	2095	894	2117	2173	xxxxxx	0	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	321	488	236	79	xxxxxx	1714	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Adj Cap:	xxxx	0.42	1.00	0.00	0.42	xxxxxx	1.00	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	136	488	0	33	xxxxxx	1714	xxxx	xxxxxx	xxxx	xxxx	xxxxxx

Capacity Module:												
Conflict Vol:	1692	1711	XXXXX	XXXX	1689	843	XXXX	XXXX	XXXXXX	0	XXXX	XXXXXX
Potent Cap:	359	453	XXXXX	XXXX	142	518	XXXX	XXXX	XXXXXX	1714	XXXX	XXXXXX
Adj Cap:	0.00	0.00	XXXXX	XXXX	0.00	1.00	XXXX	XXXX	XXXXXX	1.00	XXXX	XXXXXX
Move Cap:	0	0	XXXXX	XXXX	0	518	XXXX	XXXX	XXXXXX	3714	XXXX	XXXXXX

[illegible]

```

Level of Service Module:
Stopped Del: xxxxxx xxxxxx 29.1 xxxxxx xxxxxx 2.1 xxxx xxxxxx
LOS by Move: F F A A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap: xxx xxx xxxxxx xxx xxx xxxxxx xxx xxx xxxxxx
Shared Supel: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
Shared LOS: xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
ApproachDel: xxxxxx 0.0 0.0

```

Traffix 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

Traffix 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

Level of Service Computation Report											
1994 HCM Operations Method (Future Volume Alternative)											
Intersection 89 East 9th Street/Hwy 99 NB Off Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.814								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.4								
Optimal Cycle:	77	Level of Service:	B								
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Permitted	Permitted	Permitted	Permitted							
Rights:	Include	Include	Include	Include							
Min. Green:	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0	0	1	0	0	0	0	0	1	0	0
Volume Module:											
Base Vol:	0	397	148	0	0	0	0	1845	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	397	148	0	0	0	0	1845	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	397	148	0	0	0	0	1845	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	1.00	1.00	1.00	0.87	0.87	1.00	1.00	1.00
PHF Volume:	0	435	162	0	0	0	0	2116	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	435	162	0	0	0	0	2116	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MIF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.05	1.00	1.00	1.00
Final Vol:	0	435	162	0	0	0	0	2222	0	0	0
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.00	1.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Final Sat:	0	1900	1615	0	0	0	0	3800	0	0	0
Capacity Analysis Module:											
Vol/Sat:	0.00	0.23	0.10	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.00
Crit Moves:	***	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.00	0.28	0.28	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00
Volume/Cap:	0.00	0.81	0.36	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00
Level of Service Module:											
Delay/Veh:	0.0	28.1	18.8	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	28.1	18.8	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0
DesignQueue:	0	18	7	0	0	0	0	41	0	0	0

Level of Service Computation Report											
1994 HCM Operations Method (Future Volume Alternative)											
Intersection 810 East 9th Street/Hwy 99 SB On Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.584								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	3.7								
Optimal Cycle:	35	Level of Service:	A								
Approach: North Bound South Bound East Bound West Bound											
Movement: L - T - R L - T - R L - T - R L - T - R											
Control: Permitted Include Permitted Include Permitted Include Permitted Include											
Rights: 0 0 0 0 0 1 0 0 0 0 2 0 0 0 0 0											
Min. Green: 0 0 0 0 0 1 0 0 0 0 2 0 1 0 0 0											
Lanes: 0 0 0 0 0 1 0 0 0 0 2 0 1 0 0 0											
Volume Module:											
Base Vol:	0	0	0	143	0	0	1635	704	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	143	0	0	1635	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	143	0	0	1635	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	0.86	0.86	0.86	0.91	0.91	0.00	1.00	1.00
PHF Volume:	0	0	0	165	0	0	1801	0	0	0	0
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	165	0	0	1801	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MIF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.00	1.00	1.00
Final Vol.:	0	0	0	165	0	0	1891	0	0	0	0
Saturation Flow Module:											
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.00	1.00	0.00	0.00	2.00	1.00	0.00	0.00
Final Sat.:	0	0	0	1900	0	0	3800	1900	0	0	0
Capacity Analysis Module:											
Vol/Sat:	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.50	0.00	0.00	0.00
Crit Moves:	***	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.85	0.00	0.00	0.00
Volume/Cap:	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.58	0.00	0.00	0.00
Level of Service Module:											
Delay/Veh:	0.0	0.0	0.0	0.0	27.9	0.0	0.0	1.6	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	0.0	27.9	0.0	0.0	1.6	0.0	0.0	0.0
DesignQueue:	0	0	0	0	8	0	0	19	0	0	0

APPENDIX H

*INTERSECTION LEVEL OF SERVICE CALCULATIONS -
FUTURE PLUS PROJECT CONDITIONS*

P.M. Peak Hour - Future plus Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report												
1994 HCM Unsignalized Method (Future Volume Alternative)												
Intersection #2 Deer Creek Hwy/Yosemite Drive												
Average Delay (sec/veh):		3.2		Worst Case Level of Service: D								
Approach:		North Bound		South Bound		East Bound		West Bound				
Movement:		L - T - R	R	L - T - R	R	L - T - R	R	L - T - R	R	L - T - R		
Control:		Stop Sign		Stop Sign		Uncontrolled		Uncontrolled				
Rights:		Include		Include		Include		Include				
Lanes:		1	0	0	0	1	0	0	0	1	0	0
Volume Module:												
Base Vol:		0	0	0	2	0	90	191	298	0	0	170
Growth Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:		0	0	0	2	0	90	191	298	0	0	170
Added Vol:		93	0	0	0	0	0	0	0	171	0	0
PasserbyVol:		0	0	0	0	0	0	0	0	0	0	0
Initial Fut:		93	0	0	2	0	90	191	298	171	0	170
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:		103	0	0	2	0	100	212	331	190	0	189
Reduct Vol:		0	0	0	0	0	0	0	0	0	0	0
Final Vol:		103	0	0	2	0	100	212	331	190	0	189
Adjusted Volume Module:												
Grade:		0%										
A Cycle/Car:		XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
A Truck/Comb:		XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
PCE Adj:		1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:		XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Trck/Comb PCE:		XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Adj Vol:		114	0	0	2	0	110	233	331	190	0	189
Critical Gap Module:												
Moveup Time:		3.4	XXXX	XXXXX	2.6	XXXX	XXXXX	XXXXX	XXXX	XXXX	XXXX	XXXX
Critical Gp:		6.5	XXXX	XXXXX	5.5	XXXX	XXXXX	XXXXX	XXXX	XXXX	XXXX	XXXX
Capacity Module:												
Conflict Vol:		827	XXXX	XXXXX	189	XXXX	XXXXX	XXXXX	XXXX	XXXX	XXXXX	XXXXX
Potent Cap:		379	XXXX	XXXXX	351	XXXX	1111	1388	XXXX	XXXXX	XXXX	XXXXX
Adj Cap:		0.78	XXXX	XXXXX	0.87	XXXX	1.00	1.00	XXXX	XXXXX	XXXX	XXXXX
Move Cap:		258	XXXX	XXXXX	306	XXXX	1111	1388	XXXX	XXXXX	XXXX	XXXXX
Level of Service Module:												
Stopped Del:		23.2	XXXX	XXXXX	11.8	XXXX	3.6	3.1	XXXX	XXXXX	XXXXX	XXXXX
LOS by Move:		D	A	A	C	A	A	A	A	A	A	A
Movement:		L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT
Shared Cap:		XXXX	XXXX	XXXXX	XXXX	XXXX	XXXXX	XXXX	XXXX	XXXXX	XXXX	XXXXX
Shrd StpDel:		XXXXX	XXXX	XXXXX	XXXX	XXXX	XXXXX	XXXX	XXXX	XXXXX	XXXX	XXXXX
Shared LOS:		F	F	F	F	F	F	F	F	F	F	F
ApproachDel:		23.2	3.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

P.M. Peak Hour - Future plus Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report													
1994 HCM Unsignalized Method (Future Volume Alternative)													
Intersection #1 Bruce Road/Humbolt Road													
Average Delay (sec/veh):	17.4				Worst Case Level of Service: F								
Approach:	North Bound			South Bound			East Bound			West Bound			
Movement:	L	T	R	L	T	R	L	T	R	L	T	R	
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign			
Right-of-Way:	Include			Include			Include			Include			
Lanes:	0	1	0	0	0	1	0	0	0	1	0	0	
Volume Module:													
Base Vol:	271	605	0	0	580	23	3	0	195	0	0	0	
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	271	605	0	0	580	23	3	0	195	0	0	0	
Added Vol:	0	53	0	0	29	14	26	0	0	0	0	0	
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	271	658	0	0	609	37	29	0	195	0	0	0	
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
PHF Volume:	301	731	0	0	677	41	32	0	217	0	0	0	
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	
Final Vol:	301	731	0	0	677	41	32	0	217	0	0	0	
Adjusted Volume Module:													
Grade:	0%												
A Cycle/Car:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
A Truck/Comb:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
PCE Adj:	1.10	1.00	1.00	1.10	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10	
Cycl/Car PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
Trck/Comb PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	
Adj Vol:	331	731	0	0	677	41	35	0	238	0	0	0	
Critical Gap Module:													
Moveup Time:	2.1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	3.4	XXXX	2.6	XXXX	XXXX	
Critical Gp:	5.0	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	6.5	XXXX	5.5	XXXX	XXXX	
Capacity Module:													
Conflict Vol:	718	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	1729	XXXX	697	XXXX	XXXX	
Potent Cap:	780	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	106	XXXX	614	XXXX	XXXX	
Adj Cap:	1.00	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	0.25	XXXX	1.00	XXXX	XXXX	
Move Cap:	780	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	27	XXXX	614	XXXX	XXXX	
Level of Service Module:													
Stopped Del:	7.5	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	878.3	XXXX	9.1	XXXX	XXXX	
LOS by Move:	B												
Movement:	L	T	R	-	RT	L	T	-	RT	L	T	-	
Shared Cap:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	160	XXXX	XXXX	XXXX	XXXX	
Shrd StpDel:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	122	XXXX	XXXX	XXXX	XXXX	
Shared LOS:	F							F					
ApproachDel:	2.3							0.0					
												0.0	

P.M. Peak Hour - Future plus Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #3 Deer Creek Hwy/Bruce Road
Cycle (sec): 100 Critical Vol./Cap. (X): 1.009
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 37.1
Optimal Cycle: 180 Level of Service: D
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Protected Protected Protected Protected Protected
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0

Volume Module:
Base Vol: 40 572 94 146 567 306 477 257 79 56 143 57
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 40 572 94 146 567 306 477 257 79 56 143 57
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Pct: 40 572 173 182 567 306 477 257 79 56 143 57
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 44 636 192 202 630 340 530 348 88 110 193 86
Reduced Vol: 44 636 192 202 630 340 530 348 88 110 193 86
Reduced Vol: 44 636 192 202 630 340 530 348 88 110 193 86
PCR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
KPR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 44 636 192 202 630 340 530 348 88 110 193 86

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adj/turn: 0.95 0.97 0.97 0.95 1.00 0.85 0.95 1.00 0.85 0.95 0.95 0.95
Lanes: 1.00 0.77 0.23 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.69 0.31
Final Sat.: 1805 1416 427 1805 1900 1615 1805 1900 1615 1805 1249 556

Capacity Analysis Module:
Vol/Sat: 0.02 0.45 0.45 0.11 0.33 0.21 0.29 0.18 0.05 0.06 0.15 0.15
Crit Moves: ****
Green/Cycle: 0.04 0.45 0.45 0.11 0.52 0.52 0.29 0.33 0.33 0.11 0.15 0.15
Volume/Cap: 0.64 1.01 1.01 1.01 0.64 0.41 1.01 0.55 0.16 0.55 1.01 1.01
Level of Service Module:
Delay/Veh: 42.5 44.4 44.4 80.5 12.2 9.7 55.5 18.4 15.2 29.6 71.6 71.6
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 42.5 44.4 44.4 80.5 12.2 9.7 55.5 18.4 15.2 29.6 71.6 71.6
Displacement: 2 22 7 10 18 10 23 14 3 6 9 4

P.M. Peak Hour - Future plus Project Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #4 Deer Creek Hwy/Forest Avenue
Cycle (sec): 100 Critical Vol./Cap. (X): 3.993
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 1108.4
Optimal Cycle: 180 Level of Service: F
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Permitted Permitted Permitted Permitted Permitted
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:
Base Vol: 616 283 157 20 225 210 295 645 546 153 726 45
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 616 283 157 20 225 210 295 645 546 153 726 45
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PasserbyVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Pct: 616 283 157 25 225 210 295 645 546 153 726 45
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90
PHF Volume: 684 314 174 28 258 233 328 773 607 170 838 53
Reduced Vol: 684 314 174 28 258 233 328 773 607 170 838 53
Reduced Vol: 684 314 174 28 258 233 328 773 607 170 838 53
PCR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
KPR Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Vol: 684 314 174 28 258 233 328 773 607 170 838 53

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adj/turn: 0.18 0.18 0.18 0.52 0.93 0.93 0.95 1.00 0.85 0.95 0.99 0.99
Lanes: 0.58 0.27 0.15 1.00 0.52 0.48 1.00 1.00 1.00 1.00 0.94 0.06
Final Sat.: 205 94 52 988 915 852 1805 1900 1615 1805 1769 112

Capacity Analysis Module:
Vol/Sat: 3.34 3.34 3.34 0.03 0.27 0.27 0.18 0.41 0.38 0.09 0.47 0.47
Crit Moves: ****
Green/Cycle: 0.04 0.84 0.84 0.03 0.33 0.33 0.03 0.13 0.13 0.03 0.12 0.12
Volume/Cap: 3.99 3.99 3.99 0.03 0.33 0.33 3.99 3.05 2.82 3.05 3.99 3.99
Level of Service Module:
Delay/Veh: 16620 xxxx 16620 0.9 1.2 1.2 16897 6721 5115 6378 xxxx 16675
User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
AdjDel/Veh: 16620 xxxx 16620 0.9 1.2 1.2 16897 6721 5115 6378 xxxx 16675
Displacement: 7 3 2 0 2 2 18 42 32 9 47 3

Level of Service Computation Report									
1994 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #5 East 8th Street/Fir Street									
Average Delay (sec/vol): OVERFLOW Worst Case Level of Service: F									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Stop Sign Stop Sign Stop Sign Stop Sign									
Rights: Include Include Include Include									
Lanes: 1 0 1 0 0 0 0 1 0 0 0 0 0 0 1 0 1									
Volume Module:									
Base Vol:	155	345	0	0	5	321	0	0	3 1569 21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
Initial Bse:	155	345	0	0	5	321	0	0	3 1569 21
Added Vol:	0	0	0	0	0	0	0	0	0 28 0
PasserByVol:	0	0	0	0	0	0	0	0	0 0 0
Initial Fut:	155	345	0	0	5	321	0	0	3 1597 21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
PHF Adj:	0.75	0.75	0.75	0.80	0.80	0.80	1.00	1.00	0.93 0.93 0.93
PHF Volume:	207	461	0	0	6	399	0	0	3 1715 23
Reduct Vol:	0	0	0	0	0	0	0	0	0 0 0
Final Vol:	207	461	0	0	6	399	0	0	3 1715 23
Adjusted Volume Module:									
Grade:	0%								
1 Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
1 Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10 1.00 1.00
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Trck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Adj Vol:	228	507	0	0	7	439	0	0	4 1715 23
Critical Gap Module:									
MoveUp Time:	3.4	3.3	xxxx	xxxx	3.3	2.6	xxxx	xxxx	2.1
Critical Op:	4.0	3.5	xxxx	xxxx	6.0	5.5	xxxx	xxxx	5.0
Capacity Module:									
Conflict Vol:	1722	1741	xxxx	xxxx	1719	858	xxxx	xxxx	0
Potent Cap:	352	446	xxxx	xxxx	137	509	xxxx	xxxx	1714
Adj Cap:	0.00	0.00	xxxx	xxxx	0.00	1.00	xxxx	xxxx	1.00
Move Cap:	0	0	xxxx	xxxx	0	509	xxxx	xxxx	1714
Level of Service Module:									
Stopped Del:	xxxx	xxxx	xxxx	xxxx	xxxx	31.3	xxxx	xxxx	2.1
LOS by Move:	F	F	F	F	F	A	A	A	A
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd StpDel:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	.	.	.	.	.	.	.	.	.
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.0	xxxxxx	xxxxxx	0.0

Level of Service Computation Report									
1994 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #6 East 9th Street/Fir Street									
Average Delay (sec/vol): OVERFLOW Worst Case Level of Service: F									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Stop Sign Stop Sign Stop Sign Stop Sign									
Rights: Include Include Include Include									
Lanes: 0 0 0 1 0 1 0 1 0 0 0 1 0 0 0 0 0 0									
Volume Module:									
Base Vol:	0	125	6	4	5	0	354	1497	144
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	125	6	4	5	0	354	1497	144
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	125	6	4	5	0	354	1548	144
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.62	0.62	0.62	0.75	0.75	0.75	0.92	0.92	0.92
PHF Volume:	0	202	10	5	7	0	386	1686	157
Reduct Vol:	0	0	0	0	0	0	0	0	0
Final Vol:	0	202	10	5	7	0	386	1686	157
Adjusted Volume Module:									
Grade:	0%								
1 Cycle/Cars:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
1 Truck/Comb:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Trck/Comb PCE:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Adj Vol:	0	222	11	6	7	0	424	1686	157
Critical Gap Module:									
MoveUp Time:	3.3	2.6	3.4	3.3	xxxx	2.1	xxxx	xxxx	xxxx
Critical Op:	3.8	5.5	4.3	6.0	xxxx	5.0	xxxx	xxxx	xxxx
Capacity Module:									
Conflict Vol:	xxxx	2150	922	2173	2229	xxxx	0	xxxx	xxxx
Potent Cap:	xxxx	311	472	227	74	xxxx	1714	xxxx	xxxx
Adj Cap:	xxxx	0.40	1.00	0.00	0.40	xxxx	1.00	xxxx	xxxx
Move Cap:	xxxx	124	472	0	29	xxxx	1714	xxxx	xxxx
Level of Service Module:									
Stopped Del:	xxxx	1227	7.8	xxxx	157	xxxx	2.7	xxxx	xxxx
LOS by Move:	F	F	F	F	F	A	A	A	A
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap:	xxxx	xxxx	129	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shrd StpDel:	xxxx	xxxx	1171	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
Shared LOS:	.	.	.	.	.	.	.	.	.
ApproachDel:	1170.9	xxxxxx	.	xxxxxx	.	0.5	.	.	0.0

Level of Service Computation Report											
1994 HCM Operations Method (Future Volume Alternative)											
Intersection 99 East 9th Street/Hwy 99 NB Off Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.827								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	11.7								
Optimal Cycle:	83	Level of Service:	E								
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Permitted	Permitted	Permitted	Permitted							
Right:	Include	Include	Include	Include							
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0										
Lanes:	0 0 1 0 1 0 0 0 0 0 1 0 0 0 0 0 0 0										
Volume Module:											
Base Vol:	0 397 148	0 0 0 0 0 0 0 0 0 0 0 0									
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
Initial Bse:	0 397 148	0 0 0 0 0 0 0 0 0 0 0 0									
Added Vol:	0 0 0 0 0 0 0 0 0 0 0 0										
PasserbyVol:	0 0 0 0 0 0 0 0 0 0 0 0										
Initial Fut:	0 397 158	0 0 0 0 0 0 0 0 0 0 0 0									
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
PHF Adj:	0.91 0.91 0.91	1.00 1.00 1.00	0.87 0.87 0.87	1.00 1.00 1.00							
PHF Volume:	0 435 173	0 0 0 0 0 0 0 0 0 0 0 0									
Reduced Vol:	0 435 173	0 0 0 0 0 0 0 0 0 0 0 0									
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.05 1.05 1.00	1.00 1.00 1.00							
Final Vol.:	0 435 173	0 0 0 0 0 0 0 0 0 0 0 0									
Saturation Flow Module:											
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900							
Adjustment:	1.00 1.00	0.85 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
Lanes:	0.00 1.00	1.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00							
Final Sat.:	0 1900 1615	0 0 0 0 0 0 0 0 0 0 0 0									
Capacity Analysis Module:											
Vol/Sat:	0.00 0.23	0.11 0.00 0.00	0.00 0.60 0.00	0.00 0.00 0.00							
Crit Moves:	0.00 0.23	0.11 0.00 0.00	0.00 0.60 0.00	0.00 0.00 0.00							
Green/Cycle:	0.00 0.28	0.00 0.00 0.00	0.00 0.72 0.00	0.00 0.00 0.00							
Volume/Cap:	0.00 0.83	0.00 0.00 0.00	0.00 0.83 0.00	0.00 0.00 0.00							
Level of Service Module:											
Delay/Veh:	0.0 29.2	19.2 0.0 0.0	0.0 7.7 0.0	0.0 0.0 0.0							
User DelAdj:	1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00							
AdjDel/Veh:	0.0 29.2	19.2 0.0 0.0	0.0 7.7 0.0	0.0 0.0 0.0							
DesignQueue:	0 19 7	0 0 0 0 0 0 0 0 0 0 0 0									

Level of Service Computation Report											
1994 HCM Operations Method (Future Volume Alternative)											
Intersection #10 East 9th Street/Hwy 99 SB On Ramp											
Cycle (sec):	100	Critical Vol./Cap. (X):	0.618								
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/Veh):	4.7								
Optimal Cycle:	38	Level of Service:	A								
Approach:	North Bound	South Bound	East Bound	West Bound							
Movement:	L - T - R	L - T - R	L - T - R	L - T - R							
Control:	Permitted	Permitted	Permitted	Permitted							
Right:	Include	Include	Ignore	Include							
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0										
Lanes:	0 0 0 0 0 0 0 0 0 0 0 0										
Volume Module:											
Base Vol:	0 0 0 0 0 0 0 0 0 0 0 0										
Growth Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0 1635	704	0 0 0				
Initial Bse:	0 0 0 0 0 0 0 0 0 0 0 0										
Added Vol:	0 0 0 0 0 0 0 0 0 0 0 0										
PasserbyVol:	0 0 0 0 0 0 0 0 0 0 0 0										
Initial Fut:	0 0 0 0 0 0 0 0 0 0 0 0										
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 1.00	0.00	1.00 1.00	1.00			
PHF Adj:	1.00 1.00	1.00 0.86	0.86 0.86	0.91 0.91	0.00 1.00	1.00	1.00 1.00	1.00			
PHF Volume:	0 0 0 0 0 0 0 0 0 0 0 0										
Reduced Vol:	0 0 0 0 0 0 0 0 0 0 0 0										
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	0.00 1.00	0.00	1.00 1.00	1.00			
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.05	0.00	1.00 1.00	1.00			
Final Vol.:	0 0 0 0 0 0 0 0 0 0 0 0										
Saturation Flow Module:											
Sat/Lane:	1900 1900	1900 1900	1900 1900	1900 1900	1500	1900	1900	1900			
Adjustment:	1.00 1.00	1.00 0.90	0.90 0.90	1.00 1.00	1.00 1.00	1.00	1.00 1.00	1.00			
Lanes:	0.00 0.00	0.00 0.11	0.89 0.89	0.00 0.00	2.00 1.00	0.00	0.00 0.00	0.00			
Final Sat.:	0 0 0 0 0 0 0 0 0 0 0 0										
Capacity Analysis Module:											
Vol/Sat:	0.00 0.00	0.00 0.11	0.11 0.00	0.00 0.50	0.00 0.00	0.00	0.00 0.00	0.00			
Crit Moves:	0.00 0.00	0.00 0.18	0.00 0.00	0.00 0.82	0.00 0.00	0.00	0.00 0.00	0.00			
Green/Cycle:	0.00 0.00	0.00 0.62	0.00 0.00	0.00 0.62	0.00 0.00	0.00	0.00 0.00	0.00			
Volume/Cap:	0.00 0.00	0.00 0.62	0.00 0.00	0.00 0.62	0.00 0.00	0.00	0.00 0.00	0.00			
Level of Service Module:											
Delay/Veh:	0.0 0.0	0.0 26.9	26.9 0.0	0.0 2.5	0.0 0.0	0.0	0.0 0.0	0.0			
User DelAdj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00	1.00 1.00	1.00			
AdjDel/Veh:	0.0 0.0	0.0 26.9	26.9 0.0	0.0 2.5	0.0 0.0	0.0	0.0 0.0	0.0			
DesignQueue:	0 0 0 0 0 0 0 0 0 0 0 0										

APPENDIX I

*INTERSECTION LEVEL OF SERVICE CALCULATIONS -
FUTURE PLUS PROJECT BUILDOUT CONDITIONS*

Level of Service Computation Report																						
1994 HCM Unsignalized Method (Future Volume Alternative)																						
Intersection #1 Bruce Road/Humboldt Road																						
Average Delay (sec/veh): OVERFLOW										Worst Case Level of Service: B												
Approach:					North Bound		South Bound		East Bound		West Bound											
Movement:					L	T	R	L	T	R	L	T	R	L	T	R						
Control:					Uncontrolled			Uncontrolled			Uncontrolled			Uncontrolled			Stop Sign					
Rights:					Include			Include			Include			Include			Include					
Lanes:					0	1	0	0	1	0	0	1	0	0	1	0	0	0	1	0		
Volume Module:																						
Base Vol:					271	605	0	0	580	23	3	0	195	0	0	0	0	0	0	0		
Growth Adj:					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Base:					271	605	0	0	580	23	3	0	195	0	0	0	0	0	0	0		
Added Vol:					0	58	168	0	17	32	88	0	91	48	9	0	0	0	0	0		
PasserbyVol:					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:					271	663	168	0	16	621	40	35	88	195	91	48	9	0	0	0		
User Adj:					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:					0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
PHF Volume:					301	737	187	0	18	690	44	39	98	217	101	53	10	0	0	0		
Reduct Vol:					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Final Vol:					301	737	187	0	18	690	44	39	98	217	101	53	10	0	0	0		
Adjusted Volume Module:																						
Grade: 0%																						
Cycles/Cars:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
Truck/Comb:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
PCE Adj:					1.10	1.10	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10		
Cycl/Car PCE:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
Trck/Comb PCE:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
Adj Vol:					331	737	187	0	20	690	44	43	108	238	111	59	11	0	0	0		
Critical Gap Module:																						
MoveUp Time:					2.1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	3.4	3.3	2.6	3.4	3.3	2.6	3.4	3.3	2.6		
Critical Gp:					5.0	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	6.5	6.0	5.5	6.5	6.0	5.5	6.5	6.0	5.5		
Capacity Module:																						
Conflict Vol:					734	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	1893	1954	712	2018	1883	830	712	2018	1883		
Potent Cap:					766	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	85	103	603	72	112	526	112	526	526		
Adj Cap:					1.00	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	0.00	0.05	1.00	0.00	0.05	1.00	0.00	0.05	1.00		
Move Cap:					766	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	0	5	603	0	6	526	0	6	526		
Level of Service Module:																						
Stopped Del:					7.7	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	9.3	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	7.0		
LOS by Move:					B							A										
Movement:					LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT		
Shared Cap:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
Shrd StpDel:					XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX		
Shared LOS:																						
ApproachDel:					2.0							0.2										

Level of Service Computation Report																			
1994 HCM Unsignalized Method (Future Volume Alternative)																			
Intersection #2 Deer Creek Hwy/Yosemite Drive																			
Average Delay (sec/veh): 54.3										Worst Case Level of Service: F									
Approach:										East Bound									
North Bound										West Bound									
L - T - R										L - T - R									
Stop Sign										Uncontrolled									
Include										Include									
Lanes: 1 0 0 0 0 1 0 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1										Uncontrolled									
Volume Module:																			
Base Vol:					0 0 0 0 2 0 90 191 298 0 0 170 3					0 0 170 3									
Growth Adj:					1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00					1.00 1.00 1.00									
Initial Bse:					0 0 0 0 2 0 90 191 298 0 0 170 3					0 0 170 3									
Added Vol:					183 0 0 0 18 0 20 34 336 9 13 0 0 0 0					9 13 0 0 0 0									
PasserbyVol:					0 0 0 0 0 0 0 0 0 0 0 0 0 0					0 0 0 0 0 0									
Initial Fut:					183 0 0 2 18 90 211 332 336 9 183 3					9 183 3									
User Adj:					1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00					1.00 1.00 1.00									
PHF Adj:					0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90					0.90 0.90 0.90									
PHF Volume:					203 0 0 2 20 100 234 369 373 10 203 3					10 203 3									
Reduct Vol:					0 0 0 0 0 0 0 0 0 0 0 0 0 0					0 0 0 0 0 0									
Final Vol:					203 0 0 2 20 100 234 369 373 10 203 3					10 203 3									
Adjusted Volume Module:																			
Grade: 0%																			
A Cycle/Cars:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
A Truck/Comb:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
PCE Adj:					1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10					1.10 1.10 1.10 1.10 1.10 1.10									
Cycl/Car PCE:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
Trck/Comb PCE:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
Adj Vol:					224 0 0 2 22 110 258 369 373 11 203 3					11 203 3									
Critical Gap Module:																			
MoveUp Time:					3.4 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					2.1 XXXX XXXX XXXX XXXX XXXX									
Critical Gp:					6.5 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					5.0 XXXX XXXX XXXX XXXX XXXX									
Capacity Module:																			
Conflict Vol:					1063 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					742 XXXX XXXX XXXX XXXX XXXX									
Potent Cap:					257 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					759 XXXX XXXX XXXX XXXX XXXX									
Adj Cap:					0.70 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					1.00 XXXX XXXX XXXX XXXX XXXX									
Move Cap:					179 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					759 XXXX XXXX XXXX XXXX XXXX									
Level of Service Module:																			
Stopped Del:					374.8 XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					4.8 XXXX XXXX XXXX XXXX XXXX									
LOS by Move:					F A A A A A A A A A A A A A A A					A A A A A A A A A A A A									
Movement:					LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT					LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT									
Shared Cap:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
Shrd StpDel:					XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX					XXXX XXXX XXXX XXXX XXXX XXXX									
Shared LOS:					C C C C C C C C C C C C C C C C					XXXX XXXX XXXX XXXX XXXX XXXX									
ApproachDel:					374.8 6.4 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8					0.2									

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection 83 Deer Creek Hwy/Bruce Road

Cycle (sec):	100	Critical Vol./Cap. (X):	1.140
Loss time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	66.7
Optimal Cycle:	180	Level of Service:	F
Approach:	North Bound		
Movement:	L - T - R	L - T - R	L - T - R
Control:	Protected	Protected	Protected
Right-of-Way:	Include	Include	Include
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Lanes:	0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0		

Volume Module:

Base Vol:	40	572	94	146	567	306	477	257	79	56	143	57
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	572	94	146	567	306	477	257	79	56	143	57
Added Vol:	30	28	0	161	25	0	208	56	0	113	83	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	70	600	94	307	592	306	477	465	135	56	256	140
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	78	667	104	341	658	340	530	517	150	62	284	156
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	667	104	341	658	340	530	517	150	62	284	156
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	78	667	104	341	658	340	530	517	150	62	284	156

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.98	0.98	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.95	0.95
Lanes:	1.00	0.87	0.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.35
Final Sat:	1805	1611	251	1805	1900	1615	1805	1900	1615	1805	1165	640

Capacity Analysis Module:

Vol/Sat:	0.04	0.41	0.13	0.35	0.21	0.29	0.27	0.09	0.03	0.24	0.24	0.24
Crit Moves:	0.06	0.36	0.36	0.17	0.47	0.47	0.26	0.42	0.42	0.05	0.21	0.21
Green/Cycle:	0.74	1.14	1.14	0.74	0.45	1.14	0.65	0.22	0.65	1.14	1.14	1.14
Volume/Cap:	0.74	1.14	1.14	0.74	0.45	1.14	0.65	0.22	0.65	1.14	1.14	1.14

Level of Service Module:

Delay/Veh:	45.1	101	100.8	122.5	16.1	11.8	110.2	16.3	12.1	39.6	115	115.2
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	45.1	101	100.8	122.5	16.1	11.8	110.2	16.3	12.1	39.6	115	115.2
DesignQueue:	4	26	4	17	21	11	24	18	5	3	13	7

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection 84 Deer Creek Hwy/Forest Avenue

Cycle (sec):	100	Critical Vol./Cap. (X):	4.227
Loss time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	1800.9
Optimal Cycle:	180	Level of Service:	F
Approach:	North Bound		
Movement:	L - T - R	L - T - R	L - T - R
Control:	Permitted	Permitted	Permitted
Right-of-Way:	Include	Include	Include
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Lanes:	0 0 1 0 0 1 0 0 1 0 1 0 1 0 1 0		

Volume Module:

Base Vol:	616	283	157	20	225	210	295	645	546	153	726	45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	616	283	157	20	225	210	295	645	546	153	726	45
Added Vol:	0	0	0	24	0	0	0	0	0	0	131	13
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	616	283	157	44	225	210	295	645	546	153	857	58
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	684	314	174	49	250	233	328	983	607	170	952	64
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	684	314	174	49	250	233	328	983	607	170	952	64
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	684	314	174	49	250	233	328	983	607	170	952	64

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.18	0.18	0.18	0.40	0.93	0.93	0.95	1.00	0.85	0.95	0.99	0.99
Lanes:	0.58	0.27	0.15	1.00	0.52	0.48	1.00	1.00	1.00	1.00	0.64	0.06
Final Sat:	195	90	50	760	915	852	1805	1900	1615	1805	1763	118

Capacity Analysis Module:

Vol/Sat:	3.50	3.50	3.50	0.06	0.27	0.27	0.18	0.52	0.38	0.09	0.54	0.54
Crit Moves:	0.83	0.83	0.83	0.03	0.83	0.83	0.04	0.14	0.14	0.03	0.13	0.13
Green/Cycle:	4.23	4.23	4.23	0.08	0.33	0.33	4.23	3.58	2.60	3.58	4.23	4.23
Volume/Cap:	4.23	4.23	4.23	0.08	0.33	0.33	4.23	3.58	2.60	3.58	4.23	4.23

Level of Service Module:

Delay/Veh:	20066	xxxx	20066	1.0	1.3	1.3	20384	xxxx	3841	11978	xxxx	20106
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20066	xxxx	20066	1.0	1.3	1.3	20384	xxxx	3841	11978	xxxx	20106
DesignQueue:	8	4	2	0	3	2	18	54	32	9	54	4

Level of Service Computation Report									
1994 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #5 East 8th Street/Fir Street									
Average Delay (sec/veh): OVERFLOW Worst Case Level of Service: F									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Stop Sign Stop Sign Stop Sign Stop Sign									
Rights: Include Include Include Include									
Lanes: 1 0 1 0 0 0 0 1 0 0 0 0 0 0 0 1 0 1									
Volume Module:									
Base Vol:	155	345	0	0	5	321	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	155	345	0	0	5	321	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	155	345	0	0	5	321	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHE Adj:	0.75	0.75	0.75	0.80	0.80	0.80	1.00	1.00	0.93
PHE Volume:	207	461	0	0	6	399	0	0	3
Reduct Vol:	0	0	0	0	0	0	0	0	0
Final Vol:	207	461	0	0	6	399	0	0	3
Adjusted Volume Module:									
Grade:	0%								
Truck/Cars:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Truck/Comb:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Truck/Comb PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Adj Vol:	228	507	0	0	7	439	0	0	4
Critical Gap Module:									
MoveUp Time:	3.4	3.3	XXXX	XXXX	3.3	2.6	XXXX	XXXX	XXXX
Critical Gp:	4.0	3.5	XXXX	XXXX	6.0	5.5	XXXX	XXXX	XXXX
Capacity Module:									
Conflict Vol:	1832	1852	XXXX	XXXX	1829	913	XXXX	XXXX	XXXX
Potent Cap:	328	421	XXXX	XXXX	120	477	XXXX	XXXX	XXXX
Adj Cap:	0.00	0.00	XXXX	XXXX	0.00	1.00	XXXX	XXXX	XXXX
Move Cap:	0	0	XXXX	XXXX	0	477	XXXX	XXXX	XXXX
Level of Service Module:									
Stopped Del:	XXXX	XXXX	XXXX	XXXX	XXXX	42.1	XXXX	XXXX	XXXX
LOS by Move:	F	F	F	F	F	A	F	F	F
Movement:	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT
Shared Cap:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Shrd StpDel:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Shared LOS:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
ApproachDel:	XXXX	XXXX	XXXX	XXXX	XXXX	0.0	XXXX	XXXX	0.0

Level of Service Computation Report									
1994 HCM Unsignalized Method (Future Volume Alternative)									
Intersection #6 East 9th Street/Fir Street									
Average Delay (sec/veh): OVERFLOW Worst Case Level of Service: F									
Approach: North Bound South Bound East Bound West Bound									
Movement: L - T - R L - T - R L - T - R L - T - R									
Control: Stop Sign Stop Sign Stop Sign Stop Sign									
Rights: Include Include Include Include									
Lanes: 0 0 0 1 0 1 0 1 0 0 0 1 0 0 0 0									
Volume Module:									
Base Vol:	0	125	6	4	5	0	354	1497	144
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	125	6	4	5	0	354	1497	144
Added Vol:	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0
Initial Fut:	0	125	6	4	5	0	354	1737	144
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHE Adj:	0.62	0.62	0.62	0.75	0.75	0.75	0.92	0.92	1.00
PHE Volume:	0	202	10	5	7	0	386	1892	157
Reduct Vol:	0	0	0	0	0	0	0	0	0
Final Vol:	0	202	10	5	7	0	386	1892	157
Adjusted Volume Module:									
Grade:	0%								
Truck/Cars:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Truck/Comb:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
PCE Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Cycl/Car PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Truck/Comb PCE:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Adj Vol:	0	222	11	6	7	0	424	1892	157
Critical Gap Module:									
MoveUp Time:	XXXX	3.3	2.6	3.4	3.3	XXXX	2.1	XXXX	XXXX
Critical Gp:	XXXX	3.8	5.5	4.3	6.0	XXXX	5.0	XXXX	XXXX
Capacity Module:									
Conflict Vol:	XXXX	2356	1025	2379	2435	XXXX	0	XXXX	XXXX
Potent Cap:	XXXX	276	419	196	58	XXXX	1714	XXXX	XXXX
Adj Cap:	XXXX	0.00	1.00	0.00	0.00	XXXX	1.00	XXXX	XXXX
Move Cap:	XXXX	0	419	0	0	XXXX	1714	XXXX	XXXX
Level of Service Module:									
Stopped Del:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	2.7	XXXX	XXXX
LOS by Move:	F	F	F	F	F	A	A	F	F
Movement:	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT	L - LTR - RT
Shared Cap:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Shrd StpDel:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
Shared LOS:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
ApproachDel:	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	0.5	XXXX	0.0

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #7 East 8th Street/Hwy 99 NB On Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.565
 Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/Veh): 9.3
 Optimal Cycle: 33 Level of Service: B

Approach:

Movement:

Control:

Rights:

Min. Green:

Lanes:

Volume Module:

Base Vol:

Growth Adj:

Initial Bse:

Added Vol:

PasserbyVol:

Initial Pct:

User Adj:

PBF Adj:

PBF Volume:

Reduced Vol:

Reduced Vol:

PCF Adj:

PCF Adj:

MPF Adj:

Final Vol:

Saturation Flow Module:

Sat/Lane:

Adjustment:

Lanes:

Final Sat:

Capacity Analysis Module:

Vol/Sat:

Green/Cycle:

Volume/Cap:

Level of Service Module:

Delay/Veh:

User Delay:

AdjDel/Veh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chicago

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #8 East 8th Street/Hwy 99 SB Off Ramp

Cycle (sec): 100 Critical Vol./Cap. (X): 0.979
 Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/Veh): 27.6
 Optimal Cycle: 180 Level of Service: D

Approach:

Movement:

Control:

Rights:

Min. Green:

Lanes:

Volume Module:

Base Vol:

Growth Adj:

Initial Bse:

Added Vol:

PasserbyVol:

Initial Pct:

User Adj:

PBF Adj:

PBF Volume:

Reduced Vol:

Reduced Vol:

PCF Adj:

PCF Adj:

MPF Adj:

Final Vol:

Saturation Flow Module:

Sat/Lane:

Adjustment:

Lanes:

Final Sat:

Capacity Analysis Module:

Vol/Sat:

Green/Cycle:

Volume/Cap:

Level of Service Module:

Delay/Veh:

User Delay:

AdjDel/Veh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

DesignVeh:

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #1 Bruce Road/Humboldt Road

Cycle (sec): 100 Critical Vol./Cap. (X): 0.797
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 19.3
Optimal Cycle: 112 Level of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected Protected

Rights: Include Include Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 1 0 0 1 0 1 0 0 1 0 1 0 1 0 1 0

Volume Module:

Base Vol:	271	605	0	0	580	23	3	0	195	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	271	605	0	0	580	23	3	0	195	0	0	0	0	0	0
Added Vol:	0	58	168	16	41	17	32	88	0	91	48	9	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	271	663	168	16	621	40	35	88	195	91	48	9	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	301	737	187	18	690	44	39	98	217	101	53	10	0	0	0
Reduced Vol:	301	737	187	18	690	44	39	98	217	101	53	10	0	0	0
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	301	737	187	18	690	44	39	98	217	101	53	10	0	0	0

Saturation Flow Module:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/turn:	0.95	0.97	0.97	0.95	0.99	0.99	0.95	0.90	0.90	0.95	0.98	0.98	0.98	0.98	0.98
Lanes:	1.00	0.80	0.20	1.00	0.94	0.06	1.00	0.31	0.69	1.00	0.84	0.16	0.16	0.16	0.16
Final Sat.:	1805	1470	373	1805	1768	113	1805	532	1178	1805	1586	296	296	296	296

Capacity Analysis Module:

Vol/Sat: 0.17 0.50 0.50 0.01 0.39 0.39 0.02 0.18 0.18 0.06 0.03 0.03

Crit Moves: 0.21 0.69 0.69 0.01 0.49 0.49 0.12 0.23 0.23 0.07 0.18 0.18

Green/Cycle: 0.80 0.73 0.73 0.73 0.80 0.80 0.18 0.80 0.80 0.80 0.18 0.18

Volume/Cap: 0.80 0.73 0.73 0.73 0.80 0.80 0.18 0.80 0.80 0.80 0.18 0.18

Level of Service Module:

Delay/Veh: 32.0 8.0 8.0 75.5 17.3 17.3 25.8 30.9 30.9 48.7 22.3 22.3

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 32.0 8.0 8.0 75.5 17.3 17.3 25.8 30.9 30.9 48.7 22.3 22.3

DesignQueue: 14 15 4 1 22 1 2 4 10 3 2 0

Traffic 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

P.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report
1994 HCM Operations Method (Future Volume Alternative)

Intersection #2 Deer Creek Hwy/Roseville Drive

Cycle (sec): 100 Critical Vol./Cap. (X): 0.411
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 14.2
Optimal Cycle: 39 Level of Service: B

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected Protected

Rights: Include Include Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 1 0 0 1 0 0 1 0 0 1 0 1 1 0 1 0

Volume Module:

Base Vol:	0	0	2	0	90	191	298	0	0	170	3	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	0	0	2	0	90	191	298	0	0	170	3	0	0	0	0
Added Vol:	183	0	0	0	18	0	20	34	336	9	13	0	0	0	0
PasserbyVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	183	0	2	18	90	211	332	336	9	183	3	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	203	0	2	20	100	234	369	373	10	203	3	0	0	0	0
Reduced Vol:	203	0	2	20	100	234	369	373	10	203	3	0	0	0	0
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PCR Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	203	0	2	20	100	234	369	373	10	203	3	0	0	0	0

Saturation Flow Module:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/turn:	0.95	1.00	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00
Lanes:	1.00	1.00	0.00	0.09	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1805	1900	0	173	1727	1615	1805	1900	1615	1805	1900	1615	1805	1900	1615

Capacity Analysis Module:

Vol/Sat: 0.11 0.00 0.00 0.01 0.01 0.06 0.13 0.19 0.23 0.01 0.11 0.00

Crit Moves: 0.27 0.00 0.00 0.42 0.15 0.15 0.32 0.56 0.56 0.01 0.26 0.26

Green/Cycle: 0.41 0.00 0.00 0.03 0.08 0.41 0.41 0.35 0.41 0.41 0.41 0.01

Volume/Cap: 0.41 0.00 0.00 0.03 0.08 0.41 0.41 0.35 0.41 0.41 0.41 0.01

Level of Service Module:

Delay/Veh: 19.5 0.0 0.0 10.8 23.6 25.5 17.7 7.8 8.2 37.3 20.1 17.7

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 19.5 0.0 0.0 10.8 23.6 25.5 17.7 7.8 8.2 37.3 20.1 17.7

DesignQueue: 8 0 0 0 1 5 9 9 10 1 9 0

Traffic 7.1.0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS, Santa Rosa, CA

[illegible]

1994 HCM Operations Method (Future Volume Alternative)										
Level of Service Computation Report										
Intersection #4 Deer Creek Hwy/Forest Avenue										
Cycle (sec):	100	Critical Vol./Cap. (X):		1.022						
Loss time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):		39.2						
Optimal Cycle:	180	Level of Service:		D						
Approach:	North Bound	South Bound	East Bound	West Bound						
Movement:	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	L - T - R	
Control:	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	Protected	
Rights:	Include	Include	Include	Include	Include	Include	Include	Include	Include	
Wtln. Green:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
Lanes:	2 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	1 0 1 0 1	
Volume Module:										
Base Vol:	616	283	157	20	225	210	295	645	546	153 726 45
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
Initial Base:	616	283	157	20	225	210	295	645	546	153 726 45
Added Vol:	0	0	0	24	0	0	240	0	0	0 131 13
PassesByVol:	0	0	0	0	0	0	0	0	0	0 0 0
Initial Fut:	616	283	157	44	225	210	295	885	546	153 857 58
PF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90 0.90 0.90
PHF Volume:	684	314	174	49	250	233	328	983	607	170 952 64
Induct Vol:	0	0	0	0	0	0	0	0	0	0 0 0
Reduced Vol:	684	314	174	49	250	233	328	983	607	170 952 64
PCF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
MDF Adj:	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
Final Vol:	705	314	174	49	250	233	328	983	607	170 952 64
Saturation Flow Module:										
Saturation Flow:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Capacity/Lane:	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Adj Adjstment:	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Lanes:	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	3610	1900	1615	1605	1900	1615	1605	1900	1615	1605
Capacity Analysis Module:										
Vol/Sat:	0.20	0.17	0.11	0.03	0.13	0.14	0.18	0.52	0.38	0.09 0.50 0.04
Grit Moves:	***	***	***	***	***	***	***	***	***	***
Green/Cycle:	0.19	0.29	0.29	0.05	0.14	0.14	0.10	0.57	0.57	0.10 0.49 0.49
Volume/Cap:	1.02	0.56	0.56	0.58	0.93	1.02	1.02	0.92	0.67	0.92 1.02 0.08
Level of Service Module:										
Delay/Veh:	56.3	20.9	18.7	36.8	54.2	80.4	71.6	21.3	11.1	59.0 44.8 8.7
Oper Delld:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 1.00 1.00
Adj Del/Veh:	56.3	20.9	18.7	36.8	54.2	80.4	71.6	21.3	11.1	59.0 44.8 8.7
DesignQue:	33	13	7	3	12	11	16	28	16	9 31 2
Traffix 7.1-0427 (c) 1998 Dowling Assoc. Licensed to W-TRANS. Santa Rosa, CA										

F.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #5 East 8th Street/Fir Street

Cycle (sec): 100 Critical Vol./Cap. (X): 0.986
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/Veh): 31.0
Optimal Cycle: 180 Level of Service: D

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 1 0 1 0 0 0 0 0 0 0 0 0 0 1 1 0 1

Volume Module:

Base Vol:	155	345	0	0	5	321	0	0	0	0	3	1569	21
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	155	345	0	0	5	321	0	0	0	0	3	1569	21
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	131	0
Passerby Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	155	345	0	0	5	321	0	0	0	0	3	1700	21
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.75	0.75	0.75	0.80	0.80	0.80	1.00	1.00	0.93	0.93	0.93	0.93	0.93
PHF Volume:	207	461	0	0	6	399	0	0	0	0	3	1826	23
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	207	461	0	0	6	399	0	0	0	0	3	1826	23
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
M/F Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	207	461	0	0	6	399	0	0	0	0	3	1917	23

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/Adj:	0.95	1.00	1.00	0.77	0.77	1.00	1.00	1.00	0.85	0.85	0.85	0.85	0.85
Lanes:	1.00	1.00	0.00	0.00	0.01	0.99	0.00	0.00	0.00	0.01	1.99	1.00	1.00
Final Sat:	1805	1900	0	0	22	1441	0	0	0	5	3225	1615	1615

Capacity Analysis Module:

Vol/Sat:	0.11	0.24	0.00	0.00	0.28	0.28	0.00	0.00	0.00	0.59	0.59	0.01	0.01
Crit Moves:	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.60	0.60	0.60	0.60
Green/Cycle:	0.12	0.40	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.99	0.02	0.02
Volume/Cap:	0.99	0.61	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.99	0.99	0.02	0.02

Level of Service Module:

Delay/Veh:	72.3	16.6	0.0	0.0	53.8	53.8	0.0	0.0	0.0	25.5	25.5	5.2	5.2
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj/Del/Veh:	72.3	16.6	0.0	0.0	53.8	53.8	0.0	0.0	0.0	25.5	25.5	5.2	5.2
Design Queue:	10	16	0	0	0	17	0	0	0	0	49	1	1

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F.M. Peak Hour - Future plus Buildout of Conceptual Master Plan Conditions
Oak Valley EIR
City of Chico

Level of Service Computation Report

1994 HCM Operations Method (Future Volume Alternative)

Intersection #6 East 9th Street/Fir Street

Cycle (sec): 100 Critical Vol./Cap. (X): 0.815
Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/Veh): 6.8
Optimal Cycle: 123 Level of Service: B

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected Protected
Rights: Include Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Lanes: 0 0 0 1 0 1 0 1 0 0 0 1 0 1 0 0 0 0

Volume Module:

Base Vol:	0	125	6	4	5	0	354	1497	144	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Base:	0	125	6	4	5	0	354	1497	144	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	240	0	0	0	0	0
Passerby Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	125	6	4	5	0	354	1737	144	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.62	0.62	0.62	0.75	0.75	0.75	0.92	0.92	0.92	1.00	1.00	1.00	1.00
PHF Volume:	0	202	10	5	7	0	386	1892	157	0	0	0	0
Reduced Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	202	10	5	7	0	386	1892	157	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
M/F Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol:	0	202	10	5	7	0	405	1987	165	0	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj/Adj:	0.95	0.99	0.89	0.95	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00
Lanes:	0.00	0.95	0.05	1.00	1.00	0.00	0.32	1.55	0.13	0.00	0.00	0.00	0.00
Final Sat:	0	1611	80	1805	1900	0	590	2894	240	0	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.00	0.13	0.13	0.00	0.00	0.00	0.69	0.69	0.69	0.00	0.00	0.00	0.00
Crit Moves:	0.00	0.15	0.15	0.00	0.16	0.00	0.84	0.84	0.84	0.00	0.00	0.00	0.00
Green/Cycle:	0.00	0.81	0.81	0.81	0.02	0.00	0.81	0.81	0.81	0.00	0.00	0.00	0.00
Volume/Cap:	0.00	0.81	0.81	0.81	0.02	0.00	0.81	0.81	0.81	0.00	0.00	0.00	0.00

Level of Service Module:

Delay/Veh:	0.0	38.5	38.5	179.6	23.0	0.0	3.8	3.8	3.8	0.0	0.0	0.0	0.0
User Delay:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj/Del/Veh:	0.0	38.5	38.5	179.6	23.0	0.0	3.8	3.8	3.8	0.0	0.0	0.0	0.0
Design Queue:	0	10	0	0	0	0	4	21	2	0	0	0	0

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APPENDIX J

AIR QUALITY URBEMIS7G EMISSIONS ESTIMATIONS

URBEMIS 7G: Version 3.1

File Name: 96069.URB
 Project Name: Oak Valley
 Project Location: Sacramento County

DETAILED REPORT
 (Pounds/Day - Winter)

Total Land Use Area to be Developed (Estimated): 30 acres
 Retail/Office/Institutional Square Footage: 0
 Single Family Units 101 Multi-family Units 199

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Demolition				0.00
Site Grading	2.91	22.27	-	52.32
Const. Worker Trips	1.18	1.67	3.18	0.32
Stationary Equip.	3.70	3.01	-	0.18
Mobile Equip. - Gas	0.00	0.00	-	0.00
Mobile Equip. - Diesel	31.68	502.48	-	31.06
Architectural Coatings	142.52			
Asphalt Offgasing	0.26			
TOTALS (ppd, unmitigated)	182.25	529.44	3.18	83.88

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Demolition				0.00
Site Grading	2.91	22.27	-	52.32
Const. Worker Trips	1.18	1.67	3.18	0.32
Stationary Equip.	3.70	3.01	-	0.18
Mobile Equip. - Gas	0.00	0.00	-	0.00
Mobile Equip. - Diesel	31.68	502.48	-	31.06
Architectural Coatings	142.52			
Asphalt Offgasing	0.26			
TOTALS (ppd, mitigated)	182.25	529.44	3.18	83.88

Construction-Related Mitigation Measures

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	PM10
Natural Gas	0.36	4.61	1.96	0.01
Wood Stoves	37.88	49.52	303.55	5.94
Fireplaces	227.05	2.58	250.44	34.30
Landscaping - No winter emissions				
Consumer Prdcts	0.00			
TOTALS (ppd, unmitigated)	265.28	56.71	555.96	40.26

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2005 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	10.30 trips / dwelling unit	101.00	1,040.30
Apartments low rise	7.90 trips / dwelling unit	103.00	813.70
Condo/townhouse genera	6.60 trips / dwelling unit	96.00	633.60

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home- Work	Home- Shop	Home- Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5			

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	15.56	21.24	134.68	7.38
Apartments low rise	12.61	16.61	105.34	5.77
Condo/townhouse general	10.10	12.94	82.03	4.49
 TOTAL EMISSIONS (lbs/day)	 38.27	 50.79	 322.05	 17.64

Does not include correction for passby trips.

Does not include double counting adjustment for internal trips.

Changes made to the default values

The demolition emissions option switch has been changed
The asphalt option switch has been changed
The architectural coatings option switch has been changed
The architectural coating defaults have been modified by the user.
The default landscape emissions option switch has been changed
The default area source mitigation measure option switch has been changed
The amount of wood burned per year and/or the percentage of wood stoves has been modified by the user.
The fireplace default values have been modified by the user.
The passby option switch has been changed
The operational emissions mitigation switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified

URBEMIS 7G: Version 3.1

File Name: 96069.URB
 Project Name: Oak Valley
 Project Location: Sacramento County

DETAILED REPORT
 (Pounds/Day - Summer)

Total Land Use Area to be Developed (Estimated): 30 acres
 Retail/Office/Institutional Square Footage: 0
 Single Family Units 101 Multi-family Units 199

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Demolition				0.00
Site Grading	2.91	22.27	-	52.32
Const. Worker Trips	1.18	1.67	3.18	0.32
Stationary Equip.	3.70	3.01	-	0.18
Mobile Equip. - Gas	0.00	0.00	-	0.00
Mobile Equip. - Diesel	31.68	502.48	-	31.06
Architectural Coatings	142.52			
Asphalt Offgasing	0.26			
TOTALS (ppd, unmitigated)	182.25	529.44	3.18	83.88

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Demolition				0.00
Site Grading	2.91	22.27	-	52.32
Const. Worker Trips	1.18	1.67	3.18	0.32
Stationary Equip.	3.70	3.01	-	0.18
Mobile Equip. - Gas	0.00	0.00	-	0.00
Mobile Equip. - Diesel	31.68	502.48	-	31.06
Architectural Coatings	142.52			
Asphalt Offgasing	0.26			
TOTALS (ppd, mitigated)	182.25	529.44	3.18	83.88

Construction-Related Mitigation Measures

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)				
Source	ROG	NOx	CO	PM10
Natural Gas	0.36	4.61	1.96	0.01
Wood Stoves - No summer emissions				
Fireplaces - No summer emissions				
Landscaping	0.28	0.03	2.19	0.01
Consumer Prdcts	0.00			
TOTALS (ppd, unmitigated)	0.63	4.64	4.15	0.01

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2005 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	10.30 trips / dwelling unit	101.00	1,040.30
Apartments low rise	7.90 trips / dwelling unit	103.00	813.70
Condo/townhouse genera	6.60 trips / dwelling unit	96.00	633.60

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Home- Work	Residential Home- Shop	Home- Other	Commute	Commercial Non-Work Custom
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6
Trip Speeds (mph)	35	35	35	35	35
% of Trips - Residential	27.3	21.2	51.5		

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	11.48	19.75	86.02	7.38
Apartments low rise	9.43	15.45	67.28	5.77
Condo/townhouse general	7.64	12.03	52.39	4.49
	ROG	NOx	CO	PM10
TOTAL EMISSIONS (lbs/day)	28.55	47.22	205.69	17.64

Does not include correction for passby trips.

Does not include double counting adjustment for internal trips.

Changes made to the default values

The demolition emissions option switch has been changed

The asphalt option switch has been changed

The architectural coatings option switch has been changed

The architectural coating defaults have been modified by the user.

The default landscape emissions option switch has been changed

The default area source mitigation measure option switch has been changed

The amount of wood burned per year and/or the percentage of wood stoves has been modified by the user.

The fireplace default values have been modified by the user.

The passby option switch has been changed

The operational emissions mitigation switch has been changed

The default winter temperature has been modified

The default summer temperature has been modified

APPENDIX K

*OAK VALLEY DRAINAGE ANALYSIS - CALCULATIONS AND
HYDROGRAPHS*

December 2, 1999

Rural Consulting Associates
70 Declaration Drive, Suite 101
Chico, California 95973

Attn: Jim Mann

Subject: Oak Valley Subdivision – Drainage Calculations

Dear Jim:

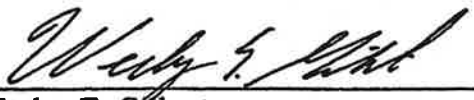
Pursuant to a request from the City of Chico, we have prepared a drainage analysis of the 42.90 acre portion of the Oak Valley Subdivision (Lots 1 through 138) comparing the pre-development and post-development runoff for 10-year and 100-year storms.

Based upon the attached calculations and hydrographs, this project will require detention basin volumes of 0.14 acre-feet for a 10-year storm and 0.24 acre-feet for a 100-year storm in order to maintain peak flows in Dead Horse Slough at or below pre-development levels. Since these basins will also be used for storm water quality mitigation, the detention basin volumes will need to be increased by 50%. Therefore, detention basins for both storm water quantity and storm water quality will need to be a minimum of 0.21 acre-feet for a 10-year storm and 0.36 acre-feet for a 100-year storm. The tentative subdivision map has identified two (2) detention basins with total storage volumes of 0.50 acre-feet, which exceeds to volume needed for a 100-year storm.

Please call if you have any questions or need additional information.

Sincerely,

Gilbert Engineering


Wesley E. Gilbert,
Principal



Attachments

Cc: Tom Fogarty

ESTIMATING RUNOFF COEFFICIENT (C):

OAK VALLEY SUBDIVISION
LOTS 1 THRU 138 (42.90 acres)
December 1, 1999

PRE-DEVELOPMENT/UNIMPROVED:

Slope = Moderate = 4% to 8% (existing) = 0.12
Surface Permeability = bare rock/thin soils = 0.20
Vegetation = Less than 20% covered with substantial growth = 0.15
Surface = roughened soil or rocks = 0.15

Pre-developed "C" = 0.62

POST-DEVELOPED/IMPROVED:

Roof area =	7.31 acres @ C = 0.95
AC or PCC pavement area =	16.15 acres @ C = 0.90
Landscaped area =	11.04 acres @ C = 0.25
Buffers/Setbacks/Parks (landscaped) =	5.46 acres @ C = 0.30
Buffers/Setbacks/Parks (native) =	2.94 acres @ C = 0.50

Total Area = 42.90 acres

$$C = ((7.31 * 0.95) + (16.15 * 0.90) + (11.04 * 0.25) + (5.46 * 0.30) + (2.94 * 0.50)) / 42.90$$

Post-developed "C" = 0.64



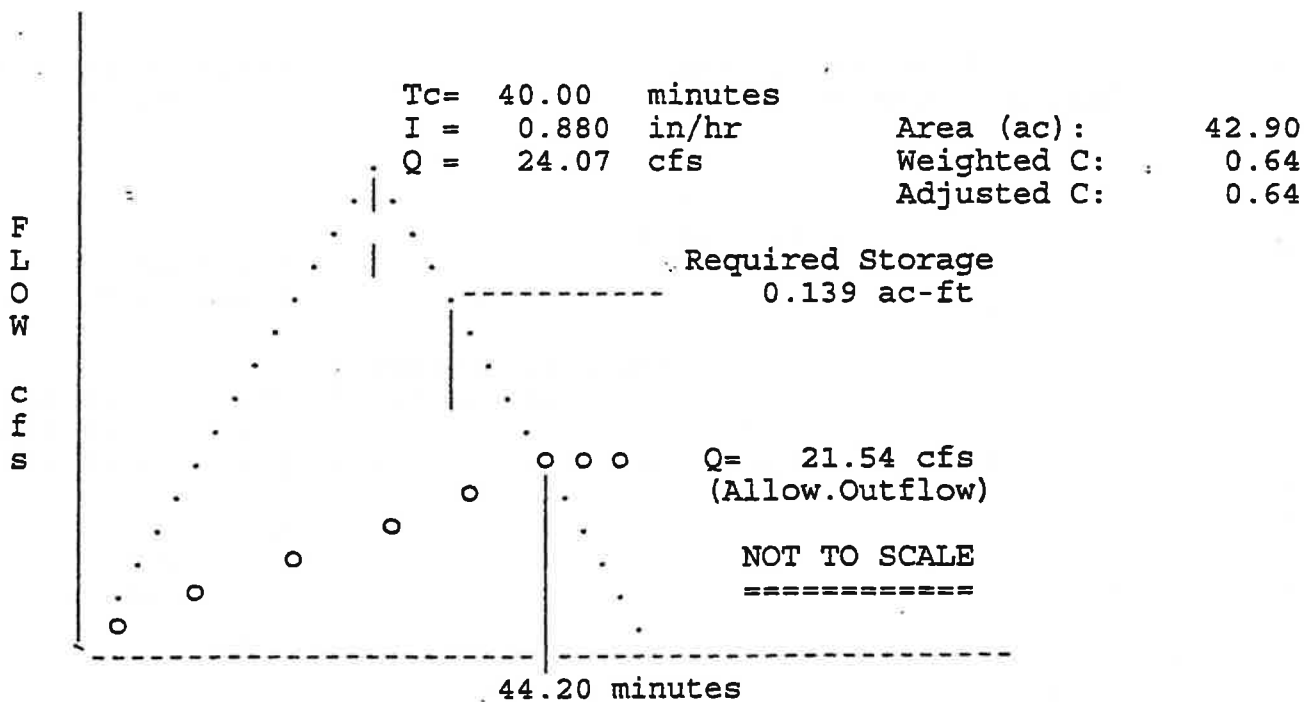
Wesley E. Gilbert

Quick TR-55 Ver.5.46 S/N:
Executed: 11:14:05 12-02-1999

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----

OAK VALLEY SUBDIVISION
10-YEAR DETENTION BASIN VOLUME

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*****
*
* RETURN FREQUENCY: 10 yr      Allowable Outflow: 21.54 cfs *
* 'C' Adjustment: 1.000      Required Storage: 0.139 ac-ft *
*
* STORM DURATION = Tc for Max.Storage *
*-----*
* Peak Inflow: 24.07 cfs      Inflow .HYD stored: OAK10 .HYD *
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Wesley E. Gilbert

Quick TR-55 Ver.5.46 S/N:
Executed: 11:18:23 12-02-1999

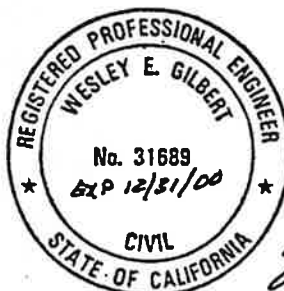
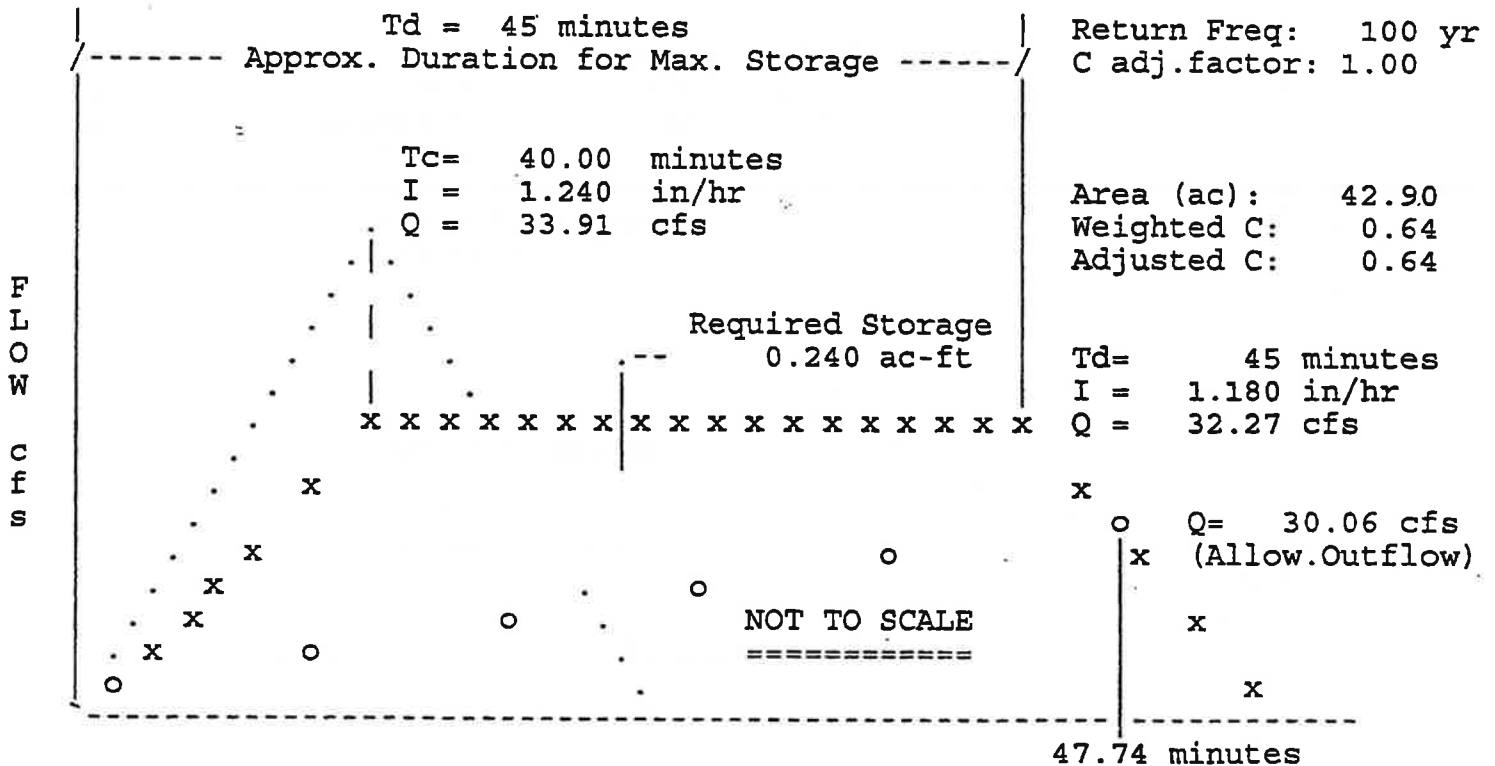
MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----

First peak outflow point assumed to occur at inflow recession leg.

OAK VALLEY SUBDIVISION
100-YEAR DETENTION BASIN VOLUME

* RETURN FREQUENCY: 100 yr | Allowable Outflow: 30.06 cfs *
* 'C' Adjustment: 1.000 | Required Storage: 0.240 ac-ft *

* Peak Inflow: 32.27 cfs Inflow .HYD stored: OAK100 .HYD *



Wesley E. Gilbert

APPENDIX L

*PLANT AND WILDLIFE SPECIES OBSERVED DURING
FIELD SURVEYS*

PLANT AND WILDLIFE SPECIES OBSERVED DURING FIELD SURVEYS

Scientific Name	Common Name
Plants	
<i>Achyrrachaena mollis</i>	Blow wives
<i>Aesculus californica</i>	California buckeye
<i>Agoseris heterophylla</i>	Annual agoseris
<i>Aira caryophylla</i>	Silver European hairgrass
<i>Allium amplexans</i>	Clasping onion
<i>Ambrosia psilostachya</i>	Western ragweed
<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Common fiddleneck
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	Menzies' fiddleneck
<i>Anagallis arvensis</i>	Scarlet pimpernel
<i>Anthemis cotula</i>	Mayweed
<i>Anthriscus caucalis</i>	Bur chervil
<i>Aphanes occidentalis</i>	Alchemilla
<i>Artemisia douglasiana</i>	Mugwort
<i>Arundo donax</i>	Giant reed
<i>Asclepias fascicularis</i>	Narrow-leaved milkweed
<i>Asclepias speciosa</i>	Showy milkweed
<i>Astragalus gambelianus</i>	Gambel's milk vetch
<i>Avena fatua</i>	Wild oats
<i>Baccharis salicifolia</i>	Mulefat
<i>Blennosperma nanum</i>	Yellow carpet
<i>Brassica nigra</i>	Black mustard
<i>Brickellia californica</i>	California brickellbush
<i>Briza minor</i>	Little quaking grass
<i>Brodiaea californica</i> var. <i>californica</i>	California brodiaea
<i>Brodiaea elegans</i> ssp. <i>elegans</i>	Elegant brodiaea
<i>Brodiaea minor</i>	Blue stars
<i>Bromus diandrus</i>	Ripgut
<i>Bromus hordeaceus</i>	Soft chess
<i>Bromus madritensis</i> ssp. <i>madritensis</i>	Foxtail chess
<i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome
<i>Calandrinia ciliata</i>	Redmaids
<i>Callitriche heterophylla</i>	Variable-leaved water starwort
<i>Calochortus luteus</i>	Yellow mariposa lily
<i>Capsella bursa-pastoris</i>	Shepherd's purse
<i>Cardamine oligosperma</i>	Bitter cress
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carex</i> sp.	Sedge
<i>Castilleja attenuata</i>	Valley tassels
<i>Castilleja campestris</i>	Field owl's clover
<i>Ceanothis cuneatis</i>	Buckbrush

<i>Centaurea solstitialis</i>	Yellow star thistle
<i>Cerastium glomeratum</i>	Sticky mouse-eared chickweed
<i>Cercis occidentalis</i>	Western redbud
<i>Chamomilla occidentalis</i>	Pineapple weed
<i>Chenopodium album</i>	Lamb's quarters
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	California soaproot
<i>Cichorium intybus</i>	Chicory
<i>Clarkia arcuata</i>	Kellogg's clarkia
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Purple clarkia
<i>Claytonia perfoliata</i>	Miner's lettuce
<i>Collomia</i> sp.	Collomia
<i>Convolvulus arvensis</i>	Bindweed
<i>Crassula connata</i>	Pygmyweed
<i>Cryptantha flaccida</i>	Cryptantha
<i>Cynodon dactylon</i>	Bermuda grass
<i>Cyperus eragrostis</i>	Umbrella sedge
<i>Cytisus scoparius</i>	Scotch broom
<i>Daucus carota</i>	Queen Anne's lace
<i>Delphinium hesperium</i> ssp. <i>hesperium</i>	Western larkspur
<i>Delphinium variegatum</i>	Royal larkspur
<i>Deschampsia danthonioides</i>	Annual hairgrass
<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	Blue dicks
<i>Dichelostemma multiflorum</i>	Round-toothed ookow
<i>Distichlis spicata</i>	Saltgrass
<i>Dodecatheon clevelandii</i> ssp. <i>patulum</i>	Lowland shooting star
<i>Downingia</i> sp.	Downingia
<i>Dudleya cymosa</i> ssp. <i>cymosa</i>	Canyon duleya
<i>Eleocharis macrostachya</i>	Spike rush
<i>Eleocharis obtusa</i> var. <i>engelmannii</i>	Englemann's spike rush
<i>Elymus elymoides</i> ssp. <i>californicus</i>	Squirreltail grass
<i>Epilobium brachycarpum</i>	Tall willowherb
<i>Eremocarpus setigerus</i>	Turkey mullein
<i>Eriodictyon californicum</i>	Yerba santa
<i>Eriogonum nudum</i> var. <i>pubiflorum</i>	Hairy-flowered buckwheat
<i>Erodium botrys</i>	Big heronbill
<i>Erodium cicutarium</i>	Red-stemmed filaree
<i>Erodium moschatum</i>	White-stemmed filaree
<i>Eryngium castrense</i>	Coyote thistle
<i>Eryngium vaseyi</i>	Coyote thistle
<i>Eschscholzia californica</i>	California poppy
<i>Eschscholzia lobbia</i>	Frying pans
<i>Eucalyptus camaldulensis</i>	Red gum
<i>Ficus carica</i>	Fig

<i>Filago californica</i>	California filago
<i>Filago gallica</i>	Narrow-leaved filago
<i>Fraxinus latifolia</i>	Modesto ash
<i>Galium aparine</i>	Common bedstraw
<i>Geranium dissectum</i>	Cutleaf geranium
<i>Geranium molle</i>	Dove's foot geranium
<i>Gilia tricolor</i> ssp. <i>tricolor</i>	Bird's eye gilia
<i>Glyceria borealis</i>	Mannagrass
<i>Gnaphalium palustre</i>	Western marsh cudweed
<i>Gratiola ebracteata</i>	Bractless hedge hyssop
<i>Grindelia camporum</i> var. <i>camporum</i>	Valley gumplant
<i>Helianthus annuus</i>	Sunflower
<i>Hemizonia fitchii</i>	Fitch's spikeweed
<i>Hesperis matronalis</i>	Hogwallow evax
<i>Heteromeles arbutifolia</i>	Toyon
<i>Holocarpa virgata</i>	Tarweed
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Hare wall barley
<i>Hypericum perforatum</i>	Klamath weed
<i>Hypochaeris glabra</i>	Smooth cat's ear
<i>Juglans californica</i> var. <i>hindsii</i>	Northern California black walnut
<i>Juncus balticus</i>	Wire rush
<i>Juncus bufonius</i>	Toad rush
<i>Juncus effusus</i> var. <i>pacificus</i>	Pacific rush
<i>Lactuca saligna</i>	Willow-leaved lettuce
<i>Lactuca serriola</i>	Prickly lettuce
<i>Lamium amplexicaule</i>	Giraffe heads
<i>Lasthenia californica</i>	Valley goldfields
<i>Lasthenia fremontii</i>	Fremont's goldfields
<i>Layia fremontii</i>	Tidy tips
<i>Lepidium nitidum</i> var. <i>nitidum</i>	Shining peppergrass
<i>Lepidium strictum</i>	Upright peppergrass
<i>Limnanthes alba</i> ssp. <i>alba</i>	White meadowfoam
<i>Limnanthes douglasii</i> ssp. <i>rosea</i>	Rosy meadowfoam
<i>Limnanthes floccosa</i> ssp. <i>californica</i>	Butte County meadowfoam
<i>Linanthus androsaceus</i>	Common linanthus
<i>Linanthus bicolor</i>	Bicolored linanthus
<i>Linanthus filipes</i>	Wild baby's breath
<i>Linanthus parviflorus</i>	Cherokee linanthus
<i>Lithophragma</i> sp.	Woodland star
<i>Lobularia maritima</i>	Alyssum
<i>Lolium multiflorum</i>	Annual ryegrass

<i>Lolium perenne</i>	Perennial ryegrass
<i>Lomatium dayscarpum</i> ssp. <i>tomentosum</i>	Woolly-fruited lomatium
<i>Lomatium utriculatum</i>	Bladder lomatium
<i>Lotus corniculatus</i>	Birdfoot trefoil
<i>Lotus humistratus</i>	Foothill lotus
<i>Lotus purshianus</i>	Spanish lotus
<i>Lupinus bicolor</i>	Bicolored lupine
<i>Lupinus microcarpus</i> var. <i>densiflorus</i>	White-whorled lupine
<i>Lupinus nanus</i>	Sky lupine
<i>Lythrum hyssopifolium</i>	Loosetrife
<i>Marsilea vestita</i> ssp. <i>vestita</i>	Hairy pepperwort
<i>Medicago hispida</i>	Bur clover
<i>Medicago lupulina</i>	Black medick
<i>Medicago polymorpha</i>	Common bur-clover
<i>Medicago sativa</i>	Alfalfa
<i>Micropus californicus</i> ssp. <i>californicus</i>	Slender cottonweed
<i>Microseris douglasii</i> ssp. <i>douglasii</i>	Douglas' microseris
<i>Mimulus bicolor</i>	Bicolored monkey flower
<i>Mimulus douglasii</i>	Purple mouse-ears
<i>Mimulus guttatus</i>	Common monkey flower
<i>Mimulus tricolor</i>	Tricolored monkey flower
<i>Minuartia californica</i>	California sandwort
<i>Monardella sheltonii</i>	Shelton's coyote mint
<i>Mollugo verticillata</i>	Indian chickweed
<i>Montia fontana</i>	Water chickweed
<i>Muhlenbergia rigens</i>	Deer grass
<i>Myosurus minimus</i>	Mousetail
<i>Nama lobbii</i>	Lobb's nama
<i>Nasella pulchra</i>	Purple needlegrass
<i>Navarretia leucocephala</i> ssp. <i>leucocephala</i>	White-flowered navarretia
<i>Navarretia subuligera</i>	Awl-leaved navarretia
<i>Navarretia tagetina</i>	Tansy navarretia
<i>Nemophila heterophylla</i>	Nemophila
<i>Odontostomum hartwegii</i>	Hartweg's odontostomum
<i>Parvisedum pumilum</i>	Dwarf stonecrop
<i>Petrorhagia velutina</i>	Grass pink
<i>Phacelia heterophylla</i>	Variable-leaved phacelia
<i>Phalaris paradoxa</i>	Little canarygrass
<i>Pinus sabiniana</i>	Gray pine
<i>Plagiobothrys austini</i>	Austin's popcorn flower
<i>Plagiobothrys canescens</i>	Valley popcorn flower
<i>Plagiobothrys greenei</i>	Greene's popcorn flower

<i>Plagiobothrys nothofulvus</i>	Common popcorn flower
<i>Plagiobothrys scriptus</i>	Scribe's popcorn flower
<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	Small-flowered stalked popcorn flower
<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	Large-flowered stalked popcorn flower
<i>Plantago coronopus</i>	Cut-leaved plantain
<i>Plantago erecta</i>	Erect plantain
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	Common plantain
<i>Platanus racemosa</i>	Western sycamore
<i>Poa annua</i>	Annual bluegrass
<i>Poa pratensis</i>	Blue grass
<i>Poa secunda</i> ssp. <i>secunda</i>	One-sided bluegrass
<i>Polygonum arenastrum</i>	Common knotweed
<i>Polygonum bidwelliae</i>	Bidwell's knotweed
<i>Polygonum hydropiper</i>	Water pepper
<i>Polypogon monspeliensis</i>	Rabbitsfoot grass
<i>Pogogyne zizyphoroides</i>	Sacramento Valley pogogyne
<i>Populus fremontii</i>	Fremont Cottonwood
<i>Psilocarphus brevissimus</i> var. <i>brevissimus</i>	Dwarf woolly marbles
<i>Psilocarphus oregonus</i>	Oregon woolly marbles
<i>Quercus douglasii</i>	Blue oak
<i>Quercus lobata</i>	Valley oak
<i>Quercus wislizenii</i>	Interior live oak
<i>Ranunculus aquatilis</i>	Water buttercup
<i>Ranunculus arvensis</i>	Field buttercup
<i>Ranunculus hebecarpus</i>	Pubescent-fruit buttercup
<i>Ranunculus muricatus</i>	Prickleseed buttercup
<i>Ranunculus occidentalis</i>	Western buttercup
<i>Raphanus raphanistrum</i>	Jointed charlock
<i>Rhamnus californica</i>	Coffeeberry
<i>Rhamnus ilicifolia</i>	Holly-leaved redberry
<i>Ranunculus muricatus</i>	Prickleseed buttercup
<i>Rosa californica</i>	California wild rose
<i>Rubus ursinus</i>	Blackberry
<i>Rumex crispus</i>	Curly dock
<i>Rumex salicifolius</i>	Willow dock
<i>Sagina apetala</i>	Dwarf pearlwort
<i>Salix lasiolepis</i>	Arroyo willow
<i>Salix lucida</i> ssp. <i>lasiandra</i>	Yellow willow
<i>Sambucus mexicana</i>	Blue elderberry
<i>Sanicula bipinnata</i>	Poison sanicle
<i>Sanicula bipinnatifida</i>	Purple sanicle
<i>Sanicula crassicaulis</i>	Pacific sanicle

<i>Saxifraga californica</i>	California saxifrage
<i>Scandix pecten-veneris</i>	Shepherd's needle
<i>Scirpus acutus</i> var. <i>occidentalis</i>	Hard-stemmed tule
<i>Scutellaria californica</i>	California skullcap
<i>Senecio vulgaris</i>	Old-man-of-spring
<i>Sherardia arvensis</i>	Field madder
<i>Sidalcea calycosa</i> ssp. <i>calycosa</i>	Annual sidalcea
<i>Sidalcea hartwegii</i>	Hartweg's sidalcea
<i>Sidalcea hirsuta</i>	Hairy sidalcea
<i>Silene californica</i>	Indian pink
<i>Silybum marianum</i>	Milk thistle
<i>Sisymbrium officinale</i>	Hedge mustard
<i>Sorghum halepense</i>	Johnson grass
<i>Spergularia rubra</i>	Ruby sand spurrey
<i>Stellaria media</i>	Common chickweed
<i>Taeniatherum caput-medusae</i>	Medusa head grass
<i>Tamarix gallica</i>	French tamarisk
<i>Taraxacum officinale</i>	Dandelion
<i>Torilis arvensis</i> ssp. <i>arvensis</i>	Common hedge parsley
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Tragopogon dubius</i>	Goat's beard
<i>Trichostema lanceolatum</i>	Vinegar weed
<i>Trifolium albopurpureum</i> var. <i>olivaceum</i>	Olive clover
<i>Trifolium depauperatum</i> var. <i>amplectens</i>	Cowbag clover
<i>Trifolium hirtum</i>	Rose clover
<i>Trifolium microcephalum</i>	Smallhead clover
<i>Trifolium subterraneum</i>	Subterranean clover
<i>Trifolium variegatum</i>	White-tipped clover
<i>Trifolium wildenovii</i>	Tomcat clover
<i>Triphysaria eriantha</i> ssp. <i>eriantha</i>	Johnny tuck
<i>Triteleia bridgesii</i>	Bridges' triteleia
<i>Triteleia hyacinthina</i>	Wild hyacinth
<i>Triteleia laxa</i>	Ithuriel's spear
<i>Typha latifolia</i>	Cattail
<i>Verbascum blattaria</i>	Moth mullein
<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	Purslane speedwell
<i>Vicia americana</i>	American vetch
<i>Vicia californica</i>	California vetch
<i>Vicia sativa</i>	Spring vetch
<i>Viola douglasii</i>	Gold violet
<i>Vulpia microstachys</i> var. <i>confusa</i>	Hairy-leaved fescue
<i>Vulpia microstachys</i> var. <i>pauciflora</i>	Few-flowered fescue
<i>Vulpia myuros</i> var. <i>myuros</i>	Rat-tailed fescue

<i>Vulpia myuros</i> var. <i>hirsuta</i>	Foxtail fescue
<i>Xanthium strumarium</i>	Cocklebur
<i>Zigadenus fremontii</i>	Fremont's zigadene

SCIENTIFIC NAME	COMMON NAME
Birds	
<i>Anas platyrhynchos</i>	Mallard
<i>Aphelocoma coerulescens</i>	Scrub jay
<i>Branta canadensis</i>	Canada goose
<i>Bubo virginianus</i>	Great horned owl
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Buteo lineatus</i>	Red-shouldered hawk
<i>Buteo regalis</i>	Ferruginous hawk
<i>Callipepla californica</i>	California quail
<i>Carduelis tristis</i>	American goldfinch
<i>Carpodacus mexicanus</i>	House finch
<i>Carthartes aura</i>	Turkey vulture
<i>Circus cyaneus</i>	Northern harrier
<i>Colaptes auratus</i>	Northern flicker
<i>Corvus brachyrhynchos</i>	American crow
<i>Dendroica magnolia</i>	Yellow-rumped warbler
<i>Elanus caeruleus</i>	White-tailed kite
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Falco sparverius</i>	American kestrel
<i>Haliaeetus leucocephalus</i>	Bald eagle
<i>Junco hyemalis</i>	Dark-eyed junco
<i>Melanerpes formicivorus</i>	Acorn woodpecker
<i>Meleagris gallopavo</i>	Wild turkey
<i>Melospiza melodia</i>	Song sparrow
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Parus inornatus</i>	Plain titmouse
<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Pica nuttalli</i>	Yellow-billed magpie
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Pipilo erythrophthalmus</i>	Rufous-sided towhee
<i>Psaltiriparus minimus</i>	Bushtit
<i>Regulus calendula</i>	Ruby-crowned kinglet
<i>Sayornis nigricans</i>	Black phoebe
<i>Sialia mexicana</i>	Western bluebird
<i>Sitta canadensis</i>	Red-breasted nuthatch
<i>Sitta carolinensis</i>	White-breasted nuthatch
<i>Sturnella neglecta</i>	Western meadowlark

<i>Sturnus vulgaris</i>	European starling
<i>Tyannus verticalis</i>	Yellow-billed magpie
<i>Tyto alba</i>	Barn owl
<i>Zenaida macroura</i>	Mourning dove
<i>Zonotrichia atricapilla</i>	Golden-crowned sparrow

SCIENTIFIC NAME	COMMON NAME
Other Wildlife	
<i>Canis latrans</i>	Coyote
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Odocoileus hemionus</i>	Mule deer
<i>Rana catesbeiana</i>	Bullfrog
<i>Sceloporus occidentalis</i>	Western fence lizard
<i>Spermophilus beecheyi</i>	California ground squirrel

APPENDIX M

HAZARDOUS MATERIALS

APPENDIX M

HAZARDOUS MATERIALS

Overview of Hazardous Materials Laws and Regulations

Federal and State

Primary federal agencies with responsibility for hazardous materials management include the Environmental Protection Agency (EPA), Department of Labor (federal Occupational Health and Safety Administration (OSHA), and Department of Transportation (DOT). Major laws and issue areas include: Resources Conservation and Recovery Act (RCRA) - hazardous waste management; Hazardous and Solid Waste Amendments Act (HSWA) - hazardous waste management; Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - cleanup of contamination; Superfund Amendments and Reauthorization Act (SARA) - cleanup of contamination; and Emergency Planning and Community Right-to-Know (SARA Title III) - business inventories and emergency response planning. Specific requirements for implementation of these statutes are codified in Title 40 of the Code of Federal Regulations (CFR). Additional regulations that apply to workplace safety and transportation of hazardous materials are contained in CFR Titles 29 and 49, respectively.

Hazardous materials management laws in California include: Hazardous Waste Control Law (HWCL) - hazardous waste management; Safe Drinking Water and Toxic Enforcement Act - discharges to water and public notification; Hazardous Substances Account Act - cleanup of contamination; and Hazardous Material Management Act (HMMA) - "Business Plan" reporting. Specific requirements for implementation are codified primarily in Title 26 of the California Code of Regulations (CCR) and Chapter 6.95 of the California Health and Safety Code. Additional regulations that apply to workplace safety are contained in CCR Title 8. The California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) is the primary State agency with jurisdiction over hazardous materials management. Other State agencies involved in hazardous materials management are the Regional Water Quality Control Board (RWQCB), Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES), Department of Fish and Game (DFG), Air Resources Board (ARB), Department of Transportation (Caltrans), and Integrated Waste Management Board (IWMB).

In California, comprehensive regulation of surface water and groundwater quality is provided through the Porter-Cologne Act. The State Water Resources Control Board (SWRCB) maintains regulatory authority for Porter-Cologne, CWA and SDWA. Enforcement of these laws, whose scope also includes contamination due to hazardous materials releases, is carried out by nine

subsidiary Regional Water Quality Control Boards. In addition to the Porter-Cologne Act, the Safe Drinking Water and Toxics Enforcement Act (more commonly known as Proposition 65), implemented by the State Office of Environmental Health Hazard Assessment (OEHHA), includes the following three elements: (1) prohibits discharges of chemicals known to the State of California to cause cancer or to exhibit reproductive toxicity to any source of drinking water; (2) requires that anyone exposed to such chemicals be warned first; and (3) requires that designated employees report any illegal discharge or threatened illegal discharge of hazardous waste.

Air quality issues related to remediation and construction at contaminated sites is also subject to federal and State laws and regulations that are administered at the local level. The Butte County Air Quality Management District (BCAQMD) regulates both criteria air pollutants and toxic air contaminants under the provisions of various federal and state air laws and regulations. Volatiles and any toxic air contaminants generated by excavation or remediation of contaminated soil would be subject to applicable BCAQMD rules, regulations, and permitting requirements. Particulate matter emissions from construction activities are also regulated by the BCAQMD.

Certain releases of hazardous substances must be reported to federal, State, and local environmental agencies, depending on the quantity and the type of substance released. At any time during construction or occupancy, the project developer and contractors are responsible for knowledge of and carrying out their release reporting responsibilities. The DTSC, OES, RWQCB, or appropriate local agencies must be notified in accordance with timeliness set forth in implementing regulations.

Management of Soil and Groundwater Contamination

The oversight of hazardous materials release sites often involves several different agencies that may have overlapping authority and jurisdiction. The DTSC and RWQCB are the two primary State agencies responsible for issues pertaining to hazardous materials release sites. In 1993, the California Legislature enacted Assembly Bill (AB) 2061 to create a process for designating a single administering agency that takes preemptive authority over cleanup of a site.¹ Under AB 2061, a single agency is designated by the Cal-EPA Site Designation Committee to supervise all aspects of the investigation and remedial action ("Administering Agency"). The designation is made after application and public hearing pursuant to the requirements set for in Health and Safety Code, Division 20, Chapter 6.65, Section 25260 *et. seq.* Although DTSC has provided regulatory oversight of HRBD investigations in the past, the RWQCB was designated as the Administering Agency by Cal-EPA on December 11, 1997 (Cal-EPA Site Designation Committee Resolution No. 97-16).

As Administering Agency, the RWQCB's duties include administering all local and State laws, ordinances, regulations, and standards applicable to investigation and remedial activities at the site. The Administering Agency must consult with other agencies ("Appropriate Agencies" or "Support Agencies") when issuing permits or other authorizations not normally within its jurisdiction. One of the mechanisms by which the Administering Agency is able to coordinate all applicable regulations is to organize a "Consultative Work Group." The Consultative Work Group consists of staff from each agency with regulatory involvement in cleanup of the site and are the individuals who actually develop the necessary permits and conduct necessary oversight of the remedial activities.

Risk-Based Corrective Action

The current regulatory view (implemented by the State and federal regulators with jurisdiction) regarding site redevelopment where chemical constituents are present in the soil or groundwater is that cleanup and future site use should be based on actual and reasonably projected risks presented by individual sites. This site-specific, risk-based decision making process is often referred to as "Risk Based Corrective Action," or RBCA. The RBCA approach is marked by a focus on planned land uses, a recognition that all sites do not present the same risk, the understanding that the actual risks posed by a site are a function of the populations that could be present and the activities they could be engaged in, and an acknowledgment that many risks can be reduced and/or eliminated through the implementation of risk management measures.

The RBCA approach is used as an alternative to other approaches which, in certain circumstances, might seek to manage site environmental conditions through more invasive measures such as removal of large amounts of soil or groundwater or the construction of subsurface barriers. In most cases, particularly those in which RBCA is determined to be the optimal alternative, these more invasive remediation techniques would be impractical to implement, could cause substantial disturbance to local residents or larger human community during their installation or operation, could cause damage to ecosystems or hydrologic, geologic, or other natural resources, and may not be cost-effective. Most importantly, implementation of such measures could increase the risk to human health and the environment during construction by creating new or additional exposure pathways that would not otherwise exist if such measures were not implemented.

The risk estimates that are identified through the RBCA process take into consideration such factors as the concentration and further migration of contaminants, potential hazards to site workers and nearby populations, and potential exposures to the public, based on future land use. Depending on the types of chemicals present and potential pathways through which individuals might be exposed to the chemicals, contaminants in soil or groundwater can often be left in place, encapsulated, isolate, stabilized, neutralized, or cleaned up to a degree that does not pose a threat to human health or the natural environment.

Border Zone Property

Border zone property is defined by the California Health and Safety Code as "any property designated as border zone property pursuant to Section 25229 that is within 2,000 feet of a significant disposal or hazardous waste, and the wastes so located are a significant existing or potential hazard to present or future public health or safety on the land in question." Landowners, lessors, or lessees must apply to the DTSC for a determination as to whether the land should be designated a hazardous waste property or a border zone property if there is known or probable cause to believe that a significant disposal of hazardous waste has occurred on, under, or into that property.² Cities or counties may also request the determination. Section 25232 of the Health and Safety Code defines the land use restrictions and criteria under which residential development, schools, daycare, and hospital/nursing facilities may be constructed on such properties. The determination remains in effect until DTSC has approved the removal of land use restrictions according to the procedures set forth in Section 25234 of the Health and Safety Code. The status of border zone property determinations relevant to the Project are summarized in "Border Zone Property Determinations" presented in the Environmental Setting .

ENDNOTES

1. California Health and Safety Code, Section 25260-25268.
2. California Health and Safety Code Section 25221.