CHICO 2030

GENERAL PLAN UPDATE

DRAFT ENVIRONMENTAL IMPACT REPORT

CITY OF CHICO
INC. 1872

SEPTEMBER 2010

STATE
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NUMBER
SCH 2008122038

CHICO 2030
GENERAL PLAN UPDATE
DRAFT ENVIRONMENTAL IMPACT REPORT

SCH No. 2008122038

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SEPTEMBER 2010

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September 30, 2010

NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF CHICO 2030 GENERAL PLAN UPDATE (SCH# 2008122038)

Project Title: Chico 2030 General Plan Update

Project Location: The City of Chico consists of approximately 22 square miles in the central portion of northern California in Butte County. The City of Chico 2030 General Plan Planning Area (Planning Area) includes the City of Chico, the City's Sphere of Influence, and unincorporated areas in Butte County. The actual Planning Area boundaries have not been changed and are consistent with the currently adopted 1994 General Plan. The Planning area consists of approximately 150 square miles of land located in the west-central portion of Butte County.

Project Description: The proposed project is the adoption and implementation of an updated General Plan for the City of Chico. The Chico 2030 General Plan is a comprehensive update of the existing 1994 General Plan. The 2030 General Plan includes the seven State-required elements of a General Plan (Land Use, Transportation, Housing, Open Space, Noise, Safety, and Conservation) as well as the following additional Elements: Sustainability, Downtown, Community Design, Parks, Public Facilities and Services, Cultural Resources/Historic Preservation, and Economic Development.

The proposed General Plan Update includes a Land Use Diagram which depicts the location and distribution of land use designations in the Planning Area, including several new mixed-use land use designations not provided in the 1994 General Plan. In addition, the Land Use Diagram identifies several areas with special land use considerations. Areas identified for potential change include 15 Opportunity Sites and the five Special Planning Areas. Opportunity Sites represent those areas in the city that are expected to be the focus of improvement, change, and revitalization over the next 20 years. These strategic infill and redevelopment areas include underutilized transportation corridors, regional retail centers, areas in the City's core, and other residential, light industrial, and mixed-use areas that can accommodate growth. The Special Planning Areas identify areas with significant new growth potential requiring more detailed subsequent land use planning in the form of a specific plan, planned development, or other comprehensive plan. The Special Planning Areas are to be developed as connected and complete neighborhoods with a mix of housing types, employment, services, and shopping opportunities, along with parks and open space. Additionally, as part of this proposed General Plan Update, the Land Use Diagram includes a Resource Constraint Overlay for those areas with known sensitive environmental resources that may reduce development potential.

The City has prepared a Draft Environmental Impact Report (EIR) that provides a programmatic review of the potential environmental impacts that could arise from implementation of the proposed General Plan Update through development of the land uses within the Planning Area, as regulated and guided by General Plan policies and actions. The Draft EIR will be used to evaluate subsequent projects (public and private) under the proposed General Plan Update consistent with the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

Significant Environmental Effects: The Draft EIR is a focused analysis of the following environmental issue areas that may be impacted by the project:

- Land Use
- Agricultural Resources
- Population/Housing/Employment
- Human Health/Risk of Upset
- Transportation and Circulation
- Air Quality
- Noise
- Geology and Soils
- Hydrology and Water Quality
- Biological Resources
- Cultural and Palentological Resources
- Public Services and Utilities
- Visual Resources
- Energy and Climate Change
- Cumulative Impacts
- Long Term Implications

Listed hazardous waste sites, hazardous materials users and other associated hazardous material sites (including sites identified under Section 65962.5 of the Government Code) are known to be present in the City of Chico General Plan Planning Area and are identified in Section 4.4 (Human Health/Risk of Upset) of the Draft EIR.

Lead Agency and Contact Person: City of Chico, Planning Services Department, Principal Planner Brendan Vieg, (530) 879-6806

Draft EIR Review Period: Begins Thursday, September 30, 2010 and ends on Tuesday, November 30, 2010 at 5:00 p.m.

Where Documents are Available for Review: The Draft EIR may be reviewed at the City of Chico Planning Services Department, 411 Main Street, Chico; the Butte County Library, Chico Branch, 1106 Sherman Avenue, Chico; and the Meriam Library, Special Collections, 3rd Floor, CSU Chico. The Draft EIR is also available on the City's General Plan website at http://chicogeneralplan.com

Where to Send Comments: Submit written comments regarding environmental concerns to the City of Chico, Planning Services Department, Attention Brendan Vieg, Principal Planner, P.O. Box 3420, Chico, CA 95927-3420 (U.S. Mail) or deliver to 411 Main Street, 2nd Floor no later than **5:00 p.m. on Tuesday, November 30, 2010**. Comments may also be submitted via email to bvieg@ci.chico.ca.us

For each comment received on the Draft EIR during the 60-day comment period, a written response will be prepared for inclusion in the Final EIR. Although verbal comments received at the public meeting (discussed below) will be noted and addressed within the Final EIR to ensure an accurate recording of each concern, written comments are strongly encouraged.

Public Meeting: A public meeting will be held on **Tuesday, November 9, 2010 at 6:00 p.m.** in the City of Chico Council Chambers at 421 Main Street to receive oral comments on the Draft EIR. Individuals and agencies are invited to attend the meeting to discuss environmental concerns and questions associated with the project's environmental review.

Publish Date: September 30, 2010

Account No. MAJNC/17018-000-4120

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1.0 INTRODUCTION

This Draft Environmental Impact Report (Draft EIR or DEIR) was prepared in accordance with and in fulfillment of the California Environmental Quality Act (CEQA) and the CEQA Guidelines. As described in the CEQA Guidelines Section 15121(a), an environmental impact report (EIR) is a public informational document that assesses the potentially significant environmental impacts of a project. CEQA requires that an EIR be prepared by the agency with primary responsibility over the approval of a project (the lead agency). The City of Chico (City) is the lead agency for the proposed City of Chico General Plan Update. Public agencies are charged with the duty to consider and minimize environmental impacts of proposed development where feasible and have the obligation to balance economic, environmental, and social factors.

1.1 PURPOSE OF THE EIR

CEQA requires the preparation of an EIR prior to approving any project which may have a significant effect on the environment. With respect to the proposed City of Chico General Plan Update, the City has determined that the proposed General Plan Update is a project under CEQA.

The City of Chico has determined that preparation of an EIR is the appropriate CEQA-required documentation due to the potential for significant environmental impacts that could result from implementation of the proposed City of Chico General Plan Update. This Draft EIR evaluates the existing environmental resources in the vicinity of the city and its Planning Area, analyzes potential impacts on those resources due to the proposed General Plan Update, and if necessary, identifies mitigation measures that could avoid or reduce the magnitude of those impacts. This EIR provides a programmatic review of the environmental effects of new development, infill, and/or redevelopment of the city based on land use designations proposed by the General Plan Update. This EIR will be used to evaluate the direct and indirect environmental effects of subsequent development under the General Plan (i.e., residential development, rezones, commercial structures, park sites, recreation facility development, and infrastructure improvements).

This Draft EIR has been prepared to provide the public and responsible and trustee agencies with information about the probable effects of adoption and implementation of the comprehensive update for the City of Chico General Plan. This Draft EIR identifies policies and actions in the proposed General Plan Update that mitigate these effects, as well as any necessary additional mitigation measures to minimize significant impacts to the environment. This EIR also evaluates reasonable alternatives to the proposed General Plan Update.

1.2 KNOWN TRUSTEE AND RESPONSIBLE AGENCIES

For the purpose of CEQA, the term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. Specifically, the following trustee agencies may have an interest in the proposed City of Chico General Plan Update and its implementation:

- California Department of Fish and Game
- California Department of Parks and Recreation
- California State Lands Commission
- California Department of Conservation
- California Department of Forestry and Fire Protection (CAL FIRE)

In CEQA, the term "responsible agency" includes all public agencies other than the lead agency that may have discretionary actions associated with the implementation of the proposed City of Chico General Plan Update or an aspect of subsequent implementation of the General Plan. Since potential future implementation decisions may occur many years from now, they cannot be known with certainty. However, it is anticipated that the following agencies may have a role in implementing the City of Chico General Plan Update and have been identified as potential responsible agencies:

- Butte County Air Quality Management District (BCAQMD)
- Butte County – Drainage Facilities
- Butte Local Agency Formation Commission (Butte LAFCo)
- Butte County Airport Land Use Commission (ALUC)
- Butte County Association of Governments (BCAG)
- California Department of Fish and Game (CDFG)
- California Environmental Protection Agency – Solid Waste, Hazardous Materials
- California Department of Housing and Community Development (HCD)
- California Department of Transportation (Caltrans)
- California Department of Water Resources (DWR)
- California Public Utilities Commission (PUC)
- Central Valley Regional Water Quality Control Board (RWQCB)
- Chico Unified School District
- Federal Emergency Management Agency (FEMA)
- State Flood Control Agency
- State Water Resources Control Board (SWRCB)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)

1.3 TYPE OF DOCUMENT

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR serves as a "Program EIR." Program EIRs are defined by the CEQA Guidelines (Section 15168) as:

> *[A] series of actions that may be characterized as one large project and may be related either:*
>
> *1) Geographically;*
>
> *2) As logical parts in the chain of contemplated actions;*
>
> *3) In connection with the issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program; or*
>
> *4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which may be mitigated in similar ways.*

The program-level analysis considers the broad environmental effects of the overall proposed General Plan Update. This EIR will be used to evaluate subsequent projects (public and private) under the proposed City of Chico General Plan Update consistent with CEQA and the CEQA Guidelines. When individual projects or activities under the General Plan are proposed, the City would be required to examine the projects or activities to determine whether their effects were adequately analyzed in this EIR as provided under CEQA Guidelines Sections 15168 and 15183.

1.4 INTENDED USE OF THE EIR

This Draft EIR is intended to evaluate the environmental impacts of adoption and implementation of the proposed General Plan Update. The EIR will serve as a source of information in the review of subsequent planning and development proposals, including subsequent environmental review of specific plans, for infrastructure provision and individual development proposals, and for public facilities to serve new development. The EIR will be utilized for the review and preparation of revisions to the City's Municipal Code and Capital Improvement Program.

1.5 ORGANIZATION AND SCOPE

Sections 15122 through 15132 of the CEQA Guidelines identify content requirements for Draft and Final EIRs. An EIR must include a description of the environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. The environmental issues addressed in this Draft EIR were established through review of environmental documentation developed for the project, environmental documentation for nearby projects, and public agency responses to the Notice of Preparation (NOP). This Draft EIR is organized in the following sections:

SECTION 1.0 – INTRODUCTION

This section provides an overview that describes the intended use of the EIR, as well as the review and certification process.

SECTION 2.0 – EXECUTIVE SUMMARY

This section provides a project narrative and identifies environmental impacts and mitigation measures through a summary matrix consistent with CEQA Guidelines Section 15123.

SECTION 3.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed project and project objectives, along with background information and physical characteristics consistent with CEQA Guidelines Section 15124.

SECTION 4.0 – ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

This section contains technical analyses relative to each environmental topic. Included in this section is a comprehensive analysis related to impacts and mitigations that correspond to project implementation. Each subsection contains a description of the existing setting of the project area. The environmental topics are summarized as follows:

- Land Use
- Agricultural Resources
- Population, Housing, and Employment
- Human Health/Risk of Upset
- Transportation and Circulation
- Air Quality
- Noise
- Geology and Soils
- Hydrology and Water Quality
- Biological Resources
- Cultural and Paleontological Resources
- Public Services and Utilities
- Visual Resources
- Energy and Climate Change

SECTION 5.0 – CUMULATIVE IMPACTS

This section discusses the cumulative impacts associated with the proposed project that, when combined with past, present, and reasonably anticipated future events, may have a cumulative impact.

SECTION 6.0 – PROJECT ALTERNATIVES

This section discusses alternatives to the proposed project, including the CEQA mandatory "No Project" alternative, that are intended to avoid or reduce significant environmental impacts of the proposed General Plan Update.

SECTION 7.0 – LONG-TERM IMPLICATIONS

This section contains discussions of significant irreversible environmental changes which would be involved in the proposed action should it be implemented, as well as unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance.

SECTION 8.0 – REPORT PREPARERS

This section lists all authors and agencies that assisted in the preparation of the report by name, title, and company or agency affiliation.

VOLUME II – TECHNICAL APPENDICES

This volume includes all notices and other procedural documents pertinent to the EIR, as well as all technical material prepared to support the analysis.

1.6 ENVIRONMENTAL REVIEW PROCESS

The review and certification process for the EIR will involve the following general procedural steps:

NOTICE OF PREPARATION

In accordance with Section 15082 of the CEQA Guidelines, the City prepared a Notice of Preparation (NOP) of an EIR for the project on December 10, 2008. The City was identified as the lead agency for the proposed project. The notice was circulated to the public, local, state, and federal agencies and other interested parties to solicit comments on the proposed project. Two scoping meetings were held on January 13, 2009, to receive additional comments. Concerns raised in response to the NOP were considered during preparation of the Draft EIR. The NOP and responses by interested parties are presented in **Appendix A.**

DRAFT EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project, description of the environmental setting, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the Draft EIR, the City will file the Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161).

PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the Notice of Completion (NOC), the City will provide public notice of the availability of the Draft EIR for public review and invite comment from the general public,

agencies, organizations, and other interested parties. The public review and comment period is sixty (60) days. Public comment on the Draft EIR will be accepted both in written form and orally at public hearings. Notice of the time and location of the hearing will be published prior to the hearing. All comments or questions regarding the Draft EIR should be addressed to:

City of Chico
Planning Services Department
P.O. Box 3420
Chico, CA 95927
Attention: Brendan Vieg, Principal Planner

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period, a Final EIR (FEIR) will be prepared. The FEIR will respond to written comments received during the public review period and to oral comments made at any public hearing.

CERTIFICATION OF THE EIR/PROJECT CONSIDERATION

The City will review and consider the FEIR. If the City finds that the FEIR is "adequate and complete," the City may certify the FEIR. Upon review and consideration of the FEIR, the City may act upon the proposed General Plan Update. A decision to approve the project would be accompanied by written findings in accordance with CEQA Guidelines Section 15091 and, if applicable, Section 15093. The City would also adopt a Mitigation Monitoring and Reporting Program, as described below, for mitigation measures that have been incorporated into or imposed upon the project to reduce or avoid significant effects on the environment. Mitigations identified in the Mitigation Monitoring and Reporting Program will be incorporated into the General Plan policy document prior to adoption to ensure that they are carried out during project implementation.

MITIGATION MONITORING

CEQA requires lead agencies to adopt a mitigation monitoring and reporting program to describe measures which have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. (California Public Resources Code Section 21081.6(a)) The specific "reporting or monitoring" program required by CEQA is not required to be included in the EIR; however, it will be presented to the City Council for adoption and incorporation into the General Plan.

1.7 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

The City received several comment letters on the Notice of Preparation for the City of Chico General Plan Update DEIR. A copy of each letter is provided in **Appendix A** of this DEIR. The City received letters from the following federal, state, and local agencies and other interested parties.

- Butte County Public Health
- Butte Local Agency Formation Commission
- California Department of Transportation (Caltrans), District 3

- Chico Chamber of Commerce
- Governor's Office of Emergency Services
- Land Image
- Public Utilities Commission
- Native American Heritage Commission
- Resident Jon Luvaas
- Residents Peggy Mead, Tom Dauterman, and Bill Webb
- Union Pacific

The following summarizes issues raised in the comment letters as well as the author of the letter.

DOUG FOGEL, BUTTE COUNTY PUBLIC HEALTH

- Guiding Principle #2 of the General Plan should be revised to include "actively promote improvements in the public health."

STEPHEN LUCAS, BUTTE LOCAL AGENCY FORMATION COMMISSION

- Butte Local Agency Formation Commission would be a responsible agency for any environmental review regarding a General Plan Update proposal to change a local governmental organization, extensions of services, and/or changes to adopted sphere of influence.
- In reviewing changes to the sphere of influence, Butte LAFCo weighs four determinations which include present and planned land uses, existing and needed facilities, capacity and adequacy of facilities, and the existence of any social or economic communities.
- Discuss how the Planning Area is proposed to receive public services.
- Discuss the ability of existing agencies to provide services.
- Provide a description of existing infrastructure in terms of capability, availability, and capacity.
- Discuss and analyze the effects of jurisdictional changes, sphere of influence-related changes, and municipal service review changes.
- Consider and evaluate any City Sphere of Influence changes through the environmental review process before making a formal request to Butte Local Agency Formation Commission.

SUKHVINDER TAKHAR, CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS), DISTRICT 3

- Address impacts to the State Highway System resulting from the General Plan with the use of a traffic impact study.

- Address fair share costs toward funding improvements.
- Suggests update to the current nexus study and fee program with the General Plan Update.
- Notes the goal of 6-lane segments of State Route 99 as well as an alternate alignment for State Route 32.
- Recommends the development of a series of Corridor System Management Plans for portion of State Route 99.
- An encroachment permit is required for all work proposed within the state right-of-way.

JOLENE FRANCIS, CHICO CHAMBER OF COMMERCE

- Review the General Plan Land Use Map before completion of the scope of the Draft EIR to ensure the availability of lands designated meets the needs of commercial and industrial employers.

ANDREW RUSH, GOVERNOR'S OFFICE OF EMERGENCY SERVICES

- Address the requirements in state planning law and determine if there are hazard issues within the community.
- Recommend mitigation measures in the Draft EIR to compensate for any state planning law requirements that have not been met, if any, within the General Plan.

GREG MELTON, LAND IMAGE

- Consider the issues of future development along the "North West Esplanade route."
- Consider provided alternatives to the proposed General Plan land use designations for "North West Esplanade" properties.

DANIEL KEVIN, PUBLIC UTILITIES COMMISSION

- Consider potential project-related rail safety impacts and mitigation measures to reduce adverse impacts to rail safety within the Planning Area.
- Restrict housing from areas adjacent to existing rail yards.
- Restrict housing from areas adjacent to at-grade highway rail crossings or areas within the footprint of land needed for future grade-separation structures.

KATY SANCHEZ, NATIVE AMERICAN HERITAGE COMMISSION

- Contact the appropriate Information Center in order to determine if the Planning Area has previously been surveyed for cultural resources, whether cultural resources have already been found in or within the vicinity of the Planning Area, the probability that cultural resources are located in the Planning Area, and whether any future surveys are necessary regarding cultural resources.

- Future surveys should contain site forms, site significance, and mitigation measures to be submitted to the City Planning Division.

- All information regarding site locations, Native American human remains, and associated funeral objects should not be made available to the public.

- Include mitigation regarding accidentally discovered archeological resources, Native American remains, and the disposition of recovered artifacts. In areas of identified archaeological sensitivity, a certified archeologist and a culturally affiliated Native American should monitor all ground-disturbing activities.

JON LUVAAS, RESIDENT

- Address the fiscal and public service impacts of increased population and acreage of development.

- Address the General Plan's contribution to carbon emissions and the ability to meet the requirements of Assembly Bill 32 and Executive Order S-3-05.

PEGGY MEAD, TOM DAUTERMAN, AND BILL WEBB, RESIDENTS

- The Land Use Plan [now the Land Use Diagram] should be reconsidered before the scope of the Draft EIR is completed.

- The General Plan should accommodate more single-family dwellings with large lots.

PATRICK R. MCGILL, UNION PACIFIC

- Incorporate the findings of a traffic study that addresses at-grade road crossings of the railroad line in the Planning Area.

- Incorporate the findings of a traffic study that addresses the possible need for closures of at-grade intersections.

- Address the General Plan's effect on aesthetic problems created by increases in vandalism due to development near the railroad right-of-way.

- Analyze odor and noise impacts from increased train and vehicle activity in the areas near the railroad right-of-way.

2.0 EXECUTIVE SUMMARY

This section provides an overview of the proposed City of Chico General Plan Update and its environmental analysis. For additional detail regarding specific issues, please consult the appropriate chapter of Sections 4.1 through 4.14 (Environmental Setting, Impacts, and Mitigation Measures) of this Draft Environmental Impact Report (Draft EIR).

2.1 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) will provide, to the greatest extent possible, an analysis of the potential environmental effects associated with the implementation of the proposed General Plan Update, pursuant to the California Environmental Quality Act (CEQA).

This EIR analysis focuses on potential environmental impacts that could arise from implementation of the proposed General Plan Update through development of the land uses within the Planning Area, as regulated and guided by General Plan policies and actions. The EIR adopts this approach in order to provide a credible worst-case scenario of the impacts resulting from project implementation.

2.2 PROJECT CHARACTERISTICS

The proposed project is the adoption and implementation of an updated General Plan for the City of Chico. The updated City of Chico General Plan would replace the existing General Plan, which was originally adopted in 1994 and last comprehensively updated in 1999. The proposed General Plan Update builds off of the goals and vision developed through public outreach and the visioning process embarked upon by the City to ensure that the public and project stakeholders were given the opportunity to provide meaningful input and guidance for the General Plan Update effort.

The proposed City of Chico General Plan Update comprises a Land Use Diagram and policy document that contains 12 elements. Each of the elements identifies goals and associated policies and action items. State law requires that general plans address seven topics: land use, circulation, housing, conservation, open space, noise, and safety. The proposed General Plan Update covers all of these topics plus several additional issues, for a total of 12 elements. In keeping with the state-mandated schedule, the City's Housing Element was updated separately in 2009 with separate environmental review. Thus, while the Housing Element will be incorporated into the proposed General Plan Update upon its adoption, this environmental document does not cover that component of the project. A list of elements is provided below. For a brief description of each element please refer to Section 3.0, Project Description.

2.3 PROJECT ALTERNATIVES SUMMARY

CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. Further, CEQA Guidelines Section 15126.6(e) requires that a "no project" alternative be evaluated in an EIR. The Draft EIR evaluates the following alternatives:

- **Alternative 1 – Existing General Plan Alternative (No Project Alternative)**. Alternative 1 represents a continuation of the existing 1994 General Plan and associated development planned for within. This alternative includes the existing General Plan Land Use Diagram that was established for the community in 1994 (and updated in 1999), including subsequent General Plan amendments.

- **Alternative 2 – Expanded Urban Development Alternative.** Alternative 2 has the largest development footprint area of the alternatives. In this alternative, development is distributed more widely throughout the Planning Area, with less emphasis on increasing densities and intensities. Expansion is focused on the north/south corridor, southeast area, and beyond the Greenline to the west. This land use alternative represents a continuation of existing development patterns and uses, but with the inclusion of more mixed use development.

- **Alternative 3 – Increased Density Alternative**. Alternative 3 directs development toward existing urban areas. Higher-density development would occur through infill and redevelopment of the 15 Opportunity Sites, and limited expansion would occur north and south in three Special Planning Areas (North Chico, Diamond Match, and South Entler) with no expansion to the east or west beyond the Greenline. This alternative assumes significant redevelopment of mixed uses and medium and higher densities in new development.

2.4 AREAS OF CONTROVERSY

The City of Chico was identified as the lead agency for the proposed project. In accordance with Section 15082 of the CEQA Guidelines, the City of Chico prepared and distributed a Notice of Preparation (NOP) and Initial Study (IS) for the City of Chico General Plan Update that was circulated for public review on December 10, 2008 (SCH2008122038). The NOP and IS included a summary of probable effects on the environment from the implementation of the project. Written comments received in response to the NOP were considered in the preparation of the Draft EIR. The issues raised in the NOP response letters included transportation and traffic, scenic resources, planning and land use, public services, climate change, hazards, air quality, cultural resources, and noise. Section 1.0, Introduction, provides a summary of issues and areas of concern related to the proposed General Plan and the Draft EIR, as presented to the City by agencies and the public during the NOP review period. The complete text of the NOP and NOP comments are included as **Appendix A** to this Draft EIR.

2.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.0-1 displays a summary of impacts for the proposed General Plan Update and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance is indicated both before and after the implementation of each mitigation measure.

For detailed discussions of all mitigation measures and of proposed General Plan policies and action items that would provide mitigation for each type of environmental impact addressed in this Draft EIR, refer to the appropriate environmental topic section (i.e., Sections 4.1 through 4.14).

Implementation of the proposed General Plan Update is anticipated to result in residential and nonresidential (retail, commercial, office, industrial, and other uses) development. This development, in combination with long-term, region-wide growth and development, has the potential to generate environmental impacts in a number of areas, including direct construction impacts on biological and cultural resources; indirect impacts associated with use of this built environment on areas such as transportation, air quality, and noise; and capacity impacts to utilities and public services, such as water service, wastewater, solid waste, school, and parks. However, by incorporating policies intended to avoid environmental impacts and by accommodating anticipated growth in a compact urban form through thoughtful infill, redevelopment along transit corridors and at other key locations, and new development in

mixed-use and complete neighborhoods, the General Plan Update is largely self-mitigating. Rather than mitigating impacts from implementation of General Plan Update through mitigation measures in this EIR, the policies and land use map in General Plan Update are, to the extent feasible, intended to prevent the majority of environmental impacts altogether.

The implementation of the proposed General Plan Update has the potential to generate 15 significant and unavoidable impacts. CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. Of these impacts, 8 are the result of the proposed General Plan Update, six are the result of General Plan Update combined with other cumulative development in the larger region, and one is considered an impact of both the proposed General Plan Update and cumulative development. Throughout this EIR, the terms "project" or "proposed project," are used to refer to the implementation of General Plan Update, which will govern all development in the City over the life of the document. The term "cumulative" refers to General Plan Update *as well as* development that will happen in the surrounding region.

The significant and unavoidable project impacts are in the following topic areas:

- Agriculture (one significant and unavoidable impact)
- Traffic and Circulation (two significant and unavoidable impacts)
- Air Quality (two significant and unavoidable impacts)
- Noise (one significant and unavoidable impact)
- Visual Resources and Aesthetics (one significant and unavoidable impact).

The cumulatively considerable and significant and unavoidable impacts are in the following topic areas:

- Agriculture
- Traffic and Circulation
- Air Quality
- Noise
- Biological Resources
- Visual Resources and Aesthetics

The significant and unavoidable impact considered to result from both the project and cumulative development in the region is in the greenhouse gas emissions analysis in Section 4.14. This is because climate change is the result of cumulative global emissions. There is no single project, when taken in isolation that can "cause" climate change, as a single project's emissions are insufficient to change the radiative balance of the atmosphere. Because climate change is the result of greenhouse gas emissions, and greenhouse gas emissions are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. The global increase in greenhouse gas emissions that has occurred and will occur in the future are the result of the actions and choices of individuals, businesses, local governments, states, and nations. Therefore, the analysis in Section 4.14 addresses both project and cumulative impacts in combination.

TABLE 2.0-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Land Use				
Impact 4.1.1	Implementation of the proposed General Plan Update would not result in the division of an existing community nor would it result in substantial land use compatibility issues.	NI	None required.	NI
Impact 4.1.2	Implementation of the proposed General Plan Update could lead to inconsistency with other land use plans and ordinances, including the City's land use plans and regulations that address physical effects to the environment.	LS	None required.	LS
Impact 4.1.3	The Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) has not yet been adopted. However, the proposed General Plan Update would support the HCP effort.	LS	None required.	LS

TABLE 2.0-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.1.4	Implementation of the proposed General Plan Update, in addition to existing, proposed, approved, and reasonably foreseeable development in the City of Chico and Butte County, would contribute to cumulative land use impacts associated with the division of an established community or conflicts with land use plans and regulations that provide environmental protection.	LCC	None required.	LCC
Agricultural Resources				
Impact 4.2.1	Implementation of the proposed General Plan Update would result in the conversion of important farmlands (Prime Farmland, Unique Farmland, Farmland of Statewide Importance) as designated by the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.	SU	None available.	SU
Impact 4.2.2	Implementation of the proposed General Plan Update would not involve any land use changes for parcels currently under a Williamson Act Contract. However, proposed land uses would result in the re-designation of some land areas in the proposed Sphere of Influence, yet currently zoned for agriculture in the Butte	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	County General Plan. Although these lands are under Butte County jurisdiction, City re-designation to non-agricultural uses would result upon annexation into the City.			
Impact 4.2.3	Implementation of the proposed General Plan Update could result in changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use. However, policy provisions in the proposed General Plan Update and continued implementation of the City of Chico Agricultural Preservation Standards under the Municipal Code would ensure that agricultural operations are not adversely impacted.	LS	None required.	LS
Impact 4.2.4	Implementation of the proposed General Plan Update, along with regional and statewide growth, would result in a contribution to the conversion of important farmland.	CC/SU	None available.	CC/SU
Population, Housing, and Employment				
Impact 4.3.1	Subsequent land use activities associated with implementation of the proposed General Plan Update would accommodate anticipated residential and employment anticipated by the year 2030 as well as additional growth	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	capacity beyond the year 2030.			
Impact 4.3.2	Subsequent land use activities associated with implementation of the proposed General Plan Update would not result in the displacement of substantial numbers of housing or persons.	LS	None required.	LS
Impact 4.3.3	Subsequent land use activities associated with implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development, could result in a cumulative increase in population and housing growth in the City of Chico as well as in the surrounding Butte County region, along with associated environmental impacts. However, implementation of the proposed General Plan Update would accommodate anticipated residential and employment growth in an efficient and compact manner.	LCC	None required.	LCC
Human Health / Risk of Upset				
Impact 4.4.1	Implementation of the proposed General Plan Update would not expose people or structures to significant hazards involving wildland fires including in areas where wildlands are	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	adjacent to urbanized areas.			
Impact 4.4.2	Implementation of the proposed General Plan Update would not result in a safety hazard for people residing or working in the vicinity of a public or private airport in the Planning Area.	LS	None required.	LS
Impact 4.4.3	Implementation of the proposed General Plan Update would allow for land uses that would involve the routine transportation, use, or disposal of hazardous materials in the Planning Area. Such activities would continue to be regulated in order to protect public health and will not create a significant hazard to the public or the environment.	LS	None required.	LS
Impact 4.4.4	Implementation of the proposed General Plan Update could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment or by locating development on a site included on a list of hazardous materials sites compiled by Government Code Section 65962.5. Such activities and circumstances would continue to be regulated in order to protect public health and will not create a significant	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	hazard to the public or the environment.			
Impact 4.4.5	Implementation of the proposed General Plan Update would not result in significant emission of hazardous emissions or significant handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LS	None required.	LS
Impact 4.4.6	Implementation of the proposed General Plan Update would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan.	LS	None required.	LS
Impact 4.4.7	Potential development under the proposed General Plan Update, along with increased urban development in Butte County, would not result in cumulative wildland fire hazard impacts.	LCC	None required.	LCC
Traffic and Circulation				
Impact 4.5.1	Implementation of the proposed General Plan Update would result in acceptable traffic operations on City roadway facilities.	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.5.2	Implementation of the proposed General Plan Update would result in an increase in traffic volumes on state facilities that would operate below Caltrans LOS thresholds under year 2030 conditions.	S	None available.	SU
Impact 4.5.3	Implementation of the proposed General Plan Update would result in an increase in demand for public transit services in the Planning Area. However, implementation of proposed General Plan Update policy provisions would not conflict with policies, plans, or programs supporting alternative transportation or increase demand for transit facilities greater than planned capacity.	LS	None required.	LS
Impact 4.5.4	Implementation of the proposed General Plan Update would result in an increase in the demand for pedestrian and bicycle infrastructure. However, implementation of proposed General Plan would not result in adverse affects to existing bikeways or pedestrian facilities that would discourage their use or result in safety issues.	LS	None required.	LS
Impact 4.5.5	Implementation of the proposed General Plan Update would result in an increase in traffic volumes that	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	could result in the greater potential for roadway or traffic hazards.			
Impact 4.5.6	Implementation of the proposed General Plan Update would result in an increase in traffic volumes, which could increase the potential opportunities for safety conflicts as well as potential conflicts with emergency access. However, implementation of the proposed General Plan Update would not result in inadequate emergency access.	LS	None required.	LS
Impact 4.5.7	When considered with existing, proposed, planned, and approved development in the region, implementation of the proposed General Plan Update would contribute to cumulative traffic volumes in the region that result in significant impacts to level of service and operations.	CC	None required.	CC/SU
Air Quality				
Impact 4.6.1	Subsequent land use activities associated with implementation of the proposed General Plan Update would not conflict with or obstruct implementation of the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. The proposed General Plan Update also	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	includes several policy provisions that would further assist in air quality attainment efforts.			
Impact 4.6.2	Subsequent land use activities associated with implementation of the proposed General Plan Update could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter.	PS	None available.	SU
Impact 4.6.3	Subsequent land use activities associated with implementation of the proposed General Plan Update could result in long-term, operational emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter.	S	None available.	SU
Impact 4.6.4	Implementation of the proposed General Plan Update would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. However, traffic volumes would not be large enough to generate excessive carbon monoxide	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	emission levels.			
Impact 4.6.5	Subsequent land use activities associated with implementation of the proposed General Plan Update could result in projects that would include sources of toxic air contaminants which could affect surrounding land uses. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial pollutant concentrations such as toxic air contaminants. However, Butte County Air Quality Management District and state regulations would address exposure to toxic air contaminants.	LS	None required.	LS
Impact 4.6.6	Subsequent land use activities associated with implementation of the proposed General Plan Update could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor. However, continued implementation of BCAQMD rules and regulations and proposed General Plan Update policy provisions would address this issue.	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.6.7	Implementation of the proposed General Plan Update, in combination with cumulative development in the Sacramento Valley Air Basin, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter.	CC	None available.	SU
Noise				
Impact 4.7.1	The proposed General Plan Update could result in exposure of persons to or generation of noise levels in excess of City standards as well as a substantial permanent increase in ambient noise levels in the City. However, the proposed Chico General Plan Update policy provisions would adequately address noise issues.	LS	None required.	LS
Impact 4.7.2	Traffic conditions under the proposed General Plan Update could result in a substantial permanent increase in ambient noise levels that could adversely affect noise-sensitive land uses. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.	S	None available.	SU
Impact 4.7.3	Subsequent development associated with the proposed General Plan Update could result in new noise-	S	None available.	SU

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses.			
Impact 4.7.4	Subsequent development under the proposed General Plan Update could result in exposure of persons to or generation of excessive groundborne vibration levels. However, substantial sources of groundborne vibration that would result in significant vibration impacts are not expected in the Planning Area.	LS	None required.	LS
Impact 4.7.5	Construction activities associated with subsequent activities under the proposed General Plan Update could result in a substantial temporary or periodic increase in ambient noise levels. However, the proposed Chico General Plan Update policy provisions and continued implementation of the City Municipal Code would adequately address construction noise issues.	LS	None required.	LS
Impact 4.7.6	Sensitive land uses constructed near Chico Municipal Airport, Ranchaero Airport, and the Enloe Medical Center could be exposed to aircraft noise in excess of applicable noise standards for land use compatibility.	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.7.7	Implementation of the proposed General Plan Update, in combination with other development in nearby unincorporated areas of the county, would increase transportation noise along area roadways.	CC	None available.	CC/SU
Geology and Soils				
Impact 4.8.1	Subsequent land use activities associated with implementation of the proposed General Plan Update could result in the exposure of more people, structures, and infrastructure to seismic hazards. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that people, structures, and infrastructure are not adversely impacted by seismic hazards.	LS	None required.	LS
Impact 4.8.2	Implementation of the proposed General Plan Update could result in construction and grading activities that could expose topsoil and increase soil erosion. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that there are no adverse impacts from erosion and loss of topsoil.	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.8.3	Implementation of the proposed General Plan Update could allow for development on a geologic unit or soil that is unstable, thus creating substantial risks to life and property. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that potential development is not adversely impacted by unstable soils.	LS	None required.	LS
Impact 4.8.4	Subsequent land use activities associated with implementation of the proposed General Plan Update may allow for development in areas where sewers are not available for the disposal of wastewater and where soils are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. However, policy provisions in the proposed General Plan Update would ensure no adverse impacts from soils incapable of supporting septic tanks.	LS	None required.	LS
Impact 4.8.5	Subsequent land use activities associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, and reasonably foreseeable development in the region,	LCC	None required.	LCC

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	may result in cumulative geologic and soil hazards. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that potential development is not adversely impacted by cumulative geologic and soil hazards.			
Hydrology and Water Quality				
Impact 4.9.1	Implementation of the proposed General Plan Update could result in a violation of water quality standards; substantial alteration of the existing drainage pattern, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, and/or environmental harm; polluted stormwater runoff; or otherwise degrade water quality. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that water quality impacts are addressed.	LS	None required.	LS
Impact 4.9.2	Implementation of the proposed General Plan Update could result in the degradation of groundwater quality and may violate water quality standards and/or degrade water quality	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	resulting from future land uses. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that groundwater quality is protected.			
Impact 4.9.3	Implementation of the proposed General Plan Update could result in a substantial alteration of an existing drainage pattern, including through the alteration of the course of a stream or river, which may substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site or could result in the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage system. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that drainage is adequately addressed.	LS	None required.	LS
Impact 4.9.4	Implementation of the proposed General Plan Update may result in the placement of housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map; and as a	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	result impede or redirect flood flows exposing people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that flooding is adequately addressed.			
Impact 4.9.5	Land uses and growth under the proposed General Plan Update, in combination with current land uses in the surrounding region, could introduce substantial grading, site preparation, and an increase in urbanized development.	LCC	None required.	LCC
Impact 4.9.6	Implementation of the proposed General Plan Update could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions downstream.	LCC	None required.	LCC
Biological Resources				
Impact 4.10.1	Land uses and development consistent with the proposed General Plan Update could result in adverse effects, either directly or indirectly on special-	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	status plant and animal species and sensitive and critical habitats in the Planning Area. However, implementation of General Plan Update policy provision would address this impact.			
Impact 4.10.2	Land uses and development consistent with the proposed General Plan Update could interfere with the movement of native resident or migratory fish or wildlife species as well as use of native wildlife nursery sites. These land uses could also restrict the range of special-status species in the Planning Area.	LS	None required.	LS
Impact 4.10.3	No Habitat Conservation Plan (HCP), recovery plan, or natural community conservation plan has been adopted encompassing all or portions of the City of Chico. The General Plan Update would not conflict with Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) that regulates the removal and preservation of trees on undeveloped parcels within the city.	NI	None required.	NI
Impact 4.10.4	The proposed General Plan Update, in combination with other reasonably foreseeable projects, would result in direct and indirect mortality and loss	CC	None available	CC/SU

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	of habitat for special-status species, sensitive and/or critical habitat.			
Cultural and Paleontological				
Impact 4.11.1	Subsequent activities under the proposed General Plan Update could potentially cause a direct substantial adverse change in the significance of a historical resource or structure. However, policy provisions in the proposed General Plan Update, existing Best Management Practices (BMPs), and continued implementation of the city's Municipal Code would ensure that historic resources are not adversely impacted.	LS	None required.	LS
Impact 4.11.2	Subsequent activities under the proposed General Plan Update could result in the potential disturbance of cultural resources (i.e., prehistoric archaeological sites, historical archaeological sites, and isolated artifacts and features) and human remains. However, policy provisions in the proposed General Plan Update would ensure that archaeological resources are not adversely impacted.	LS	None required.	LS
Impact 4.11.3	Adoption of the proposed General Plan Update could result in the potential disturbance of paleontological resources (i.e., fossils and fossil	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	formations) within the Planning Area. However, policy provisions in the proposed General Plan Update would ensure that paleontological resources are not adversely impacted.			
Impact 4.11.4	Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to cultural resources in the region. However, policy provisions in the proposed General Plan Update and continued implementation of the city's Municipal Code would ensure that historic and prehistoric resources are not adversely impacted.	LCC	None required.	LCC
Impact 4.11.5	Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to paleontological resources in the region.	LCC	None required.	LCC
Public Services and Utilities				
Impact 4.12.1.1	Implementation of the proposed General Plan Update could result in the need for additional fire protection and emergency medical services	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	facilities in order to maintain acceptable service ratios and response times. The provision of these facilities could cause environmental impacts. However, future fire protection/EMS facilities would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Implementation of the proposed General Plan Update policy provisions and continued implementation of City goals would ensure emergency services and associated facilities are provided.			
Impact 4.12.1.2	Implementation of the proposed General Plan Update would result in additional need for water supply and infrastructure to provide adequate fire flows for fire protection. The provision of these facilities could cause environmental impacts. However, future improvements would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency.	LS	None required.	LS
Impact 4.12.1.3	Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in Butte County, would increase the demand for fire protection	LCC	None required.	LCC

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	and emergency medical services and thus require additional staffing, equipment, and related facilities under cumulative conditions. The provision of these facilities could result in environmental impacts.			
Impact 4.12.2.1	Implementation of the proposed General Plan Update would result in increased demand for law enforcement services and could result in the need for new or physically altered law enforcement facilities, the construction of which could cause significant environmental impacts. However, future improvements would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency.	LS	None required.	LS
Impact 4.12.2.2	Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the CPD service area, would increase the demand for law enforcement services and thus require additional staffing, equipment, and facilities, the construction of which could cause significant environmental impacts.	LCC	None required.	LCC

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.12.3.1	Implementation of the proposed General Plan Update would increase population in the CUSD service area, which would subsequently increase student enrollment in CUSD schools. New or expanded school facilities may be necessary to serve the increased demand. Subsequent development under the proposed General Plan Update would be subject to school facility fees to pay for additional school facility needs.	LS	None required.	LS
Impact 4.12.3.2	Implementation of the proposed General Plan Update would increase population in the city, which could also increase the number of students attending local post-secondary education facilities. The provision of new or expanded facilities would not result in substantial adverse physical impacts.	LS	None required.	LS
Impact 4.12.3.3	Population growth associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative setting, would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth.	LCC	None required.	LCC

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.12.4.1	Implementation of the proposed General Plan Update would increase demand for water supply and thus require increased groundwater production, which could result in significant effects on the physical environment. However, adequate groundwater supply sources exist, and proposed General Plan Update policy provisions and Cal Water's water conservation provisions would ensure adequate water service.	LS	None required.	LS
Impact 4.12.4.2	Implementation of the proposed General Plan Update would increase demand for water supply and thus require additional water supply infrastructure that could result in a physical impact to the environment.	LS	None required.	LS
Impact 4.12.4.3	Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would increase the cumulative demand for water supplies and related infrastructure.	LCC	None required.	LCC
Impact 4.12.5.1	Implementation of the proposed General Plan Update could result in wastewater discharge that would exceed wastewater treatment	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	requirements of the Central Valley Regional Water Quality Control Board.			
Impact 4.12.5.2	Subsequent development under the proposed General Plan Update would increase wastewater flows and require additional infrastructure and treatment capacity to accommodate anticipated demands. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure adequate wastewater facilities are provided.	LS	None required.	LS
Impact 4.12.5.3	Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would contribute to the cumulative demand for wastewater service. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure adequate wastewater facilities are provided.	LCC	None required.	LCC
Impact 4.12.6.1	Implementation of the proposed General Plan Update would generate increased amounts of solid waste that would need to be disposed of in	LS	None required.	LS

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	landfills or recycled.			
Impact 4.12.6.2	Implementation of the proposed General Plan Update would not be expected to result in conflicts with any federal, state, or local solid waste regulations.	LS	None required.	LS
Impact 4.12.6.3	Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development in the region, would result in increased demand for solid waste services.	LCC	None required.	LCC
Impact 4.12.7.1	Implementation of the proposed General Plan Update would increased demand for electrical, natural gas, and telecommunications services, including associated infrastructure that could result in a physical impact on the environment.	LS	None required.	LS
Impact 4.12.7.2	Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would contribute to the cumulative demand for electrical, natural gas, and telecommunications services and associated infrastructure that could result in a physical impact	LCC	None required.	LCC

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TABLE 2.0-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	on the environment.			
Impact 4.12.8.1	Implementation of the proposed General Plan Update would accommodate population growth, which could subsequently increase the use of existing parks and recreation facilities and/or require the construction or expansion of park and recreational facilities to meet increased demand.	LS	None required.	LS
Impact 4.12.8.2	Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would increase the use of existing parks and would require additional park and recreation facilities within the cumulative setting, the provision of which could have an adverse physical effect on the environment.	LCC	None required.	LCC
Visual Resources				
Impact 4.13.1	Implementation of the proposed General Plan Update could have a substantial effect on a scenic vista. However, implementation of proposed General Plan Update policy provisions and continued implementation of the city's Municipal Code would ensure that no adverse impact to a scenic vista	LS	None required.	LS

S – Significant CC- Cumulatively Considerable LS – Less Than Significant SU – Significant and Unavoidable NI No Impact
PS-Potentially Significant LCC -Less than Cumulatively Considerable CS – Cumulative Significant SM- Significant but Mitigatable

TABLE 2.0-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	would occur.			
Impact 4.13.2	Implementation of the proposed General Plan Update would not damage any scenic resources within a state scenic highway.	NI	None required.	NI
Impact 4.13.3	Implementation of the proposed General Plan Update would result in increased development which would alter the existing visual character of the Planning Area.	S	None available.	SU
Impact 4.13.4	Implementation of the proposed General Plan Update could result in an increase of daytime glare and/or nighttime lighting. This increase in daytime glare sources and nighttime lighting levels could have an adverse effect on adjacent areas and land uses.	LS	None available	LS
Impact 4.13.5	Implementation of the proposed General Plan Update, in combination with other reasonably foreseeable development projects within Butte County, would contribute to the alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting.	CC	None available.	CC/SU
Energy Use and Climate Change				
Impact 4.14.1	Development under the proposed General Plan Update would increase	LS	None required.	LS

S – Significant CC- Cumulatively Considerable LS – Less Than Significant SU – Significant and Unavoidable NI No Impact

PS-Potentially Significant LCC -Less than Cumulatively Considerable CS – Cumulative Significant SM- Significant but Mitigatable

TABLE 2.0-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	the consumption of energy associated with electrical, natural gas, and vehicle fuel. However, implementation of proposed General Plan Update policies and state programs and requirements would ensure that energy usage is not inefficient, wasteful, or unnecessary.			
Impact 4.14.2	Implementation of the proposed General Plan Update would be consistent with the goals of AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). However, it could still result in greenhouse gas emissions that may further contribute to significant impacts on the environment.	CC	None available.	CC/SU

3.0 PROJECT DESCRIPTION

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) is the Project Description of the proposed City of Chico General Plan Update. The purpose of the Project Description is to describe the project in a way that will be meaningful to the public, reviewing agencies, and decision-makers. As described in Section 15124 of the CEQA Guidelines, a complete project description must contain the following information but is not required to supply extensive detail beyond that needed for evaluation and review of the environmental impact: (1) the location and boundaries of the proposed General Plan Update on a regional and detail map; (2) a statement of objectives sought by the proposed General Plan Update; (3) a general description of the proposed General Plan Update's technical, economic, and environmental characteristics; and (4) a statement briefly describing the intended uses of the EIR.

3.1 LOCAL AND REGIONAL SETTING

PROJECT LOCATION

The City of Chico 2030 General Plan Planning Area (Planning Area) is located in Butte County in northern California (**Figure 3.0-1**). The Planning Area includes the City of Chico, the City's Sphere of Influence, and unincorporated areas in Butte County. The actual Planning Area boundaries have not been changed and are consistent with the currently adopted 1994 General Plan. The Planning Area consists of approximately 150 square miles of land located in the west-central portion of Butte County (**Figure 3.0-2**).

PROJECT SETTING

The City of Chico consists of approximately 22 square miles in the central portion of northern California. Butte County has a high diversity of biological communities because it extends from the Sacramento Valley floor to the Sierra Nevada over elevations ranging from approximately 50 feet to more than 8,000 feet above mean sea level. Butte County comprises five different geographic subregions, including the Sacramento Valley subregion where most of the Planning Area is located. The very eastern portion of the Planning Area falls within the Cascade Range Foothills subregion. The upper extent of this eastern portion consists of landscape dominated (more than one half) by oak woodland natural communities. The upper elevation range of the oak woodland community varies from about 800 to 1,500 feet above mean sea level. Typically oak tree-dominated land cover types are replaced with either chaparral or conifer-dominated land cover types at higher elevations. The Sacramento Valley is part of the northern subregion of the Great Central Valley of north-central California that extends from Red Bluff in Tehama County to the Suisun Slough in southwest Solano County.

There are 14 biological communities that occur in the Planning Area: urban/park, agriculture, grassland, blue oak woodland, blue oak savanna, valley oak woodland, mixed oak woodland, interior live oak woodland, cottonwood-willow riparian, valley oak riparian, mixed riparian, willow scrub, open water (including riverine), and wetlands (including emergent wetland and vernal pool). The reader is referred to Section 4.10, Biological Resources, for a further discussion of natural habitat conditions of the area.

Two major highways, State Routes (SR) 32 and 99, comprise Chico's regional transportation network and serve much of the population in Butte County. SR 32 connects Chico residents to Glenn and Plumas counties to the west and east, respectively. SR 99 connects residents to Tehama and Sutter counties to the north and south, respectively.

3.2 PROJECT BACKGROUND

The City's first General Plan was adopted in 1961, although long-range studies of City services and facilities preceded that date. The second General Plan was adopted in 1976 and addressed a wide range of issues associated with development and environmental conservation. The City Council adopted the current General Plan in 1994. At the time, the City identified city limits, a Planning Area boundary, and the City's Sphere of Influence. The City also identified future urban expansion areas and an Urban Development Boundary. In total, the 1994 General Plan Planning Area included 150 square miles, approximately 22 square miles of which were intended for urban use.

Since 1994, the City has adopted various General Plan amendments, as well as mandated updates to the Housing Element. The Housing Element is the only General Plan element that must be updated according to a schedule set by the state.

The current General Plan Update process commenced in August of 2007. The City of Chico conducted an extensive public outreach process for the General Plan Update to understand the needs and desires of the community and to identify and discuss concerns and controversial issues throughout the update process. Hundreds of Chico residents, business owners, community leaders, and other stakeholders participated in development of the proposed General Plan Update. A summary of those efforts is provided below.

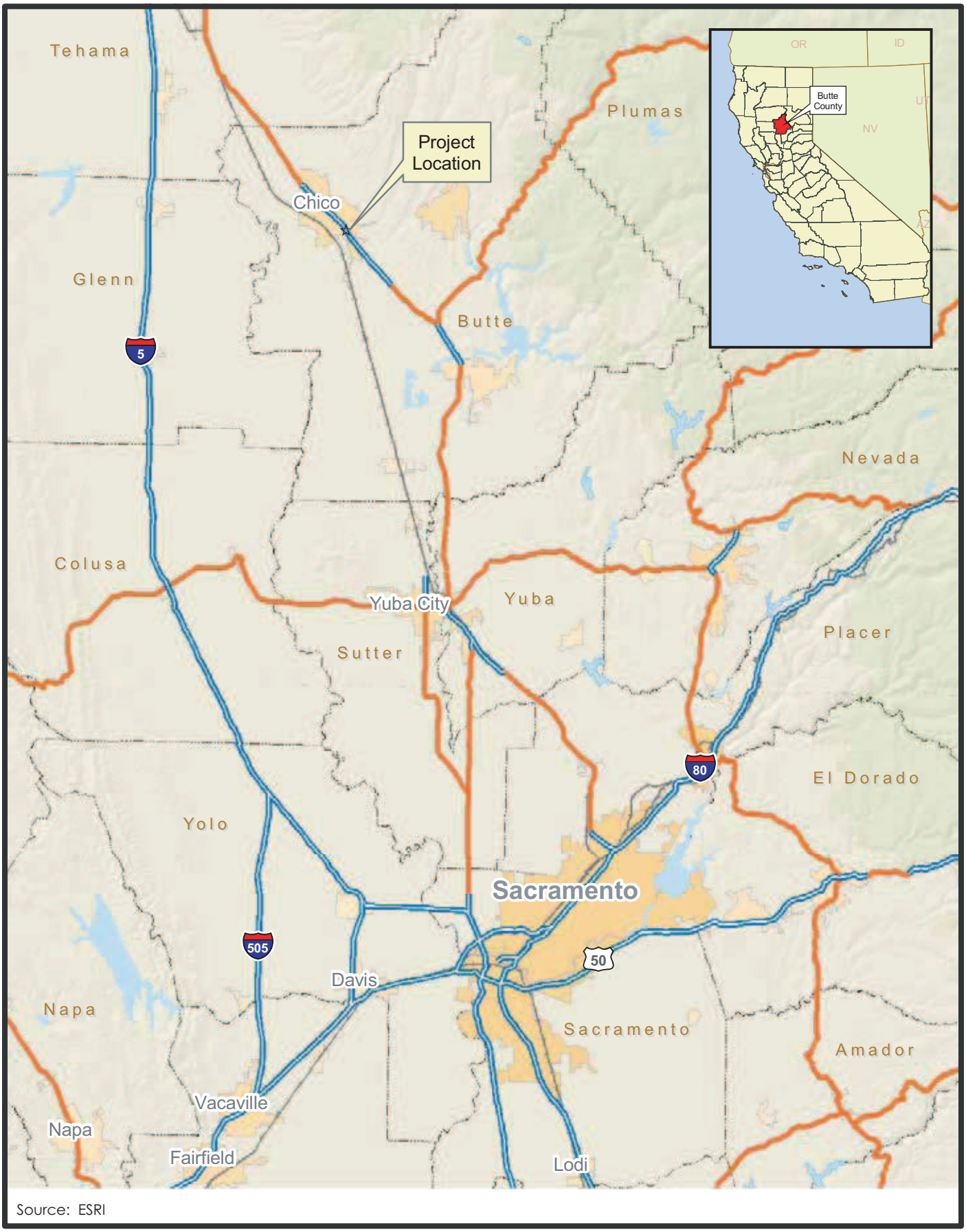
- **General Plan Advisory Committee (GPAC).** The City Council appointed 12 Chico residents to serve on the GPAC for focused consideration of important General Plan issues. The GPAC held 15 meetings to provide guidance and recommendations on the key issues, guiding principles, land use alternatives, and policies for the General Plan Update.

- **Downtown Ad Hoc Committee (DAHC).** The City Council appointed 14 Chico residents, business owners, and other stakeholders to serve on the DAHC with the task of providing input and recommendations on key issues, land uses, and policies for Downtown Chico. The DAHC held a total of eight meetings and one field trip on the General Plan Update.

- **Sustainability Task Force (STF).** The STF was established by the City Council in 2006 to make recommendations on implementation of the Mayors' Climate Protection Agreement and to reduce greenhouse gas emissions. The STF provided input and guidance on key issues and policies for the City's first Sustainability Element and for the General Plan Strategy of Sustainability.

- **Stakeholder Groups.** The City identified 14 stakeholder groups (approximately 400 individuals) in the community with wide-ranging interests and facilitated stakeholder group meetings/interviews in three separate phases of the proposed General Plan Update to solicit input and ideas about future vision and key issues, Downtown, land use alternatives, and important policies relevant to the stakeholder groups.

- **Community Workshops.** For the community-at-large, the City held nine public workshops to provide information about the proposed General Plan Update and to solicit feedback at important phases of the project (visioning, CSUC visioning, key issues, Downtown, land use alternatives, and draft General Plan Update).



Source: ESRI

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FIGURE 3.0-1
REGIONAL LOCATION MAP

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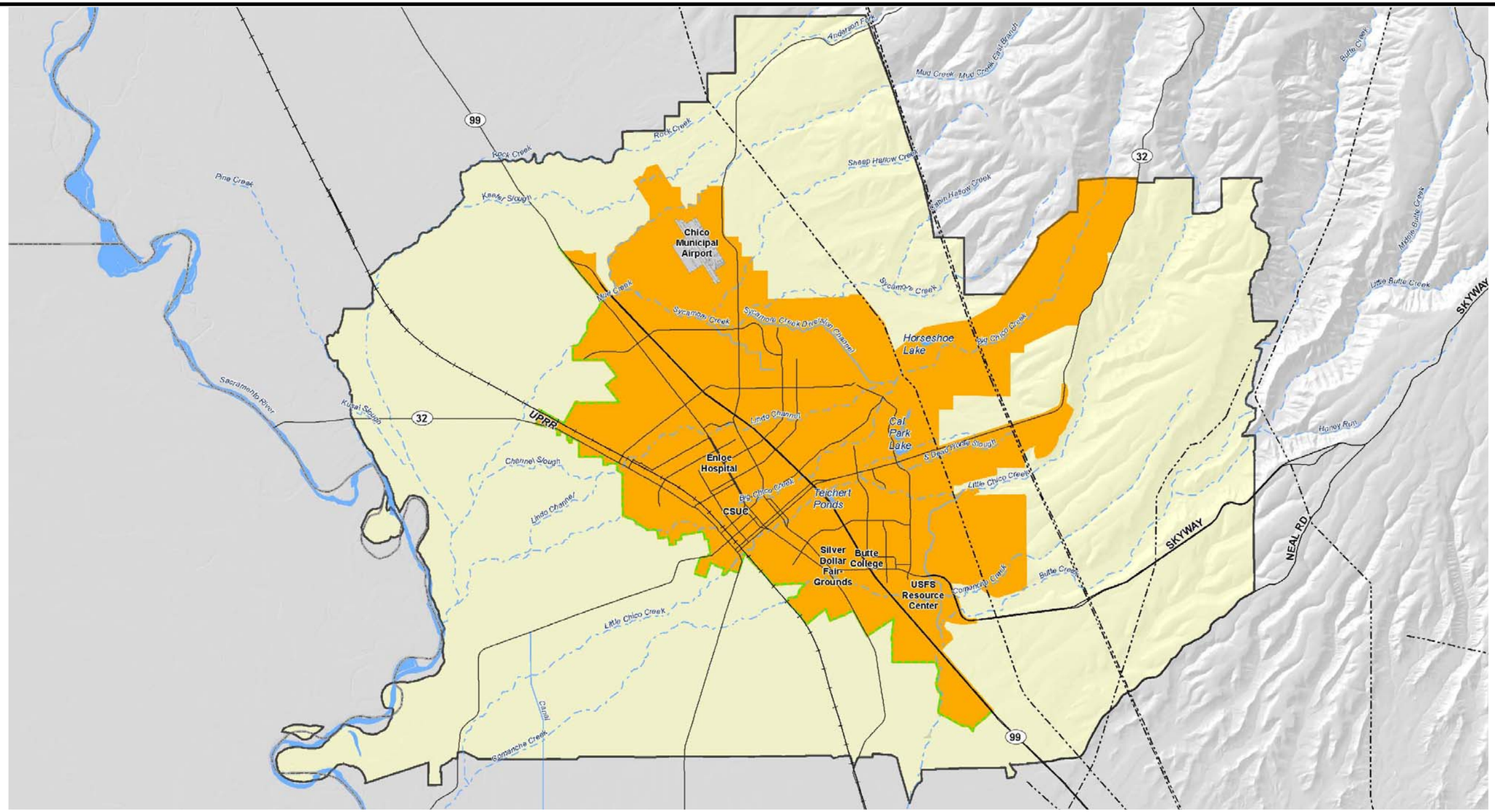

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Figure 3.0-2
2030 General Plan Planning Area

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- **Public Hearings and Study Sessions of City Council and Planning Commission.** The City noticed and invited public participation and testimony at over 17 (as of July 2010) public hearings and study sessions with the City Council and Planning Commission. Meeting topics included visioning results, Guiding Principles, the key issues report, land use projections, land use alternatives, Housing Element, and key policies.

As part of the proposed General Plan Update development, several technical studies were conducted to document environmental conditions and analyze prospects for economic development, community character and growth, and development alternatives. Studies and reports prepared include:

- **Existing Conditions Report** – The Existing Conditions Report includes data, maps, tables and information which inform the reader as to the current conditions in the city and provide a baseline of information used in the preparation of the goals, policies, and actions in the proposed General Plan Update. The Existing Conditions Report also serves as a portion of the environmental baseline for the Environmental Impact Report prepared in support of the proposed General Plan Update process.

- **General Plan Survey** – A statistically valid phone survey of 400 City residents (with a margin of error less than 5 percent) was taken in December 2007 to gather input on topics addressed in the proposed General Plan Update process. The survey asked respondents to provide information on important topics such as community needs, wishes, and perceptions about land uses, development density and intensity, location and type of future growth, and City services. Survey responses informed policy development and provided a baseline from which additional questions and information were pursued.

- **Vision Book** – The Vision Book summarizes the future ideas and visions of Chico residents captured during the initial public outreach effort of the General Plan Update process. The Vision Book sets forth an overall vision for Chico in 2030, highlights the "Big Ideas" for the city, and frames ideas of city residents that the City considered during the preparation of the proposed General Plan Update.

- **Key Issues Report** – At the conclusion of the initial public outreach process, the key issues identified were consolidated and catalogued into a report that was utilized by the City, stakeholder groups, and advisory committees to provide policy direction.

- **Land Use Alternatives Report** – The Land Use Alternatives Report presents each of the three alternatives as well as the Preferred Land Use Alternative and provides data and information on each alternative. The report summarizes an abundance of information produced in a series of staff reports and other supporting material to the General Plan Advisory Committee, Ad Hoc Downtown Committee, Planning Commission, and City Council on the subject of land use alternatives. The report serves as a record of the community process to select a Preferred Land Use Alternative, as well as a reference for development of the policy document.

3.3 PROPOSED GENERAL PLAN UPDATE

REQUIREMENT TO ADOPT A GENERAL PLAN

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan is required to address the following mandatory elements: land use, circulation, housing, conservation, open space, noise, and safety. A city or county may also adopt additional elements. A general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for each area addressed in the plan. The general plan is a long-range document that typically addresses the physical development of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

CHICO 2030 GENERAL PLAN VISION, STRATEGY, AND GUIDING PRINCIPLES

The proposed General Plan Update Introduction Chapter includes three important statements about project objectives in the form of the 2030 Vision, Strategy of Sustainability, and Guiding Principles. Those statements are provided below as a framework for the environmental analysis of the project.

2030 Vision

The 2030 General Plan is based on a new vision for the community, which was developed with the community. Below is an excerpt from the Imagine Chico 2030 Vision, which summarizes the future ideas and vision of the community captured during the initial public outreach process for the proposed General Plan Update.

> *Chico, in the year 2030, is a livable, healthy, and sustainable community that offers a high quality of life with a strong sense of community and place. Chico maintains its small-town character while providing opportunities for future generations to thrive. Government is transparent and politics are open and engaging. The City is characterized by a vibrant Downtown, a healthy economy, compact urban form, identifiable neighborhoods with diverse housing choices, convenient access to locally-produced goods, and a focus on alternative transportation and healthy lifestyles. Historic places and buildings are prominent, and Chico is celebrated for its diversity, arts, culture, outdoor access, recreational opportunities, and parks. It is known as a leader in innovative technology and educational capital. Above all, Chico is a place we're proud to call home.*

Sustainability Strategy

Chico's proposed General Plan Update is committed to the challenge of creating and maintaining a sustainable community locally, regionally, and globally. Sustainability in Chico means maintaining a culture of stewardship to enhance natural resources, economic interests, and quality of life for present and future generations. The proposed General Plan Update's goals and associated policies and actions are intended to work together toward achieving sustainability. The proposed General Plan Update also recognizes that sustainability must be an

organizing principle; thus the City must consider the interdependent interests of protecting the environment, promoting social equity, and achieving a healthy economy in all of Chico's actions and programs. The Sustainability Element of the proposed General Plan Update includes the following definitions for Environment, Economy and Equity.

- **Environment.** Environmental sustainability is accomplished by reducing the impact of human activities on natural systems and lands that supports the community. A major component of protecting the environment is the wise utilization of land. Focusing Chico's growth within the Sphere of Influence will reduce pressure to develop at the community's edges where it would impact agricultural lands and foothills. Growth consistent with the Land Use Diagram and policies in the General Plan will result in reduced impacts on the environment, reduced contributions to global climate change, reduced reliance on oil and other fossil-fuel sources, and decreased consumption of natural resources. Strategies in this General Plan for protecting the environment include promoting compact, walkable, infill and mixed-use development; focusing redevelopment along transit corridors and at other key locations; protecting sensitive habitat, open space and agricultural lands; promoting the efficient use of energy and resources; improving local air and water quality; directing waste diversion and reduction; and establishing energy and water conservation measures in building, landscaping, and municipal operations.

- **Economy.** A sustainable economy is strong and resilient, environmentally conscientious, and accessible to the entire community. To be sustainable, Chico's economy must be diverse in order to provide stability through economic cycles. There must be jobs for a skilled local workforce in traditional business sectors, as well as green businesses. It must growth its retail base in order to generate tax revenue to fund quality public services for the community, and must continue to grow base-level businesses that export products and import revenue. Strategies in the General Plan that promote a sustainable economy include fostering a positive climate for economic development, providing an adequate supply of land, ensuring the readiness of physical conditions to support development, targeting public investment to help attract investment and support local prosperity, creating partnerships within the region to generate jobs, and ensuring a quality of life that makes Chico a desirable place to invest.

- **Equity.** For the purposes of the General Plan, equity means ensuring equal access to housing, transportation, government, jobs, education, and recreation for all residents, and equal protection from potential hazards and nuisances. Promoting social equity is a critical investment in human capital, which in turn supports the other two sustainability components of economic vitality and environmental protection. Strategies in this General Plan for promoting social equity include ensuring adequate housing for all income levels; providing open government that values public participation; promoting local goods and cultures; assisting the more vulnerable members of the community; promoting community health through a safe circulation system with multi-modal transportation options; and providing parks and quality public services to all members of the community.

To establish a sustainable development trend for the community, the General Plan identifies and promotes certain development patterns, including compact urban development, infill development and redevelopment, mixed-use development, complete neighborhoods, and a variety of housing types. The Plan further seeks to preserve and enhance its older neighborhoods, promote economic development, protect sensitive environmental resources, and provide open space and parks. To achieve these sometimes competing goals, the General

Plan addresses three distinct areas of the City: areas of stability, areas of potential change, and areas for new growth.

- **Areas of Stability** - While the General Plan's underlying land use theme is a compact urban form, it also recognizes that not all areas are suited for significant new growth. Areas of stability are those parts of the City that are not anticipated to change substantially in character, land use or development intensity. These areas include most existing residential neighborhoods, environmentally sensitive lands, open spaces, and parks.

- **Areas of Potential Change** - Areas of potential change are the 15 Opportunity Sites as identified on the Land Use Diagram. These strategic infill and redevelopment areas include underutilized transportation corridors, regional retail centers, areas in the City's core, and other residential, light industrial, and mixed-use areas that can accommodate growth. To support increased density and intensification of uses at these locations, the City will need to invest resources, particularly to ensure infrastructure can adequately support growth.

- **New Growth Areas** - The General Plan identifies five new growth areas to help meet the City's future housing and job needs. These areas are designated as Special Planning Areas on the Land Use Diagram, and are to be developed as connected and complete neighborhoods with a mix of housing types, employment, services, and shopping opportunities, along with parks and open space.

Guiding Principles (Project Objectives)

The proposed General Plan Update Guiding Principles reflect core community values and identify desired outcomes. They provide broad statements of purpose and direction to achieve the community vision and served as inspiration for development of the proposed General Plan Update goals, policies, and actions. Each goal, policy, and action of every proposed General Plan Element relates back to one or more of the important principles listed below. These Guiding Principles were developed through the visioning process early in the proposed General Plan Update and reflect input provided by the public, General Plan Advisory Committee, Planning Commission, and City Council. These principles are identified in this EIR as the objectives of the proposed General Plan Update:

1) **Planned and Balanced Growth and Conservation**. The General Plan balances growth and conservation by reinforcing the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. The Plan guides new development to areas contiguous to existing development, so it may be efficiently served by the extension of infrastructure and municipal services. Fiscally and environmentally responsible development is a priority.

2) **Healthy Environment and Resource Conservation**. The General Plan supports preservation of natural resources, local production of goods and services, the use of renewable versus nonrenewable resources, and new strategies to minimize waste and dispose of it locally. The City strives to improve and protect its air quality, climate, and human health by reducing harmful emissions, such as greenhouse gases. Chico will lead the way to a healthy environment by providing local government support, partnerships, and innovation for sustainability.

3) **Strong Local Economy with Diversified Employment Base**. The General Plan supports local businesses and seeks to strengthen Chico's role as a regional center for education, commerce, retail, medicine, and other professional services to ensure a mix of professional local jobs for future generations. The General Plan also supports locally produced goods and services.

4) **Resource Protection and Enhancement**. The General Plan calls for the conservation, enhancement, and protection of viable agricultural land natural resources and sensitive environments. Historic and cultural resources will be preserved as significant reminders of the city's rich history.

5) **Enhance Chico's Character and Identity**. The General Plan reinforces the unique identity and character of Chico as a thriving North Valley college town in a unique natural setting. The proposed General Plan Update promotes Chico as the civic, cultural, and economic hub of the region while maintaining the City's small-town charm. The Plan emphasizes the role of Downtown as the heart of the community.

6) **Complete Neighborhoods as Community Foundation**. The proposed General Plan Update fosters the creation and enhancement of complete, well-designed, and walkable neighborhoods, from the traditional Downtown core to infill projects and integrated new communities. Complete neighborhoods include places to gather, nearby retail and services for daily needs, and multimodal access to recreation, jobs, and other areas of the community.

7) **Development Patterns that Offer Alternatives to Automobile Use**. The General Plan reduces distances between complementary land uses and emphasizes a balanced, multimodal circulation system that is efficient and safe and that connects neighborhoods to jobs, shopping, schools, services, local attractions, and open space.

8) **Progress Toward Sustainability**. The City is committed to sustainability, and the General Plan guides the creation and maintenance of tools to analyze the City's reduction of greenhouse gas emissions and its progress toward sustainability.

9) **Community Health and Well-Being**. The General Plan envisions a safe, healthy community with a strong sense of identity. The General Plan facilitates quality public services and facilities, community engagement, learning opportunities, and equal access to community resources. The Plan supports a varied and diverse housing supply that meets the needs of Chico's current and future residents. The Plan strives to protect all members of our community.

COMPONENTS OF THE PROPOSED CHICO GENERAL PLAN UPDATE

Elements of the Proposed Chico General Plan Update

The City of Chico proposed General Plan Update consists of 12 elements. Each element includes a vision statement, introduction, explanation of the most significant issues and considerations, as well as goals, policies, and actions intended to address element issues in keeping with the community vision. A brief description of each element is provided below.

Sustainability Element

As identified in the proposed General Plan Update Introduction, the General Plan Update's Guiding Strategy is to create and maintain a sustainable community that is environmentally responsible, economically robust, and socially equitable. Policies and actions in every element of the proposed General Plan Update support this overarching theme. The Sustainability Element addresses aspects of sustainability that are not covered in other elements (e.g., greenhouse gas reduction strategies) and details how the City defines and incorporates sustainability at the local level. This element explains how the City will approach balancing of environmental, economic, and social equity interests with annual evaluation of sustainability indicators and sustainability-based decision-making.

Land Use Element

The Land Use Element provides the policy basis for land use decisions, establishing land use classifications, and outlines other land use policies. This element directs a sustainable land use pattern by designating areas of stability (such as existing residential neighborhoods), potential change (redevelopment of designated opportunity sites), and growth (five designated Special Planning Areas) to meet future housing and job needs projected for 2030. The proposed Land Use Diagram is shown in **Figure 3.0-3**. Land use designations and policies direct future development with an integration of uses, balance between housing and jobs, establishment of urban growth limits (for example, the Greenline), and direction regarding increased density and intensity, and the form of development in targeted areas. Land use designations and policies also protect existing neighborhoods, agriculture, open space, and biologically sensitive areas.

Circulation Element

The Circulation Element describes existing and future transportation systems in the Planning Area. Goals, policies, and actions guide the City's circulation and mobility system, including the roadway network, future connections, transit facilities and services, and bicycle and pedestrian facilities. Policies in this element focus on the development of an integrated, multimodal transportation network to increase travel choice, improve goods movement, and reduce vehicle miles traveled. Finally, text and policies in this element introduce a new multimodal approach to evaluating roadway function (level of service) for all primary modes of travel (vehicles, transit, bikes, and pedestrians) and plan for future implementation of that system, which would differ from the more traditional auto-oriented level of service standards currently provided under the existing 1994 General Plan. Circulation Element maps include the Circulation Plan (**Figure 3.0-4**), Bikeway/Pedestrian System Plan (**Figure 3.0-5**), and Transit System (**Figure 3.0-6**).

Community Design Element

The Community Design Element focuses on the visual quality of the physical elements and spaces that shape Chico. Top community design issues for the proposed General Plan Update include neighborhood character, infill design compatibility, sense of place, complete streets, wayfinding, and design review. Goals, policies, and actions in this element focus on preservation and enhancement of both natural and man-made physical attributes in the community, design quality and compatibility, community gateways, wayfinding, and public art.

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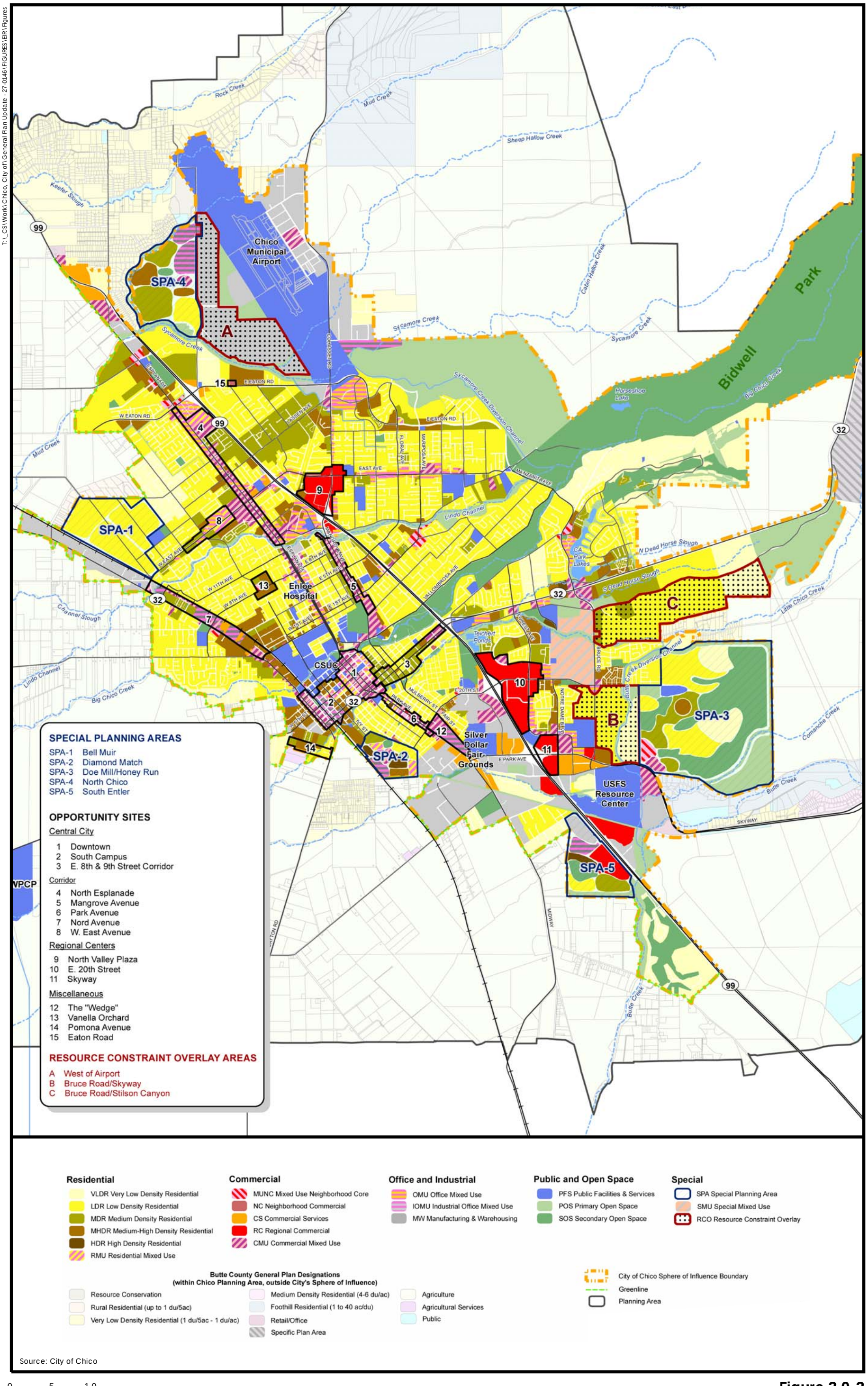

Source: City of Chico

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Figure 3.0-3
Proposed Land Use Diagram

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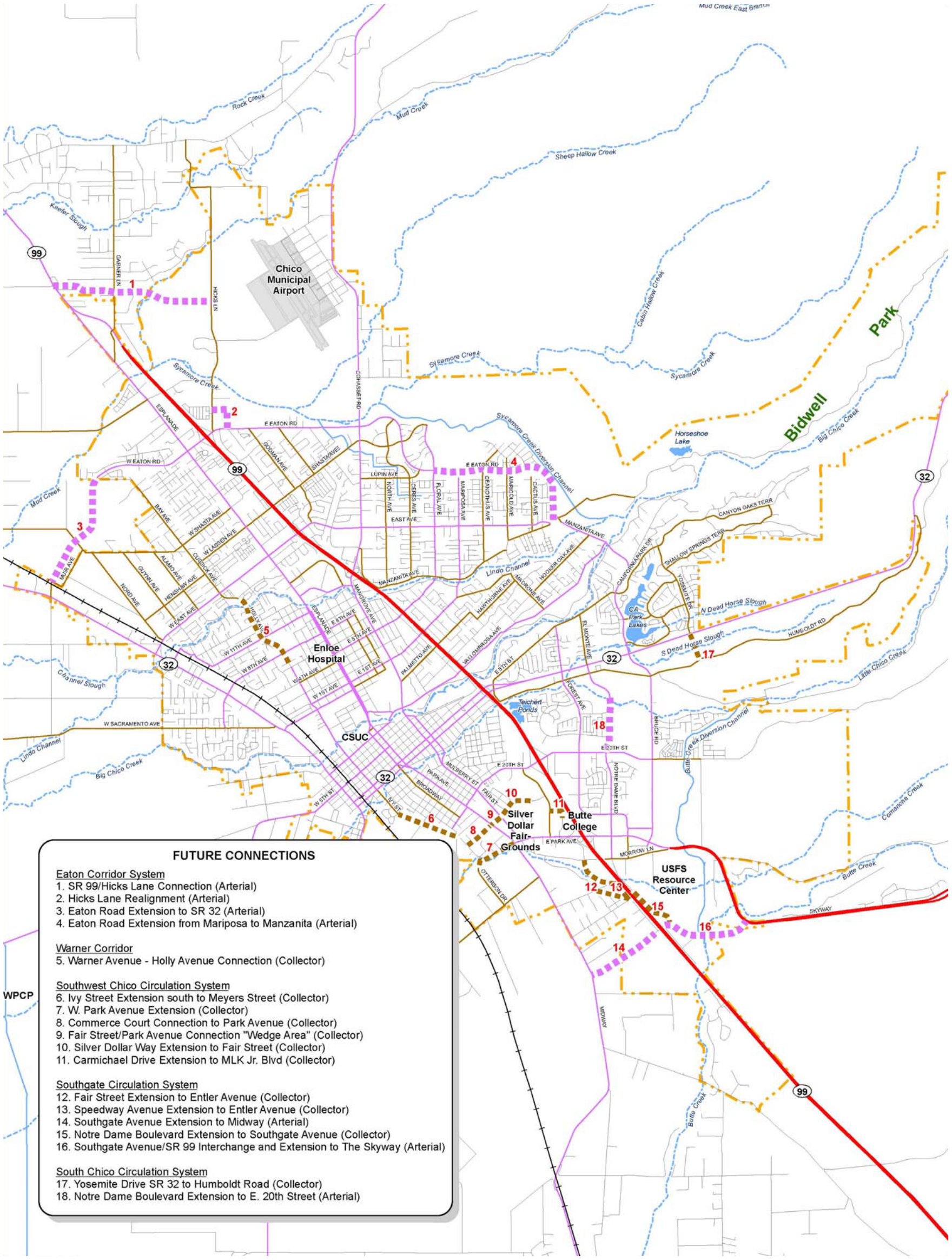

FUTURE CONNECTIONS

Eaton Corridor System
1. SR 99/Hicks Lane Connection (Arterial)
2. Hicks Lane Realignment (Arterial)
3. Eaton Road Extension to SR 32 (Arterial)
4. Eaton Road Extension from Mariposa to Manzanita (Arterial)

Warner Corridor
5. Warner Avenue - Holly Avenue Connection (Collector)

Southwest Chico Circulation System
6. Ivy Street Extension south to Meyers Street (Collector)
7. W. Park Avenue Extension (Collector)
8. Commerce Court Connection to Park Avenue (Collector)
9. Fair Street/Park Avenue Connection "Wedge Area" (Collector)
10. Silver Dollar Way Extension to Fair Street (Collector)
11. Carmichael Drive Extension to MLK Jr. Blvd (Collector)

Southgate Circulation System
12. Fair Street Extension to Entler Avenue (Collector)
13. Speedway Avenue Extension to Entler Avenue (Collector)
14. Southgate Avenue Extension to Midway (Arterial)
15. Notre Dame Boulevard Extension to Southgate Avenue (Collector)
16. Southgate Avenue/SR 99 Interchange and Extension to The Skyway (Arterial)

South Chico Circulation System
17. Yosemite Drive SR 32 to Humboldt Road (Collector)
18. Notre Dame Boulevard Extension to E. 20th Street (Arterial)

WPCP

STREET CLASSIFICATION

- Freeway/Expressway (4-6 lanes)
- Arterial (4-2 lanes)
- Collector (2 lanes)
- Local Street

Future Roadways*
- Arterial (4-2 lanes)
- Collector (2 lanes)

City of Chico Sphere of Influence Boundary

* Future roadways include new construction and major widenings.

Source: Fehr & Peers, City of Chico

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Figure 3.0-4
Circulation Plan
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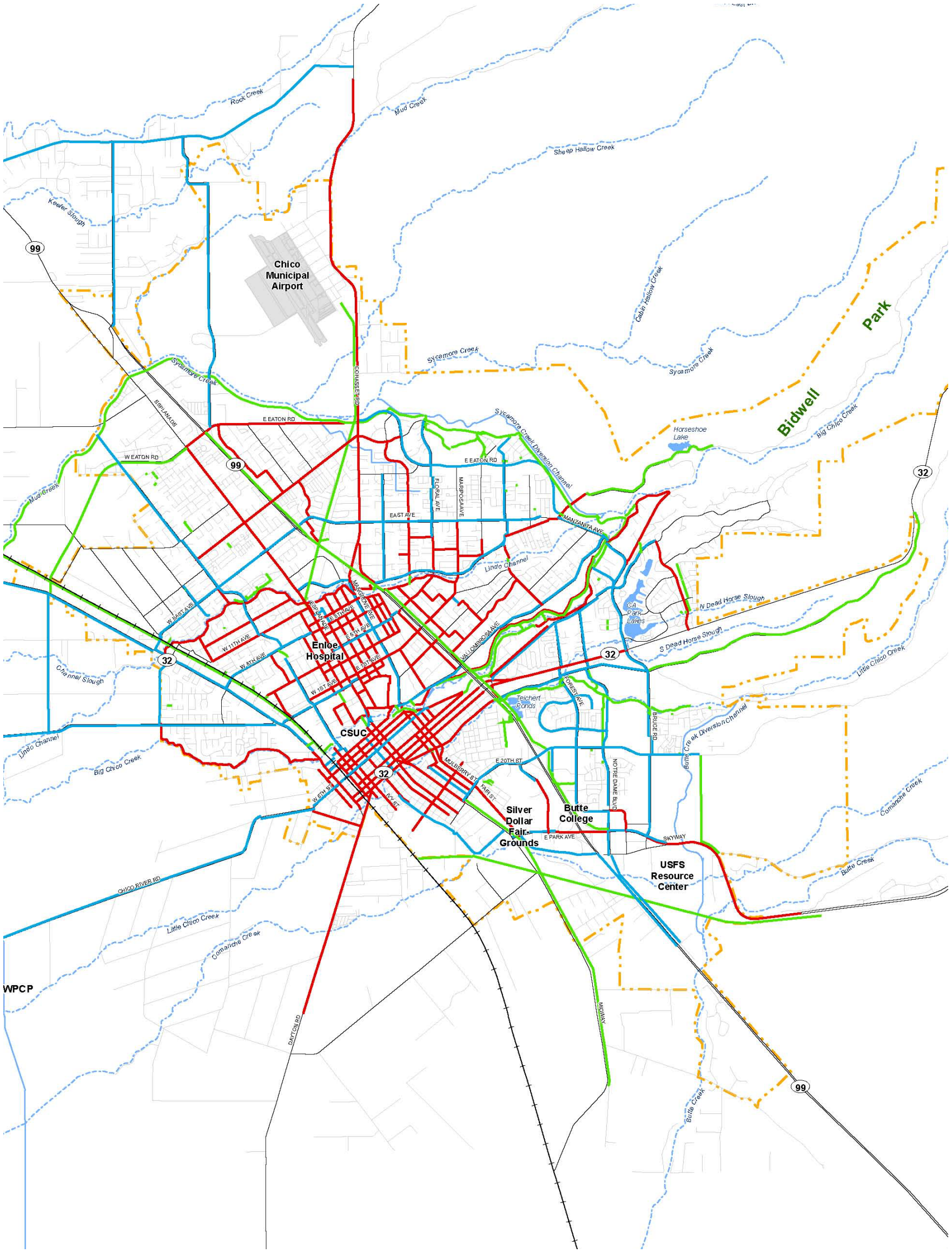

CITY BICYCLE/PEDESTRIAN FACILITIES
(Existing and Proposed)

Bicycle/Pedestrian Facilities

- Paths (Class I)
- Lanes (Class II)
- Routes (Class III)

City of Chico Sphere of Influence Boundary

Source: City of Chico

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Figure 3.0-5
Bicycle/Pedestrian System Map

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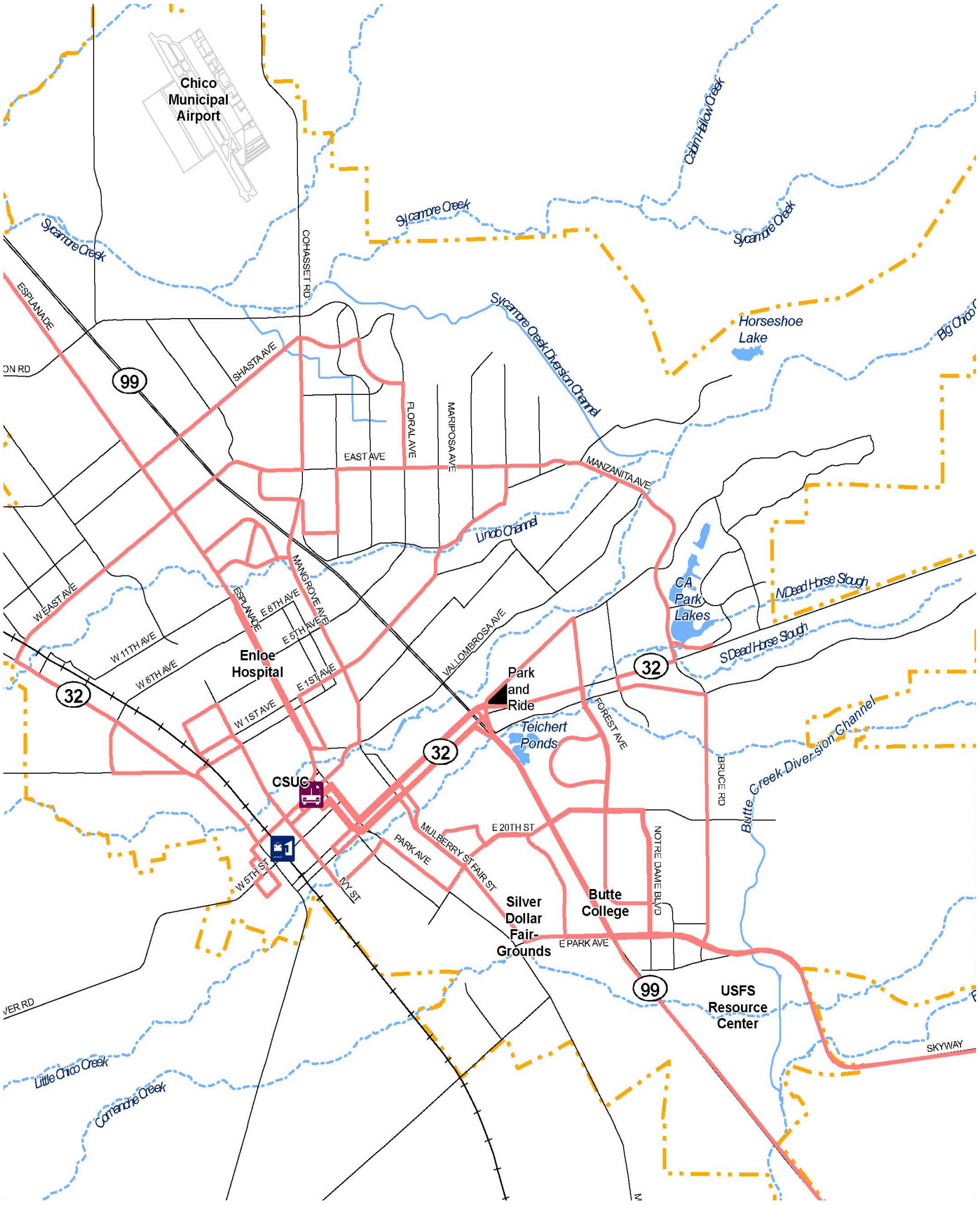

TRANSIT ROUTES

- B-Line Transit Center
- B-Line Routes (Butte Regional Transit)
- Amtrak/Greyhound Station
- Union Pacific Railroad Line
- City of Chico Sphere of Influence Boundary

Source: B-Line, Butte Regional Transit (BCAG), City of Chico

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Figure 3.0-6
Transit System

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Downtown Element

The Downtown Element focuses on the continued vitality and enhancement of Downtown Chico as the city's central core. Historically, policies associated with Downtown Chico have been integrated into several different elements of the General Plan. Because of the important role of Downtown in making Chico a successful and sustainable community, the City has created a separate element to address key issues associated with Downtown. This element includes a Downtown Vision Illustration and corresponding Vision Concepts as a visual representation to reflect the future vision for Downtown as an evolving, vibrant, mixed-use neighborhood. Key issues addressed in the goals, policies, and actions include an enhanced role for Downtown, mixed-use development, pedestrian-scale environment, circulation, character of South Downtown, parking, design, and the relationship of Downtown with CSU Chico.

Economic Development Element

The Economic Development Element guides the City's resources to maximize Chico's economic health and vitality. Important economic development issues for the proposed General Plan Update include an evolving regional role, attracting higher-paying jobs, strengthening Chico's retail and service industry, increasing investment opportunities with available land supply given a limited growth footprint, ensuring available land supply is ready for investment, and increasing the City's leadership role in economic development. Goals, policies, and actions in this element focus on maintenance and implementation of the City's Economic Development Strategy, enhancing tourism opportunities, and establishing a redevelopment strategy for revitalization of existing neighborhoods and successful commercial and employment centers.

Housing Element

The Housing Element is a comprehensive statement by the City of Chico of its current and future housing needs at all income levels. The element provides policies related to the provision of housing for all income levels as well as provisions that are state-mandated. In keeping with the state-mandated schedule, the City's Housing Element was updated separately in 2009 with separate environmental review. Thus, while the Housing Element will be incorporated into the proposed General Plan Update upon its adoption, this environmental document does not cover that component of the project.

Parks, Public Facilities, and Services Element

The Parks, Public Facilities, and Services Element identifies existing public services and facilities as well as future public, private, and community service needs. Significant issues addressed in the proposed General Plan Update include parks and recreational open space services, wastewater collection and treatment capacity, water delivery and service provision, and storm drainage and protection of waterways. Goals, policies, and actions in this element guide the City's planning, implementation, enhancement, and maintenance of public services, including parks, public services, utility infrastructure, arts, cultural resources, and education throughout the proposed General Plan Update horizon.

Open Space and Environment Element

The Open Space and Environment Element focuses on the preservation and enhancement of the natural environment and ensuring that long-term growth does not adversely affect environmental resources. Goals, policies, and actions in this element address preservation of

known sensitive biological resources, preservation and enhancement of open space in and around the city, protection of agricultural resources, reducing impacts associated with urban runoff on local waterways and human-induced impacts to local air quality, and protection and enhancement of the city's urban forest. Key policy provisions in this element include participation in the Butte County Habitat Conservation Plan.

Cultural Resources and Historic Preservation Element

The Cultural Resources and Historic Preservation Element identifies important local cultural, archaeological, and historic resources. This element updates issues and considerations relative to tribal consultation protocol, the City's recent historic preservation efforts, and the desire to recognize the City's history as a continuum. Goals, policies, and actions focus on the protection and preservation of local cultural, archaeological, and historic resources, local investment in resources, and strategic partnerships.

Safety Element

The Safety Element focuses on maintaining Chico as a safe place for residents and businesses by minimizing risk and the provision of protective services. Goals, policies, and actions address potential risks associated with fires, floods, earthquakes, and hazardous materials, airport safety, traffic and pedestrian safety at railroad crossings, and the provision of law enforcement and emergency services.

Noise Element

The Noise Element identifies the major sources of noise and noise-related concerns in Chico and outlines goals, policies, and actions intended to promote safe and comfortable noise levels throughout the community.

Land Use Diagram

The proposed General Plan Update includes a Land Use Diagram which depicts the location and distribution of land use designations in the Planning Area (see **Figure 3.0-3**). It is important to note that the proposed General Plan Update introduces several new mixed-use land use designations not provided in the 1994 General Plan.

In addition, the Land Use Diagram identifies several areas with special land use considerations. Areas identified for potential change include the 15 Opportunity Sites and the five Special Planning Areas. Additionally, as part of this proposed General Plan Update, the Land Use Diagram includes a Resource Constraint Overlay for those areas with known sensitive environmental resources that may reduce development potential. A more detailed description of these special areas is provided below.

Opportunity Sites

Opportunity Sites represent those areas in the city that are expected to be the focus of improvement, change, and revitalization over the next 20 years. There are a total of 15 Opportunity Sites shown on the Land Use Diagram (**Figure 3.0-3**). These Opportunity Sites are intended to attract mixed-use, higher-density residential development, and other land uses compatible with existing or evolving uses in the surrounding area. Opportunity Sites are shown on the Land Use Diagram with a dark outline and the numbers 1 through 15. Opportunity Sites are categorized by their general location as follows:

- **Central City Opportunity Sites**. There are three Opportunity Sites in the City's core area including Downtown, South Campus, and East 8th and 9th Street Corridor.

- **Corridor Opportunity Sites**. There are five Opportunity Sites located along corridors including North Esplanade, Mangrove Avenue, Park Avenue, Nord Avenue, and East Avenue.

- **Regional Center Opportunity Sites**. There are three Opportunity Sites located at regional centers including North Valley Plaza, East 20th Street, and Skyway.

- **Other Opportunity Sites**. There are four Opportunity Sites located in other areas of the city including The Wedge, Vanella Orchard, Pomona Avenue, and Eaton Road.

Appendix B of the proposed General Plan Update includes a brief description of the site characteristics, vision for transformation, and a land use map for each of the 15 Opportunity Sites.

Resource Constraint Overlay Sites

The Resource Constraint Overlay (RCO) designation acknowledges a reduced development potential in areas with known significant environmental constraints compared to allowable development potential based upon the underlying land use designation. The Resource Constraint Overlay designation is applied to three key areas (see **Figure 3.0-3**):

A. West of the Airport

B. Bruce Road

C. Stilson Canyon

The boundaries of the three constraint sites are specified on the Land Use Diagram of the proposed General Plan Update, along with aerial images showing general site conditions. The most significant environmental constraints at these locations are vernal pools, populations of Butte County meadowfoam (BCM), and habitat for BCM.

Vernal pools are a unique ephemeral wetland feature that provide habitat for an array of unique plant and animal species, many of which are protected by state and federal agencies. One of the most sensitive vernal pool species is BCM, a state and federally listed endangered plant species found only in limited areas within Butte County. Loss of habitat has been identified as the primary threat to BCM, and the U.S. Fish and Wildlife Service Recovery Plan for BCM calls for protecting 100 percent of known and newly discovered occurrences as well as protecting 95 percent of the suitable habitat in the Chico region.

Butte County Association of Governments' (BCAG) research in developing the Butte Regional Habitat Conservation Plan was used in setting the location of the three constraint sites.

The RCO is applied in conjunction with an underlying land use designation. For purposes of calculating overall densities and intensities of the General Plan build-out, development potential is assumed to be 15 percent of the average development assumed for the underlying land use designation. Land owners of RCO parcels may conduct more detailed studies, including environmental review, and coordinate with resource agencies to determine actual development potential. Such potential may be more or less than the assumed 15 percent, but

not more than the maximum allowed development potential allowed by the underlying land use designation.

Special Planning Areas

There are five areas on the Land Use Diagram designated as Special Planning Area (SPA) (see **Figure 3.0-3**). The SPA designation identifies areas with significant new growth potential and requires more detailed subsequent land use planning in the form of a specific plan, planned development, or other comprehensive plan. The SPAs were established based on several criteria, including strategic locations within the General Plan Planning Area, proximity to services, ability to advance General Plan goals, compatibility with adjacent uses, and environmental resources. The SPAs are to be developed as connected and complete neighborhoods with a mix of residential densities, employment, services, and retail, parks and open space. Subsequent planning will establish land use and circulation patterns within the SPAs and consider infrastructure and financing issues. The five SPAs are:

- Bell Muir
- Diamond Match
- Doe Mill/Honey Run
- North Chico
- South Entler

Within each SPA, the City has identified a mix of desired land uses in the form of a conceptual land plan. The conceptual land use plans include a collage of shapes with land use designations that were selected to reflect the desired uses on the site, take into consideration existing conditions, and accommodate projected housing and job needs. The shapes in the conceptual land use plans do not determine the actual sizes or locations of the land uses.

General Plan Update Build-Out Conditions

Table 3.0-1 below summarizes total housing and job numbers for the proposed General Plan Update build-out conditions, which are a combination of existing development conditions in 2008 and future development assumptions. As further discussed in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, the build-out under the proposed General Plan Update is not expected to occur by 2030. However, for purposes of the analysis in this EIR, it was assumed that build-out would occur by 2030.

TABLE 3.0-1
EXISTING, PLANNED, AND TOTAL BUILD-OUT CONDITIONS FOR THE PROPOSED GENERAL PLAN UPDATE

Housing and Job Factor	Existing Condition	Future Growth Potential	Total Build-Out Condition
Residential Units	41,438	21,495	62,933
Population	99,451	51,588	151,039
Total Square Footage	**25,841,806**	**15,762,679**	**41,604,485**
Commercial Square Feet	9,167,755	5,836,549	15,004,304
Office Square Feet	3,476,055	1,761,594	5,237,649
Industrial Square Feet	10,650,592	7,980,786	18,631,378
Other Square Feet	2,547,404	183,749	2,731,153
Total Employment	**42,884**	**25,582**	**68,466**
Commercial Employees	14,667	10,633	25,300
Office Employees	10,131	5,745	15,876
Industrial Employees	9,040	9,204	18,244
Other Employees	9,046		9,046

Note: Future growth in Other Employees are counted as Office or Industrial.

3.4 SUBSEQUENT ACTIVITIES AND DEVELOPMENT IN THE CITY

After adoption of the proposed General Plan Update by the City of Chico, all subsequent activities and development within the city will be subject to the policies set forth in the Chico 2030 General Plan. Some of the activities include private development that would be subject to entitlements such as tentative map, design review, and use permit approval. Other public activities such as parks, roadway improvements, and infrastructure, including drainage, sewer, and water, are required to be consistent with the proposed General Plan Update. Implementation of the proposed General Plan Update, specifically approval of development outside of the City's current SOI, would require LAFCo approval of an SOI expansion and annexation of those areas into the city. The City's proposed SOI associated with implementation of the Chico 2030 General Plan is shown in **Figure 3.0-3**.

Additional actions anticipated to occur subsequent to adoption of the proposed General Plan Update are listed below under Subsection 3.6, Regulatory Requirements, Permits, and Approvals.

3.5 OTHER PLANNING ACTIVITIES RELATED TO THE GENERAL PLAN UPDATE

CLIMATE ACTION PLAN

As part of a separate but related process, the City is developing a Climate Action Plan (CAP). The CAP will provide direction to ensure the City fulfills its commitment to the U.S. Conference of Mayors Climate Protection Agreement to reduce greenhouse gas emissions by 25 percent from 2005 levels by the year 2020. The CAP will include a summary of the recently conducted Community Greenhouse Gas Emissions Inventory as well as programs and actions to reduce greenhouse gas emissions in the energy, transportation, solid waste, water, and land use and development sectors that will help achieve Chico's emission reduction target. Financial analysis

of the emission reduction strategies will also be included. The CAP will implement the policy direction of the proposed General Plan Update to reduce greenhouse gases. Specifically, the Sustainability Element includes a policy with supporting actions (SUS-6.1) to continually update the Citywide Greenhouse Gas Inventory and the CAP as necessary to achieve the City's emission reduction goal.

HABITAT CONSERVATION PLAN/NATURAL COMMUNITY CONSERVATION PLAN

The City is a participant in the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) process which, as of the writing of this document, is being drafted by the Butte County Association of Governments (BCAG). The HCP/NCCP is a comprehensive and broad-based approach to biological resource preservation. This effort will identify the most important areas to preserve for permanent protection of plants, animals, and habitats, but also allow for compatible land development, urban growth, and other economic activities. The HCP/NCCP is a voluntary plan that provides comprehensive species, wetlands and ecosystem conservation, contributes to recovery of endangered species, and establishes a more streamlined process for biological resource-related permitting. The HCP/NCCP area covers approximately two-thirds of Butte County (564,270 acres) and is evaluating coverage of 36 special-status species.

3.6 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS

CITY ACTIONS ASSOCIATED WITH THE GENERAL PLAN UPDATE AND EIR

The proposed General Plan Update will be presented to the City of Chico Planning Commission for review, comment, and recommendations for consideration by the Chico City Council. The Chico City Council, as the City's legislative body, is the approving authority for the General Plan. In order to adopt the General Plan, the City Council would have to take the following actions:

- Certification of the City of Chico General Plan Update Final EIR;
- Adoption of the General Plan Update;
- Actions to override the Butte County Airport Land Use Compatibility Plan (ALUCP) associated with residential densities in the overflight zone of the Chico Municipal Airport and Ranchaero Airport if the proposed General Plan Update is found by ALUC to be inconsistent with the ALUCP;
- Adoption of required findings for the adoption of the proposed General Plan Update, including required findings under the CEQA Guidelines, Sections 15090, 15091, and 15093;
- Adoption of a Mitigation Monitoring and Reporting Program.

The 2030 General Plan EIR will be used extensively by the City to address CEQA issues related to the implementing actions identified in the 2030 General Plan, including the Municipal Code Update, Nexus/Development Impact Fee Update, Design Guidelines additions, and other development standards and guidelines updates.

AGENCIES EXPECTED TO USE THIS EIR

CEQA Guidelines Section 15124 states that an EIR should contain a statement briefly describing the intended uses of the EIR and, to the extent that it is known to the lead agency, a list of agencies expected to use the EIR in their decision-making, permits or other approvals implementing the project, and related environmental review and consultation required by law or regulation.

Several federal, state, regional, and local agencies may use this EIR in their planning process, issuance of their permits, or exercise of their regulatory authority over resources or jurisdictional actions within the City of Chico. Agencies may utilize the EIR in whole or part to conduct environmental review in conjunction with specific agencies' project approval actions.

A number of other jurisdictional and permit-granting agencies have control over specific environmental concerns in the Planning Area. The following is a listing of agencies that may utilize this EIR. Because it is not practical or possible for the City to know or ascertain all of the possible specific uses for which other agencies may subsequently utilize this EIR, the listing attempts to provide a brief summary disclosure of the applicable types of actions or authorities for which the cited agency may use this EIR as follows:

- Butte County Air Quality Management District (monitors air quality and has permit authority over certain types of projects and facilities)

- Butte County Airport Land Use Commission (regulates land planning in the vicinity of Butte County airports in order to protect public health, safety, and welfare)

- Butte County Association of Governments (develops federal and state transportation plans and programs in order to secure transportation funding for the region's highways, transit, streets and roads, pedestrian and other transportation system improvements; policymaking agency for the region's public transit service)

- California Department of Conservation, Division of Mines and Geology (expertise in evaluating geologic and seismic hazards, as well as mineral resource issues)

- California Department of Fish and Game (streambed alteration agreement pursuant to Section 1600 of the California Fish and Game Code; approval of any future potential take of state-listed wildlife and plant species covered under the California Endangered Species Act)

- California Department of Transportation (encroachment permit; approval of improvements and/or funding for future improvements on State Route 99 or State Route 32)

- California Department of Housing and Community Development (reviews the adequacy of housing elements and funding for affordable housing programs)

- California Department of Water Resources (manages and regulates the State's water usage)

- California Public Utilities Commission (certificate of public convenience and necessity)

- State Water Resources Control Board (file Notice of Intent to obtain a General Construction Activity Storm Water Permit prior to construction activities)

- Central Valley Regional Water Quality Control Board (water quality certification pursuant to Section 401 of the Clean Water Act; National Pollutant Discharge Elimination System permit)

- Butte County Association of Governments (directs transportation planning and financing in Butte County)

- Native American Heritage Commission (mandated to preserve and protect places of special religious or cultural significance pursuant to Section 5097 et seq. of the Public Resources Code)

- State Office of Historic Preservation (consultation for impacts to historic or cultural resources)

In addition to these agencies, the following federal agencies may use environmental information in this EIR for permitting decisions, in addition to other federal agencies:

- U.S. Army of Corps of Engineers (Section 404 of the Clean Water Act permit)

- U.S. Fish and Wildlife Service (Section 7 consultation or Section 10a Habitat Conservation Plan/Section 9 incidental take permit pursuant to the federal Endangered Species Act)

- U.S. Environmental Protection Agency (concurrence with Section 404 of the Clean Water Act permit)

RELATIONSHIP TO LAFCO POLICY

There is an additional agency that has influence on the City's ability to implement the proposed General Plan Update, in particular the proposed Land Use Diagram. The Butte Local Agency Formation Commission (LAFCo) reviews and evaluates all proposals for the formation of special districts, incorporation of cities, annexation to special districts or cities, and consolidation or merger of districts with cities.

As part of the proposed General Plan Update process, it is typical for cities to assess changes to the Sphere of Influence (SOI) to meet the community's vision for the future. However, the proposed General Plan Update itself is not a Sphere of Influence amendment request or application. There are specific requirements and processes administered by the Butte LAFCo for SOI amendment requests. The City would prepare supporting materials and pursue any SOI amendment request separately from the proposed General Plan Update and EIR process.

Implementation of the proposed General Plan Update, specifically approval of development outside of the City's current SOI, would require LAFCo approval of an SOI expansion and annexation of those areas into the city. This EIR is designed to programmatically and comprehensively analyze impacts associated with implementation of the proposed General Plan Update, including expansion of the City's SOI and future annexations consistent with the Land Use Diagram.

4.0 ASSUMPTIONS

The following is an introduction to the environmental analysis for the proposed General Plan Update, including a cumulative analysis and a discussion of general assumptions used in the environmental analysis. The reader is referred to the individual technical sections of the Draft Environmental Impact Report (Draft EIR or DEIR) (Sections 4.1 through 4.14) for further information on the specific assumptions and methodologies used in the analysis for each particular technical subject.

ANALYSIS ASSUMPTIONS USED TO EVALUATE THE IMPACTS OF THE CITY OF CHICO GENERAL PLAN UPDATE

BASELINE ENVIRONMENTAL CONDITIONS ASSUMED IN THE DRAFT EIR

Section 15125(a) of the CEQA Guidelines requires that an environmental impact report (EIR) include a description of the physical environmental conditions in the vicinity of a project as they exist at the time the Notice of Preparation (NOP) is published and the environmental analysis is begun. The CEQA Guidelines also specify that this description of the physical environmental conditions is to normally serve as the baseline physical conditions by which a lead agency determines whether impacts of a project are considered significant.

The environmental setting conditions of the City of Chico Planning Area are described in detail in the individual technical sections of the Draft EIR (see Sections 4.1 through 4.14). In general, these sections describe the setting of the City of Chico Planning Area as it existed when the NOP for the proposed General Plan Update was released on December 10, 2008. In addition, the Draft EIR also includes any setting information that has been updated since the release of the NOP.

PROJECTED HOUSING AND JOB NEEDS IN 2030

As required by state law, the proposed General Plan Update establishes the long-term plan for physical development of the community, premised upon a projection of future housing and employment needs. The proposed General Plan Update Land Use Element and this section of the EIR describe the projected housing and job needs for Chico in 2030 and summarize how build-out of the Land Use Diagram (anticipated to occur after the year 2030) would meet or exceed the projected future need.

Projected future housing and job needs for the year 2030 are based on a variety of factors, including historic growth trends, local demographic and economic conditions, and community objectives and desires.

Projected Housing (Residential) Needs in 2030

It is estimated that an additional 16,376 dwelling units will be needed by the year 2030 based primarily on the city's historic 2 percent growth rate, which has been relatively stable over the last 40 years. This assumption is consistent with the Butte County Association of Government (BCAG) projections and Regional Housing Need Plan (RNHA) allocation, as well as the California Department of Finance (DOF) estimates. The future mix of dwelling unit types (single-family/multi-family) is assumed to be similar to the City's existing mix, with some housing units provided in mixed-use developments. **Table 4.0-1** lists the housing needs estimated for 2030.

Projected Job (Nonresidential) Needs in 2030

Estimates of future job needs were based on several factors, including the city's economic health, job market trends, and local opportunities and constraints. Future job estimates were generated for five market sectors: retail, office, industrial, health, and other, such as agriculture and construction. According to the BAE Market Opportunities and Land Absorption Projections conducted in June 2008, it is estimated that by the year 2030 Chico's economy will have expanded to produce 20,852 new jobs. Future nonresidential development needs are summarized in the **Table 4.0-1** in terms of retail, office, industrial, health, and other (e.g., agriculture and resource, construction, service) job sectors.

PROJECTED BUILD-OUT CONDITIONS ASSOCIATED WITH PROPOSED GENERAL PLAN UPDATE

Future growth in the proposed City Sphere of Influence (SOI) is guided by the land uses identified in the proposed General Plan Update Land Use Diagram (see **Figure 3.0-3**). The proposed SOI boundary includes property currently in Butte County, but outside the City of Chico jurisdictional limit. The proposed 2030 General Plan Update does not require these properties to annex to the City; however, for EIR analysis, these properties are assumed to be located within the City of Chico at full General Plan implementation. In other words, the EIR essentially assumes that the future City of Chico boundary and the SOI are contiguous. The Draft EIR impact analysis, including temporary (i.e., construction-related) and operational, direct and indirect environmental effects, is based on the development anticipated in the proposed Land Use Diagram and the transportation improvements identified in the proposed Circulation Plan (see **Figure 3.0-4**).

To meet the projected future housing and job needs, the proposed Land Use Diagram identifies areas of potential change (infill and redevelopment of 15 designated Opportunity Sites), new growth areas (5 designated Special Planning Areas), and areas of stability that are not anticipated to change significantly in the future. In keeping with the proposed General Plan Update Guiding Principles, the land use pattern in areas of growth and potential change includes a greater integration of uses and balance between employment and residential use, with more areas designated for mixed-use development.

To estimate the build-out condition for the proposed Land Use Diagram, development assumptions were established in keeping with the land use designation and policies in the proposed General Plan Update. These assumptions were used to analyze the impacts associated with future development and redevelopment in new growth areas and infill sites. The development assumptions are intended to provide an accurate estimate of future development by establishing average estimated assumptions, rather than overstating impacts by assuming maximum development potential.

Proposed General Plan Update Appendix D includes a description of the land use estimate methodology with a spreadsheet showing the assumed land use mix and distribution, site development considerations, and employment factors for each of the land use designations included in the proposed Land Use Diagram. The spreadsheet in Appendix D also includes estimated average future development assumptions for the three following development types:

1. **Special Planning Areas**. These development assumptions apply within the Special Planning Areas.

2. **Undeveloped Infill Sites**. These development assumptions apply to all vacant land outside the designated Special Planning Areas. This category includes approved but not

yet developed projects like Meriam Park and Oak Valley, as well as the vacant land within Opportunity Sites.

3. **Underutilized Opportunity Sites**. These values apply to approximately 13–15 percent of the developed property within the 15 designated Opportunity Sites, which is assumed to redevelop with the proposed General Plan Update build-out. The remaining 85–87 percent of this area is accounted for as existing development.

The land use assumptions for identified new growth areas (SPAs) generally reflect a greater mix of uses and a higher density and intensity of development than existing development patterns in Chico. This is consistent with the new desired land use patterns, mixed-use designations, and higher allowed densities and intensities of development, and is based on an evaluation of project case studies.

Table 4.0-1 below lists the housing and job needs projected for 2030 and how build-out under the proposed General Plan Update exceeds the projected need. For more detailed information about the land use projections, see proposed General Plan Update Appendix D.

Build-out of the proposed General Plan Update Land Use Diagram is anticipated to occur after 2030. For purposes of conducting technical analysis of the environmental effects of the proposed General Plan Update (e.g., traffic operation analysis, noise and air quality modeling and analyses); however, this EIR assumes that complete build-out occurs by 2030. It is understood that development that occurs in accordance with the proposed General Plan will be incremental and timed in response to market conditions. However, interim phases, or development scenarios are not evaluated herein, as they are considered speculative.

TABLE 4.0-1
HOUSING AND JOBS PROJECTED FOR 2030 AND PLANNED FOR GENERAL PLAN BUILD-OUT

	Land Use Needs Category	Projected 2030 Needs	Growth Potential per Land Use Diagram	Growth Potential Beyond Projected Need
Housing	Residential Units[1]	16,376 units	21,495 units	5,119 units
	SF Residential	9,007	8,689	(+31%)
	MF Residential	7,369	10,835	
	Mixed Use		1,970	
Jobs	Job Sector	20,852 employees	25,582 employees	4,730 employees
	Retail	4,943	10,633	(+23%)
	Office	3,935	5,745	
	Industrial	3,371	9,204[2]	
	Health	5,079		
	Other	3,524		

Notes:

1. Single-Family (SF) Residential includes the designations Very Low Density Residential, Low Density Residential, and 50% of Medium Density Residential. Multi-Family (MF) Residential includes the other 50% of Medium Density Residential, Medium-High Density Residential, and High Density Residential. Residential Mixed Use includes the designations Mixed Use Neighborhood Core, Commercial Mixed Use, Regional Commercial, Office Mixed Use, and Industrial Office Mixed Use. The Special Mixed Use designation assumes a 34% Single Family, 53% Multi-Family, 13% Mixed Use split (based on Meriam Park build-out assumptions).

2. Includes Health and Other.

STRUCTURE OF THE ENVIRONMENTAL IMPACT ANALYSIS

Sections 4.1 through 4.14 of this Draft EIR contain a detailed description of current setting conditions (including applicable regulatory setting), an evaluation of the direct and indirect environmental effects resulting from the implementation of the proposed General Plan Update, identification of proposed General Plan Update policies and actions, and City of Chico Municipal Code sections that mitigate environmental effects. Furthermore, Sections 4.1 through 4.14 of this Draft EIR contain additional feasible mitigation measures and identify whether significant environmental effects of the project would remain after application of proposed policies, actions, and feasible mitigation measures. The individual technical sections of the Draft EIR include the following information:

Existing Setting

This subsection includes a description of the physical setting associated with the technical area of discussion, consistent with CEQA Guidelines Section 15125. As previously identified, the existing setting is based on conditions as they existed when the NOP for the proposed General Plan Update was released on December 10, 2008.

Regulatory Framework

This subsection identifies applicable federal, state, regional, and local plans, policies, laws, and regulations that apply to the technical area of discussion.

Impacts and Mitigation Measures

This subsection identifies direct and indirect environmental effects associated with implementation of the proposed General Plan Update. Standards of significance are identified and used to determine whether the environmental effects are considered "significant" and require the application of mitigation measures. Each environmental impact analysis is identified numerically (e.g., Impact 4.9.1 – Surface Water Quality Impacts) and is supported by substantial evidence.

Mitigation measures for the proposed General Plan Update were developed through a review of the environmental effects of the proposed General Plan Update by consultants with technical expertise as well as by environmental professionals. The mitigation measures identified consist of "performance standards" that identify clear requirements that would avoid or minimize significant environmental effects (the use of performance standard mitigation is allowed under CEQA Guidelines Section 15126.4(a) and is supported by case law *Rio Vista Farm Bureau Center v. County of Solano* ([1st Dist. 1992] 5 Cal. App. 4th at pp. 371, 375–376 [7 Cal. Rptr. 2d 307]).

APPROACH TO THE CUMULATIVE IMPACT ANALYSIS

CEQA Guidelines Section 15130 requires that EIRs include an analysis of the cumulative impacts of a project when the project's effect is considered cumulatively considerable. Each technical section in the Draft EIR considers whether the project's effect on anticipated cumulative setting conditions is cumulatively considerable (i.e., a significant effect). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines, Section 15065(a)(3)). The determination of whether the project's impact on cumulative conditions is considerable is based on a number of factors including consideration of applicable public agency standards, consultation with public

agencies, and expert opinion. The environmental effects of potential development within the General Plan Planning Area are incorporated in the cumulative impact analysis contained within each technical section. In addition, Section 5.0, Cumulative Impacts Summary, provides a summary of the cumulative impacts associated with the General Plan.

Definition of Cumulative Setting

The cumulative setting conditions considered in this Draft EIR are based on:

- **Regional Growth Projections**. Butte County Association of Governments (BCAG) is an association of all the local governments within Butte County. Its members include the cities of Biggs, Chico, Gridley, and Oroville, the Town of Paradise, and the County of Butte. BCAG is responsible for developing federal and state transportation plans and programs that secure transportation funding for the region's highways, transit, streets and roads, as well as pedestrian and other transportation system improvements. Presented in **Table 4.0-2** and **4.0-3** are housing and population projections that BCAG anticipates within Butte County by the year 2030. County growth is anticipated to occur at an annual rate of 2 percent.

- **Local Adopted General Plans**. These are the existing land use plans in the region, consisting of the cities of Biggs, Gridley, and Oroville, the Town of Paradise, and Butte County. It should be noted that Butte County is currently in the process of updating its general plan (public draft released in 2009), which includes land use planning for some areas that are also addressed in the City of Chico's proposed General Plan Update. This Draft EIR cumulative setting and impact analysis acknowledges the Butte County general plan update process.

- **Large-Scale Development Projects**. This includes current large-scale proposed and approved development projects within Chico (see **Table 4.0-4**). It should be noted that this list is not intended to be all-inclusive of development activities in the city, but rather a general description of current development activities.

- **Effect of Regional Conditions**. The cumulative setting considers background traffic volumes and patterns on regional and state highways (e.g., State Route (SR) 99 and SR 32), background air quality conditions, and other associated environmental conditions that occur within the region, both inside and outside of the Planning Area.

- **Consideration of Existing Development Patterns**. The cumulative setting considers the current environmental conditions of existing development and past land use activities in the region. This includes major land use activities in the City of Chico and its associated SOI.

Each technical section of the Draft EIR includes a description of the cumulative setting's geographic extent based on the characteristics of the environmental issue under consideration as set forth in Section 15130(b) of the CEQA Guidelines. For some issues, such as air quality, this area is very large, often extending over county lines to other parts of Northern California.

TABLE 4.0-2
HOUSING GROWTH ASSUMPTIONS
IN CITIES AND UNINCORPORATED BUTTE COUNTY (NOT INCLUDING CHICO)

Jurisdiction	Housing Units							Percentage Increase 2006–2030	Average Annual Growth Rate
	2006	2010	2015	2020	2025	2030	Total Increase 2006–2030		
Biggs	622	683	807	1,070	1,234	1,397	775	125%	5.2%
Gridley	2,224	2,703	3,417	4,039	4,459	4,923	2,699	121%	5.1%
Oroville	5,785	6,701	8,553	10,010	11,052	12,203	6,418	111%	4.6%
Paradise	12,707	13,223	14,105	14,751	15,427	16,134	3,427	27%	1.1%
Unincorporated	39,181	40,772	42,852	45,038	47,335	49,749	10,568	27%	1.1%

TABLE 4.0-3
POPULATION GROWTH ASSUMPTIONS
IN CITIES AND UNINCORPORATED BUTTE COUNTY (NOT INCLUDING CHICO)

Jurisdiction	Population							Percentage Increase 2006–2030	Average Annual Growth Rate
	2006	2010	2015	2020	2025	2030	Total Increase 2006–2030		
Biggs	1,780	1,955	2,311	3,062	3,533	3,997	2,217	125%	5.2%
Gridley	5,949	7,231	9,141	10,804	11,928	13,170	7,221	121%	5.1%
Oroville	13,550	15,696	20,033	23,447	25,888	28,582	15,032	111%	4.6%
Paradise	26,516	27,592	29,433	30,781	32,192	33,667	7,151	27%	1.1%
Unincorporated	90,323	93,991	98,786	103,825	109,121	114,687	24,364	27%	1.1%

TABLE 4.0-4
LARGE-SCALE DEVELOPMENT PROJECTS

Project Name	Project Description	Project Location	Status of Project
Belvedere Heights	192 residential units on 57.4 acres	East 20th Street and Potter Road	Approved
Montecito Place	105 residential units on 14.5 acres	North Esplanade	Approved
Cambridge Village	203 residential units on 48 acres	SW corner of Bruce Road and E 20th Street	Proposed
Schill Subdivision	152 residential units on 60 acres	SW Corner of Esplanade and Nord Hwy	Approved
Hillview Terrace	89 residential units on 27.1 acres	E 20th St east of Bruce Road	Approved
Wildwood Estates	175 residential units on 32 acres	North Cactus Avenue	Approved
Oak Valley Phase I	295 residential units on 43 acres	Humboldt Road	Approved
Sycamore Glen	198 residential units on 87 acres	Eaton Road and Mariposa Avenue	Approved
Foothill Park East Ph 7	65 residential units on 19.1 acres	Marigold Avenue north of Eaton Road	Approved
Siena at Canyon Oaks	64 residential units on 40.1 acres	Canyon Oaks Parcels 4 & 5	Approved
Creekside Landing	350 residential units on 96.4 acres	Northerly terminus of Jones Avenue	Approved
Tuscan Village	155 residential units on 18.7 acres	Eaton Road and Burnap Avenue	Approved
Mountain Vista	211 residential units on 90 acres	Floral Avenue and Eaton Road	Approved
Lake Vista Phase III	55 residential units on 12.4 acres	Yosemite Drive and Idyllwild Circle	Approved
Sierra Gardens Townhomes	72 residential units on 6.5 acres	Sierra Sunrise Terrace and Idyllwild Circle	Approved
The Orchard	55 residential units on 21.4 acres	NW Chico south of Mud Creek	Approved
Shastan at Glenwood	57 residential units on 14.9 acres	1150 Glenwood Avenue	Approved
Christensen	33 residential units on 4.3 acres	2925 Godman Avenue	Proposed
Innsbrook Subdivision	87 residential units on 24.8 acres	Innsbrook Way	Approved
Westside Place	140 residential units on 20 acres	Nord Avenue north of 8th Avenue	Approved
Meriam Park Phases 1-4, 9, 10	194 lots on 100 acres	E 20th Street and Bruce Road	Proposed
Meriam Park Phases 5-7	200 residential units on 27 acres	E 20th Street and Bruce Road	Approved
Enloe Expansion	190,000 square foot hospital expansion	Corner of W 5th Avenue and Esplanade	Approved
Parkside Terrace	90 apartments	2161 Hartford Drive	Approved
Esplanade Village Phase I	144 apartments	101 Risa Way	Approved

Sources: City of Chico Planning Department, July 2009 and Updated January 2010

COMMON TERMINOLOGY USED IN THE DRAFT EIR

This Draft EIR uses the following terminology to describe the environmental effects of the proposed General Plan Update:

Less Than Significant Impact: A less than significant impact would cause no substantial change in the physical condition of the environment (no mitigation would be required for project effects found to be less than significant).

Significant Impact and Potentially Significant Impact: A significant impact would cause (or would potentially cause) a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects using specified standards of significance provided in each technical section of the DEIR. Identified significant impacts are those where the project would result in an impact that can be measured or quantified, while identified potentially significant impacts are those impacts where an exact measurement of the project's effects cannot be made but substantial evidence indicates that the impact would exceed standards of significance. A potentially significant impact may also be an impact that may or may not occur and where a definite determination cannot be foreseen. Mitigation measures and/or project alternatives are identified to avoid or reduce project effects to the environment to a less than significant level.

Significant and Unavoidable Impact: A significant and unavoidable impact would result in a substantial negative change in the environment that cannot be avoided or mitigated to a less than significant level if the project is implemented.

Less Than Cumulatively Considerable Impact: A less than cumulatively considerable impact would cause no substantial change in the physical condition of the environment under cumulative conditions.

Cumulatively Considerable Impact: A cumulatively considerable impact would result when the incremental effects of an individual project result in a significant adverse physical impact on the environment under cumulative conditions.

Proposed General Plan Update: The proposed General Plan Update is the proposed project and includes the policy document consisting of 13 chapters (12 elements), the Implementation Guide, and the Land Use Diagram. The proposed project is also referred to as the "Chico 2030 General Plan."

Planning Area: The proposed General Plan Planning Area includes all land within the City limits, land within the City's designated Sphere of Influence (SOI), and other land in unincorporated Butte County outside of these boundaries which, in the City's judgment, relates to the City's planning efforts. The actual Planning Area boundaries have not been changed from the currently adopted 1994 General Plan. The Chico Planning Area (Planning Area) consists of approximately 150 square miles of land located in the west-central portion of Butte County (**Figure 3.0-2**).

Standards of Significance: A set of significance criteria to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this EIR include the CEQA Guidelines; factual or scientific information; regulatory performance standards of local, state, and federal agencies; and City goals, objectives, and policies. Specified significance criteria used by the City of Chico are identified at the beginning of the impact analyses in each technical section of the DEIR.

Subsequent Projects/Activities: These are anticipated development projects (e.g., residential, commercial, industrial, or recreational projects) that could occur in the future as a result of the implementation of the proposed General Plan Update, due to the continuation and potential expansion of existing land use activities, or as a result of changes from the land use designations of the existing General Plan. These projects could include public infrastructure and utility extension projects including, but not limited to, roadway widenings and extensions, intersection improvements, and water, stormwater, wastewater distribution improvements, and private development and construction.

ENVIRONMENTAL IMPACT REPORTS UTILIZED IN THIS EIR

This Draft EIR utilizes technical information and analyses from previously prepared EIRs that are relevant to the consideration of environmental effects of the proposed General Plan Update, which is supported by the CEQA Guidelines (see Sections 15148 [Citation] and 15150 [Incorporation by Reference]). In addition to materials cited, the following EIRs have been utilized in this Draft EIR:

- Northwest Chico Specific Plan EIR (State Clearinghouse No. 2004082087)
- Costco Expansion EIR (State Clearinghouse No. 2005092058)
- Meriam Park EIR (State Clearinghouse No. 2005072045)

By utilizing provisions of the CEQA Guidelines, the City, in preparing this Draft EIR, has been able to make maximum feasible and appropriate use of the technical information in these EIRs. These EIRs and other referenced materials are available for review upon request at the City of Chico Planning Services Department at 411 Main Street, Chico, CA 95928.

REFERENCES

City of Chico, 2009 and 2010. City of Chico Planning Services Department. Development Project Status. July 2009 and updated January 2010.

4.1
Land Use

This section describes existing land uses, proposed land use designations, future potential development patterns, and evaluated land use impacts resulting from implementation of the proposed General Plan Update. Key issues addressed in this section include conflicts with land use plans/policies and incompatibilities between land uses. Refer to Section 4.2, Agricultural Resources, for discussions regarding agricultural land use.

4.1.1 EXISTING SETTING

LOCAL SETTING

The Planning Area includes the city boundaries, the City's Sphere of Influence (SOI), and the City's Planning Area. Definitions of these specialized terms used to describe geographic areas are described below.

- **City limits** are the current legal boundaries of the City of Chico.
- **Sphere of Influence (SOI)** is the incorporated city limits plus the area intended for eventual annexation to the City of Chico, to be developed at urban densities. The City is required to assign General Plan land use pre-designations and prezoning districts to those lands outside the city limits but inside the Sphere of Influence.
- **Planning Area** is approximately 150 square miles of land in the west-central portion of Butte County (Figures 1-1 and 3-1 of the 1994 General Plan). The Planning Area includes all land within the City limits, land within the City's designated SOI, and other land in unincorporated Butte County outside of these boundaries which, in the planning agency's judgment, relates to the City's planning efforts.

The existing City of Chico 1994 General Plan and the Chico Municipal Code govern the land uses in the City, while the Butte County General Plan and Zoning Ordinance apply to areas outside the City limits.

EXISTING LAND USE WITHIN AND ADJACENT TO THE CITY

A key natural feature of the City and Planning Area is the series of creeks and waterways that drain westward to the Sacramento River. Each of these creeks, including Mud Creek, Sycamore Creek, Lindo Channel (Sandy Gulch), Big Chico Creek, Little Chico Creek, Butte Creek, Dead Horse Slough, and Comanche Creek, are important physical elements in providing structure and orientation to the city. These waterways penetrate the urban fabric, providing important stormwater management corridors, human and animal movement corridors, and valuable urban open spaces and frequently form boundaries to neighborhoods and districts within the city. Another prominent feature in the city is Bidwell Park. Bidwell Park stretches over 10 miles along Big Chico Creek from the Sierra Nevada foothills to the valley floor.

Chico has expanded outward from the historic core into the surrounding landscape with parcels of a generally increasing size and lower density. The growth of the city can also be seen in the age and nature of the housing stock relative to distance from the historical core, with some of the oldest residential neighborhoods located around the core downtown area and the age of the housing stock generally decreasing as distances increase from the center of the city. The historic core of the City developed in large part upon a grid framework of blocks, streets, and public spaces. The eight- to nine-block-wide stretch between Big and Little Chico creeks, referred to as Downtown, comprises most of the original township commissioned in 1860 by John Bidwell and laid out by land surveyor J. S. Henry.

While some notable exceptions do exist within the city, most of the recent larger-scale residential development has occurred on the periphery of the city. Examples of outward expansion of the city include the Doe Mill neighborhood, the Hancock Park development, Hillview Terraces, and the developing Northwest Chico Specific Plan area. In the newer areas of the City having more traditional suburban design, the rights-of-way for the streets are typically wider than those projects using the City's Traditional Neighborhood Development (TND) standards (Meriam Park) or new urbanist design principles, such as Doe Mill.

Manufacturing and warehousing uses are generally located on the periphery of the City with concentrations located in the southern portion of the city and around the airport (Hegan Lane, South Park Avenue, and the Airport Industrial Park). Community and regional commercial uses are mostly located along State Route (SR) 99, the primary regional roadway corridor, and community and local-serving commercial is generally located along highly used transportation corridors (such as Esplanade, East Avenue, Mangrove Avenue).

Existing uses on lands outside the boundaries of the Chico Sphere of Influence are primarily agricultural, agricultural residential, and rural residential in character. Some single-family residential homes on lots ranging from 1 acre to 20+ acres are being built on unincorporated lands adjacent to and surrounding the city. This development is particularly focused to the north of the city along Hicks Lane and Keefer Road in Butte County and to the south along Speedway Avenue and Entler Avenue. In these areas, large homes on large lots have been built along existing roads and transportation routes, though these land uses are interspersed with orchards, field crops, and grazing land. Lands northeast and east of the Sphere of Influence are used for seasonal grazing of livestock. The presence of the "Greenline" on the west side of the city has limited growth and westward expansion and has effectively reinforced the city's compact urban form and promoted infill.

Table 4.1-1 provides a breakdown of acres of existing land uses within the city limits and SOI.

TABLE 4.1-1
EXISTING LAND USES

Land Use Category	Acres
Single-Family Residential	5,642.8
Multi-Family Residential	1,457.6
Agricultural	2,038.5
Water Resources and Drainage	710.4
Miscellaneous (rights-of-way, common areas, vacant lands, undetermined)	4,670.9
Parks	3,614.8
Open Space	884.3
Retail	624.5
Services	625.1
Manufacturing, Assembly, Processing, and Warehousing	742.0
Recreation	394.7
Public/Quasi Public	1,160.7
Medical Services	55.1
Education and Assembly	631.6

4.1.2 REGULATORY FRAMEWORK

FEDERAL

Federal Aviation Administration

Federal law sets forth standards contained in Federal Aviation Regulations (FAR) Part 77, "Objects Affecting Navigable Airspace." This regulation requires FAA notification of any construction or alteration located within a series of imaginary surfaces established in FAR Part 77. The law was established for use by local authorities to control the height of objects near airports. The FAR Part 77, Airport Safety Areas Map and Land Use Compatibility Chart for Aircraft Noise is a graphic depiction of this regulatory criterion. Not all obstructions are a hazard to air navigation. The FAA presumes the obstruction to be a hazard until a FAA aeronautical study determines that it does not have a substantial adverse effect on the safe and efficient use of navigable airspace.

The FAA cannot prohibit the construction of any structure determined to be a hazard. However, state law may prohibit the construction of any structure that would penetrate any imaginary surface defined in FAR Part 77 unless the State Division of Aeronautics has issued a permit allowing its construction.

LOCAL

Butte County General Plan/Proposed Butte County General Plan 2030

Existing Butte County General Plan

The Butte County General Plan provides policy guidance and land uses for all of the unincorporated lands within the County of Butte. The various elements of the Butte County General Plan were adopted or amended between 1971 and 2004 and continue to serve as the guiding policy document for planning in the unincorporated areas of the county today. The Butte County General Plan establishes the following general land use designations in the Planning Area around the City of Chico;

- West: Orchard and Field Crop (5 to 40 acres/dwelling unit)
- North: Agricultural Residential (1 to 40 acres/dwelling unit)
- East: Agricultural Residential (1 to 40 acres/dwelling unit) and Grazing and Open Lands (40 to 160 acres/dwelling unit)
- South: Orchard and Field Crop (5 to 40 acres/dwelling unit) and Grazing and Open Lands (40 to 160 acres/dwelling unit)

The Butte County General Plan generally designates those lands located west of State Route 99 and west of the Chico Urban Area Greenline with the Orchard and Field Crop land use designation. North of the City of Chico, the Butte County General Plan designates the majority of the area with the Agricultural Residential land use designation extending north of the city to north of Keefer Road. The exceptions to this designation are the area west of the Chico Municipal Airport and encompassed within the North Chico Specific Plan and the area located east of the Esplanade and west of State Route 99. The North Chico Specific Plan area is designated with a combination of residential land use having urban level development densities

of up to 13 dwelling units per acre (east of Mud Creek and west of Hicks Lane) and industrial land use west of the Chico Municipal Airport (east of Hicks Lane). The area east of the City of Chico is generally designated Grazing and Open Land with the exception of lands west of Cohasset Road and north of Thorntree Drive and the lands bordering State Route 32 to Humboldt Road and the Stilson Canyon area, which have the Agricultural Residential land use designation. To the south of the City of Chico, the County General Plan designates most of the area west of SR 99 with the Orchard and Field Crop designation and the area east of SR 99 with the Grazing and Open Lands designation. The exceptions in this area include the Butte Creek Country Club area, which is designated Low Density Residential (up to 6 dwelling units per acre), and the area between the Skyway and north of Honey Run Road, which is designated Agricultural Residential.

Proposed Butte County General Plan 2030

Like the City of Chico, Butte County is currently in the process of updating its general plan (public draft released in September 2009), which includes land use planning of some areas that are also addressed in the City of Chico's proposed General Plan Update. Based on the County's current project schedule, the County anticipates formal consideration of the Butte County General Plan 2030 in the fall of 2010. As shown on **Figure 4.1-1**, the Butte County 2030 General Plan designates a majority of the land to the west of the City of Chico with the Orchard and Field Crops (OFC) land use designation. The land to the south of Chico has also been designated as OFC by Butte County, as well as Industrial (I) and Medium Density Residential (MDR). To the east of Chico, the majority of the land is designated by Butte County as Grazing and Open Land (GOL), with some lands designated as Agricultural Residential (AR). The land to the north of Chico is designated by Butte County as GOL and AR.

While the two General Plan Updates (Butte County and City of Chico) have overlapping Planning Area boundaries, Butte County will have formal authority and jurisdiction over the land outside of the city boundaries unless a formal agreement is otherwise established.

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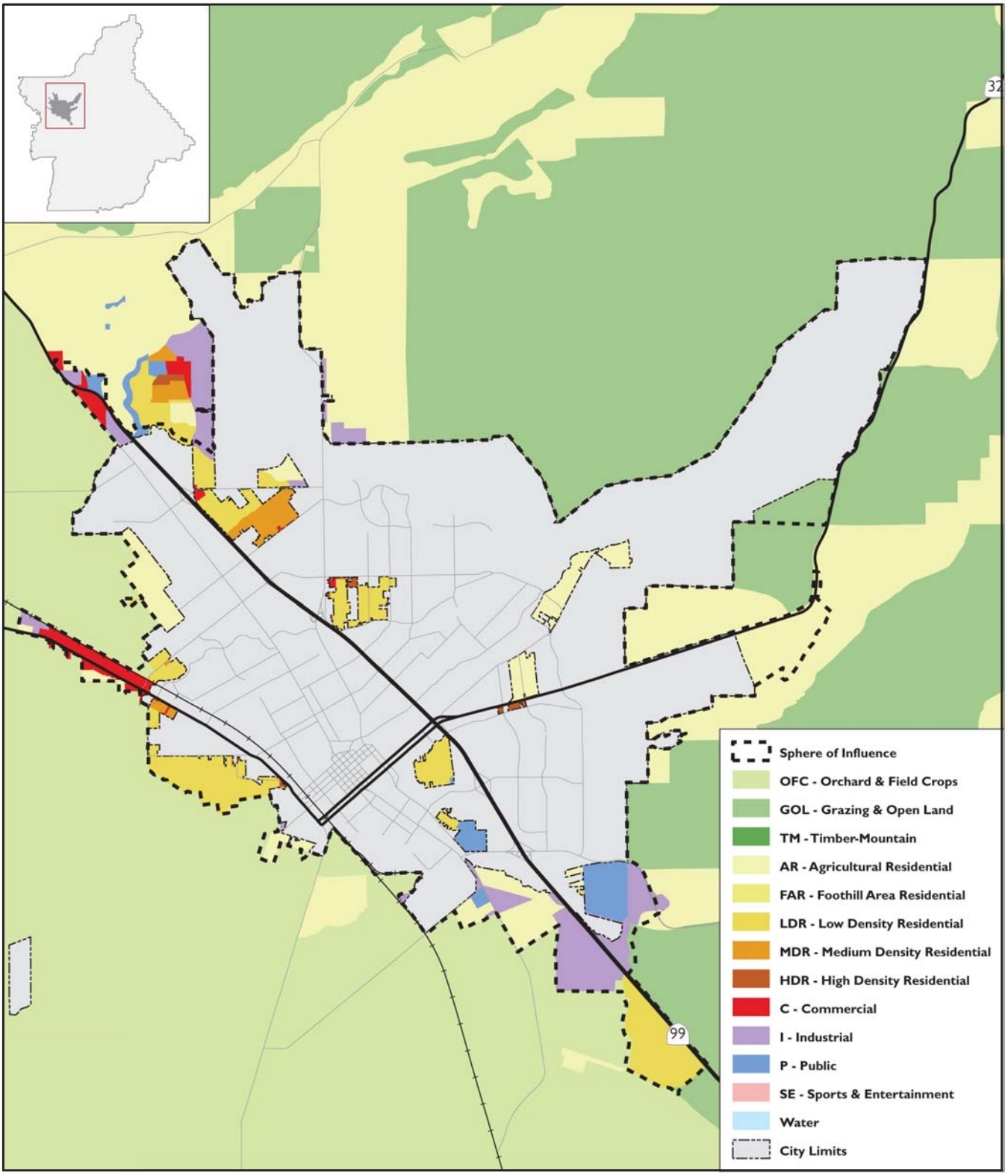

Source: Butte County Geographic Information Systems

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Figure 4.1-1
Proposed Butte County General Plan Update
Land Uses in Chico Area

PMC®

North Chico Specific Plan (NCSP)

The Butte County-adopted North Chico Specific Plan encompasses approximately 3,590 acres of land located north of the City of Chico and bounded by Sycamore Creek on the south, State Route 99 on the west, Rock Creek on the north, and Chico Municipal Airport on the east. A small portion of the plan area (approximately 170 acres), north of Eaton Road and south of Sycamore Creek is envisioned as a "village core" with nonresidential and higher-density residential development surrounded by areas of decreasing density. To support the adopted land use map, a new north-south arterial road is planned to provide access to the core utilizing the existing Hicks Lane and a new east-west arterial is planned to provide access to the core area from SR 99.

The majority of the area is planned for low-density suburban residential development (1- to 3-acre lots) with higher-density development occurring within the village core area (up to 18 dwelling units per acre). The plan proposes development to include up to 2,803 new residential dwelling units with commercial and industrial land uses supporting the new residential areas. The plan proposes a trail system composed of class I and II bike facilities and various pedestrian paths focused on Mud and Sycamore creeks and the proposed circulation system. Implementation of the plan is supported by two financing districts. A Community Finance District (CFD) is proposed for the area east of Mud Creek and north of Eaton Road, and a Special Assessment District is planned along SR 99, north of Mud Creek.

Chapman-Mulberry Neighborhood Plan

A Butte County neighborhood plan was adopted in 1999 for the Chapman/Mulberry area, which includes two unincorporated "islands" located within the Chico urban area. The Chapman-Mulberry Neighborhood Plan area is approximately 300+ acres in size and is located in two proximate locations generally described as south of 10th Street, east of Boucher Street, north of 20th Street, and west of Guill Street (Chapman Neighborhood) and between Fair Street and Elm Street between 21st and 23rd streets (Mulberry Neighborhood).

At the time of the preparation of the Chapman-Mulberry Neighborhood Plan, the area contained approximately 800 dwelling units and had a population of approximately 2,100. The Chapman-Mulberry area is nearly fully developed with the large majority (73 percent) of the housing stock within the plan area being constructed prior to 1950. The plan area is lacking in infrastructure including sidewalks, curbs, gutters, and storm drainage facilities, but does support a healthy urban forest, is in close proximity to local and regional parks, and is served by a neighborhood school.

The purpose of this Plan is to preserve and enhance the single-family residential character of these neighborhoods and to promote their revitalization. The Chapman-Mulberry Neighborhood Plan contains various policies designed to strengthen the core residential areas, address land use incompatibility issues, encourage the installation of urban infrastructure, and strengthen efforts to integrate the neighborhood into the Chico urban fabric. The Chapman/Mulberry Neighborhood Plan establishes Butte County General Plan land use designations for the area and a "Chapman/Mulberry" overlay zoning district. The Chapman/Mulberry Neighborhood Plan includes modifications to zoning for the Chapman/Mulberry Neighborhood area, identifies locations for street improvements, and establishes street design guidelines through standard street cross-sections. The street cross-sections identify lane widths, location of parking, location of sidewalk or shoulder, and location of planning strips. The zoning ordinance was modified to create a C/M (Chapman/Mulberry Combining) Zone, which is applied as an overlay in the Chapman/Mulberry Neighborhood area. This zone includes design standards that focus on

orienting homes toward the street and requires new homes to plant street trees from an approved list. It also requires screening of parking lots and regulates lighting, noise, and visual impacts associated with commercial and industrial land uses.

The Implementation Program of the plan contains nine implementation actions to encourage coordination with the City of Chico, eliminate septic tank usage, develop neighborhood design guidelines, and encourage revitalization and reinvestment in the plan area.

In 2004, the City of Chico reviewed the County Chapman-Mulberry Neighborhood Plan for consistency with existing City General Plan policies, zoning, and code requirements, and completed a review of the status of Plan policies since its adoption in 1999. City Staff determined that several policies had already been implemented and therefore were no longer applicable, that a number of the development standards in the County's Plan were so similar to existing City standards that creating new standards was unnecessary and potentially confusing, that certain County zoning designations were inconsistent with existing uses, and, in some cases, that policies set forth in the County's Plan were not compatible with City policy. As a result, the City developed its own Chapman/Mulberry Neighborhood Plan (described below), which is consistent with the County Plan's goal to preserve and enhance the single-family residential character of the Neighborhood and promote economic revitalization.

Butte County Airport Land Use Compatibility Plan

The Butte County Airport Land Use Compatibility Plan affects lands within the Planning Area, generally within a 14,000-foot radius of the runway centerline of the Chico Municipal Airport and within a 9,000 foot radius of the runway centerline of the Ranchaero Airport. The document establishes policies and guidelines by which the Butte County Airport Land Use Commission may assess the compatibility of development projects. The Butte County Airport Land Use Commission (ALUC) adopted the Compatibility Plan in 2000. State law requires that upon adoption of such a plan, the ALUC make a determination of whether the City's General Plan and zoning are consistent with that plan. If the ALUC finds it is not consistent, then the City is required to either amend that plan or override the ALUC's findings. After adoption of the CLUP in 2000, ALUC did find that the City's General Plan was inconsistent and the City did not take either of those actions. Therefore major projects that fall within the airport compatibility zones (much of the north part of the city) have required individual ALUC review. The Airport Land Use Commission, working with the City of Chico, did adopt a development "infill map" and infill guidelines within the adopted Compatibility Plan, generally within the B2 compatibility zone at the southern end of the CMA, which provided guidelines whereby parcels of land currently zoned for or developed with development at densities not supported by the plan can be processed and completed. The reader is referred to Section 4.4, Human Health/Risk of Upset, for a discussion of hazards related to the overflight zone.

Butte County Association of Governments

The Butte County Association of Governments (BCAG) is an association of all the local governments within Butte County. Its members include the cities of Biggs, Chico, Gridley, and Oroville, the Town of Paradise, and the County of Butte. BCAG's primary responsibility is to prepare all state and federally required transportation plans and programs that are necessary for securing transportation funding for highways, streets and roads, transit, bike and pedestrian facilities, and other transportation modes. BCAG is also a forum for the study/resolution of regional transportation issues and ensures that there is public participation in the transportation planning and decision-making process. BCAG also adopts the Regional Housing Needs Plan

allocating affordable housing responsibilities (BCAG, 2009a). Additionally BCAG is leading the HCP/NCCP process described in more detail below.

Butte Local Agency Formation Commission (Butte LAFCo)

Butte LAFCo promotes efficient governmental organization and service delivery while protecting agricultural and open space lands, approves changes to local governmental boundaries (incorporations, annexations, etc.), and prepares spheres of influence designating the logical physical boundary and service areas for each city and special district. Under the Cortese-Knox Hertzberg Local Government Reorganization Act of 2000 (Government Code Section 56000, et seq.), Butte LAFCo is the agency responsible for coordinating, directing, and overseeing logical and timely changes to local governmental boundaries, incorporation of cities, reorganizations, and the formation of special districts. Under state law, Butte LAFCo is charged with:

- Ensuring orderly growth by the annexation of land within an adopted SOI;
- Promoting logical and efficient public services for cities and special districts;
- Streamlining governmental structure; and
- Discouraging urban sprawl through the premature conversion of prime agricultural and open space lands to urban uses.

Proposed Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP)

The Butte Regional HCP/NCCP is being coordinated by the Butte County Association of Governments (BCAG) on behalf of the cities of Biggs, Chico, Gridley, and Oroville and the County of Butte. The HCP/NCCP is a voluntary plan that would provide comprehensive species, wetlands, and ecosystem conservation and contribute to the recovery of endangered species within the plan area while also providing a more streamlined process for environmental permitting. The reader is referred to Section 4.10, Biological Resources, for additional information on the HCP/NCCP.

City of Chico

Chico Municipal Code

The City of Chico Land Use and Development Regulations (Title 19, Chico Municipal Code) implement the General Plan as it pertains to parcel-specific standards for development. All development must comply with both land use and development regulations. The City's Municipal Code applies to the incorporated area of the City. By state law, the Municipal Ordinance must be consistent with the adopted General Plan. The purpose of the Code is to promote and protect the public health, safety, and general welfare through a Zoning Map and regulations that provide for:

- The classification of areas of the city into several zoning districts;
- The protection of the established character of the city and orderly development by regulating the uses of land, and the location, size, and character of structures or improvements erected or placed on the land, including alterations or additions to existing structures or improvements;

- The implementation of the policies and goals in the Chico General Plan to achieve the arrangement of uses described in that plan that foster convenient, compatible, and workable relationships among these land uses;

- The promotion of economic stability of existing land uses consistent with the economic development policies of the General Plan;

- The preservation and enhancement of environmental resources and sensitive natural habitats, consistent with the resource management policies of the General Plan; and

- The fostering of development patterns that promote energy conservation and efficient land use, and offer alternatives to automobile use by establishing densities and intensities that provide transit feasibility, and thereby also provide air quality benefits.

Neighborhood Plans

The City of Chico is involved in several neighborhood planning efforts in partnership with neighborhood associations and other community members. Plans have recently been adopted for the Avenues Neighborhood and the Southwest Chico Neighborhood. The Chapman/Mulberry Neighborhood Plan was adopted in October 2004.

The Avenues Neighborhood Improvement Plan

In 2005 and 2006, the City, the Chico Avenues Neighborhood Association, and other community members and institutions met in an effort to improve the quality of life and enhance the established character of the Avenues Neighborhood. The Avenues Neighborhood is approximately 830 acres, or 1.3 square miles, and contains 2,120 parcels and approximately 3,860 residential units. The Avenues is an established neighborhood located north of the university, south of Lindo Channel, west of Mangrove Avenue, and east of Nord Avenue. The neighborhood also encompasses a portion of the Esplanade. The purposes of the Avenues Neighborhood Plan are to articulate a vision for the plan area; to provide guidance and set priorities for future public improvements and capital projects in the plan area; and to serve as a focal point for neighborhood involvement, programs, and projects. The Avenues Neighborhood Improvement Plan was adopted by the City Council on April 15, 2008.

Southwest Chico Neighborhood Improvement Plan

In March 2007, work on the Southwest Chico Neighborhood Improvement Plan began with a meeting between City staff and community representatives from the plan area. The plan area is roughly 1.2 square miles (654 acres), with a mix of residential, commercial, manufacturing, and light industrial uses. The Southwest Chico Neighborhood Improvement Plan sets a long-term vision and provides tools to steer future growth, development, and investment. The purposes of this neighborhood plan are to articulate a clear vision; to provide guidance for future public improvements and capital projects; and to serve as a focal point for neighborhood involvement, activities, programs, and projects. The Southwest Chico Neighborhood Improvement Plan was adopted by the City Council on December 2, 2008.

Chapman/Mulberry Neighborhood Plan

In 2004, at the request of Butte County and in an effort to provide consistency between City and County zoning and development standards in the Chapman and Mulberry neighborhoods, the City adopted the Chapman-Mulberry Neighborhood Plan, which closely mirrored a plan

previously adopted by the County. The plan focuses on housing rehabilitation and capital improvements within the Chapman/Mulberry area, as well as maintaining the neighborhood's unique rural character. The neighborhood plan is applied as portions of the Chapman/Mulberry neighborhood are annexed into the city. The Chapman/Mulberry Neighborhood Plan was adopted by the City Council on October 5, 2004.

City of Chico Redevelopment Areas

The Chico Redevelopment Agency was formed in 1980. Since that time, the Agency has been providing public improvements, economic development activities, and affordable housing. The Chico Redevelopment Agency currently has four adopted Redevelopment Projects Areas, each of which is governed by a Redevelopment Plan. The four existing Redevelopment Projects Areas are as follows:

- Southeast Chico Redevelopment Project Area
- Chico Municipal Airport Redevelopment Project Area
- Central Chico Redevelopment Project Area
- Greater Chico Urban Area Redevelopment Project Area

As required by law, each Redevelopment Plan contains the proposed redevelopment actions, the permitted land uses in the project area, the methods to finance the projects, and various provisions outlining how the redevelopment areas will function and operate. All of the Redevelopment Project Areas within the Chico Urban Area provide land use maps and goals and objectives for each area. In all four of the Redevelopment project areas, the land uses permitted within the project area are consistent with the land uses outlined in the City's proposed General Plan Update.

The goal of redevelopment is to rebuild and improve commercial and industrial areas as well as neighborhoods that already exist through focusing attention and financial investment to reverse deteriorating trends. Redevelopment benefits all inhabitants and property owners in the community by enhancing property values, economic health, and the quality of life of a community.

4.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, land use impacts are considered to be significant if the following could result from the implementation of the proposed General Plan Update:

1) Physically divide an established community.

2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

3) Conflict with any applicable habitat conservation plan or natural community conservation plan.

METHODOLOGY

Evaluation of potential land use impacts within the City of Chico resulting from implementation of the proposed General Plan Update was based on a review of planning documents pertaining to the City of Chico, including the existing 1994 City of Chico General Plan, Neighborhood Plans, Redevelopment Area Plans, and the City of Chico Municipal Code; a field review of the city and surrounding areas; a review of planning documents pertaining to lands adjacent to the proposed project including the Butte County General Plan; and consultation with appropriate agencies.

The analysis herein is based on build-out conditions for the City of Chico as provided in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used. This analysis does not assess impacts associated with the phasing of projects or interim improvements.

The focus of this land use analysis is on land use impacts that would result from the General Plan Update policy document and Land Use Diagram. Specific impacts and issues associated with population and housing, hazards, geology and soils, hydrology, aesthetics, recreation, cultural resources, biological resources, and public services and utilities are addressed in each technical section, and the reader is referred to other EIR sections for detailed analyses of other relevant environmental effects as a result of plan development.

The following proposed General Plan Update policies and actions address impacts to land use compatibility and land use consistency:

Action LU-1.1.2 *(Coordinated Planning) – Consult with Butte County and other entities, as appropriate, to facilitate a coordinated approach to land use planning within the Planning Area.*

Policy LU-1.2 *(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to ensure a more compact urban form.*

Action LU-1.2.1 *(Greenline) – Retain the Greenline.*

Action LU-1.2.2 *(Foothill Development) – Apply the City's Foothill Development Standards to projects in foothill areas.*

Policy LU-1.3 *(Growth Plan) – Maintain balanced growth by encouraging infill development where City services are in place and allowing expansion into Special Planning Areas.*

Action LU-1.3.2 *(Special Planning Area Studies) – Require financing plans, infrastructure phasing plans, and other studies as applicable in connection with development applications for Special Planning Areas.*

Action LU-1.3.3 *(LAFCo Coordination) – Require that applications for sphere of influence updates and amendments, as well as annexations, are consistent with Local Agency Formation Commission requirements,*

and include a conceptual plan for the affected territory, including pre-zoning and a plan for infrastructure financing and phasing.

Policy LU-2.3 *(Sustainable Land Use Pattern) – Ensure sustainable land use patterns in both developed areas of the City and new growth areas.*

Action LU-2.3.1 *(Provide Incentives) – To support desired development patterns and economic development opportunities, continue use of, and expand as appropriate, City incentives, including but not limited to:*

- *Priority project processing*
- *Deferral of development impact or permit fees*
- *Flexibility in development standards such as parking, setbacks, and landscaping requirements*
- *Density bonuses*
- *Support for infrastructure upgrades*

Action LU-2.3.2 *(Allowed Uses) – Amend the Municipal Code to reflect the General Plan's land use designations.*

Policy LU-2.4 *(Land Use Compatibility) – Promote land use compatibility through use restrictions, development standards, and special design considerations.*

Action LU-2.4.1 *(Update Zoning Code) – Establish zoning districts, use regulations, development standards, and performance requirements in the Municipal Code consistent with the General Plan.*

Action LU-2.4.2 *(Update Zoning Map) – Amend the Zoning Map to be consistent with the General Plan Land Use Diagram.*

Action LU-2.4.4 *(Design Guidelines) – Maintain and update, as necessary, the City's Design Guidelines Manual.*

Action LU-2.5.1 *(Resource Constraint Overlay) – For properties with the Resource Constraint Overlay, which highlights known sensitive resource areas, allow land owners to conduct more detailed environmental studies and coordinate with resource agencies to determine actual development potential. Development proposals for a density or intensity of use above that assumed for the purposes of General Plan projections and the General Plan Update EIR will require additional environmental review.*

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and open space uses are permitted with the buffer. Design criteria for buffers are as follows:*

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*

- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-2.7 *(General Plan Consistency Requirement) – Ensure consistency between the General Plan and implementing plans, ordinances, and regulations.*

Action LU-2.7.1 *(General Plan Consistency Review) – Conduct a General Plan review in conjunction with adoption of policy and regulatory documents to ensure consistency with relevant provisions of the General Plan.*

Policy LU-3.1 *(Complete Neighborhoods) – Direct growth into complete neighborhoods with a land use mix and distribution to reduce auto trips and support walking, biking, and transit use.*

Policy LU-3.3 *(Neighborhood Services) – Recognize existing neighborhoods and continue to facilitate the development of neighborhood plans in partnership with residents and property owners to preserve and enhance neighborhood character, identity, and livability.*

Policy LU-3.4 *(Neighborhood Enhancement) – Strengthen the character of existing residential neighborhoods and districts.*

Action LU-3.4.1 *(Rehabilitation) – Provide flexibility in development standards for building retrofits when doing so will advance Policy LU-4.2.*

Action LU-3.4.2 *(Improve Substandard Properties) – Continue the Housing Rehabilitation Program to provide deferred-payment loans and grants to low-income homeowners to improve their properties.*

Policy LU-4.2 *(Infill Compatibility) – Support infill development, redevelopment, and rehabilitation projects, which are compatible with surrounding properties and neighborhoods.*

Action LU-4.2.1 *(Residential Infill Guidelines) – Amend the Design Guidelines Manual to include residential infill guidelines that address compatibility between new and existing development such as visual intrusion and massing within a transition zone.*

Action LU-4.2.2 *(Emphasis on Neighborhood Compatibility) – For residential infill projects outside of Opportunity Sites and Special Planning Areas, maintaining neighborhood character may take precedence over meeting density goals. It may be necessary to limit project density to ensure compatibility.*

Action LU-6.2.2 *(Bell Muir SPA Planning) – Plan the Bell Muir SPA with primarily low density housing compatible with existing residential development and ongoing agricultural uses in the area. Subsequent planning will:*

- *Identify locations for community gardens or small-scale farms, and develop design guidelines and buffering requirements to address potential incompatibilities.*

- *Address infrastructure needs with particular attention to storm drainage and circulation, including north-south connections to East Avenue and improved access to State Route 32.*

- *Develop special lighting and street standards appropriate for the rural character of the area.*

Action LU-6.2.3 *(Diamond Match SPA Planning) – Plan the Diamond Match SPA with a mix of low, medium and high residential densities, a neighborhood core or commercial mixed-use center, office and light industrial uses, and parks and open space. Subsequent planning will:*

- *Address circulation with a focus on extending and improving existing streets into the site that will distribute traffic on multiple streets, and improving connectivity to the south in order to reduce traffic impacts on the existing residential neighborhood.*

- *Incorporate adaptive reuse of existing buildings, where feasible.*

Action LU-6.2.4 *(Doe Mill/Honey Run SPA Planning) – Plan the Doe Mill/Honey Run SPA with a broad range of housing types and densities integrated with significant open space and recreational areas, supporting commercial services, and public facilities. Subsequent planning will:*

- *Address circulation with primary connections to the site via Skyway and E. 20th Street.*

- *Incorporate significant accessible open space on the eastern portion of the SPA, a community park, as well as neighborhood and pocket parks.*

- *Maintain open space by clustering development and providing open space buffers on the northern, eastern, and southern edges of the SPA.*

- *Include visual simulations to ensure that development is not visually intrusive as viewed from lower elevations.*

- *Incorporate special lighting standards to reduce impacts on the nighttime sky.*

Action LU-6.2.5 *(North Chico SPA Planning) – Plan the North Chico SPA with a combination of residential densities and supporting commercial mixed-use along with industrial and office uses. Subsequent planning will:*

- *Address the Hicks Lane/Eaton Road/SR 99 intersection and include an arterial roadway originating at Hicks Lane, extending to State Route 99.*

- *Address Chico Municipal Airport overflight zone compatibility.*

- *Avoid FEMA-designated flood zones, or incorporate strategies that allow development to occur in flood zones.*

Action LU-6.2.6 *(South Entler SPA Planning) – Plan the South Entler SPA with regional and community commercial uses integrated with office and industrial uses; a mix of residential densities, and open space. Subsequent planning will:*

- *Address circulation with a focus on the intersection at Southgate Avenue and State Route 99 and providing multiple access points to the site.*

- *Ensure that the SPA serves as a visually attractive "landmark" gateway at the south end of the City with freeway visibility.*

- *Preserve and/or provide trees along the southern border of the SPA to provide a buffer to adjacent agricultural uses and open space.*

Policy LU-7.1 *(Airport Protection) – Safeguard the Chico Municipal Airport from intrusion by uses that could limit expansion of air services and prohibit development that poses hazards to aviation.*

Action LU-7.1.1 *(Airport Compatibility) – Amend the City's Municipal Code and Zoning Map to implement airport overflight zoning district overlays, consistent with the boundaries and policy direction contained within the Butte County Airport Land Use Compatibility Plan, which address the following:*

- *Airport noise-related compatibility issues and noise-resistant construction techniques.*

- *Height limitations for both structures and landscaping.*

- *Lighting, electrical interference, glare, or other issues which may endanger the landing, takeoff, or maneuvering of aircraft.*

- *Prohibition of incompatible land uses and limitations on the density and/or intensity of land uses.*

- *Infill compatibility criteria consistent with the 2005 agreement between the City and the Butte County Airport Land Use Commission.*

Action LU-7.1.2 *(Aviation Easements) – Continue to require avigation easements and deed notices for new development within the Airport Compatibility Land Use Plan area.*

Action LU-7.1.3 *(Airport Certification) – Maintain Federal Aviation Agency Airport Certification for commercial passenger traffic.*

Action LU-7.1.4 *(Request ALUCP Amendment) – Request that the Butte County Airport Land Use Commission revise the boundaries between the C1 and C2 subzones on the west side of the Chico Municipal Airport to aid in a determination of consistency between the General Plan Land Use Diagram and the Butte County Airport Land Use Compatibility Plan.*

Policy CIRC-4.2 *(Continuous Network) – Provide a pedestrian network in existing and new neighborhoods that facilitates convenient and continuous pedestrian travel free of major impediments and obstacles.*

Action CD-2.1.2 *(Bike Trails, Paths and Medians) – Establish linkages and an improved sense of place through enhanced bike trails, pedestrian paths, landscaped medians and parkways.*

Policy CD-5.1 *(Compatible Infill Development) – Ensure that new development and redevelopment reinforces the desirable elements of its neighborhood including architectural scale, style, and setback patterns.*

Action OS-1.1.1 *(Development Preservation Balance) – Direct development to appropriate locations consistent with the Land Use Diagram, and protect and preserve areas designated Open Space.*

Action OS-1.1.2 *(Regional Conservation Planning) – Actively participate in regional conservation planning efforts, in particular the Butte County Habitat Conservation Plan process, which seeks the preservation of habitat areas needed for the ongoing viability of native species, sponsored by the Butte County Association of Governments.*

Action OS-1.1.3 *(Sustainable Community Strategy) – Work with Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart growth development to urbanized areas.*

Policy S-6.1 *(Airport Operation) – Promote safe air operations by limiting the height of structures and regulating uses that would have adverse impacts on airport safety.*

Policy S-6.2 *(Safety in Airport Vicinity) – Continue to consider relevant public safety factors prior to approving development projects in the vicinity of airports.*

Policy N-1.1 *(New Development and Transportation Noise) - New development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels*

specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1.

Policy ED-1.1 *(Maintain the Economic Development Strategy) – Ensure that the Economic Development Strategy is current and relevant to the City's short and long term economic goals.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant land use impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address land use and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Physically Divide an Established Community (Standard of Significance 1)

Impact 4.1.1 Implementation of the proposed General Plan Update would not result in the division of an existing community nor would it result in substantial land use compatibility issues. **No impact** would occur.

Division of an established community commonly occurs as a result of development and construction of physical features that constitute a barrier to easy and frequent travel between two or more constituent parts of a community. For example, a large freeway structure with few crossings could effectively split a community. Likewise, geographic features could similarly affect the community, such as the development of a large residential project on the opposite side of a river from the existing community.

No aspect of the proposed General Plan Update would divide the city or any of its identified Neighborhood Plan areas, Special Planning Areas, or Redevelopment project areas. One of the objectives of the proposed General Plan Update is for the City to balance growth and conservation by reinforcing Chico's compact urban form, establishing urban growth limits, and managing where and how growth and conservation would occur. For example, Policy LU-1.2 seeks to maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, as well as limit expansion north and south to ensure a more compact urban form. Orderly development contiguous to existing developed areas that can be efficiently served by the extension of infrastructure and municipal services in a fiscally responsible manner is a priority for Chico. This objective is vital to addressing future growth as future expansion of the boundaries of the city is constrained by the Greenline to the west, and identified environmental constraints limit development opportunities on Chico's eastside foothill/valley interface. Policy LU-1.3 seeks to maintain balanced growth by encouraging infill development where City services are in place while Policy LU-3.3 facilitates the development of neighborhood plans in partnership with residents and property owners to preserve and enhance neighborhood character, identity, and livability.

Some future growth outside the city limits is anticipated and described previously, which includes the individual Special Planning Areas (SPA) as part of the General Plan Land Use Diagram. None of the SPAs propose to divide the city or an established community. For instance, proposed General Plan Update Action LU-6.2.2 states that the Bell-Muir SPA will be planned with primarily low density development housing compatible with existing residential development and ongoing agricultural uses in the area. Lighting and street standards will be developed for the rural character of the area and locations for community gardens or small-scale farms will be

identified in the effort to adequately blend new development with the existing disposition (refer to General Plan Actions LU-6.2.2 through LU-6.2.6 for additional provisions to individual SPAs). The reader is referred to Section 4.2, Agricultural Resources, for a further discussion of compatibility with existing agricultural operations.

Several of the policies and actions would improve connectivity and compatibility of the existing and future residential areas of the city through development design, buffering, improved access, and establishment of desired development patterns. Circulation Element Policy CIRC-4.2 aims to provide a pedestrian network in existing and new neighborhoods that facilitates convenient and continuous pedestrian travel free of major impediments and obstacles and Community Design Element Action CD-2.1.2 establishes linkages through enhanced bike trails, pedestrian paths, landscaped medians and parkways. Policy LU-2.4 promotes land use compatibility through use restrictions, development standards, and special design considerations while Policy LU-4.2 supports infill development, redevelopment, and rehabilitation projects which are compatible with surrounding properties and neighborhoods. Action LU-4.2.1 proposes to amend the Design Guidelines Manual to include residential infill guidelines that address compatibility between new and existing development such as visual intrusion and massing within a transition zone. General Plan Community Design Element Policy CD-5.1 seeks to ensure that new development and redevelopment reinforces the desirable elements of its neighborhood including architectural scale, style, and setback patterns.

As previously mentioned, no aspect of the proposed General Plan Update would divide the city or any of its identified Neighborhood Plan areas, Special Planning Areas, or Redevelopment project areas. In addition, the General Plan Update includes provisions that directly address land use compatibility and encroachment of new development on existing neighborhoods and land uses. Thus, the proposed General Plan Update would result in **no impact** regarding division of an established community or land use compatibility issues and no mitigation measures are required.

Consistency with Adopted Land Use Regulations (Standard of Significance 2)

Impact 4.1.2 Implementation of the proposed General Plan Update could lead to inconsistency with other land use plans and ordinances, including the City's land use plans and regulations that address physical effects to the environment. This is considered a **less than significant** impact given proposed policy provisions of the General Plan Update.

Consistency with City Land Use Plans and Regulations

The proposed General Plan Update includes policies and actions that call for the update of the City's Municipal Code, Zoning Map, Design Guidelines, and other regulations to be consistent with the new General Plan and/or to address compatibility issues. For example, proposed General Plan Land Use Element Action LU-2.3.2 would amend the Municipal Code to reflect the General Plan's land use designations while Actions LU-2.4.1 and LU-2.4.2 would both establish zoning districts, use regulations, development standards, and performance requirements in the Municipal Code consistent with the General Plan as well as amend the Zoning Map to be consistent with the General Plan Land Use Diagram. Action LU-2.4.4 would maintain and update, as necessary, the City's Design Guidelines Manual. Policy LU-2.7 ensures consistency between the General Plan and implementing plans, ordinances, and regulations. These changes are expected to improve the quality of development and better address compatibility issues and would not result in the loss of environmental protections or mitigation associated with existing policies and standards. This includes such provisions as ensuring that infill development is

consistent with existing neighborhood character (see Policy LU-4.2 and Actions LU-4.2.1 and LU-4.2.2).

It is also important to note that a key guiding principle for the proposed General Plan Update land use and development pattern is the promotion of a compact urban form within and contiguous to the city's existing developed areas and a reduced ecological footprint (Guiding Principles 1 and 2). This approach in the proposed General Plan Update benefits the physical environment by minimizing outward growth and the associated loss of agricultural lands, open space, and natural resources, as well as increased traffic and air quality and climate change impacts from increased vehicle miles traveled. Thus, inconsistency with City land use plans and regulations would be **less than significant**.

Consistency with Butte County Land Use Plans and Regulations

As identified below, the proposed General Plan Update includes policies and actions that support existing Butte County policies (e.g., Action LU-1.2.1 regarding the Butte County-designated Greenline) and coordination with the County on land use planning in general as well as for the Bell Muir SPA and the North Chico SPA (Action LU-6.2.2 and Action LU-6.2.5). In addition to General Plan Update provisions pertaining specifically to the Bell Muir SPA and the North Chico SPA, Action LU-1.1.2 mandates consultation with Butte County and other entities, as appropriate, to facilitate a coordinated approach to land use planning within the Planning Area. The land uses of the Chapman/Mulberry Neighborhood Plan have been incorporated into the proposed General Plan Update.

In addition, the general development pattern of the Planning Area is generally consistent with the current Butte County General Plan (see Figure LU-1 of the Butte County General Plan). It should also be noted that the general development pattern of the Planning Area is also generally consistent with the proposed land use designations for the Chico area in the currently proposed Butte County General Plan Update (though the mix and density of land uses associated with North Chico SPA, Bell Muir SPA, Doe Mill/Honey Run SPA, and South Entler SPA do vary from the proposed Butte County General Plan Update). No conflicts that would trigger environmental effects with County policies and regulations are expected, and this impact would be **less than significant**.

Consistency with Butte County Airport Land Use Compatibility Plan

Prior to adoption of the proposed General Plan Update by the City Council, the General Plan will be referred to the ALUC for review, as required by state law (Public Resources Code Section 21676(b)), for a determination of whether or not the proposed General Plan Update is consistent with the Compatibility Plan. If the ALUC determines that the proposed General Plan Update is consistent, then no further action is needed in relation to airport issues, other than to implement the policies and land use designations called for in the proposed General Plan Update. If the ALUC determines that the proposed General Plan Update is inconsistent with the Compatibility Plan, then the City must either (a) alter the proposed General Plan Update to make it consistent or (b) override the ALUC's determination of inconsistency by making a finding, supported by substantial evidence, that the proposed General Plan Update carries out the intent of both protecting the airport (from encroachment which would jeopardize its air carrier certification) and protecting the general public (from noise and hazards associated with the airport) as established in Public Resources Code Section 21670. It should be noted that overrides have a two-thirds majority vote requirement.

The proposed General Plan Update identifies that the Chico Municipal Airport is one of the community's greatest assets and promotes its long-term protection and development. The Ranchaero Airport is beyond the Butte County-designated Greenline and the proposed General Plan Update does not propose substantial land use changes in its vicinity. The proposed General Plan Update includes a policy framework related to airport land use compatibility, which the City believes renders the General Plan consistent with the Compatibility Plan at a programmatic level. General Plan Action LU-7.1.1 requires that the City amend its Municipal Code to establish airport compatibility overlay zoning districts that conform to the boundaries and general policy direction of the Compatibility Plan's overflight zones. The overlay districts would enforce development standards that closely mirror the standards in the Compatibility Plan, including noise-resistant construction, structure and tree height limitations, density/intensity limitations on the use of land, and establishing infill criteria consistent with the 2005 agreement between the City and the ALUC. Actions 7.1.2 and 7.1.3 direct that the City continue requiring aviation easements and deed notices, and state the City's goal of maintaining Federal Aviation Administration passenger certification for the Chico Municipal Airport.

The ALUC does not have authority over existing incompatible land uses. Therefore, the potential for incompatibilities between the ALUCP and the proposed General Plan would primarily result where the General Plan allows for new development, redevelopment, and infill (i.e. "Opportunity Sites" and Special Planning Areas). Specifically, portions of the North Chico SPA are located in Chico Municipal Airport Compatibility Zones D, C1, and C2 and the Medium-High Density Residential (MHDR)-designated Webb property on Eaton Avenue (includes Opportunity Site 15) is located within the C1 zone. Compatibility Zone D (Other Airport Environs) includes areas within the airport vicinity which are overflown less frequently or at a higher altitude by aircraft arriving and departing the airport. There are few development constraints within Zone D. Subzone C1 (Traffic Pattern Zone) is applied to "areas in which urban density residential development neither exists nor is planned" (ALUCP section 2.1.2.(d)). However, it is important to note that a substantial amount of residential development does already exist in C1 subzone areas surrounding the Chico Municipal Airport (see **Figure 4.4-2**). In addition, the MHDR-designated Webb property on Eaton Avenue has been designated for MHDR development since 1994; thus, the C1 zone covering the Webb property should have been designated Zone C or C2 when the CLUP was adopted in 2000. Subzone C2 (Traffic Pattern Zone) is generally intended for the comparatively less impacted locations lateral to the runways or for areas where extensive urban residential develop already exists. All compatibility criteria set forth in the ALUCP are the same for the C1 and the C2 Zones, with the exception of the residential density limitations of 1 dwelling unit per 5 acres and 4 dwelling units per acre, respectively. This is because the intrusiveness of aircraft noise is considered the most significant compatibility factor in Zone C and the concept is that noise concerns can be minimized by limiting the number of dwellings in an affected area or by allowing high densities with comparatively higher ambient noise levels.

As part of the City's referral of the proposed General Plan Update to the ALUC for its consideration, and as included in proposed General Plan Update Action LU-7.1.4, the City is requesting that the ALUC consider altering the boundary between the C1 and C2 subzones on the west side of the Chico Municipal Airport to aid in a determination that the proposed General Plan Update is consistent with the Compatibility Plan. The General Plan Update proposes the North Chico SPA to consist of a combination of multi-family, single-family, commercial mixed-use, industrial-office mixed-use, public facilities, open space, and parks. It is due to these proposed land uses that the City is requesting that the ALUC consider altering the boundary between the C1 and C2 subzones on the west side of the Chico Municipal Airport so that the proposed North Chico SPA would lay primarily in subzone C2. General Plan Action LU-6.2.5 states that the North Chico SPA shall be planned with a combination of residential densities and

supporting commercial mixed-use along with industrial and office uses and that subsequent planning will address Chico Municipal Airport overflight zone compatibility.

In the event that the ALUC does not amend the subzones in its Compatibility Plan, inconsistencies between the two documents will require that the City Council override the Compatibility Plan at the time of proposed General Plan Update adoption. The City will also be required to override the Compatibility Plan associated with subzones B1 and B2 for the Ranchaero Airport that currently covers existing developed areas. Because the majority of this land is already developed and is in an "area of stability" as envisioned in the General Plan, new development in this area is expected to be minimal. Because the Aeronautics Act only gives ALUCs authority over new land development, not existing development, the total acreage which is in the overflight zones which will be subject to development will be minimal. As previously mentioned, a local government body may override an ALUC compatibility determination for any proposed incompatible land use by a two-thirds majority vote adopting specified findings; however, they must notify the Division of Aeronautics and the ALUC of this intent 45 days prior to approving the override. While inconsistencies are not desired, they are anticipated and provided for by state law governing airport operations. The CalTrans *California Airport Land Use Planning Handbook* acknowledges that the sole responsibility of an ALUC is to prevent incompatible land use development adjacent to an airport, whereas cities have to balance many, sometimes competing, issues. The proposed General Plan Update is balancing many goals, including retaining a compact urban form, developing complete and connected neighborhoods, strengthening the local economy, and efficiently utilizing infrastructure. These larger community goals need to be balanced against the focused purview of the Compatibility Plan.

In general, land use compatibility concerns addressed by ALUCP's can be grouped under four categories: safety, airspace protection, noise, and overflight (Butte County, 2000). These compatibility concerns as they relate to the proposed General Plan Update are discussed below. As previously mentioned, the ALUC does not have authority over existing incompatible land uses and the potential for incompatibilities between the ALUCP and the proposed General Plan would primarily result at the North Chico Special Planning Area and the Webb property on Eaton Avenue. The below discussion focuses on these areas. The reader is also referred to Section 4.4, Human Health/Risk of Upset, and Section 4.7, Noise, for further discussion of airport – related hazard and noise impacts.

Safety

Safety concerns associated with airport land use compatibility include 1) risks to people and property on the ground in the event of an aircraft accident; and 2) land use characteristics which may affect the survivability of an accident for occupants of an aircraft (Butte County, 2000). As discussed in Section 4.4, Human Health/Risk of Upset, the General Plan Update does not allow for any new development in Chico Municipal Airport's Runway Protection Zone or the immediately surrounding area and both the North Chico SPA and the Webb property on Eaton Avenue are outside of the 80 percent aircraft accident risk contour. Given the low amount of daily flights in and out of the Chico Municipal Airport and the particularly low probability for an aircraft accident to occur within Zone C and D (the only airport zones where new and infill development will be allowed), the General Plan Update is not expected to result in increased safety hazards associated with development allowed in Zones C and D.

In regards to the ALUCP's specific land use compatibility criteria, safety concerns are addressed in Zone C by restricting uses where evacuation of occupants is difficult (hospitals, children's schools) and by providing open areas in the airport vicinity where small aircraft can make a

survivable landing if necessary. Specifically, the ALUCP compatibility criteria prohibit children's schools, daycares, libraries, hospitals, and nursing homes in Zone C and require 10 percent of the land within Zone C to remain open. The proposed General Plan does not identify site-specific land uses such as hospitals or nursing homes. However, General Plan Policy LU-6.2.5 requires that future land use planning for the North Chico SPA address Chico Municipal Airport overflight zone compatibility. As such, future land use planning would ensure that incompatible land uses would not be located in Zone C. The MHDR designation of the Webb property on Eaton Avenue does not allow for non-residential uses such as hospitals or libraries that are prohibited in Zone C. Furthermore, if the North Chico SPA and the Webb property on Eaton Road were to be built out consistent with its proposed General Plan land use designations, well over 10 percent of the overall Zone C would remain open, primarily because the proposed General Plan Update identifies a large portion of Zone C to the immediate west of the Chico Municipal Airport as an environmentally constrained area which is not expected to accommodate any further development. As previously mentioned, there are few development constraints within Zone D. Therefore, the General Plan Update is consistent with the ALUCP in regards to safety policies/compatibility criteria.

Airspace Protection

Airspace protection is in effect a safety factor as its objective is to avoid development of land use conditions which, by posing hazards to flight, can increase the risk of an accident occurring. The particular hazards of concern are: tall structures creating hazards to navigable space around airports; land uses that attract wildlife hazards, particularly birds; electronic hazards to flight (interference radio communication or navigation signals); and visual hazards to flight (sources of smoke, glare, or lights) which could be confused with airport lights. The ALUCP's specific land use compatibility criteria, addresses airspace protection in Zones C and D by requiring airspace review for objects over 100 feet tall and by prohibiting hazards to flight including physical, visual, and electronic interference with the safety of airport operations. The ALUCP states that in both Zones C and D, generally there are no concerns with any object up to 100 feet tall unless it is located on high ground or a solitary object such as an antennae. Future development proposed under the General Plan Update will by default fall within this height limitation as the maximum allowed structure height as allowed by the Zoning Code for any zoning district in the City is currently 65 feet (with limited exceptions, such as cell towers). Furthermore, General Plan Policy LU-6.2.5 requires that future land use planning for the North Chico SPA address Chico Municipal Airport overflight zone compatibility and Action LU-7.1.1 requires that the City amend the Municipal Code and Zoning Map to implement airport overflight zoning district overlays, consistent with the boundaries and general policy direction contained within the ALUCP. This will include restrictions on lighting, electrical interference, glare, or other airspace protection issues. Therefore, the General Plan Update is consistent with the ALUCP in regards airspace protection policies/compatibility criteria.

Noise

As discussed in Section 4.7, Noise, the ALUCP provides that a normally acceptable level of aircraft noise for residential areas is 55 decibels CNEL. As shown in Figure 4.7-4, Chico Municipal Airport Noise Contours for Year 2018, all of the Webb property on Eaton Avenue and most of the North Chico Special Planning Area are within the 55 CNEL noise contour. Only a small portion in the northeast corner of the Special Planning Area is within the 60 CNEL noise contour.

The proposed General Plan Update contains policies and actions that include specific performance standards addressing transportation/aircraft noise. As previously mentioned, new development of noise-sensitive land uses will not be permitted in areas exposed to existing or

planned transportation noise sources that exceed the levels specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 (Table 4.7-4 of this section) (Policy N-1.1). The proposed General Plan Update includes policies (i.e., policies N-1.1 and N-1.3) by which the compatibility of noise-sensitive land uses that would be exposed to transportation noise sources would be reviewed and appropriate mitigation measures incorporated to achieve acceptable noise levels. General Plan Action LU-7.1.1 requires that the city amend its Municipal Code to establish airport compatibility overlay zoning districts that conform to the boundaries and policy direction of the ALUCP's overflight zones. The overlay districts would enforce development standards consistent with the standards in the ALUCP, including noise-resistant construction.

Overflight

A general definition of overflight incompatibilities is that they are noise-related human annoyances with frequent overflight of aircraft. Overflight incompatibilities are more subtle and subjective than other airport land use compatibility concerns. As such, the basic means to address overflight concerns consist of buyer awareness measures such as avigation easement dedication, deed notices, and real estate disclosures. The City currently requires avigation easements and deed notices for new development within the ALUCP area. Proposed General Plan Action LU-7.1.2 requires the City to continue this practice consistent with the ALUCP policies.

As described above, successful implementation of the identified policies and actions from the proposed General Plan Update would result in consistency with the Compatibility Plan at a programmatic level. If the ALUC does not alter the boundaries of its C1 and C2 subzones as identified by Action LU-7.1.4, a small number of inconsistencies would remain, primarily related to density/intensity of future land uses in certain locations, primarily the North Chico SPA area and the Medium-High Density Residential-designated Webb property on Eaton Avenue. In either case, when the programmatic protections provided by the proposed General Plan Update policies and actions are taken into account, coupled with a City Council override of the Compatibility Plan (if necessary), the result will be consistency of the respective planning documents and therefore a **less than significant** impact.

As noted above, the proposed General Plan Update contains provisions that include specific, enforceable requirements to address consistency issues with Butte County land use plans and regulations as well as the Butte County Airport Land Use Compatibility Plan. In addition, the proposed General Plan Update includes policies and actions that call for the update of the City's Municipal Code, Zoning Map, Design Guidelines, and other regulations to be consistent with the new General Plan and/or to address compatibility issues. Proposed General Plan impacts to adopted land use regulations are therefore **less than significant** and no mitigation measures are required.

Conflict with Habitat Conservation Plan or Natural Community Conservation Plan (Standard of Significance 3)

Impact 4.1.3 The Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) has not yet been adopted. However, the proposed General Plan Update would support the HCP effort. Therefore, conflicts to an applicable habitat conservation plan or natural community conservation plan are considered **less than significant**.

As described above, the Butte Regional HCP/NCCP is being coordinated by the Butte County Association of Governments (BCAG) on behalf of the cities of Biggs, Chico, Gridley, and Oroville

and the County of Butte. The HCP/NCCP is a voluntary plan that would provide comprehensive species, wetlands, and ecosystem conservation and contribute to the recovery of endangered species within the plan area while also providing a more streamlined process for environmental permitting. To memorialize the limited development potential in areas with known significant environmental resources, the proposed General Plan Update establishes a new Resource Constraint Overlay designation for three areas within the City of Chico and Sphere of Influence including west of the airport, Bruce Road, and Stilson Canyon. The most significant environmental constraints that limit development opportunities at these locations are vernal pools and habitat for Butte County meadowfoam. These resources are located on Chico's east side along the foothill/valley interface. The reader is referred to Section 4.10 (Biological Resources) for a further discussion of vernal pools and Butte County meadowfoam.

The new Resource Constraint Overlay is designated in conjunction with underlying land use designations in each of the three resource areas. Land use policies and corresponding actions in the proposed General Plan Update acknowledge a reduced development potential in these areas with known significant environmental constraints. Land owners of RCO parcels may conduct more detailed studies, including environmental review, and coordinate with resource agencies to determine actual development potential (see Action LU-2.5.1).

The Land Use Element and Open Space and Environment Element include policies that address conservation of natural habitats, the protection of wetlands, vernal pools, and rare, threatened, and endangered species of both plants and animals. Action OS-1.1.1 directs development to appropriate locations consistent with the Land Use Diagram, and protect and preserve areas designated Open Space. Action OS-1.1.3 seeks to work with Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart growth development to urbanized areas. These policies would not impede the protection of resources that are the goal of the HCP/NCCP. As a matter of fact, Action OS-1.1.2 directs the City to actively participate in regional conservation planning efforts, in particular the Butte County Habitat Conservation Plan process, which seeks the preservation of habitat areas needed for the ongoing viability of native species, sponsored by the Butte County Association of Governments.

The proposed 2030 General Plan Update actions described above are included to preserve open space in areas with significant environmental resources as identified in the HCP/NCCP. These actions would preserve and restore sensitive habitats and direct the City to participate in the regional conservation plan process. These actions would support the Butte HCP/NCCP. In addition, the City of Chico would be subject to the Habitat Conservation Plan as a participant. Therefore, conflicts with a habitat conservation plan or natural community conservation plan created by the implementation of the proposed General Plan Update would be **less than significant** and no mitigation measures are required.

4.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

Land use impacts are typically isolated to a jurisdiction, except where land uses may interact or conflict with adjacent jurisdictions. The cumulative setting for land use includes existing, approved, proposed, and reasonably foreseeable development within the Planning Area and the region as described in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used. This includes consideration of implementation of the Butte County General Plan Update (September 4, 2009, draft).

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Land Use Impacts (Standards of Significance 1 through 3)

Impact 4.1.4 Implementation of the proposed General Plan Update, in addition to existing, proposed, approved, and reasonably foreseeable development in the City of Chico and Butte County, would contribute to cumulative land use impacts associated with the division of an established community or conflicts with land use plans and regulations that provide environmental protection. This would be a **less than cumulatively considerable** impact.

Under cumulative conditions, the proposed General Plan Update and subsequent development would not contribute to land use conflicts beyond those discussed in Impacts 4.1.1, 4.1.2, and 4.1.3. There would be no further contribution to the division of an established community or conflicts between planning documents and regulations. As identified under Impacts 4.1.1 through 4.1.3, proposed General Plan Update policies and actions provide for land use compatibility within the Planning Area and coordination with County land use planning as well as the HCP. Thus, this impact is **less than cumulatively considerable**.

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4.2
AGRICULTURAL RESOURCES

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) addresses agricultural lands and the potential impacts of the proposed General Plan Update on these lands. Key issues addressed in this section include conflicts/incompatibilities between urban land uses and agricultural operations and loss of agricultural land.

4.2.1 EXISTING SETTING

EXISTING LAND USE AND AGRICULTURAL OPERATIONS

Existing uses on lands outside the boundaries of the Chico Sphere of Influence are primarily agricultural and rural residential. Lands northeast and east of the Sphere of Influence are used primarily for seasonal grazing of livestock. The area north of the Sphere of Influence, east of State Route (SR) 99, and south of Rock Creek is developed with rural residential land uses interspersed with orchards, field crops, and grazing land. The Greenline established by Butte County (see Section 4.1, Land Use, for a further discussion of the Greenline) provides a boundary between urban and agricultural uses to the west.

Within the city's corporate boundary and Sphere of Influence, the primary use of land is developed urban and suburban uses. While limited in size and number relative to the city as a whole, there are agricultural or agricultural-supporting land uses within the city. The largest active agricultural land use within the city's central urban area is the Vanella Orchard located on 8th Avenue, west of the Esplanade. Also located within the central urban area is the Chico Nut Company, adjacent to the Esplanade and immediately south of Lindo Channel. Chico Nut Company is a processing, storage, and shipping facility for tree crops, almonds in the area. Two large agricultural industrial operations, Smucker Quality Beverages and the R.W. Knudsen Company, are located to the south of the southern City limit boundary on Hegan Lane and Speedway Avenue, respectively, yet are within the Sphere of Influence. Within the city limits, various small agriculture operations and remnant orchards exist as isolated uses on undeveloped lands.

EXISTING BUTTE COUNTY AGRICULTURAL OPERATIONS

Agricultural operations are a significant feature in the economy of Butte County. According to the County's 2008 Crop and Livestock Report, the estimated gross value of agricultural production in Butte County for 2008 was approximately $580 million. This is a $73 million increase over the 2007 gross value of approximately $507 million. The total increase in gross value of agriculture during 2008 is 62.0 percent above the Butte County 10-year average of approximately $357 million (Butte County Department of Agriculture, 2008). **Table 4.2-1** lists the ten leading farm commodities in Butte County.

TABLE 4.2-1
BUTTE COUNTY LEADING FARM COMMODITIES, 2008

Commodity	Value
Rice	$248 million
Almonds	$86 million
Walnuts	$76 million
Dried Plums	$31 million
Nursery Stock	$31 million

Commodity	Value
Timber	$16 million
Rice Seed	$12 million
Peaches – Clingstone	$12 million
Cattle/Calves	$10 million

Source: Butte County Department of Agriculture, 2008

For the period between 2004 and 2008, the total plant crop acreage in Butte County increased from 457,435 to 468,094, an increase of almost 11,000 acres in field, seed, vegetable, and fruit and nut crops. The largest percentage gain in acreage was in fruit and nut crops (Butte County Department of Agriculture, 2008).

Planning Area

Within the Chico Planning Area, agricultural land accounts for approximately 74,508 acres, of which 6,520 acres fall within the current city limits. Of the remaining acreage, approximately 961 acres are located within the Sphere of Influence and approximately 67,027 acres are located in the Planning Area but outside of the Sphere of Influence. **Table 4.2-4** lists the Important Farmland in the City of Chico Planning Area. The agricultural land in the Planning Area includes grazing land, row crops, field crops, and orchards.

FARMLAND CLASSIFICATIONS AND RATING SYSTEM

Two classification programs are generally used to determine a soil's potential agricultural productivity.

- The USDA Soil and Conservation Service (USDA-SCS) Land Capability Classification System takes into consideration soil limitations, the risk of damage when the soils are used, and the way in which soils respond to treatment.

- The Storie Index Rating system ranks soils based on their suitability for agriculture.

The Farmland Mapping and Monitoring Program (FMMP) administered by the California Department of Conservation maps out agricultural areas based on soil quality and land use, with categories such as "Prime Farmland," "Farmland of Statewide Importance," and "Grazing Lands." More information about each of these classification systems is provided in the following sections of this chapter.

Land Capability Classification System

The Land Capability Classification System designed by the U.S. Department of Agriculture includes eight classes of land designated by Roman numerals I thru VIII. The classes are arable land—suitable for cropland—in which the limitations on their use and necessity of conservation measures and careful management increase from I through IV. The criteria for placing a given area in a particular class involve the landscape location, slope of the field, and depth and texture of the soil. The remaining four classes, V through VIII, are not to be used for cropland but may have uses for pasture, range, woodland, grazing, wildlife, recreation, and aesthetic purposes. Within the broad classes are subclasses which signify special limitations such as (e) erosion, (w) excess wetness, (s) problems in the rooting zone, and (c) climatic limitations. A

general description of soil classification, used by the National Resource Conservation Service (NRCS), is provided in **Table 4.2-2**.

TABLE 4.2-2
SOIL CAPABILITY CLASSIFICATION

Class	Definition
I	Soils have few limitations that restrict their use.
II	Soils have moderate limitations that reduce the choice of plants or that require special conservation practices.
III	Soils have severe limitations that reduce the choice of plants, require conservation practices, or both.
IV	Soils have very severe limitations that reduce the choice of plants, require very careful management, or both.
V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife habitat.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland, or wildlife habitat.
VIII	Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife habitat, or water supply, or to aesthetic purposes.

Source: U.S. Department of Agriculture, Natural Resource Conservation Service, 2010a

Storie Index Rating System

The Storie Index Rating System ranks soil characteristics according to their suitability for agriculture. Ratings range from Grade 1 soils (80 to 100 rating), which have few or no limitations for agricultural production, to Grade 6 soils (less than 10), which are not suitable for agriculture. Under this system, soils deemed less than prime can function as prime soils when limitations such as poor drainage, slopes, or soil nutrient deficiencies are partially or entirely removed. The six grades, ranges in index rating, and definition of grades defined by the NRCS are provided below in **Table 4.2-3**.

TABLE 4.2-3
STORIE INDEX RATING SYSTEM

Grade	Index Rating	Definition
1 – Excellent	80 – 100	Soils are well suited to intensive use for growing irrigated crops that are climatically suited to the region.
2 – Good	60 – 79	Soils are good agricultural soils, although they may not be so desirable as Grade 1 because of moderately coarse, coarse, or gravelly surface soil texture; somewhat less permeable subsoil; lower plant available water holding capacity, fair fertility; less well drained conditions, or slight to moderate flood hazards, all acting separately or in combination.
3 – Fair	40 – 59	Soils are only fairly well suited to general agricultural use and are limited in their use because of moderate slopes; moderate soil depths; less permeable subsoil; fine, moderately fine or gravelly surface soil textures; poor drainage; moderate flood hazards; or fair to poor fertility levels, all acting alone or in combination.
4 – Poor	20 – 39	Soils are poorly suited. They are severely limited in their agricultural potential

Grade	Index Rating	Definition
		because of shallow soil depths; less permeable subsoil; steeper slope; or more clayey or gravelly surface soil textures than Grade 3 soils, as well as poor drainage; greater flood hazards; hummocky micro-relief; salinity; or fair to poor fertility levels, all acting alone or in combination.
5 – Very Poor	10 – 19	Soils are very poorly suited for agriculture, are seldom cultivated and are more commonly used for range, pasture, or woodland.
6 – Nonagricultural	Less than 10	Soils are not suited for agriculture at all due to very severe to extreme physical limitations, or because of urbanization.

Source: U.S. Department of Agriculture, Natural Resource Conservation Service, 2010b

The "prime" soil classifications of both systems indicate the absence of soil limitations which, if present, would require the application of management techniques (e.g., drainage, leveling, special fertilizing practices) in order to enhance production.

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program was established in 1982 to continue the important farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service. The intent of the USDA was to produce agricultural resource maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified land's suitability for agricultural production. Suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland Maps are derived from the USDA soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the USDA with completing its mapping in the state. The FMMP was created within the California Department of Conservation (DOC) to carry on the mapping activity on a continuing basis and with a greater level of detail. The DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilize the NRCS Soil Capability and Storie Index rating systems described above but also consider physical conditions such as a dependable water supply for agricultural production, soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth.

Important Farmland Maps for California are compiled using the modified LIM criteria. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into the surrounding classification. The Important Farmland Maps identify five agriculture-related categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. Each is summarized below, based on *A Guide to the Farmland Mapping and Monitoring Program* (1994) prepared by the Department of Conservation. **Figure 4.2-1** shows the mapped categories. The FMMP data is updated and released every two years. The most current information available from the FMMP is from 2008.

Prime Farmland

Prime Farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. These lands have the soil quality, growing season, and moisture supply needed to produce sustained high yields. Lands defined as Prime Farmland must have been used for production of irrigated crops at some time during the four years prior to the Important Farmland Map date.

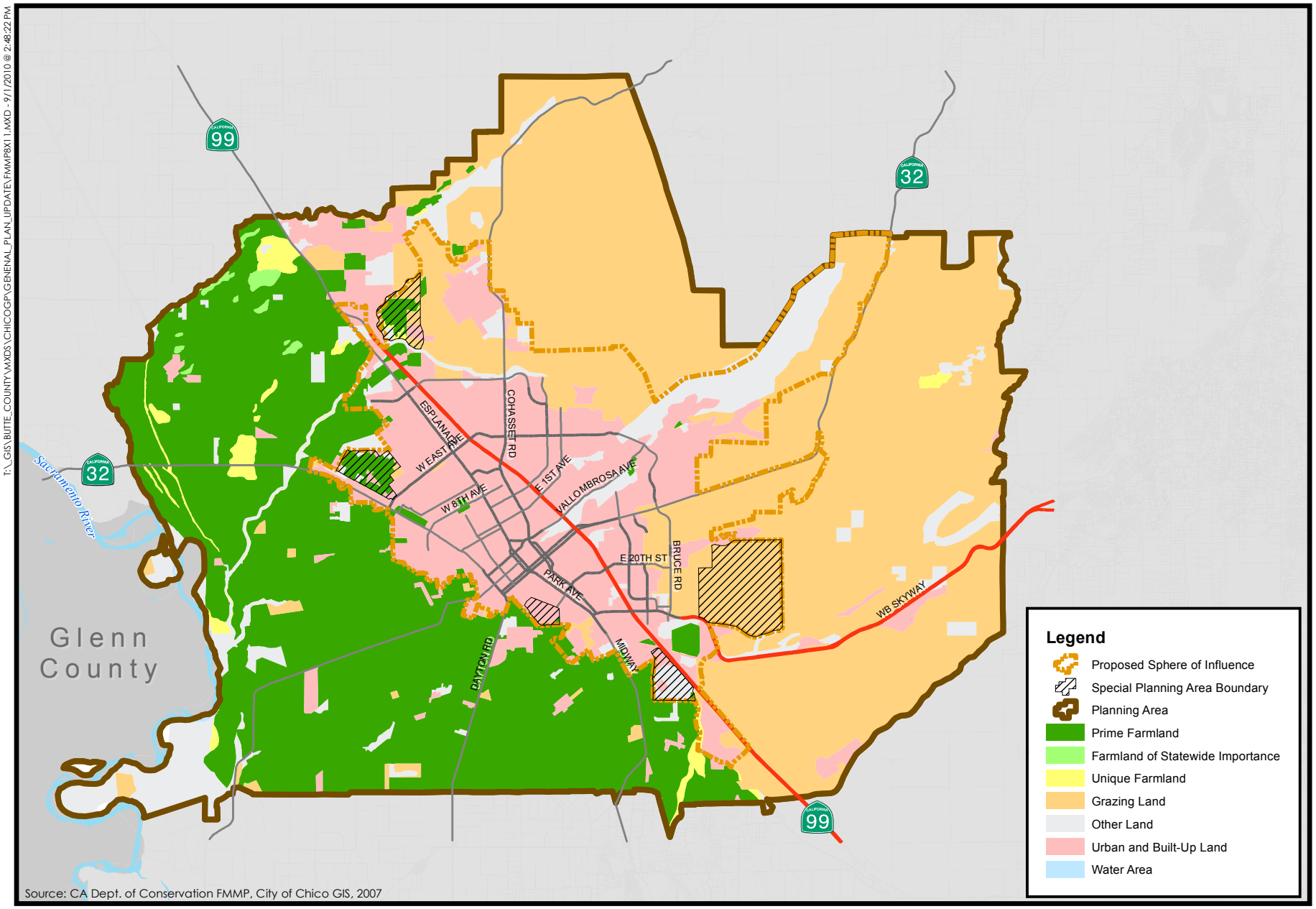

Figure 4.2-1
Important Farmlands

PMC®

Farmland of Statewide Importance

Farmland of Statewide Importance is land similar to Prime Farmland but with minor shortcomings such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the four years prior to the Important Farmland Map date.

Unique Farmland

Unique Farmland is land of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include nonirrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the four years prior to the Important Farmland Map date.

Farmland of Local Importance

Farmland of Local Importance is land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. Farmland of Local Importance has not been determined in Butte County and therefore is not included on the Important Farmland Map.

Grazing Land

Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

IMPORTANT FARMLAND MAP

Figure 4.2-1 depicts Important Farmland in the Planning Area, as identified by the FMMP. **Table 4.2-4** provides a breakdown of farmland acreage based on the FMMP categories. The entire Planning Area includes approximately 30,231 acres of Prime Farmland, along with approximately 1,389 acres of Farmland of Statewide Importance and Unique Farmland. These categories account for approximately 31 percent of the total number of acres in the Planning Area. **Table 4.2-4** and **Figure 4.2-1** do not take into account any development in the Planning Area after 2008, when the most recent Important Farmland Map was published.

TABLE 4.2-4
FARMLAND IN PLANNING AREA

Farmland Type	Important Farmland (acres)			Total Acres
	City Limits (2008) Only	General Plan Update Proposed SOI outside City	Planning Area Outside of Proposed SOI	
Prime Farmland	423.8	735.8	29,070.2	30,229.8
Farmland of Statewide Importance	0	0	259.6	259.6
Unique Farmland	1.5	66.0	1,061.6	1,129.0
Grazing Land	5,978.4	2,461.5	33,331.5	41,771.5
Other Land*	2,707.4	647.8	6,130.3	9,485.5
Urban and Built-up Land	12,123.1	2,993.4	2,697.4	17,813.9

Farmland Type	Important Farmland (acres)			Total Acres
	City Limits (2008) Only	General Plan Update Proposed SOI outside City	Planning Area Outside of Proposed SOI	
Water	0	0	66.7	66.7
Total	21,234.3	6,904.5	72,617.2	100,756

Source: DOC, 2010

Note: The total acreage in this table does not match the total acres for the Planning Area. This is due to rounding and to slight differences in the information bases used to calculate the tables.

**Other Land indicates those lands not otherwise placed in a FMMP category. For the Planning Area, this includes natural vegetation, rural residential, wetlands, and vacant lands.*

FARMLAND CONVERSION

The conversion of lands suitable for agricultural to urban development and other uses is an issue of concern in California. **Tables 4.2-5** and **4.2-6** summarize the conversion of agricultural lands that occurred between 1988 and 2006 in Butte County. From 1988 through 2004, the Butte County Farmland Mapping and Monitoring Program was in an "interim" stage; "irrigated" and "nonirrigated farmland" was tracked prior to determination of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Between 2004 and 2006, Butte County had defined the types of important farmland. Therefore, **Table 4.2-5** provides interim farmland and grazing land information from 1998 through 2004, while **Table 4.2-6** provides important farmland and grazing land information from 2004 through 2008.

Since the farmland acreages were recorded as interim until 2004, it is difficult to compare over the long term what the percentage decreases were in the types of important farmlands. However, it is apparent that the important farmland data is more accurate, equating to 100 percent of the county inventoried, than in the interim farmland data, where 86 percent of county land was inventoried. The change in documentation in 2004 results in far greater acreage of grazing land; however, the important farmland acreages are similar. Farmland conversion of Prime Farmland is of particular concern. For the four-year comparison of Prime Farmlands between 2004 and 2008, there was a decrease equating to an average loss of approximately 688 acres of Prime Farmland annually.

TABLE 4.2-5
ACRES OF INTERIM FARMLANDS AND GRAZING LANDS – BUTTE COUNTY (1988–2004)

Year	Important Farmland Acres		Total Farmlands	Grazing Land	Total Agricultural Lands
	Irrigated Farmland	Nonirrigated Farmland			
1988	256,488	12,694	269,182	270,065	539,247
1990	259,880	11,509	271,389	267,310	538,699
1992	260,342	9,897	270,239	266,361	536,600
1994	260,571	9,823	270,394	265,083	535,477
1996	257,707	9,366	267,073	264,529	531,602
1998	255,245	9,476	264,721	264,778	529,499
2000	249,413	7,903	257,316	264,982	522,298
2002	247,007	6,648	253,655	263,653	517,308
2004*	245,475	5,448	250,923	261,946	512,869
Net Acreage Changes	-11,013	-7,246	-18,259	-8,119	-26,378
Annual Average Difference	-688	-453	-1,141	-507	-1,649

Source: DOC, 2006a

Due to the availability of digital soil data (SSURGO) beginning in 2004, the map was upgraded to Important Farmland status. Please refer to **Table 4.2-6.*

TABLE 4.2-6
ACRES OF IMPORTANT FARMLANDS AND GRAZING LANDS – BUTTE COUNTY (2004–2008)

Year	Important Farmland Acres				Total Important Farmlands	Grazing Land	Total Agricultural Lands
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance			
2004	197,557	22,323	24,947	0	244,837	406,401	651,238
2006	196,219	21,604	24,235	0	242,058	407,678	649,736
2008	194,690	22,794	23,077	0	240,561	401,859	642,420
Net Acreage Changes between 2004 & 2008	-2,867	+471	-1,870	0	-4,276	-4,542	-8,818
Annual Average Difference	-717	+118	-468	0	-1,069	-1,136	-2,205

Source: DOC, 2006a; DOC, 2010

Note that **Tables 4.2-5** and **4.2-6** provide data related to farmland conversion countywide and are not limited to property within the Planning Area.

AGRICULTURAL LAND CONSERVATION

Greenline Urban Growth Boundary

In 1979, Butte County outlined an Urban Growth Boundary (UGB) in its General Plan Land Use Element. The Chico Area Greenline, located along the city's western city limit, is an UGB that is coordinated by both the City of Chico and Butte County. The Greenline serves to restrict development on the prime farmlands west of Chico and preserves this area for agricultural production.

Williamson Act Contract Lands

Butte County participates in the Williamson Act program (described further below). As of 2007, there were 215,882 acres of land in Butte County under Williamson Act contracts (DOC, 2009). An extension of the Williamson Act, called the Farmland Security Zone (FSZ) Program, permits farmers and ranchers to garner an additional 35 percent property tax reduction by keeping their land in agriculture for a minimal initial term of 20 years; however, the FSZ program has not been adopted by Butte County. There are no Williamson Act contracts within the existing city limits of Chico. **Figure 4.2-2** shows lands in the Planning Area under Williamson Act contracts. Approximately 25,651 acres of land in the Planning Area are under agricultural preservation contracts. Most of this land is located around the western edge of the Planning Area.

The amount of land currently under Williamson Act contract in Butte County has decreased since 1991, the earliest year for which statistics are available. A total of 226,065 acres were under Williamson Act contract in 1991. This means 10,183 fewer net acres are under Williamson Act contracts than in 1991, a 4.5 percent decrease. Most of this decrease has occurred through the nonrenewal of Williamson Act contracts. The number of acres in nonrenewal increased between 2004 and 2005. In 2004, a total of 367 acres were put into nonrenewal status. This number increased to 928 acres the following year (DOC, 2009).

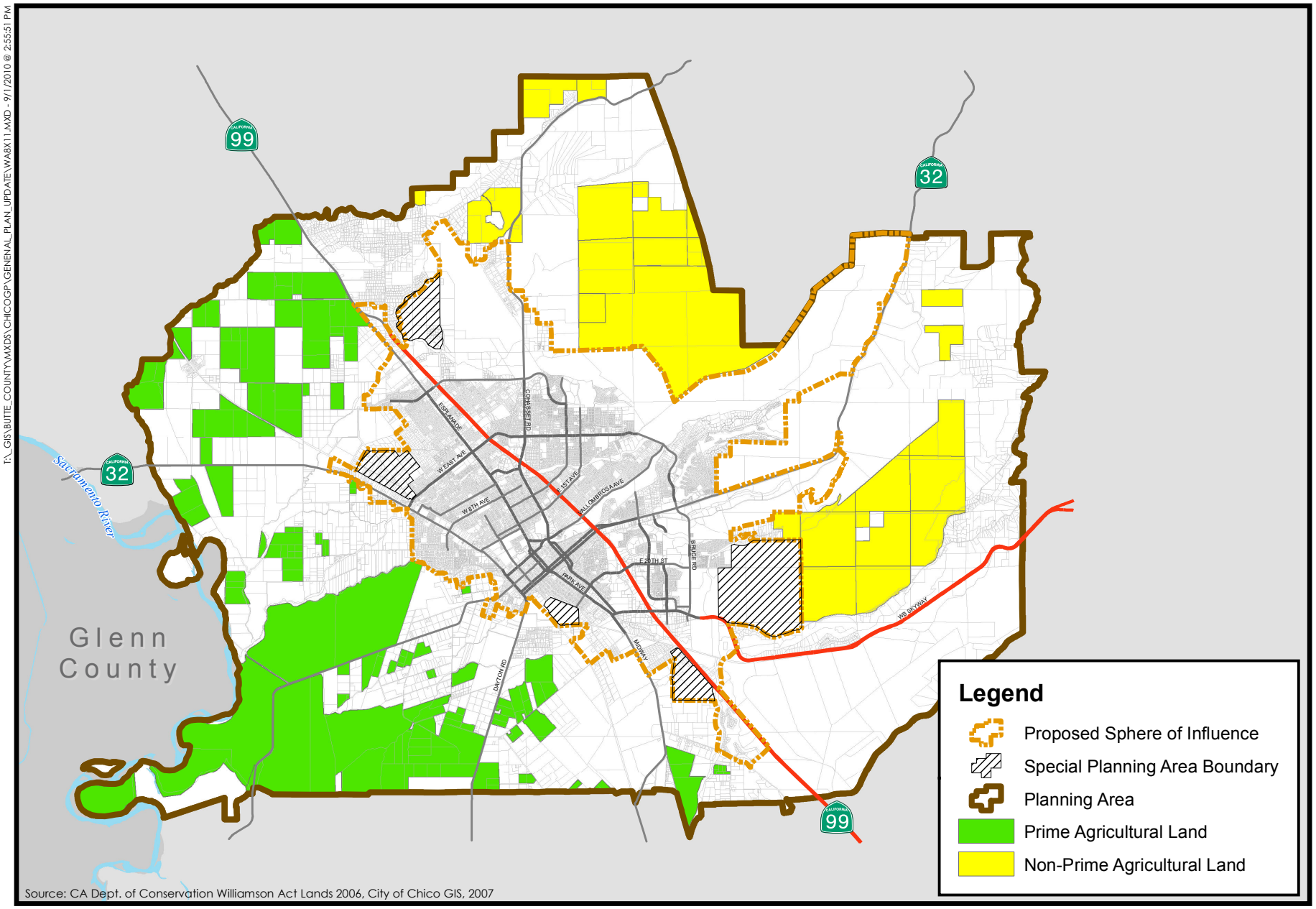

Figure 4.2-2
Williamson Act/Preserved Agricultural Lands

4.2.2 REGULATORY FRAMEWORK

FEDERAL

Farmland Protection Policy Act

The Natural Resources Conservation Service (NRCS), a federal agency within the U.S. Department of Agriculture, is the agency primarily responsible for implementation of the Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize federal programs' contribution to the conversion of farmland to nonagricultural uses by ensuring that federal programs are administered in a manner that is compatible with state, local, and private programs designed to protect farmland. NRCS provides technical assistance to federal agencies, state and local governments, tribes, or nonprofit organizations that desire to develop farmland protection programs and policies.

NRCS summarizes FPPA implementation in an annual report to Congress. The FPPA also established the Farmland Protection Program and the Land Evaluation and Site Assessment (LESA), which are discussed below.

Farmland Protection Program

The NRCS administers the Farmland Protection Program, a voluntary program aimed at keeping productive farmland in agricultural uses. Under the Farmland Protection Program, NRCS provides matching funds to state, local, or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements. The goal of the program is to protect between 170,000 and 340,000 acres of farmland per year (USDA-NRCS, 2010c). Participating landowners agree not to convert the land to nonagricultural use and retain all rights to use the property for agriculture. A minimum of 30 years is required for conservation easements and priority is given to applications with perpetual easements. NRCS provides up to 50 percent of the fair market value of the easement being conserved (USDA-NRCS, 2010c).

To qualify for a conservation easement, farmland must meet several criteria. The land must be:

- Prime, Unique, or other productive soil, as defined by NRCS based on factors such as water moisture regimes, available water capacity, developed irrigation water supply, soil temperature range, acid-alkali balance, water table, soil sodium content, potential for flooding, erodibility, permeability rate, rock fragment content, and soil rooting depth;
- Included in a pending offer to be managed by a nonprofit organization, state, tribal, or local farmland protection program;
- Privately owned;
- Placed under a conservation plan;
- Large enough to sustain agricultural production;
- Accessible to markets for the crop that the land produces; and
- Surrounded by parcels of land that can support long-term agricultural production.

In Butte County, the Farmland Protection Program is supplemented by the California Department of Conservation's Important Farmland Inventory System and Farmland Mapping and Monitoring Program, which are discussed in further detail under state regulatory programs below.

Land Evaluation and Site Assessment

Under the California Environmental Quality Act (CEQA), lead agencies may refer to the LESA model in their environmental analysis but are not required to do so. The LESA system ranks lands for suitability and inclusion in the Farmland Protection Program. LESA evaluates several factors, including soil potential for agricultural use, location, market access, and adjacent land use. These factors are used to numerically rank the suitability of parcels based on local resource evaluation and site considerations. The LESA system has spawned many variations, including the California LESA model described below.

STATE

California Department of Conservation

The Department of Conservation administers and supports a number of programs, including the Williamson Act, the California Farmland Conservancy Program, the Williamson Act Easement Exchange Program, and the Farmland Mapping and Monitoring Program. These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. The Department of Conservation is responsible for approving Williamson Act Easement Exchange Program agreements.

Important Farmland Inventory System and Farmland Mapping and Monitoring Program

As discussed above, the Important Farmland Inventory System initiated in 1975 by the U.S. Soil Conservation Service (now NRCS) classifies land based on ten soil and climatic characteristics. The Department of Conservation started a similar system of mapping and monitoring for California in 1980, known as the FMMP.

Under CEQA, the lead agency is required to evaluate agricultural resources in environmental assessments at least in part based on the FMMP. The state's system was designed to document how much agricultural land in California was being converted to nonagricultural land or transferred into Williamson Act contracts. The definitions of Important Farmland types are provided in the Farmland Mapping and Monitoring Program discussion in the Existing Setting section above.

California Land Evaluation and Site Assessment Model

The California LESA model was developed in 1997 based on the federal LESA system. It can be used to rank the relative importance of farmland and the potential significance of its conversion on a site-by-site basis. The California LESA model considers the following factors: land capability, Storie Index, water availability (drought and non-drought conditions), land uses within one-quarter mile, and "protected resource lands" (e.g., Williamson Act lands) surrounding the property. A score can be derived and used to determine if the conversion of a property would be significant under CEQA.

Williamson Act

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a nonmandated state program, administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. The act authorizes local governments and property owners to (voluntarily) enter into contracts to commit agricultural land to specified uses for ten or more years. Once restricted, the land is valued for taxation based on its agricultural income rather than unrestricted market value, resulting in a lower tax rate for owners. In return, the owners guarantee that these properties remain under agricultural production for an initial ten-year period. The contract is renewed automatically unless the owner files a notice of nonrenewal, thereby maintaining a constant ten-year contract. Currently, approximately 70 percent of the state's prime agricultural land is protected under this act. Prime Farmland under the Williamson Act includes land that qualifies as Class I and II in the Natural Resource Conservation Service (NRCS) classification of land or that qualifies for rating 80 to 100 in the Storie Index rating. Participation is on a voluntary basis by both landowners and local governments and is implemented through the establishment of agricultural preserves and the execution of Williamson Act contracts.

Termination of a Williamson Act contract through the nonrenewal process is the preferred method to remove the enforceable restriction of the contract. Cancellation is not appropriate when objectives served by cancellation could be served by nonrenewal. Cancellation is reserved for unusual, "emergency" situations. In order to approve tentative cancellation, a board or council must make specific findings based on substantial evidence that a cancellation is consistent with the purposes of the act or in the public interest. Contracts can specify that both findings must be made in order to approve tentative cancellation.

Farmland Security Zones

Farmland Security Zones (FSZs) were established by the legislature in 1998. FSZs are meant to protect participating Important Farmland from development pressure. An FSZ must be located within an agricultural preserve (area designated as eligible for a Williamson Act contract) and designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The agricultural and open space lands enrolled in the program are protected for a minimum of a 20-year term under an FSZ and are offered an even greater property tax reduction than land under a Williamson Act contract. This program has not been adopted by Butte County.

LOCAL

City of Chico Agricultural Preservation Standards

The City of Chico has Agricultural Preservation Standards as part of Section 19.64 of the Chico Municipal Code, which contains agricultural preservation provisions that require subdividers to disclose a property's proximity to farmland to prospective buyers and that limit the definition of a "nuisance" to exclude established farms operated according to commonly accepted farming practices (City of Chico, 1999).

Butte County's Right-to-Farm Ordinance

Butte County adopted a right-to-farm ordinance in 1981 (Chapter 35 of the Butte County Code). This ordinance seeks to conserve, protect, enhance, and encourage properly conducted agricultural operation on agricultural land in Butte County. The policy states that residents of

property in or near agricultural districts should be prepared to accept the inconveniences and discomfort associated with normal agricultural activities. The policy establishes that no properly conducted agricultural operations shall be or become a nuisance if the subject property is located near an agricultural operation on agricultural land, residents or users of the subject property may at times be subject to inconvenience or discomfort arising from that operation.

4.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, agricultural resource impacts are considered to be significant if the following could result from the implementation of the proposed General Plan Update:

1) Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

2) Conflict with existing zoning for agricultural use, or a Williamson Act contract.

3) Changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use.

METHODOLOGY

Evaluation of potential agricultural impacts of the proposed City of Chico General Plan Update was based on review of the current and proposed Butte County General Plan and Zoning Code and a field review of the Planning Area to better understand the current agricultural/land use interface. The agricultural analysis is based on information gathered from the Butte County General Plan Update and the Chico 2030 General Plan Update, the California Department of Conservation Farmland Conversion Reports, and the California Department of Conservation Important Farmlands Map. This analysis addresses direct impacts and losses of farmland as well as indirect impacts on agricultural uses (e.g., growth pressure to convert farmlands, conflicts between agricultural operations and urban land uses) as a result of the development of land use designations proposed under the General Plan Update as well as any roadway improvements and implementation of policy provisions.

The following proposed General Plan Update policies and actions address agricultural resources:

Policy LU-1.2 *(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form.*

Action LU-1.2.1 *(Greenline) – Retain the Greenline.*

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and open space uses are permitted within the buffer. Design criteria for buffers are as follows:*

- *Minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*

- *Incorporate vegetation, as may be needed to provide a visual, noise and air quality buffer.*

Action LU-6.2.2 *(Bell Muir SPA Planning) – Plan the Bell Muir SPA with primarily low density housing compatible with existing residential development and ongoing agricultural uses in the area. Subsequent planning will:*

- *Identify locations for community gardens or small-scale farms, and develop design guidelines and buffering requirements to address potential incompatibilities.*

- *Address infrastructure needs with particular attention to storm drainage and circulation, including north-south connections to East Avenue and improved access to State Route 32.*

- *Develop special lighting and street standards appropriate for the rural character of the area.*

Policy OS-5.1 *(Urban/Rural Boundary) – Protect agriculture by maintaining the Greenline between urban and rural uses.*

Policy OS-5.2 *(Agricultural Resources) – Minimize conflicts between urban and agricultural uses by requiring buffers or use restrictions.*

Action OS-5.2.1 *(Agricultural Buffers) – Require buffers for development adjacent to active agricultural operations along the Greenline to reduce incompatibilities.*

Policy OS-5.3 *(Protection of Agriculture) – Support continued agricultural use of farmlands outside of the City's Sphere of Influence.*

Policy OS-5.4 *(Preserve Agricultural Lands) – Permit the continued use of land within the City Limits for agricultural purposes while working with property owners to minimize impacts to and from productive agricultural operations.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant agricultural resource impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that protect agricultural resources and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Loss of and Conversion of Agricultural Land (Standards of Significance 1)

Impact 4.2.1 Implementation of the proposed General Plan Update would result in the conversion of important farmlands (Prime Farmland, Unique Farmland, Farmland of Statewide Importance) as designated by the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use. This is considered a **significant and unavoidable** impact.

According to the California Department of Conservation Important Farmland Map (2010) as indicated in **Table 4.2-4** and depicted in **Figure 4.2-1**, the Planning Area contains approximately 30,230 acres of Prime Farmland and 260 acres of Farmland of Statewide Importance (defined hereafter as "important farmlands"). The Planning Area also contains approximately 1,129 acres of Unique Farmland. Within the General Plan Planning Area, but outside of existing city boundaries, are approximately 66,986 acres of agricultural land, consisting of approximately 29,806 acres of Prime Farmland, 260 acres of Farmland of Statewide Importance, and 1,128 acres of Unique Farmland. As further indicated in **Table 4.2-4**, contained within the city boundaries are approximately 424 acres of Prime Farmland and approximately one acre of Unique Farmland.

The majority of important farmlands in the Planning Area outside of the General Plan Update proposed SOI are located west of the City. **Figure 4.2-3** illustrates the significant acreage of important farmland areas within the Planning Area. The majority of important farmlands in the Planning Area outside of the General Plan Update proposed SOI are designated for resource conservation or for agricultural use by the County, and would therefore not be affected by urban development. The proposed General Plan Update supports the existing Greenline by not proposing any urban development beyond it. General Plan Update Action LU-1.2.1 proposes to retain the Greenline.

The proposed Circulation Element identifies two roadway connections that are outside of the City's SOI: 1) Southgate Avenue Extension; and 2) Eaton Road Extension. The extension of Southgate Avenue west to Midway and the extension of Eaton Road west to the SR 32 would both cross the Greenline and result in the loss of a portion of important farmlands. These extensions are not expected to induce growth or additional conversion of agricultural lands outside of the Greenline given the proposed General Plan policy provisions that prohibit urban development on the agricultural side of the Greenline (Policy LU-1.2 and Action LU-1.2.1), and as neither the City nor County's General Plan updates identify new growth potential in these areas.

As demonstrated by **Figure 4.2-3**, development within the General Plan Update proposed SOI would largely avoid substantial loss of important farmlands west of SR 99. However, the proposed General Plan Land Use Diagram (see **Figure 3.0-3** in Section 3.0, Project Description), does designate residential and mixed-use land uses in areas within important farmland areas (see **Figure 4.2-3**). These areas include the North Chico Special Planning Area (SPA-1), the Bell Muir Special Planning Area (SPA-2), and the Pomona Avenue Opportunity Site (14) for a total conversion of 1,041.73 acres of Prime Farmland and 25.9 acres of Unique Farmland to urban uses. It is important to note that these areas are already identified for some level of urban development, in particular the North Chico SPA, which has been identified a mixed-use urban core by both the City and County for over a decade. General Plan Update Policy LU-2.6 requires buffering for new urban uses along the City's SOI adjacent to commercial crop production demonstrating a commitment to continued agricultural activities adjacent to these locations.

The intent of the proposed General Plan Update is to accommodate anticipated growth through compact, walkable, infill, and mixed-use development, as well as focusing redevelopment along transit corridors and at other key locations. For instance, Policy LU-1.2 seeks to maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form. The proposed General Plan Update and its Land Use Diagram would provide for this growth and would minimize outward expansion of the City's boundaries and would retain the current Greenline along the western boundary of the City. The General Plan identifies new growth areas (SPAs) with a mix of uses and higher density residential development. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid growth effects of sprawl development patterns on agricultural areas.

The City recognizes the importance of agricultural lands and is committed to protecting this resource as supported by its continued commitment to the Greenline (Action LU-1.2.1). The Greenline has been in place for over 30 years and restricts development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses and serves as an urban growth boundary to restrict the conversion of farmland. The Greenline is coordinated by both the City of Chico and Butte County, in order to provide a boundary between agricultural land uses and urban land uses.

Implementation of the proposed General Plan Land Use Diagram, however, would result in the potential conversion of important farmland acreage. It should be noted that several of these areas already have been approved for development and their project-specific impacts to the loss of important farmlands have been considered. The Final EIR for the Northwest Chico Specific Plan (State Clearinghouse No. 2004082087) concluded that development under the specific plan would result in a significant and unavoidable loss of important farmlands, but that the loss was appropriate given the need to accommodate future housing and jobs for a growing City population. This loss of important farmland is considered a **significant** impact**.**

Key themes of the proposed General Plan include the protection of agricultural resources and keeping urban growth limits. These themes reflect the City's desire to retain a compact urban form, and to emphasize infill and redevelopment, as well as new complete neighborhoods contiguous to existing urban areas. Much of the agricultural land currently within the SOI is surrounded by urban uses, and as a result it has been compromised and may not be considered "viable" agricultural land. The City recognizes the importance of agricultural lands and is committed to protecting this resource as supported by its continued commitment to the Greenline. The Greenline restricts development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses and serves as an urban growth boundary to restrict the conversion of farmland. However, the proposed General Plan Update would still displace areas currently in agricultural production and result in the conversion of important farmland. The proposed General Plan policies and actions described above do not completely offset the loss of important farmland and no feasible mitigation measures are available to avoid this impact. Therefore this impact is considered **significant and unavoidable**.

Agriculturally Zoned Lands and Williamson Act Contracts (Standard of Significance 2)

Impact 4.2.2 Implementation of the proposed General Plan Update would not involve any land use changes for parcels currently under a Williamson Act Contract. However, proposed land uses would result in the re-designation of some land

areas in the proposed Sphere of Influence, yet currently zoned for agriculture in the Butte County General Plan. Although these lands are under Butte County jurisdiction, City re-designation to non-agricultural uses would result upon annexation into the City. This is considered a **less than significant** impact.

As previously discussed and indicated in **Figure 4.2-2**, the Planning Area contains approximately 25,651 acres of land subject to Williamson Act contracts. While implementation of the proposed Land Use Diagram would eventually result in the re-designation of some land areas currently zoned for agriculture by Butte County to urban/rural uses (e.g., SPA-1 and Opportunity Site 14) (see Impact 4.2.1), the proposed Land Use Diagram does not propose conversion of land subject to Williamson Act contracts to urban uses. As shown in **Figure 4.2-2**, all lands subject to Williamson Act contracts in the Planning Area are outside of the General Plan Update proposed SOI. These lands are designated for resource conservation or for agricultural use by the County and would therefore not be affected by urban development. Development within the SOI proposed by the General Plan Update would avoid the loss of farmlands subject to Williamson Act contracts.

Future annexation of current zoned agricultural lands to the City would involve the re-zoning of these lands to a non-agricultural use in order to be consistent with the General Plan. This action would not constitute a conflict with agriculturally zoned lands. As discussed under Impact 4.2.1 (Loss of and Conversion of Agricultural Land), the City recognizes the importance of all agricultural lands and is committed to protecting this resource as supported by its continued commitment to the Greenline. Policy LU-1.2 seeks to maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form while General Plan Update Action LU-1.2.1 proposes to retain the Greenline. The Greenline has been in place for over 30 years and restricts development on the prime farmlands west of Chico, where many acres of Williamson Act contract lands exist, and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses and serves as an urban growth boundary to restrict the conversion of farmland. The Greenline is coordinated by both the City of Chico and Butte County, in order to provide a boundary between agricultural land uses and urban land uses.

Implementation of the proposed General Plan Update Land Use Diagram does not include the conversion of land subject to Williamson Act contracts to urban uses and would not result in conflicts with agriculturally zoned lands. Therefore, this impact is considered **less than significant.**

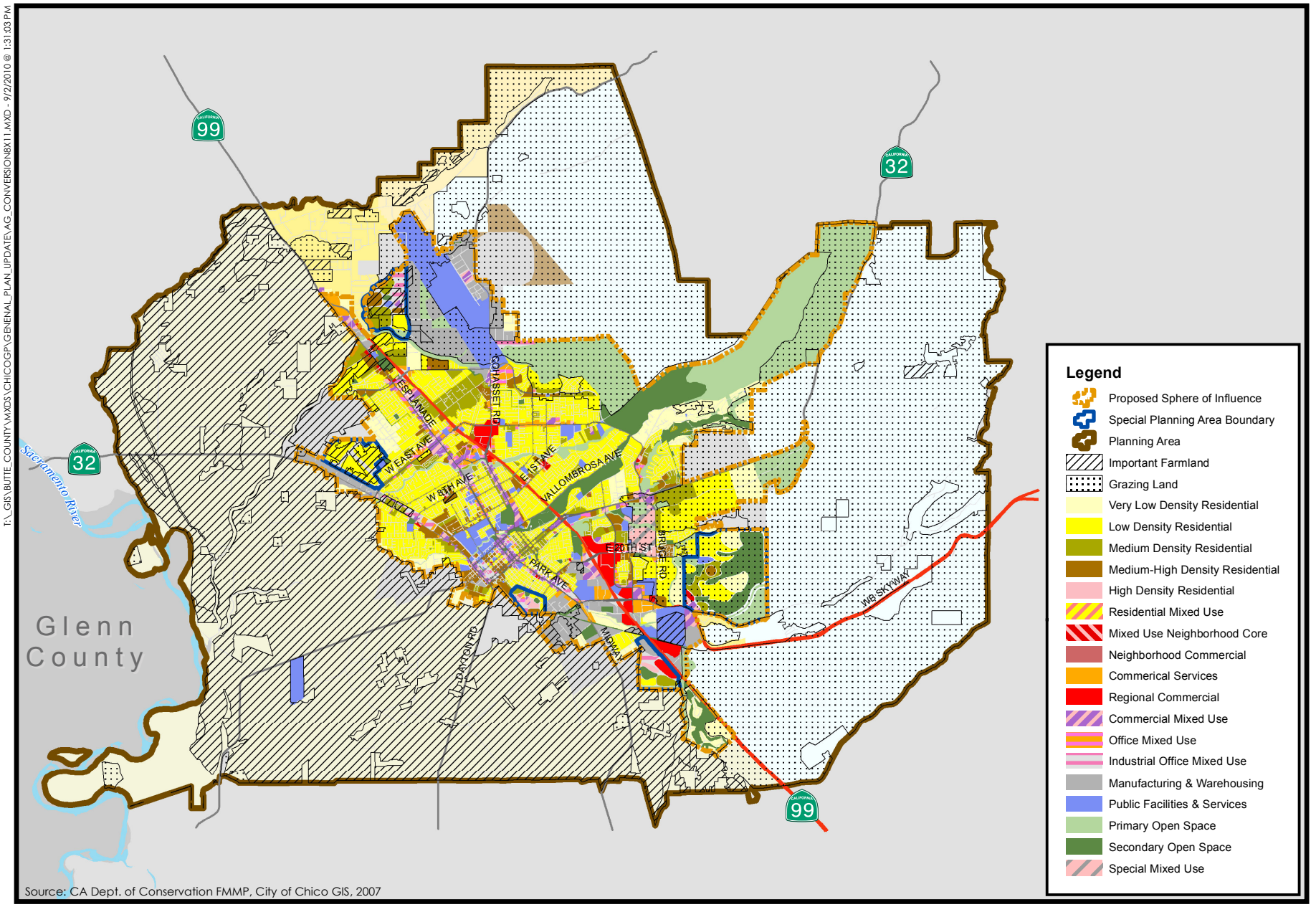

Figure 4.2-3
Farmland Impacts

PMC®

Agricultural/Urban Interface Conflicts (Standard of Significance 3)

Impact 4.2.3 Implementation of the proposed General Plan Update could result in changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use. However, policy provisions in the proposed General Plan Update and continued implementation of the City of Chico Agricultural Preservation Standards under the Municipal Code would ensure that agricultural operations are not adversely impacted. This is considered a **less than significant** impact

Implementation of the proposed City of Chico General Plan Update Land Use Diagram would place urbanized land uses adjacent to agricultural uses and would replace existing agricultural uses. It is anticipated that as the city builds out, new agriculture/urban interface conflicts could occur. **Figure 4.2-1** illustrates that there are important farmland areas adjacent to or near proposed urban land uses to the west and east of the city, including some agricultural lands within the city limits adjacent to residential, mixed-use, industrial, and commercial land uses.

The following types of agricultural and urban land use conflicts, inconveniences, or discomforts associated with normal agricultural operations related primarily to the growing of crops are expected to occur:

- Inconveniences or discomforts associated with dust, noise, and odor from agricultural operations;
- Restrictions on agricultural operations (such as pesticide application) along interfaces with urban uses;
- Conflicts with farm equipment and vehicles using roadways;
- Trespassing and vandalism on active farmlands; and
- The proximity of farmland to urban areas can create growth pressure to convert land to urban uses as a result of the above-mentioned conflicts and increases in property value.

As previously described above, the City of Chico has Agricultural Preservation Standards as part of Section 19.64 of the Chico Municipal Code, which contains agricultural preservation provisions that require subdividers to disclose a property's proximity to farmland to prospective buyers and that limit the definition of a "nuisance" to exclude established farms operated according to commonly accepted farming practices. Butte County also has a right-to-farm ordinance that protects agricultural operations. In addition to these requirements, development projects in the city have included in their design and/or been required to address buffers from agricultural uses. The proposed General Plan continues a policy of requiring 100-foot buffers between agricultural and urban uses (Policy LU-2.6). In addition, Policy LU-2.6 contains a provision to incorporate vegetation within these buffer areas in order to provide a visual, noise, and air quality buffer. Examples include the buffers provided in the Northwest Chico Specific Plan (Northwest Chico Specific Plan Draft EIR, pages 4.2-13 through -19).

In addition to Policy LU-2.6, the proposed General Plan Update Land Use Diagram will continue to uphold the Greenline along the perimeter of the Planning Area to buffer agricultural uses from urban land uses (see **Figure 3.0-3**).

General Plan policies call for the establishment of agricultural buffers and discourages urban encroachment onto agricultural lands. Since the Greenline has been in place for nearly 30 years, there are few vacant City properties adjacent to the Greenline. Add to this the fact that the 2030 General Plan does not propose new growth into new agricultural areas (barring the Bell-Muir SPA), and there simply are not many instances where future agricultural/urban interface conflicts exist. In order to address the potential urban encroachment resultant from implementation of the Bell-Muir SPA, proposed General Plan Update Action LU-6.2.2 states that the Bell-Muir SPA will be planned with primarily low density development housing compatible with existing residential development and ongoing agricultural uses in the area. Lighting and street standards will be developed for the rural character of the area and locations for community gardens or small-scale farms will be identified in the effort to adequately blend new development with the existing disposition.

Finally, larger undeveloped areas adjacent to the Greenline either are, or will be, subject to master planning provisions (e.g., Bell-Muir SPA, South Entler SPA, Diamond Match SPA, etc.), which provide a venue to address potential interface conflicts. Implementation of proposed General Plan Update policy and action described above and continued implementation of the City's agricultural preservation standards, as well as the preservation of the Greenline, would minimize agriculture/urban interface conflicts within and adjacent to the city's planned urban areas associated with nuisance effects. Specifically, it is expected that future development would design buffers that would consist of setbacks, and if necessary, landscaping to address site-specific conflicts. Therefore, this impact is considered **less than significant.**

4.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The City of Chico and the Planning Area are located in the northwestern portion of Butte County. As previously described, urban development within Butte County (including the unincorporated areas and the cities of Chico, Oroville, Gridley, and Biggs) has resulted in the loss of important farmland (see **Tables 4.2-5** and **4.2-6**) between 1988 and 2006. The existing and projected future urban development throughout the state is expected to further contribute to the loss of important farmlands.

The cumulative setting for agricultural resources impacts takes into account existing land use conditions, as well as planned and proposed development anticipated in the Planning Area under build-out conditions, including consideration of land uses under the proposed Butte County General Plan Update (see Section 4.0 for a further description of cumulative growth conditions). The geographic context for the analysis of cumulative agriculture resources impacts varies by threshold. The cumulative context for the analysis of the conversion of agricultural uses to other uses is Butte County. Any net loss of agricultural resources in Butte County is considered to be a cumulatively considerable impact. While the focus of the cumulative impact analysis is Butte County, it is acknowledged that cumulative important farmland conversion contributions by the proposed General Plan Update are of a statewide concern.

Because potential conflicts with Williamson Act contracts and agriculturally zoned land are site-specific and not cumulative in nature for the proposed General Plan Update, they are not addressed as cumulative impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts to Agricultural Resources (Standard of Significance 1)

Impact 4.2.4 Implementation of the proposed General Plan Update, along with regional and statewide growth, would result in a contribution to the conversion of important farmland. This is a **cumulatively considerable** and **significant and unavoidable** impact.

The proposed General Plan Update supports the Butte County Greenline by not proposing any development beyond it. As demonstrated by **Figure 4.2-3**, the proposed General Plan Update would avoid substantial loss of important farmlands west of SR 99. However, implementation of the proposed General Plan Update Land Use Diagram would result in the conversion of important farmland areas that are within planned development areas within the SOI (e.g., SPA-1 and Opportunity Site 14). While this loss of important farmland would be limited, it would still contribute to the loss of important farmland in the County as well as in the State. Since no cumulative threshold of acceptable important farmland loss has been established by the State or Butte County, any contribution is determined cumulatively considerable in this Draft EIR. As described under Impact 4.2.1, the proposed General Plan Update contains several policies and actions that would minimize agricultural land conversion. However, the cumulative impacts to agricultural resources from implementation of the plan would still be considerable.

As noted above, the Greenline is intended to restrict development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses to serve as an Urban Growth Boundary. However, the proposed General Plan Update would still result in the conversion of important farmland. The proposed General Plan policies and actions described above do not offset the loss of important farmland at the State-wide level. Thus, the contribution to cumulative impacts on agricultural resources is considered to be a **cumulatively considerable** and **significant and unavoidable** impact.

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4.3
POPULATION/HOUSING/EMPLOYMENT

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) analyzes the socioeconomic conditions in the City of Chico, including population characteristics, housing, and employment opportunities. Multiple data sources from different years were used for this analysis in order to present existing population trends and to develop reasonable housing and employment projections.

4.3.1 EXISTING SETTING

DEMOGRAPHICS

Population Trends

The City of Chico has grown steadily since 2000. The California Department of Finance (DOF) estimates that Chico's 2008 population is 86,949, an increase of 44 percent from the 2000 population of 60,516. In contrast, the population of Butte County grew by 8.5 percent during the same period, from 203,171 in 2000 to 220,407 to 2008 (DOF, 2008). **Table 4.3-1** details both city and county population trends since 2000. The high rate at which Chico's population has grown can be attributed to Chico's annexations of surrounding unincorporated areas. Annexations can also explain the county's comparatively minimal growth rate. For example, between 2000 and 2008, 12,098 housing units were added to the city, yet 10,568, or 87 percent, of those units were already existing and simply annexed from Butte County between 2000 and 2006. Based on historic growth trends, demographic and economic conditions, and community objectives and desires, the city is expecting 40,262 new residents and a total city population of 139,713 by the year 2030 (City of Chico, 2010).

TABLE 4.3-1
CITY OF CHICO AND BUTTE COUNTY POPULATION GROWTH

Year	City of Chico		Butte County	
	Population	Percent Change	Population	Percent Change
2000	60,516	N/A	203,171	N/A
2001	65,100	7.57%	205,150	0.97%
2002	66,975	2.88%	207,662	1.22%
2003	68,547	2.35%	210,235	1.24%
2004	71,207	3.88%	212,393	1.03%
2005	73,614	3.38%	214,280	0.89%
2006	78,787	7.03%	216,351	0.97%
2007	84,491	7.24%	218,312	0.91%
2008	86,949	2.91%	220,407	0.96%

Source: State of California Department of Finance. 2008. Table 2: E-5 City/County Population and Housing Estimates. Sacramento, California.

While there are several sources that identify population within the Chico city limits, there is no official tracking of population for the area within the greater Chico Sphere of Influence (SOI), which includes the lands within and some land outside, of the city limits. In order to determine the population of both the City of Chico and the city's current SOI, the Department of Finance figure for the 2008 population within city limits (86,949) is added to an estimate of the population living within the current SOI but outside the city limits. In 2008, the population of area within the current SOI was estimated to be 99,451 (City of Chico, 2010).

Household Trends and Demographics

The household is the basic unit of analysis in most microeconomic and government reports. According to the U.S. Census, a household includes all the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. People not living in households are classified as living in group quarters (U.S. Census Bureau, 2000). Between 2000 and 2008, the average number of persons per household decreased in the city from 2.4 persons per household in 2000 to 2.3 persons per household in 2008 (DOF, 2008).

Housing Units

According to the DOF, in 2000 there were a total of 24,386 housing units in the city. By 2008 the total number of units in the city grew by 50 percent to 36,484 units, which was a much higher rate of growth than that experienced by the county at 12 percent (**Table 4.3-2**). As discussed above, a large portion of the growth in the city, as well as the comparative low rate of growth in the County, is due to the city's annexation of existing units from surrounding unincorporated areas. In 2008, the number of housing units within the current SOI was estimated to be 41,438 (City of Chico, 2010).

TABLE 4.3-2
HOUSING TRENDS
CITY OF CHICO AND BUTTE COUNTY

Year	City of Chico				Butte County			
	Single-Family Housing Units	Multi-Family Housing Units	Mobile Homes	Total Housing Units	Single-Family Housing Units	Multi-Family Housing Units	Mobile Homes	Total Housing Units
2000	12,819	10,934	633	24,386	54,041	17,287	14,195	85,523
2002	13,720	12,176	1,131	27,027	55,592	17,479	14,290	87,361
2004	15,345	12,339	1,319	29,003	57,881	17,635	14,382	89,898
2006	17,900	13,563	1,401	32,864	59,783	18,242	15,358	93,383
2008	20,160	14,470	1,854	36,484	61,185	18,660	15,847	95,692
Total Change 2000 to 2008	7,341	3,536	1,221	12,098	7,144	1,373	1,652	10,169
Percentage Change 2000 to 2008	57%	32%	193%	50%	13%	8%	12%	12%

Source: State of California Department of Finance. 2008. Table 2: E-5 City/County Population and Housing Estimates. Sacramento, California.

Household Size

Household size refers to the number of persons in a household. As reported by 2008 projections from Claritas (a data firm) and shown in the *City of Chico Housing Element 2009-2014*, Chico's average household size has declined by less than 1 percent since the 2000 U.S. Census, which is a minor

change and reflective of an increasing single population (15 percent) and non-family population (5 percent), which was slightly higher than the growth of family households (16 percent). In 2008, the average household size in the city was 2.41 persons per household (City of Chico, 2009).

Household Income

The California Department of Housing and Community Development (HCD) determined, based on the number of persons per household, that the 2008 area median income (AMI) for Butte County was $54,500. The 2008 AMI for the City of Chico was $46,350, an increase from the 2000 AMI of $29,359 (City of Chico, 2009). Household incomes in both Chico and Butte County were less than the California statewide median household income of $67,800.

Tenure

Tenure describes the proportion of housing unit renters to owners. The majority of households in the city are renter-occupied (58 percent in 2008). The ownership rate in the city in 2008 was 42 percent. **Table 4.3-3** illustrates the ratio of owners versus renters in the City of Chico in 2000 and 2008. As shown in **Table 4.3-3,** the proportion of owner-occupied housing units as compared to the number of available units increased very slightly from 2000 to 2008.

TABLE 4.3-3
CHICO HOUSEHOLD TENURE

	2000		2008	
	Number	Percentage	Number	Percentage
Owner-Occupied	9,269	40%	11,131	42%
Renter-Occupied	14,105	60%	15,389	58%
Total Occupied	23,374	100%	26,520	100%

Source: City of Chico. August 2009. City of Chico Housing Element 2009-2014.

Housing Unit Vacancy

Vacancy trends in housing are analyzed using a "vacancy rate," which establishes the relationship between housing supply and demand. For example, if the demand for housing is greater than the supply, then the vacancy rate is low and the price of housing will most likely increase. According to the California HCD's *Raising the Roof, California Housing Development Projections and Constraints, 1997–2020,* the desirable vacancy rate in a community is considered to be 5 percent. Generally, when the vacancy rate drops below 5 percent, the demand for housing exceeds the supply and prospective buyers and renters may experience an increase in housing costs.

The City of Chico had an overall vacancy rate of 3.34 percent in 2008, which was half of the vacancy rate of 6.46 for the County (City of Chico, 2009). **Table 4.3-4** shows the housing vacancy rates in Chico and Butte County from 2000 to 2008. As shown, the city's vacancy rate decreased slightly between 2007 and 2008 but otherwise remained consistent at 3.73 percent. The county's vacancy rate has declined steadily every year since 2000.

TABLE 4.3-4
HOUSING VACANCY STATUS
CITY OF CHICO AND BUTTE COUNTY

Year	Vacancy Rate	
	City of Chico	Butte County
2000	3.73%	6.97%
2001	3.73%	6.87%
2002	3.73%	6.85%
2003	3.73%	6.83%
2004	3.73%	6.79%
2005	3.73%	6.75%
2006	3.73%	6.65%
2007	3.73%	6.65%
2008	3.34%	6.64%

Source: City of Chico. August 2009. City of Chico Housing Element 2009-2014. State of California Department of Finance. 2008. Table 2: E-5 City/County Population and Housing Estimates. Sacramento, California.

Employment

According to the California Employment Development Department, the labor force for Chico comprised 34,200 people in 2008. In the same year, the unemployment rate in Chico was 7.8 percent, or 2,700 people (EDD, 2008). Major employers in Chico are concentrated in medical, education, food distribution services, and commercial. **Table 4.3-5** shows the number and percentage of jobs by employer in the city.

TABLE 4.3-5
EMPLOYMENT BY INDUSTRY – CHICO

Employer	Year 2008	
	Number	Percentage
Enloe Medical Center	2,400	29.6%
Chico Unified School District	1,443	17.8%
California State University, Chico	1,000	12.3%
Associated Students California	920	11.4%
City of Chico	518	6.4%
Sierra Nevada Brewery	325	4.0%
Raley's	245	3.0%
Aero Union	240	3.0%
Costco Wholesale Corp.	220	2.7%
Sungard Public Sector	208	2.6%
Association for Retarded Citizens	200	2.5%

Employer	Year 2008	
	Number	Percentage
Addus Healthcare Inc.	200	2.5%
Improvement Direct	185	2.3%

Source: City of Chico. August 2009. City of Chico Housing Element 2009-2014.

4.3.2 REGULATORY FRAMEWORK

FEDERAL

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, is a federal law establishing minimum standards for federally funded programs and projects that include the acquisition of real property or displacement of persons from their homes, businesses, or farms. The act applies to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects. Regulations implementing the act are found at 49 CFR 24.

Section 104(d) of the Housing and Community Development Act provides minimum requirements for federally funded programs or projects when units that are part of a community's low-income housing supply are demolished or converted to a use other than low- or moderate-income housing.

Section 104(d) requirements include:

- Replacement, on a one-for-one basis, of all occupied and vacant occupiable low- or moderate-income housing units that are demolished or converted to a use other than low- or moderate-income housing in connection with an activity assisted under the Housing and Community Development Act, and

- Provision of certain relocation assistance to any lower-income person displaced as a direct result of the following activities in connection with federal assistance:

  – Demolition of any housing unit, or

  – Conversion of a low- or moderate-income housing unit to a use other than a low- or moderate-income residence.

STATE

California Relocation Statute – Government Code Section 7260

California Government Code section 7260 et seq., establishes policies for the fair treatment of, and relocation assistance for, persons displaced as a result of programs or projects undertaken by a public agency. Regulations implementing these policies are found at 25 CCR section 6000 et seq.

Housing Element Law – Article 10.6 of the Government Code, Sections 65580–65589.8

The California Legislature has declared the attainment of affordable housing and a suitable living environment for every Californian to be of vital importance. Attaining the state's housing goals requires efforts from all sectors including the private sector and all levels of government. Each local

government has power to facilitate the improvement and development of housing for all economic segments of the community accounting for economic, environmental, and fiscal factors as well as community goals and regional housing needs. One tool used by local governments to achieve these goals is the housing element of the general plan. The housing element identifies and analyzes existing and projected housing needs and presents goals, policies, quantified objectives, and programs to address those needs. Housing elements also provide implementation measures for these programs. Housing elements must be updated at least every five years. The current City of Chico Housing Element was adopted by the city in August 2009.

Redevelopment Housing Set-Aside

State law requires the Chico Redevelopment Agency to set aside a minimum of 20 percent of all tax increment revenue generated from redevelopment projects for affordable housing. The agency's set-aside funds must be used for activities that increase, improve, or preserve the supply of affordable housing. Current redevelopment law requires that all new or substantially rehabilitated housing units developed or otherwise assisted with the Redevelopment Agency's set-aside funds must remain affordable to the targeted income group for at least 55 years for rentals and 45 years for ownership housing. The Chico Redevelopment Agency anticipates generating $7,452,209 by Fiscal Year 2013–2014 for the Low and Moderate Income Housing Fund (LMIHF). The LMIHF will primarily be used for the First-Time Homebuyer Program, assistance to at-risk units, assistance to new construction of affordable units, and other eligible housing activities.

LOCAL

Regional Housing Needs Plan

California Government Code Section 65584 requires the State Department of Housing and Community Development, in consultation with local councils of governments, to determine each region's existing and projected housing needs. Each council of governments is then required to adopt a Regional Housing Needs Plan (RHNP) that allocates a share of the regional housing need to each city and county. The RHNP, setting forth the allocation of the City of Chico's fair share of regional housing, is developed by the Butte County Association of Governments (BCAG). The RHNP allocates fair share needs based on household income groupings over the five-year planning period for each specific jurisdiction's housing element.

The intent of the RHNP is to ensure that local jurisdictions address the needs of their immediate areas and have the ability to provide their share of housing needed for the entire region.

Regional Housing Needs Plans are also intended to assure that every community provides an opportunity for a mix of affordable housing to serve all economic segments of its population. Housing elements are required to demonstrate that there are adequate sites and appropriate zoning to address existing and anticipated housing demands during the planning period and that market forces are not inhibited in addressing the housing needs for all facets of a particular community.

BCAG assigned Chico a Regional Housing Needs Assessment allocation of 5,716 units for the 2007–2014 planning period. According to Table 1 of the Chico Housing Element, 2007 to 2014 Regional Housing Needs Plan, the allocations by income level were extremely low income – 780 units; very low income – 780 units; low income – 1,007 units; moderate income – 960 units; and above moderate income – 2,189 units (City of Chico, 2009).

City of Chico General Plan Housing Element

The Housing Element was adopted in August 2009 and serves as Chico's primary policy document regarding the development, rehabilitation, and preservation of housing for all economic segments of the population within its jurisdiction. The Housing Element identifies and analyzes existing and projected housing needs of Chico and states goals, policies, and actions for the preservation, improvement, and development of housing. The Housing Element also identifies sites for housing development that are adequate to accommodate the city's allocation of the regional housing need. The goals, policies, and actions are classified into seven different categories as follows:

- Equal housing opportunity
- Provide affordable housing
- Range of housing choices
- Provide special housing needs
- Improvement, rehabilitation, and revitalization/reinvestment of existing housing
- Increase the homeownership
- Energy-efficient resources in new/existing housing

4.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

According to CEQA Guidelines Section 15131(a), economic or social effects of a project are not treated as significant effects on the environment. If the proposed project were to cause physical changes as a result of economic or social changes, then the physical effects (for example, the destruction of habitat resulting from housing construction to accommodate increased population) could be considered significant. This analysis evaluates the project's impacts on population and housing based on the standards of significance identified in the State CEQA Guidelines Appendix G. A population and housing impact is considered significant if implementation of the project would:

1) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

3) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

METHODOLOGY

Demographic and housing conditions were determined utilizing existing documents and other information sources. Information was gathered and reviewed from the U.S. Census Bureau, the California Department of Finance, the California Employment Development Department, and the Butte County Association of Governments. The City of Chico Website and Housing Element were

additional sources of information on housing and socioeconomic conditions as well as on city housing policy. The BAE City of Chico General Plan Update Market Opportunity and Land Absorption Projections Report (2008) was also utilized in this analysis.

The proposed General Plan Update includes development assumptions for build-out of the Land Use Diagram. The methodology used is intended to provide an accurate estimate of future development without overstating impacts by establishing estimated average future development assumptions, rather than simply calculating maximum development potential and corresponding capacity.

The land use assumptions were applied to acreage figures by land use designation (including special assumptions for the Downtown and transit corridors) and development type (e.g., new growth area, infill, underutilized opportunity sites, and existing conditions with no change assumption). For example, the majority of mixed-use designations allow, rather than require, a combination of uses, so for the Commercial Mixed Use designation, the land use assumptions presume that some commercial mixed-use sites would be developed exclusively with commercial uses and others would involve some integration of residential and/or office uses. This estimates the average distribution.

Utilizing the development assumptions about land use mix and distribution, site development considerations, and employment factors, the proposed General Plan Update provides average housing and employment factors by development type (e.g., new growth versus infill). Specifically, the proposed General Plan Update develops estimated average density, employment, and floor area ratio factors for each General Plan land use designation in new growth areas, infill, underutilized sites, and existing development. Furthermore, the proposed General Plan Update estimates the percentage of gross land that would be removed from development potential for major infrastructure (roads and utilities). Depending upon land use type and location, this number varies in order to provide a realistic build-out condition.

As further described in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, the proposed General Plan Update is not expected to reach build-out until after the year 2030. Build-out under the proposed General Plan Update would result in the following conditions (see **Table 3.0-1** for further details on build-out conditions):

- Total residential dwelling units: 62,933
- Total population: 151,039
- Total nonresidential square feet: 41,604,485
- Total employees: 68,466

The following proposed General Plan Update policies and actions address population, housing, and employment:

Policy LU-1.2 *(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form.*

Action LU-1.2.1 *(Greenline) – Retain the Greenline.*

Policy LU-1.3 *(Growth Plan) – Maintain balanced growth by encouraging infill development where City services are in place, and allowing expansion into Special Planning Areas.*

Action LU-1.3.1 *(Public Investment in Infrastructure) – When setting priorities for public infrastructure spending, consider improvements which will support development and redevelopment of the designated Opportunity Sites.*

Policy LU-5.1 *(Opportunity Sites) - Facilitate increased density and intensity of development and revitalization in the following Opportunity Sites:*

- *Central City Opportunity Sites - Downtown, South Campus, and East 8th and 9th Street Corridors.*
- *Corridor Opportunity Sites - North Esplanade, Mangrove Avenue, Park Avenue, Nord Avenue, and East Avenue.*
- *Regional Center Opportunity Sites - North Valley Plaza, East 20th Street, and Skyway.*
- *Other Opportunity Sites - The Wedge, Vanella Orchard, Pomona Avenue, and Eaton Road.*

Action LU-5.1.1 *(Incentives for Opportunity Site Development) – Utilize City incentives identified in Action LU-2.3.1 to promote infill development, redevelopment, rehabilitation, and mixed-use projects in the designated Opportunity Sites.*

Action OS-5.2.1 *(Agricultural Buffers) – Require buffers for development adjacent to active agricultural operations along the Greenline to reduce incompatibilities.*

Policy CD-2.2 *(City Edge) – Maintain a clear City edge and establish a sense of entry and arrival to the City.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant population, housing, and employment impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Substantial Increase in Population and Housing (Standard of Significance 1)

Impact 4.3.1 Subsequent land use activities associated with implementation of the proposed General Plan Update would accommodate anticipated residential and employment anticipated by the year 2030 as well as additional growth capacity beyond the year 2030. This is considered a **less than significant** impact.

As part of the development of the proposed General Plan Update, a projection of residential and nonresidential (retail, commercial, office, industrial, and other uses) demands for the city for the year 2030 based on a continued two percent growth rate was conducted (BAE City of Chico General Plan Update Market Opportunity and Land Absorption Projections [2008]). A comparison of year

2030 demands and total growth potential under the proposed General Plan Update is provided in **Table 4.0-1**. As demonstrated in **Table 4.0-1**, the proposed General Plan Update growth capacity would exceed the city's anticipated needs for year 2030 for both residential and nonresidential growth. Specifically, proposed General Plan Update growth capacity would exceed the city's anticipated housing needs by 31 percent, or 5,119 units, and nonresidential employment needs by 23 percent, or 4,730 employees. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its build-out potential be attained and that additional land capacity beyond the projected need provides a land supply "buffer" to address the fact that not all of the identified land will be available for development at any given time based on landowner willingness to sell or develop, site readiness, environmental constraints, market changes, and other factors.

Furthermore, as identified in Section 3.0, Project Description, the intent of the proposed General Plan Update is to accommodate anticipated growth through compact, walkable, infill, new complete neighborhoods and mixed-use development, as well as focusing redevelopment along transit corridors and at other key locations. The proposed General Plan Update and its Land Use Diagram would provide for this growth, minimize outward expansion of the city's boundaries, and retain the current Butte County Greenline along the western boundary of the city. The Land Use Element of the General Plan requires the city to maintain the long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east and to limit expansion north and south to produce a compact urban form. Given that a compact urban form seeks to make efficient use of existing infrastructure and public services and to provide higher densities and intensities of development, this approach to accommodating the city's future growth would reduce the environmental effects of that growth by directing new population towards existing developed areas, public facilities, and transit, thereby reducing vehicle miles travelled and air pollution. There are also policies throughout the General Plan that provide incentives to encourage infill and redevelopment, which is required in order to reach the goal of accommodating future housing and job needs within a compact urban form. For example, the Land Use Element requires the city to maintain a tiered development fee program where different types of development have different impacts and to provide city incentives to promote infill development such as priority project processing, deferral of development impact or permit fees, flexibility in development standards such as parking, setbacks, and landscaping requirements, density bonuses, and support for infrastructure upgrades. In addition, by requiring the city to maintain clear urban boundaries, the Land Use Element also ensures that the growth effects of sprawl development patterns, such as the loss of biological resources and the conversion of agricultural lands, are reduced.

In addition to these policy provisions, the proposed General Plan Update Land Use Diagram upholds the Greenline along the perimeter of the Planning Area (see **Figure 3.0-3** of Section 3.0, Project Description). The Greenline is intended to restrict development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses to serve as an Urban Growth Boundary, which is coordinated by both the City of Chico and Butte County, in order to provide a boundary between agricultural land uses and urban land uses.

Given that the General Plan policy framework supports a compact urban form and maintains urban boundaries, and that the Land Use Diagram upholds the Greenline, environmental impacts associated with population growth in the Planning Area are considered to be **less than significant**. The environmental effects of build-out under the proposed General Plan Update are addressed in the technical sections of this Draft EIR.

Displacement of a Substantial Number of Persons or Housing (Standards of Significance 2 and 3)

Impact 4.3.2 Subsequent land use activities associated with implementation of the proposed General Plan Update would not result in the displacement of substantial numbers of housing or persons. This is considered a **less than significant** impact.

As discussed under Impact 4.3.2 above, the intent of the proposed General Plan Update is to accommodate anticipated growth through a compact urban form that seeks to make efficient use of existing infrastructure and public services, thus minimizing the need for new or significantly expanded infrastructure that could be the impetus for the removal of housing units and/or businesses. Where new infrastructure will be required, roadway sizing and alignments set forth in the proposed General Plan Update were designed to largely avoid impacts to existing developed areas.

In addition, while implementation of the proposed General Plan Update does not directly result in the construction of any new development, the proposed General Plan Update would change land use designations in some areas not currently designated for growth (Special Planning Areas) and would allow for infill and redevelopment in the Downtown, along transit corridors, and at other key locations in the city. While new development and infill development would not result in displacement of housing or people, redevelopment of existing developments has the potential to result in some displacement of persons or housing. However, this displacement would be minimal and, as the proposed General Plan Update growth capacity would exceed the city's anticipated needs for year 2030 for both residential and nonresidential growth, it is unlikely that substantial numbers of housing or people would be permanently displaced or that such displacement would necessitate the construction of replacement housing elsewhere.

Implementation of the proposed General Plan Update will not displace substantial numbers of housing units or people and will not necessitate the construction of replacement housing elsewhere. No demolition or substantial change in land use designation that would result in the displacement of residents is proposed in the General Plan Update. Therefore, impacts associated with implementation of the proposed General Plan relative to displacement of a substantial number of persons or housing are considered **less than significant**.

4.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting condition includes the unincorporated rural communities surrounding the City of Chico, as well as the larger Butte County region, including the cities of Biggs, Chico, Gridley, and Oroville, the Town of Paradise, and the County of Butte (see regional growth projections under **Table 4.0-2** and **4.0-3**). Presented in **Table 4.0-2** and **4.0-3** are housing and population projections that the Butte County Association of Governments (BCAG) anticipates within Butte County by the year 2030. The cumulative setting also includes the proposed and approved large-scale development projects listed in **Table 4.0-4**.

The cumulative impact analysis herein focuses on whether the project's contribution to projected regional population growth would result in a cumulatively considerable environmental impact. The project's impact would be cumulatively considerable if, when considered with other existing, approved, proposed, and reasonably foreseeable development in the cumulative setting, it would contribute to substantial regional population growth.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Population and Housing Increases (Standard of Significance 1)

Impact 4.3.3 Subsequent land use activities associated with implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development, could result in a cumulative increase in population and housing growth in the City of Chico as well as in the surrounding Butte County region, along with associated environmental impacts. However, implementation of the proposed General Plan Update would accommodate anticipated residential and employment growth in an efficient and compact manner. This is a **less than cumulatively considerable** impact.

BCAG anticipates that growth within Butte County as a whole will occur at an annual rate of 2 percent. As discussed under Impact 4.3.1, the proposed General Plan Update would provide capacity to meet and potentially exceed the city's anticipated 2030 housing and employment needs. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its build-out potential be attained and that additional land capacity beyond the projected need provides a land supply "buffer" to address the fact that not all of the identified land will be available for development at any given time based on landowner willingness to sell or develop, site readiness, environmental constraints, market changes, and other factors. Furthermore, population growth in the city would be accommodated via infill and redevelopment at strategic locations throughout the City, as well as in Special Planning Areas to be developed as connected and complete neighborhoods with a mix of residential densities, employment, services, and retail, parks and open space. The proposed General Plan Update policy provisions and its Land Use Diagram would provide for growth with minimal outward expansion of the city's boundaries and would retain the current Greenline along the western boundary of the city. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid the growth effects of sprawl development patterns or induced growth in the larger Butte County region. Thus, this impact is considered **less than cumulatively considerable.**

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4.4
Human Health/Risk of Upset

This section provides information on safety hazards in the City of Chico, analyzes the proposed General Plan Update's potential to create hazards to the public health or the environment related to hazardous materials, substances, or waste, and identifies other potential hazards that may impact public safety. Impacts associated with the following hazards are addressed in the applicable section of this Draft Environmental Impact Report (Draft EIR or DEIR), as listed below:

- Rail safety, including at-grade crossings – Section 4.5, Traffic and Circulation
- Air quality hazards – Section 4.6, Air Quality
- Noise hazards – Section 4.7, Noise
- Geologic and seismic hazards, including soil contamination associated with septic tanks – Section 4.8, Geology and Soils
- Flooding and water quality hazards, including hazards from groundwater plumes and dam inundation – Section 4.9, Hydrology and Water Quality

In addition, it should be noted that the provision of fire protection services and solid waste services are discussed further in Section 4.12, Public Services and Utilities.

4.4.1 EXISTING SETTING

HAZARDOUS MATERIALS AND WASTE DEFINED

According to 22 California Code of Regulations (CCR) § 66261.20, the term hazardous substance refers to both hazardous materials and hazardous wastes and both are classified according to four properties: toxicity, ignitability, corrosiveness, and reactivity. A hazardous material is defined by 22 CCR § 66261.10 as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Public health is potentially at risk whenever hazardous materials are or will be used. It is necessary to differentiate between the hazard of these materials and the acceptability of the risk they pose to human health and the environment. A hazard is any situation that has the potential to cause damage to human health and the environment. The risk to health and public safety is determined by the probability of exposure, and to the inherent toxicity of a material (DTSC, 2009a).

Factors that can influence health effects when human beings are exposed to hazardous materials include the dose the person is exposed to, the frequency of exposure, the duration of exposure, the exposure pathway (route by which a chemical enters a person's body), and the individual's unique biological susceptibility.

Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been discarded, discharged, spilled, or contaminated or are being stored until they can be disposed of properly (22 CCR § 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific 22 CCR criteria. While hazardous substances are regulated by multiple agencies, as described under the heading Regulatory Framework below, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

HAZARDOUS AND CONTAMINATED SITES

Hazardous materials consist of substances that by their nature, lack of containment, and reactivity have the capability for inflicting harm. Hazardous materials can be toxic, corrosive, flammable, explosive, reactive, an irritant, or a strong sensitizer and include certain infectious agents, radiological materials, oxides, oil, used oil, petroleum products, and industrial solid waste substances. They are used in almost every manufacturing operation and by retailers, service industries, and homeowners. Hazardous material incidents are one of the most common technological threats to public health and the environment. Incidents may occur as the result of natural disasters, human error, or accident. Hazardous material incidents typically take three forms (Butte County, 2007):

- **Fixed facility incidents** – It is reasonably possible to identify and prepare for a fixed site incident, because laws require those facilities to notify state and local authorities about what is being used or produced there.

- **Transportation incidents** – Transportation incidents are more difficult to prepare for because it is impossible to know what materials could be involved until an accident actually happens.

- **Pipeline incidents** – Pipelines carry natural gas and petroleum. Breakages in pipelines carry differing amounts of danger, depending on where and how the break occurs and what is in the pipe.

Areas of Known Hazardous Contamination

Cortese List

The State of California Hazardous Waste and Substances Site List (also known as the Cortese List) is a planning document used by state and local agencies and by private developers to comply with CEQA requirements in providing information about the location of hazardous materials sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency to annually update the Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list.

DTSC's EnviroStor database provides DTSC's component of Cortese List data by identifying state response sites, federal Superfund sites, school cleanup sites, and voluntary cleanup sites. The EnviroStor database identifies sites that have known contamination or sites for which further investigation is warranted. It also identifies facilities that are authorized to treat, store, dispose, or transfer hazardous waste (DTSC, 2009b).

The EnviroStor database identifies 28 hazardous material sites in the Planning Area known to handle and store hazardous materials or associated with a hazardous material-related release or occurrence. The terms *release* and *occurrence* include any means by which a substance could harm the environment by spilling, leaking, discharging, dumping, injecting, or escaping. These sites are listed in **Table 4.4-1** and shown in **Figure 4.4-1**.

TABLE 4.4-1
KNOWN HAZARDOUS MATERIAL SITES IN THE PLANNING AREA
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Site/Facility Name	Address Description	Site/Facility Type	Cleanup Status
Chico – Skyway Subdivision Groundwater Plume	Hagen Lane/Skyway Avenue	State Response	Active[2]
Chico Groundwater – Central Plume	Chico Area Groundwater	State Response	Active
Chico Scrap Metal – 20th Street	878 E 20th Street	State Response	Active
First Avenue Cleaners	1082 E 1st Avenue	State Response	Active
North Valley Plaza Cleaners	801 East Avenue	State Response	Active
Bidwell Park Gun Range	Horseshoe Lake	Voluntary Cleanup	Certified
PG&E, Chico – 1	825 W 2nd Street	Voluntary Cleanup	Active
Chico Groundwater – Southwest Plume	Chico Area Groundwater	State Response	Active – Land Use Restrictions
Chico Municipal Airport	651 and 681 Liberator Street	State Response	Active – Land Use Restrictions
Victor Industries – 20th Street	365 E 20th Street	State Response	Active – Land Use Restrictions
Esplanade Cleaners	164 E 2nd Avenue	State Response	Backlog[3]
Flair Custom Cleaners	660 Mangrove Avenue	State Response	Backlog
Norge Village Cleaners	254 E 1st Street	State Response	Backlog
Allen Property Burn Piles	Esplanade and Nord Highway	Voluntary Cleanup	Certified[4]
Louisiana Pacific Corporation – Chico	West 16th Street	State Response	Certified/ Operation and Maintenance[5] – Land Use Restrictions
Asbury Environmental Services	2549 Scott Avenue	Hazardous Waste – Operating Permit	Evaluation Needed
Chico Drain Oil Service LLC	1618 W 5th Street	Hazardous Waste – Operating Permit	Evaluation Needed
Hignall Development	Bruce Road	Voluntary Cleanup	No Further Action[6]
Old Farm Estates Bruce Road	NW intersection of Hwy 32 and Bruce Road	Voluntary Cleanup	No Further Action
Beale Titan Site 1C	46.4 acres located 6 miles north of Chico	State Response	REFER: RWQCB[7]

Site/Facility Name	Address Description	Site/Facility Type	Cleanup Status
Chico Development, Inc.	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
Humboldt Road Burn Dump (HRBD)	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
Johnson Property (HRBD)[1]	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
Dunn Property (HRBD)	NE corner Bruce Road and Humboldt Road, Hwy 32	State Response	REFER: RWQCB
Mulkey Property (HRBD)	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
Rosellini Property (HRBD)	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
Scott Property (HRBD)	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB
West Property (HRBD)	Bruce and Humboldt Roads, Hwy 32	State Response	REFER: RWQCB

Source: Department of Toxic Substances Control, 2009b

Notes: [1] The HRBD consisted of a primary disposal area and other exposed disposal piles scattered over 13 parcels. Properties followed by (HRBD) are associated with the HRBD but are not part of the primary disposal area. It should be noted that the Regional Water Board Executive Officer issued Certificates of Completion for each of the Humboldt Road Burn Dump properties between December 2005 and December 2006. The Certificates confirmed that Site Investigations and Remedial Actions at the sites were satisfactorily completed by the Property Owners and permanent remedies were accomplished. (http://www.swrcb.ca.gov/rwqcb5/water_issues/site_cleanup/. Accessed August 19, 2010)

2 Active identifies that an investigation and/or remediation is currently in progress and that DTSC is actively involved, either in a lead or support capacity.

[3] Backlog identifies nonactive sites which DTSC is not currently investigating or remediating. These sites generally become active when staff and/or financial resources are available. Priorities for placing a site on backlog status versus active are based on the degree of long-term threat posed by the property. Before placing a property on backlog status, DTSC considers whether interim actions are necessary to protect the public and the environment from any immediate hazard posed by the property.

[4] Certified identifies completed sites with previously confirmed release that are subsequently certified by DTSC as having been remediated satisfactorily under DTSC oversight.

[5] Certified/Operation and Maintenance identifies sites that have certified cleanups in place but require ongoing operation and maintenance activities.

[6] No Further Action identifies completed sites where DTSC determined after investigation, generally a PEA (an initial assessment), that the property does not pose a problem to public health or the environment.

[7] Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the California Regional Water Quality Control Boards.

Leaking Underground Storage Tanks

Leaking underground storage tanks (LUST) are a significant source of petroleum impacts to groundwater and can also result in the following potential threats to health and safety (SWRCB, 2009):

- Exposure from impacts to soil and/or groundwater;
- Contamination of drinking water aquifers;

- Contamination of public or private drinking water wells; and
- Inhalation of vapors.

The SWRCB records soil and/or groundwater contamination caused by LUSTs in its Geotracker database. An inquiry through SWRCB's Geotracker database identified eight open LUST sites in the Planning Area (see **Table 4.4-2**). These sites are shown in **Figure 4.4-1**.

TABLE 4.4-2
OPEN LUST SITES IN THE PLANNING AREA

Site/Facility Name	Address Description	Cleanup Status
Gasmat #954	580 10th Avenue	Open – Assessment and Interim Remedial Action
Esplanade Arco	2538 Esplanade Street	Open – Remediation
Ledford Beacon	2233 Esplanade Street	Open – Remediation
Vanella Oil Company	1055 Mangrove Avenue	Open – Remediation
Chevron SS/One Stop Chico	2402 Cohasset Road	Open – Site Assessment
Municipal Services Center	901 Fir Street	Open – Site Assessment
Enloe Hospital Property	120 6th Avenue	Open – Verification Monitoring
Eric's Cable Car Wash	1625 Mangrove Avenue	Open – Verification Monitoring

Source: SWRCB, 2009

Hazardous Waste Treatment, Storage, and Disposal

The SWRCB's Land Disposal program regulates waste discharge to land for treatment, storage, and disposal in waste management units, which include waste piles, surface impoundments, and landfills. The Geotracker database identifies two Land Disposal program sites in the Planning Area: the Humboldt Road Burn Dump Operational Unit and the Humboldt Road Private Properties Operational Unit. The cleanup status for both sites is open but inactive.

The Humboldt Road Burn Dump is located on approximately 157 acres near the intersections of Bruce Road, Humboldt Road, and State Route 32. The City of Chico owned and operated the landfill/burn dump from the early 1900s to approximately 1965 when the Butte County Neal Road landfill was opened. Smaller-scale illegal dumping is believed to have continued at the dump beyond 1965, which consisted of a primary disposal area and other exposed disposal piles scattered over 13 parcels. Excavation and grading occurred through portions of the dump in 1982 related to installation of a sewer system and in 1986 related to the extension of Bruce Road. Analysis of soil samples collected from the dump indicated that lead was the primary contaminant of concern with elevated levels throughout the entire dump. Other chemicals detected in the soil included arsenic, antimony, dieldrin (a pesticide), and low concentrations of dioxin (DTSC, 2009b). The dump site was referred to the Regional Water Quality Control Board (RWQCB) for remediation in 2005. During the summer of 2005, the Chico Redevelopment Agency (RDA) completed the major portion of the remediation project and all contaminated

soil was placed into a containment cell and capped by the required date of August 15, 2005. The cleanup on the parcels west of Bruce Road was completed first and the RDA received a Certificate of Completion for these parcels from the RWQCB on December 22, 2005. On February 8, 2006, the RWQCB issued the RDA a Certificate of Completion for the two parcels located east of Bruce Road (City of Chico, 2009). On December 22, 2006, the RWQCB issued a final Certificate of Completion stating that the remainder of the Humboldt Road Burn Dump site had complied with the requirements of all state and local laws, ordinances, regulations, and standards that are applicable to the site investigation and remedial action.

The Planning Area also contains the only two permitted hazardous waste storage facilities in Butte County: Asbury Environmental Services and Chico Drain Oil Service. Asbury Environmental Services is currently operating a used oil transfer and storage facility under a Standardized Hazardous Waste Facility Permit which was initially issued in 1997 to Evergreen Oil Company and subsequently transferred to Asbury. The permit expired December 2007. Asbury has submitted a renewal application for the standardized permit; however, as of August of 2010, Asbury continues to operate under the expired permit (DTSC, 2010). Chico Drain Oil Service, LLC, is currently operating a hazardous waste storage and transfer facility in Chico that collects, consolidates, stores, and transfers used oil from off-site generators. It has been authorized to operate its storage facility pursuant to Standardized Permit Interim Status since 1993. On March 3, 2010, the DTSC issued a Standardized Hazardous Waste Facility Permit to Chico Drain Oil Service. The Permit is effective until March 2, 2020 (DTSC, 2010). The facility stores used oil in two storage tanks until they reach maximum capacity and then transports the used oil to a DTSC-authorized oil recycling facility (Pacific Land Advisors, 2008).

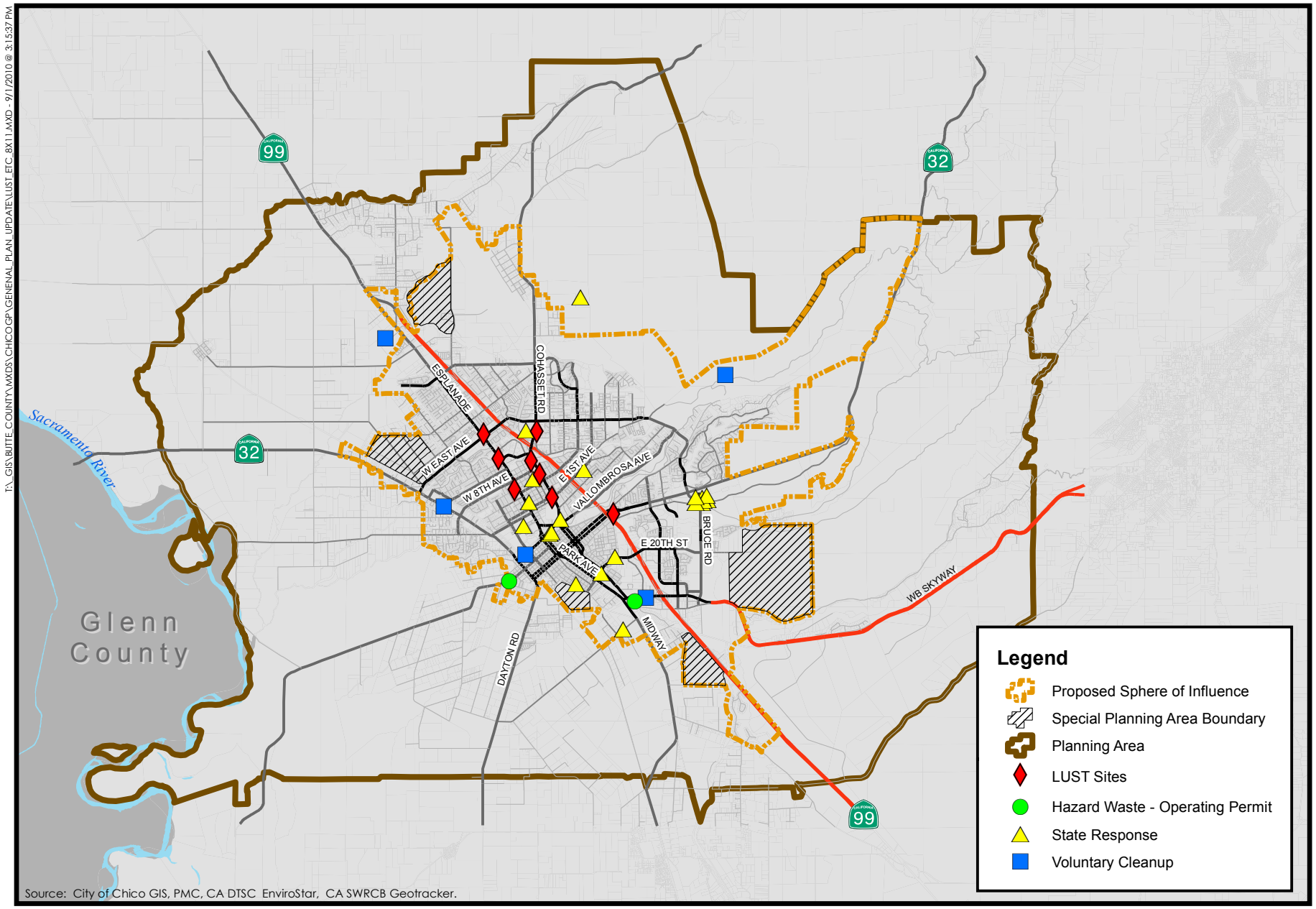


Figure 4.4-1
Hazardous Material Sites in the Planning Area

Household Hazardous Waste

Hazardous materials, used in many household products (such as drain cleaners, waste oil, cleaning fluids, insecticides, and car batteries), are often improperly disposed of as part of normal household trash. These hazardous materials can interact with other chemicals to create risks to people or cause soil and groundwater contamination. The California Department of Health Services and the city define household hazardous waste as any substance that is characteristic of one of the following:

- **Ignitability** – flammable (e.g., lighter fluid, spot and paint removers)
- **Corrosivity** – eats away materials and can destroy human and animal tissue by chemical action (e.g., oven and toilet bowl cleaners)
- **Reactivity** – creates an explosion or produces deadly vapors (e.g., bleach mixed with ammonia-based cleaners)
- **Toxicity** – capable of producing injury, illness, or damage to humans, domestic livestock, or wildlife through ingestion, inhalation, or absorption through any body surface (e.g., rat poison, cleaning fluids, pesticides, bleach)

In April 2002, Butte County assumed responsibility for a permanent household hazardous waste collection facility known as the Butte Regional Household Hazardous Waste Collection Facility (BRHHWCF). All Butte County residents are able to recycle and properly dispose of household hazardous waste at the BRHHWCF, which is located at the Chico Airport Industrial Park at 1101 Marauder Street and is operated under contract by A/C Industrial Services, Inc. The facility also accepts hazardous waste from small businesses who qualify as Conditionally Exempt Small Quantity Generators (City of Chico, 2009).

TRANSPORTATION OF HAZARDOUS MATERIALS

Hazardous materials transported through Butte County, including the Planning Area, are carried by truck on the state highway system or via the rail line. Registered hazardous waste haulers may use all county roadways to transport hazardous materials (Pacific Land Advisors, 2008). To date, regulators have not placed restrictions on roadways available for the transportation of hazardous waste (BCAG, 2008).

Hazardous materials are also regularly shipped via the Union Pacific Railroad, which runs through the Planning Area west of downtown Chico along the western boundary of California State University Chico paralleling State Route (SR) 32 and Midway to the north and south, respectively. Neither Butte County nor the City of Chico has control over the types of materials that are shipped via the rail line. Transported commodities can include chemicals, coal, food and food products, truck trailers and containers, forest products, grain and grain products, metals and minerals, and automobiles and parts. There are 14 crossings of the Union Pacific tracks in Chico, and, on an average day, 19 trains pass through the city on these railroad tracks.

KNOWN AND UNKNOWN HAZARDOUS MATERIALS IN THE CITY OF CHICO

Asbestos-Containing Building Materials

Structures constructed or remodeled between 1930 and 1981 have the potential to contain asbestos-containing building materials (ACBM). Asbestos is the name given to a number of

naturally-occurring fibrous minerals with high tensile strength, the ability to be woven, and resistance to heat and most chemicals. Because of these properties, asbestos fibers have been used in a wide range of manufactured goods, including roofing shingles, ceiling and floor tiles, paper and cement products, textiles, coatings, and friction products such as automobile clutch, brake, and transmission parts.

When asbestos-containing materials are damaged or disturbed by repair, remodeling, or demolition activities, microscopic fibers become airborne and can be inhaled into the lungs, where they can cause significant health problems. The current federal definition of asbestos is the asbestiform varieties of chrysotile (serpentine), crocidolite (riebeckite), amosite (cummingtonite/grunerite), anthophyllite, tremolite, and actinolite. A distinction is made between building materials that would readily release asbestos fibers when damaged or disturbed and those materials that were unlikely to result in significant fiber release. The terms *friable* and *nonfriable* are used to make this distinction. The U.S. Environmental Protection Agency (USEPA) has determined that, if severely damaged, otherwise nonfriable materials can release significant amounts of asbestos fibers. Friable asbestos-containing material (ACM) is defined by the Asbestos National Emission Standards for Hazardous Air Pollutants as any material containing more than 1 percent asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Friable ACM are also known as regulated asbestos-containing materials (RACM). Nonfriable ACM is any material containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. If nonfriable ACM becomes or is likely to become friable due to the forces expected to act upon the materials during renovation or demolition, they become an RACM. Exposure to airborne RACM may result in a potential health risk because persons breathing the air may breathe in asbestos fibers. Continued exposure can increase the amount of fibers that remain in the lung. Fibers embedded in lung tissue over time may cause serious lung diseases including asbestosis, lung cancer, or mesothelioma (USEPA, 2009a).

Lead

Lead is a toxic metal that was used for many years in a variety of products. Lead also can be emitted into the air from motor vehicles and industrial sources, and lead can enter drinking water from plumbing materials. Lead may cause a range of health effects, from behavioral problems and learning disabilities to seizures and death. Children six years old and under are most at risk. Research suggests that the primary sources of lead exposure are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated residential soil (USEPA, 2009b).

Lead dust can form when lead-based paint is dry scraped, dry sanded, or heated. Dust also forms when painted surfaces bump or rub together. Settled lead dust can re-enter the air when people vacuum, sweep, or walk through it. Lead in soil can be a hazard when children play in bare soil or when people bring soil into the house on their shoes (USEPA, 2009b). In addition, lead can be deposited in unpaved areas or formerly unpaved areas, primarily due to vehicle emissions.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) belong to a broad family of human-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their nonflammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic

equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications (USEPA, 2009c).

Prior to the 1979 ban, PCBs entered the environment during their manufacture and use in the United States. Today, PCBs can still be released into the environment from poorly maintained hazardous waste sites that contain PCBs, illegal or improper dumping of PCB wastes, leaks or releases from electrical transformers containing PCBs, and disposal of PCB-containing consumer products into municipal or other landfills not designed to handle hazardous waste. PCBs may also be released into the environment by the burning of some wastes in municipal and industrial incinerators (USEPA, 2009c). Once in the environment, PCBs do not readily break down and therefore may remain for long periods of time cycling between air, water, and soil. PCBs can accumulate in the leaves and aboveground parts of plants and food crops. They are also taken up into the bodies of small organisms and fish. PCBs have been demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system (USEPA, 2009c).

Residual Agricultural Chemicals

Historically, agriculture has been one of the major elements of Butte County's economic base, and although greater diversification of land use has occurred over the past decade, agriculture remains an active industry. In 2000, 3,237,656 pounds of active pesticide ingredients were applied to lands in Butte County (SIPMP, 2002). Pesticide use in the county has remained fairly consistent (just over 3 million pounds per year) since at least 1990, the earliest year for which data is available. The most commonly used pesticides included (SIPMP, 2002):

- borax
- captan
- chlorpyrifos
- copper hydroxide
- copper sulfate
- glyphosate, isopropylamine salt
- maneb
- methyl bromide
- mineral oil
- molasses
- molinate
- petroleum hydrocarbons
- petroleum oil
- propanil
- sulfur
- thiobencarb
- thiophanate-methyl
- ziram

Frequent applications of agriculture-related chemicals over time can eventually result in chemicals accumulating in the topsoil. Therefore, persistent residual chemicals may be present at differing levels in soils in the Planning Area. Exposure to pesticides can cause harm to humans, animals, or the environment because they are designed to kill or otherwise adversely affect living organisms.

NATURALLY-OCCURRING HAZARDOUS MATERIALS

Fibrous (Asbestiform) Minerals (Naturally-Occurring Asbestos)

Asbestos is the generic term for the naturally-occurring fibrous (asbestiform) varieties of six silicate minerals. These minerals are chrysotile, tremolite (when fibrous), actinolite (when fibrous), crocidolite (fibrous riebeckite), anthophyllite (when fibrous), and amosite (fibrous cummingonite-grunerite). Chrysotile, which belongs to the serpentine mineral group, and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults (DMG, 2000).

Asbestos is a known carcinogen, and exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a noncancerous lung disease which causes scarring of the lungs) (CARB, 2009). The asbestos content of many manufactured products has been regulated in the United States for a number of years. In 1998 new concerns were raised about activities that disturb rocks and soil containing naturally-occurring asbestos that could release asbestos-laden dust. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present (CARB, 2009).

Since natural asbestos occurs most commonly in association with ultramafic rocks, the presence of ultramafic rocks in a region indicates the possibility of naturally-occurring asbestos materials. The potential occurrence and distribution of naturally-occurring asbestos fibers in Butte County is documented by the California Department of Conservation, Division of Mines and Geology (DMG). According to the General Location Guide for Ultramafic Rocks in California, the Planning Area does not contain any areas that have been identified as containing ultramafic rock (DMG, 2000).

Radon Potential

Radon isotope-22 is a colorless, odorless, tasteless radioactive gas that comes from the natural decay of uranium that is found in nearly all soils. Current evidence indicates that increased lung cancer risk is directly related to radon-decay products. The amount of radon in the soil depends on soil chemistry, which varies depending on location. Radon levels in soil range from a few hundred to several thousands of pico curies per liter (pCi/L). The amount of radon that escapes from the soil to enter a building depends on the weather, soil porosity, soil moisture, and the suction within the building. The USEPA recommends radon control methods be used if the radon level is 4 pCi/L or higher (USEPA, 2009d).

The USEPA uses three zone designations in order to reflect the average short-term radon measurement that can be expected in a building without the implementation of radon control methods. The radon zone designation of the highest potential is Zone 1. Butte County, including the Planning Area, is in Zone 3, which indicates a predicted average indoor radon screening level less than 2 pCi/L, which is considered a low potential for radon (USEPA, 2009d).

AIRPORT OPERATIONS HAZARDS

Airport-related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Other airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate the imaginary surfaces surrounding an airport.

Public Airports

The City of Chico owns and operates one general aviation airport, the Chico Municipal Airport (CMA). The CMA is a modern integrated air facility capable of accommodating air carriers as well as commercial and general aviation planes. The CMA has one full-service fixed base operator (FBO) to provide services such as refueling, plane servicing, and flight training. The main runway is 6,722 feet and incorporates the use of high-intensity lighting GPS/VOR/ILS and Precision Approach Path Indicators (PAPI) in conjunction with other navigational aids to assist pilots. The air traffic control (ATC) tower is open from 7 a.m. until 7 p.m. seven days a week. The tower and all other navigational aids are maintained and operated by the Federal Aviation Administration (FAA). All communication runs through the tower or UNICOM, which is operated by the FBO (City of Chico, 2009).

The CMA is used for business, freight, firefighting aircraft, and general aviation serving the Chico and northern Sacramento Valley areas. In the 12-month period ending December 31, 2007, the CMA averaged 141 flights per day with 52 percent of those flights transient general aviation, 21 percent air taxi, 20 percent local general aviation, and the remaining 7 percent commercial and military flights (AirNav.com, 2010). The compatibility map adopted by the Butte County Airport Land Use Commission (ALUC) for the Chico airport is shown in **Figure 4.4-2**.

The ALUC adopted an Airport Land Use Compatibility Plan (ALUCP) pertaining to the CMA in 2000. The ALUCP establishes policies and guidelines by which the Butte County Airport Land Use Commission may assess the compatibility of development projects with the airport (see Regulatory Framework, below).

Privately Owned Airports

Ranchaero Airport is a privately owned airport located just west of the City of Chico, with the runway approximately 0.2 mile outside the city's Sphere of Influence. Ranchaero Airport is a 23.5-acre general aviation facility that serves a combination of recreational, flight training, agricultural, and limited business functions. A total of 39 aircraft are based at Ranchaero Airport, and annual aircraft operations are estimated at 5,000.

WILDLAND FIRES

A wildfire is an uncontrolled fire spreading through vegetative fuels, posing danger and causing destruction to life and property. Wildfires can occur in undeveloped areas and spread to urban areas where structures and other human development are more concentrated. A wildland-urban interface is an area where urban development has been located in proximity to open space, or "wildland" areas. Fires that occur in the wildland-urban interface areas affect natural resources as well as life and property. This type of fire is described as "a fire moving from a wildland environment, consuming vegetation for fuel, to an environment where structures and buildings are fueling the fire" (Butte County, 2007).

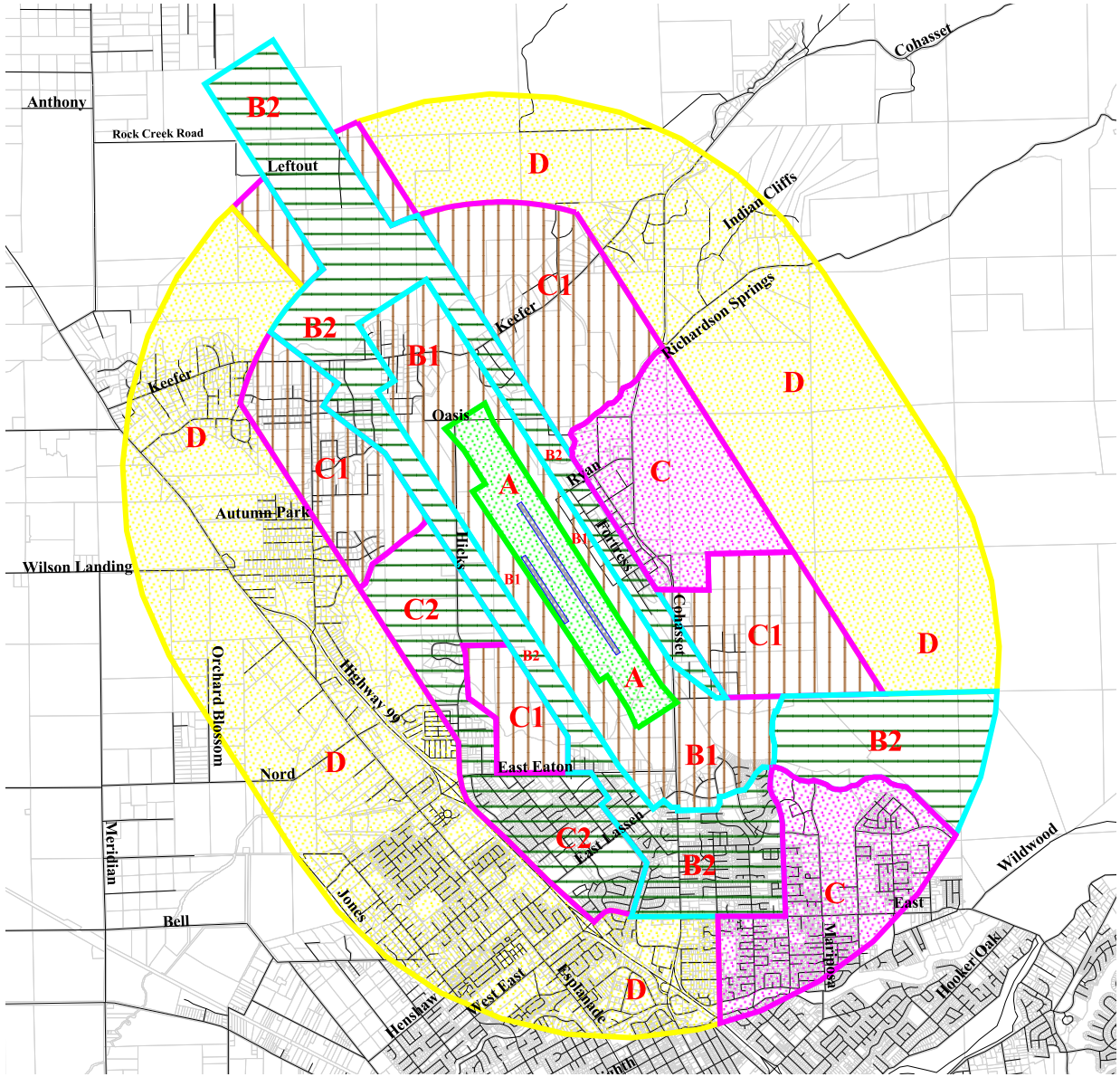
Wildland fire hazards (open space, rangeland, chaparral, and forested areas) exist in varying degrees over approximately 70 percent of Butte County, which has an extensive history of large damaging fires, most of which have burned in the wildland-urban interface area. During the past decade, Butte County has experienced several large and damaging wildfires in and around the wildland-urban interface areas. Most recently, the Butte Lightning Complex of fires burned 59,440 acres throughout Butte County, destroying 106 residences and 11 outbuildings in June and July of 2008. Also in June 2008 the Humboldt Fire burned 23,344 acres east of Chico at

State Route 32 and Humboldt Road on Stilson Canyon, and the Ophir Fire burned 1,600 acres near Highway 70 and Ophir Road, 2 miles south of Oroville (Cal-Fire, 2009).

The Planning Area includes significant foothill areas, and therefore is subject to the threat of wildland fires. Bidwell Park and the surrounding land, along with the foothills in the eastern Planning Area, are the areas most prone to wildland fires. These areas are classified as Very High Fire Hazard Severity Zones by the California Department of Forestry and Fire Protection (Cal-Fire), as discussed under the Regulatory Framework subsection below and shown in **Figure 4.4-3**. Fires to the east of Bruce Road receive a substantial first alarm augmentation because of the wildland fire risk. The grassy oak woodland in these areas can produce flame lengths exceeding 20 feet on hot summer days (Butte County, 2007).

Over the last 55 years, seven wildfires covering areas larger than 30 acres have been reported in Bidwell Park by Cal-Fire. The majority of these fires have burned through oak woodlands and chaparral along the north canyon face above Big Chico Creek in the Middle and Upper Park areas. The largest wildfire in recent park history was the Musty Buck Fire, which was started by lightning in August of 1999 and consumed 1,180 acres in the park and nearly 17,000 acres in Butte County (EDAW, 2008).

T:_CS\Work\Chico, City of\General Plan Update - 27-0146\FIGURES, July 2009



Planning Area

Legend

Compatibility Zones

- A — Runway Protection Zone
- B1 — Approach and Departure Zone and Sideline Zone
- B2 — Extended Approach and Departure Zone
- C — Traffic Pattern: Either C1 or C2
- C1 — Traffic Pattern: 1 Dwelling Unit Per Minimum 5 Acres
- C2 — Traffic Pattern: 4 Dwelling Units Or More Per Acre
- D — Other Airport Environs

Airport Runways

Butte County Roads

Butte County Parcels

Adopted: December 20, 2000

Figure "3A"

2000 0 2000 4000 6000 Feet

Source: Butte County Department of Development Services Planning Division

Figure 4.4-2

Chico Municipal Airport Adopted Compatibility Map

PMC®

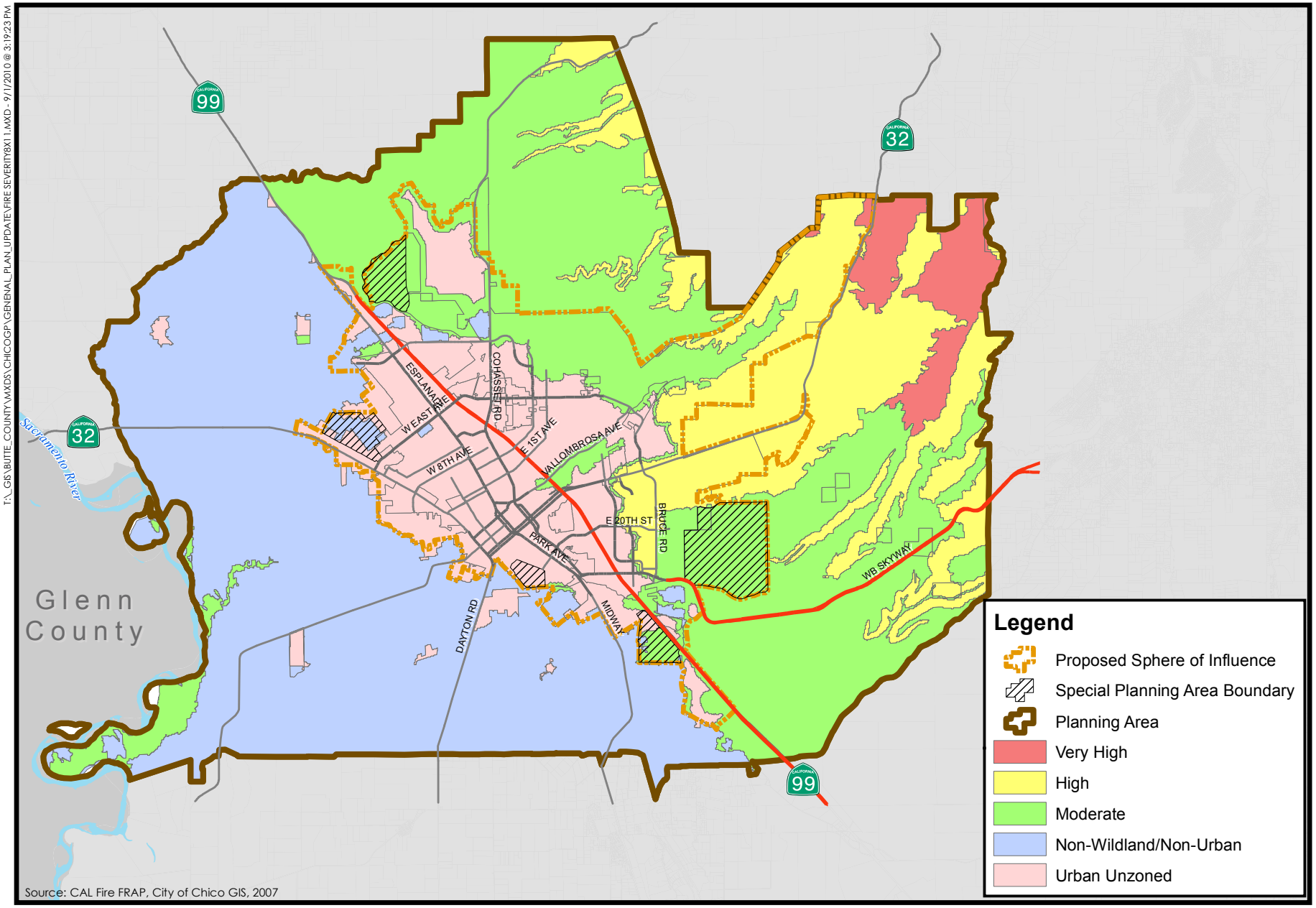


Figure 4.4-3
Fire Severity Zones

4.4.2 REGULATORY FRAMEWORK

FEDERAL – HAZARDOUS MATERIALS

Environmental Protection Agency

The United States Environmental Protection Agency (USEPA) provides leadership in the nation's environmental science, research, education, and assessment efforts with the mission of protecting human health and the environment. The USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress. The USEPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. The agency also performs environmental research, sponsors voluntary partnerships and programs, provides direct support through grants to state environmental programs, and advances educational efforts regarding environmental issues. The USEPA develops and enforces regulations that span many environmental categories, including hazardous materials. Specific regulations include those regarding asbestos, brownfields, toxic substances, underground storage tanks, and Superfund sites, as discussed below.

Federal Clean Water Act

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the act was significantly reorganized and expanded in 1972. The Clean Water Act became the act's common name with amendments in 1977.

The CWA implemented pollution control programs such as setting wastewater standards for industry and water quality standards for all contaminants in surface waters. The CWA also made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. USEPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges.

Federal Clean Air Act

The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes the USEPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. Section 112 of the Clean Air Act addresses emissions of hazardous air pollutants. Prior to 1990, the CAA established a risk-based program under which only a few standards were developed. The 1990 Clean Air Act Amendments revised Section 112 to first require issuance of technology-based standards for major sources and certain area sources. Major sources are defined as a stationary source or group of stationary sources that emit or have the potential to emit 10 tons per year or more of a hazardous air pollutant or 25 tons per year or more of a combination of hazardous air pollutants. For major sources, Section 112 requires that the USEPA establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants. These emission standards are commonly referred to as maximum achievable control technology, or MACT standards. Eight years after the technology-based MACT standards are issued for a source category, the USEPA is required to review those standards to determine whether any residual risk exists for that source category and, if necessary, revise the standards to address such risk (USEPA, 2009e).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) gives the USEPA the authority to control hazardous waste from "cradle-to-grave," including the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also set forth a framework for the management of nonhazardous solid wastes. The 1986 amendments to the RCRA enabled the USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

The Federal Hazardous and Solid Waste Amendments (HSWA) are the 1984 amendments to the RCRA that focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for the USEPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program (USEPA, 2009e).

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), provides a federal "superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, the USEPA was given power to seek out those parties responsible for any release and assure their participation in the cleanup. The USEPA is authorized to implement the CERCLA in all 50 states and in U.S. territories. Superfund site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies. The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definition clarifications, and technical requirements were added to the legislation, including additional enforcement authorities (USEPA, 2009e).

Small Business Liability Relief and Brownfields Revitalization Act

On January 11, 2002, the Small Business Liability Relief and Brownfields Revitalization Act was signed into law. The Brownfields Law amended the CERCLA by providing funds to assess and clean up brownfields, clarified CERCLA liability protections, and provided funds to enhance state and tribal response programs.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provides for federal regulation of pesticide distribution, sale, and use. All pesticides distributed or sold in the United States must be registered (licensed) by the USEPA. Before the USEPA may register a pesticide under the FIFRA, the applicant must show, among other things, that using the pesticide according to specifications "will not generally cause unreasonable adverse effects on the environment" (USEPA, 2009e).

FIFRA defines the term *unreasonable adverse effects on the environment* to mean: ''(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act" (USEPA, 2009e).

Occupational and Safety Health Act

Congress passed the Occupational and Safety Health Act (OSHA) in 1970 to ensure worker and workplace safety. The goal was to ensure that employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. OSHA is a division of the U.S. Department of Labor that oversees the administration of the act and enforces standards in all 50 states.

Toxic Substances Control Act of 1976

The Toxic Substances Control Act of 1976 (TSCA) provides the USEPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from the TSCA, including, among others, food, drugs, cosmetics, and pesticides. The TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon, and lead-based paint.

Various sections of the TSCA provide authority to:

- Require, under Section 5, pre-manufacture notification for "new chemical substances" before manufacture.
- Require, under Section 4, testing of chemicals by manufacturers, importers, and processors where risks or exposures of concern are found.
- Issue Significant New Use Rules (SNURs), under Section 5, when it identifies a "significant new use" that could result in exposures to, or releases of, a substance of concern.
- Maintain the TSCA Inventory, under Section 8, which contains more than 83,000 chemicals. As new chemicals are commercially manufactured or imported, they are placed on the list.
- Require those importing or exporting chemicals, under Sections 12(b) and 13, to comply with certification reporting and/or other requirements.
- Require, under Section 8, reporting and recordkeeping by persons who manufacture, import, process, and/or distribute chemical substances in commerce.
- Require, under Section 8(e), that any person who manufactures (including imports), processes, or distributes in commerce a chemical substance or mixture and who obtains information which reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment to immediately inform USEPA, except where USEPA has been adequately informed of such information.

In 2008 the USEPA expanded efforts to protect citizens from existing chemicals by making basic screening-level toxicity information on them publicly available with the Chemical Assessment and Management Program, or ChAMP (USEPA, 2009e).

U.S. Department of Transportation

Federal Hazardous Materials Transportation Law and Hazardous Materials Regulations

The federal hazardous materials transportation law (federal hazmat law), 49 U.S.C. Section 5101 et seq., is the basic statute regulating hazardous materials transportation in the United States. Section 5101 of the federal hazmat law states that the purpose of the law is to "protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce."

The Hazardous Materials Regulations (HMR), which implement the federal hazmat law, govern the transportation of hazardous materials by highway, rail, vessel, and air. The HMR address hazardous materials classification, packaging, hazard communication, emergency response information, and training. The Pipeline and Hazardous Material Safety Administration (PHMSA) also issues procedural regulations, including provisions on registration and public sector training and planning grants (49 CFR Parts 105, 106, 107, and 110). The Pipeline and Hazardous Material Safety Administration issues the HMR (PHMSA, 2009).

The Federal Motor Carrier Safety Administration

The Federal Motor Carrier Safety Administration issues regulations concerning highway routing of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials (PHMSA, 2009).

The Federal Aviation Administration

The Federal Aviation Administration issues regulations covering hazardous materials that are part of the required aircraft equipment. The FAA also regulates the transportation of radioactive materials on passenger-carrying aircraft when the material is intended for use in, or incident to, research or medical diagnosis or treatment (PHMSA, 2009).

FEDERAL – FIRE HAZARDS

Healthy Forest and Rangelands – National Fire Plan

Healthy Forests and Rangelands is a cooperative effort between the United States Department of the Interior (DOI), the United States Department of Agriculture (USDA), and their land management agencies. Healthy Forests and Rangelands provides fire, fuels, and land management information to government officials, land and fire management professionals, businesses, communities, and other interested organizations and individuals.

The National Fire Plan (NFP) was developed in August 2000, following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. The NFP addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. Finalized in August 2001 by the Department of the Interior and Department of Agriculture, the National Fire Plan outlines a coordinated national 10-year comprehensive strategy for the management of wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on federal and adjacent state, tribal, and private forest and rangelands in the United States. This approach recognizes fire as part of the ecosystem; focuses on hazardous fuels reduction, integrated vegetation management, and firefighting strategies; and allocates and

utilizes resources in a cost-effective manner on a long-term basis. An implementation plan of the National Fire Plan, completed in May 2002, designates general responsibilities for federal, state, and local agencies. The implementation plan was most recently updated in December 2006, with the goals of restoring fire-adapted ecosystems and reducing hazardous fuels in order to reduce risks to communities and provide economic benefits, as well as improve fire prevention and suppression (Healthy Forests and Rangelands, 2009).

FEDERAL – AIRPORT HAZARDS

CFR Federal Aviation Administration

The Federal Aviation Administration (FAA) is responsible for the safety of civil aviation in the United States. The Federal Aviation Act of 1958 created the agency under the original name of the Federal Aviation Agency. The FAA's major responsibilities include:

- Regulation of civil aviation to promote safety.
- Encouragement of the development of civil aeronautics, including new technology.
- Development and operation of a system of air traffic control and navigation for use by both civil and military aircraft.
- Research and development of the National Airspace System and civil aeronautics.
- Regulation of U.S. commercial space transportation.

FAA regulations, known as Federal Aviation Regulations (FARs), provide regulatory guidance for the operation, development, and construction of airports and aircraft as well as the training of and conduct of pilots of all civil types and ratings. Included in the FARs are specific regulations guiding the operation of airports and requirements related to development adjacent to airports. (14 CFR 77. FAR Part 77 pertains to objects affecting navigable airspace and establishes standards for determining obstructions in navigable airspace, sets forth the requirements for notice to the administrator of certain proposed construction or alteration, provides for aeronautical studies of obstructions to air navigation in order to determine their effect on the safe and efficient use of airspace, provides for public hearings on the hazardous effects of proposed construction or alteration on air navigation, and provides for the establishment of antenna farm areas.

STATE – HAZARDOUS MATERIALS

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) was created in 1991 by Governor's Executive Order. The six boards, departments, and office were placed under the CalEPA "umbrella" to create a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of state resources. The mission of CalEPA is to restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality (CalEPA, 2009).

Unified Program

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the following six environmental and emergency response programs (CalEPA, 2009):

- The Hazardous Waste Generator (HWG) program and Hazardous Waste Onsite Treatment activities
- The Aboveground Storage Tank (AST) program Spill Prevention Control and Countermeasure Plan requirements
- The Underground Storage Tank (UST) program
- The Hazardous Materials Release Response Plans and Inventory (HMRRP) program
- California Accidental Release Prevention (CalARP) program
- The Hazardous Materials Management Plans and the Hazardous Materials Inventory Statement (HMMP/HMIS) requirements

The Secretary of CalEPA is directly responsible for coordinating the administration of the Unified Program. The Unified Program requires all counties to apply to the CalEPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local Certified Unified Program Agency (CUPA) is required to consolidate, coordinate, and make consistent the administrative requirements, permits, fee structures, and inspection and enforcement activities for these six program elements in the county. Most CUPAs have been established as a function of a local environmental health or fire department.

The Butte County Environmental Health Department is the CUPA for Butte County. CalEPA periodically evaluates the ability of each CUPA to carry out the requirements of the Unified Program. A program evaluation of Butte County Environmental Health CUPA was conducted on November 14 and 15, 2007. The evaluation found that the Butte County Environmental Health CUPA's program performance is satisfactory with some improvement needed (CalEPA, 2007).

Department of Pesticide Regulation

Within CalEPA, the California Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's oversight begins with product evaluation and registration and continues through statewide licensing of commercial applicators, dealers and consultants, residue testing of fresh produce, and local permitting and use enforcement by agricultural commissioners in each of the state's 58 counties (CalEPA, 2009).

Air Resources Board

In 1967, California's Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus—the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board—to establish the California Air Resources Board (CARB). Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problem. CARB's mission is to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants,

while recognizing and considering the effects on the state's economy. CARB also oversees the activities of 35 local and regional air pollution control districts. These districts regulate industrial pollution sources, as well as issue permits, develop local plans to attain healthy air quality, and ensure that the industries in their area adhere to air quality mandates.

The Air Resources Board's statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner 1983) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987) supplements the Assembly Bill (AB) 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Under AB 1807, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)]. AB 1807 also requires CARB to use available information gathered from the AB 2588 program to include in the prioritization of compounds. This report includes available information on each of the above factors required under the mandates of the AB 1807 program.

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California, primarily under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. The U.S. Environmental Protection Agency authorizes DTSC to carry out the Resource Conservation and Recovery Act program in California. Permitting, inspection, compliance, and corrective action programs ensure that people who manage hazardous waste follow state and federal requirements. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. The following are descriptions of the roles and responsibilities of DTSC's organizational programs (DTSC, 2009a).

Site Mitigation and Brownfields Reuse Program

- **Statewide Cleanup Operations Division** – DTSC's Statewide Cleanup Operations Division conducts and oversees cleanup of sites contaminated with a toxic substance, coordinating all aspects of the cleanup from investigation through certification. Expediting this cleanup work is one of the most important goals of the program. DTSC created the Voluntary Cleanup Program, Expedited Remedial Action Pilot program, and other "Brownfields" tools to encourage redevelopment of blighted urban areas. DTSC also encourages property owners to investigate and clean up contamination through a combination of low-interest loans. In 2001, the Investigating Site Contamination and Cleanup Loans and Environmental Assistance to Neighborhoods (ISCP and CLEAN) programs received 11 loan applications totaling $7.9 million to investigate and clean up urban properties.

- **School Property Evaluation and Cleanup Division** – The School Property Evaluation and Cleanup Division works to ensure that all new, existing, and proposed school sites are environmentally safe. State law requires all proposed school sites that will receive state funding for purchase or construction to go through DTSC's rigorous environmental review.

If the properties were previously contaminated, DTSC Schools Division staff makes sure they have been cleaned up to a level that is safe for students and faculty.

- **Office of Military Facilities** – The Office of Military Facilities is responsible for investigation, technical assistance, and oversight of cleanup operations at contaminated California properties currently or previously operated by the Department of Defense.

- **Emergency Response and Statewide Operations Division** – DTSC's Emergency Response and Statewide Operations Division (ERSO) encompasses several elements. The Emergency Response Program provides immediate assistance in the case of sudden releases or threatened releases of hazardous materials. This program includes disaster response, illegal drug lab cleanup and developing remediation guidelines for illegal drug labs, and off-highway removal. ERSO also houses the Engineering and Geological Services Branch, which supports the other programs within DTSC by providing expert technical assistance. ERSO has lead responsibility for conducting cleanup and enforcement actions at several high-profile federal Superfund sites.

- **Planning and Management Branch** – The Planning and Management Branch is a headquarters organization responsible for developing and managing various federal grants which help fund the Site Mitigation and Brownfields Reuse Program. Staff analyze state and federal legislation, develop policy and procedure, coordinate the annual workplan, and perform consolidated budget and personnel functions. In addition, Site Mitigation and Brownfields Reuse maintains a database of confirmed and suspected hazardous waste substance release sites.

Hazardous Waste Management Program

The Hazardous Waste Management Program (HWMP) regulates hazardous waste through its permitting, enforcement, and Unified Program activities. The main focus of HWMP is to ensure the safe storage, treatment, transportation, and disposal of hazardous wastes.

- **Permitting & Corrective Action Division –** The Permitting Division authorizes facilities to treat, store, and dispose of hazardous waste in a manner consistent with federal, state, and local laws. Types of authorization include permits, emergency permits, and variances. The purpose of this process is to ensure that these facilities and their operators meet requirements for safe operating conditions, financial assurance, and environmental monitoring. In addition, the division conducts the corrective action and closure programs, including long-term maintenance of closed facilities for closed hazardous waste facilities.

- **Statewide Compliance Division –** The Statewide Compliance Division (SCD) monitors hazardous waste transfer, storage, treatment, and disposal facilities for illegal activity. SCD carries out a technical investigation program that provides sampling, technical site investigation, and expert testimony for civil and criminal investigations brought by the California Attorney General, district attorneys, regional environmental crimes task forces, and federal attorneys. Staff members conduct routine inspections, investigate complaints, monitor hazardous waste transporters and their manifests, and take enforcement action against those who violate hazardous waste laws. In addition, SCD makes sure that commercial hazardous waste management facilities have adequate financial resources to cover both sudden accidental liability and the long-term costs of closing the facility.

- **State Regulatory Programs Division –** The State Regulatory Programs Division (SRPD) oversees the implementation of the hazardous waste generator and on-site treatment program, one of the six environmental programs at the local level consolidated within the Unified Program. SRPD participates in the triennial review of 72 Certified Unified Program Agencies (CUPAs) to ensure that their programs are consistent statewide, conform to standards, and deliver quality environmental protection at the local level. SRPD also carries out the state's hazardous waste recycling and resource recovery program, a waste evaluation program to assist in waste determinations, and the household hazardous waste and agricultural chemical collection programs. The division conducts a corrective action oversight program that assures any releases of hazardous constituents at generator facilities that conduct on-site treatment of hazardous waste are safely and effectively remediated.

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) was created by the Legislature in 1967. The mission of the SWRCB is to ensure the highest reasonable quality for waters of the state, while allocating those waters to achieve the optimum balance of beneficial uses. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters.

Porter-Cologne Water Quality Control Act

In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act, the cornerstone of today's water protection efforts in California. Through it, the SWRCB and the nine Regional Boards are entrusted with broad duties and powers to preserve and enhance all beneficial uses of the state's surface and groundwater.

Land Disposal Program

The SWRCB's Land Disposal program regulates waste discharge to land for treatment, storage, and disposal in waste management units, which include waste piles, surface impoundments, and landfills. CCR Title 23, Chapter 15, contains the regulatory requirements for discharge of hazardous waste to land. The regulations establish waste and site classifications and waste management requirements for waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment facilities. The regulations also include minimum standards for proper management of each waste category. In addition, the regulations apply to cleanup and abatement actions for unregulated discharges to land of hazardous waste (e.g., spills).

California Department of Industrial Relations – Division of Occupational Safety and Health

In California, every employer has a legal obligation to provide and maintain a safe and healthful workplace for employees, according to the California Occupational Safety and Health Act of 1973. The Division of Occupational Safety and Health (Cal/OSHA) program is responsible for enforcing California laws and regulations pertaining to workplace safety and health and for providing assistance to employers and workers about workplace safety and health issues. Cal/OSHA regulations are administered through Title 8 of the CCR. The regulations require all manufacturers or importers to assess the hazards of substances which they produce or import and all employers to provide information to their employees about the hazardous substances to which they may be exposed.

California Office of Environmental Health Hazard Assessment

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The proposition was intended by its authors to protect California citizens and the state's drinking water sources from chemicals known to cause cancer, birth defects, or other reproductive harm and to inform citizens about exposures to such chemicals. Proposition 65 requires the governor to publish, at least annually, a list of chemicals known to the state to cause cancer or reproductive toxicity.

STATE – FIRE HAZARDS

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (Cal-Fire) protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. Cal-Fire's firefighters, fire engines, and aircraft respond to an average of more than 5,600 wildland fires each year. Those fires burn more than 172,000 acres annually (Cal-Fire, 2009).

The Office of the State Fire Marshal (SFM) supports Cal-Fire's mission by focusing on fire prevention. SFM provides support through a wide variety of fire safety responsibilities including by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

The responsibility for the prevention and suppression of wildfires in Butte County belongs to Cal-Fire, the Butte County Fire Department (BCFD), and individual cities in their incorporated areas. As the major firefighting force in the county, Cal-Fire/BCFD maintains 48 fire stations and support facilities either fully or cooperatively, as well as a fleet of firefighting equipment in Butte County, including engines, aircraft, squads/rescues, bulldozers, water tenders, hazardous materials units, and heavy rescue vehicles (Butte County, 2007).

Wildland-Urban Interface Fire Area Building Standards

On September 20, 2005, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the CCR, Title 24, Part 2, known as the 2007 California Building Code (CBC). Included in these amendments were the wildland-urban interface codes, which include provisions for ignition resistant construction standards in the wildland-urban interface. The broad objective of the Wildland-Urban Interface Fire Area Building Standards is to establish minimum standards for materials and material assemblies and provide a reasonable level of exterior wildfire exposure protection for buildings in wildland-urban interface fire areas. The standards require the use of ignition-resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure) (Cal-Fire, 2009).

Vegetation Management Program

The Cal-Fire Vegetation Management Program (VMP) is a cost-sharing program that focuses on the use of prescribed fire and mechanical means for addressing wildland fire fuel hazards and other resource management issues on State Responsibility Area (SRA) lands. The use of

prescribed fire mimics natural processes, restores fire to its historic role in wildland ecosystems, and provides significant fire hazard reduction benefits that enhance public and firefighter safety. VMP allows private landowners to enter into a contract with Cal-Fire to use prescribed fire to accomplish a combination of fire protection and resource management goals. Implementation of VMP projects is by Cal-Fire units. The projects which fit within a unit's priority areas (e.g., those identified through the Fire Plan) and are considered to be of most value to the unit are those that will be completed. The Vegetation Management Program has been in existence since 1982 and has averaged approximately 35,000 acres per year since its inception (Cal-Fire, 2009).

California Public Resources Code

Fire Hazard Severity Zones

The California Public Resources Code 4201–4204 and Government Code 51175–89 directs Cal-Fire to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones (FHSZ), define the application of various mitigation strategies to reduce risk associated with wildland fires.

Within the Chico city limits, the area on the northern boundary of Bidwell Park is designated as a Very High Fire Hazard Severity Zone in a Local Responsibility Area. In addition, land surrounding Bidwell Park is also classified as a Very High Fire Hazard Severity Zone in a State Responsibility Area (Cal-Fire, 2008a and 2008b).

Defensible Space Requirements

In 1987, Senate Bill (SB) 1075 was adopted to require the California Board of Forestry to establish minimum fire safety standards that apply to State Responsibility Areas (SRAs). Subsequently, Public Resources Code Section 4290 required local jurisdictions to implement these fire safe standards. The concept of defensible space is the cornerstone of fire safety regulations. The intent is to reduce the intensity of a wildland fire by reducing the volume and density of fuels (e.g., vegetation that can transmit fire from the natural growth to a building or structure), to provide increased safety for fire equipment and evacuating civilians, and to provide a point of attack or defense from a wildland fire. Defensible space is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names, building identification, and fuel modification measures. Changes to Public Resources Code 4291 in 2006 expanded the defensible space clearance requirement maintained around buildings and structures from 30 feet to a distance of 100 feet.

California Fire Plan and Cal-Fire Unit Fire Management Plans

The California Fire Plan is the state's road map for reducing the risk of wildfire. The Fire Plan is a cooperative effort between the California Board of Forestry and Fire Protection and Cal-Fire. By emphasizing what needs to be done long before a fire starts, the Fire Plan's goals are to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The current plan was finalized in June of 2010.

Individual Cal-Fire Unit Fire Management Plans document assessments of the fire situation in each of Cal-Fire's 21 units and six contract counties. The 2005 Butte Unit Fire Management Plan documents the assessment of the fire situation within the unit; it includes stakeholder contributions and priorities, and identifies strategic areas for pre-fire planning and fuel treatment

as defined by the people who live and work with the local fire problem. The 2005 plan was adapted from the original Butte Unit Fire Management Plan 2000 and subsequent versions.

California Fire Code

The 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California (CBSC, 2008). The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas. The City of Chico has adopted the California Fire Code as part of its building regulations (City of Chico Municipal Code, Chapter 16R.42).

LOCAL – HAZARDOUS MATERIALS, FIRE HAZARDS, AND EMERGENCY MANAGEMENT

Hazardous Materials Joint Power Agreement

The Hazardous Materials (Hazmat) Joint Powers Agreement (JPA) was initiated in December 1990 by the County of Butte and the five cities in Butte County—Biggs, Chico, Gridley, Oroville, and the Town of Paradise. It is governed by the fire chiefs of the six signatory agencies.

The key components of the JPA are:

- Establishment and equipping of a countywide Hazardous Materials Response Team with a maximum membership of 40 fire department personnel.
- Each entity provides state-certified Hazardous Materials Specialists and a small ten cents per capita financial contribution commensurate to their overall percentage of total county population.
- Operation of two Type 1/Level A response units, one stationed in Chico and one stationed in Kelly Ridge.
- Dispatching of the closest on-duty specialists to any hazardous materials incident regardless of jurisdiction.
- The JPA provides emergency response services, but it is not responsible for cleanup or removal of hazardous materials.
- Accepting additional funding from donations, grants, billing for services, and court-ordered restitution.

The response agency establishes training and operational standards in accordance with applicable law and regulation. In early 2006, a third response unit designated for mass decontamination and rehabilitation was located in the City of Oroville. As Homeland Security first responders, the team is trained and equipped to respond to incidents involving weapons of mass destruction. The team works closely with the County Environment Health and Agriculture

departments. The Chico Fire Department provides 11 of the 40 authorized state-certified specialist positions on the team. The closest specialists are dispatched to any hazardous materials emergency, regardless of jurisdiction (City of Chico, 2009).

City of Chico Household Hazardous Waste Element

In compliance with requirements set forth in AB 939, the City of Chico has developed a Source Reduction and Recycling Element (SRRE) and a Household Hazardous Waste Element (HHWE). In combination, the SRRE and the HHWE constitute the city's Integrated Waste Management Plan (IWMP). The goals of the IWMP include minimizing the use and disposal of household hazardous wastes in the city as well as establishing and promoting an environmentally sound methodology for the collection, transportation, and disposal of hazardous wastes. The IWMP seeks to evaluate the effective methods and alternatives for the collection, transportation, and disposal of household hazardous wastes as part of the city's overall solid waste collection and recycling program.

Bidwell Park Master Management Plan

The Bidwell Park Master Management Plan Update was adopted by the City of Chico in 2008. IT includes a Natural Resources Management Plan (NRMP) which provides a framework for managing resources in the park that meets established park-wide goals and objectives. The NRMP provides an overview of the ecological role of fire as well as a discussion of the history of wildland fire and the fire environment in Bidwell Park. Among its findings were that the park presents a serious potential for extreme wildfire events due to high fuel loads, steep, irregular topography, and local climate.

Fire management in Bidwell Park consists of two main objectives (EDAW, 2008):

- Reduce the probability of wildfire within the park that threatens park visitors, park facilities, and surrounding land owners and residents.
- Safely use prescribed fire as a management tool to treat invasive plants and improve habitat for native plants and wildlife.

Wildfire reduction and management strategies for the park include:

- Fuels management
- Wildfire detection and reporting
- Wildfire pre-suppression and suppression
- Prescribed burning
- Post-fire rehabilitation

City of Chico Municipal Code

Chapter 16.42, Fire Regulations, of the City of Chico Municipal Code contains fire regulations adopted to safeguard life and property from the hazards of fire and explosion arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or structures. The

Municipal Code requires permits for certain hazardous activities and operations and inspections to determine whether such activities or operations can be conducted in a manner which complies with the fire regulation standards and in a manner which will not cause a fire or contribute to its spread.

Airport Land Use Compatibility Plan

The Butte County Airport Land Use Commission (ALUC) adopted an Airport Land Use Compatibility Plan (ALUCP) pertaining to both of the airports in the Chico area in 2000. The ALUCP planning area generally encompasses lands within a 14,000-foot radius of the runway centerline of the Chico Municipal Airport (CMA), and within 9,000 feet of the runway centerline of the Ranchaero Airport. In order to provide for the orderly growth of the airports and the areas surrounding them, the ALUCP includes defined airport compatibility zones in the vicinity of the airports, largely based on safety and noise factors, with prescribed land use restrictions by which the ALUC and other jurisdictions may assess the compatibility of proposed development projects in those areas. The adopted compatibility map for the CMA is shown in **Figure 4.4-2**.

The city's existing 1994 General Plan is not consistent with some aspects of the Butte County Airport Land Use Compatibility Plan (ALUCP), which was adopted in 2000. Pursuant to state law, the city had 180 days to either amend its General Plan to be consistent with the ALCUP or adopt overrides as provided for in state law. The city did not pursue either route, resulting in the current situation of inconsistencies between the General Plan and the ALUCP. As a result of this inconsistency, the city is currently required to refer major land use actions (as defined in the ALUCP) to the Butte County Airport Land Use Commission for review and approval. It should be noted that there are both programmatic inconsistencies (such as the city not requiring noise-resistant construction by ordinance in airport overflight areas) and location-specific land use inconsistencies (such as a site designated by the General Plan for 14 to 22 units per acre, while simultaneously being designated for no more than 1 unit per 5 acres by the ALUCP).

Butte County Code

Chapter 24, the Airport Air Zoning Ordinance, of the Butte County Code prevents the creation and establishment of airport hazards. The code is intended to protect the lives and property of the users of the Chico Municipal Airport and of the occupants of the land in its vicinity. The code also prevents destruction or impairment of the utility of the airport and the public investment therein in accordance with and as part of any future comprehensive master plan of the airports in Butte County (DC&E, 2007).

Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan

The County of Butte is required to adopt a federally approved Hazard Mitigation Plan to be eligible for certain disaster assistance and mitigation funding. Therefore, Butte County and the participating jurisdictions of the City of Biggs, the City of Chico, the City of Gridley, the City of Oroville, and the Town of Paradise developed the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan (MHMP). The overall intent of the MHMP is to reduce or prevent injury and damage from hazards in the county. The MHMP identifies past and present mitigation activities, current policies and programs, and mitigation strategies for the future. The MHMP also guides hazard mitigation activities by establishing hazard mitigation goals and objectives (Butte County, 2007).

County of Butte Office of Emergency Management

California Government Code, Section 8607, requires the development of a standardized emergency management system (SEMS). SEMS facilitates coordination among all responding agencies and expedites the flow of resources and communication at all organizational levels (OES, 2003). SEMS regulations authorize each county board of supervisors to designate an operational area (OpArea) lead agency. The County of Butte Office of Emergency Management (County OEM) has been designated the OpArea Coordinator in Butte County (Butte County, 2009). OEM works with state and local agencies to develop effective emergency response systems in the county. OEM also acts as the requesting and coordinating agency when situations require the involvement of state and other outside agencies (DC&E, 2007). The OpArea includes Biggs, Chico, Durham, Gridley, Oroville, Magalia, Paradise and the unincorporated areas of Butte County.

In an emergency, County OEM may be contacted and requested to activate in order to coordinate among local "political subdivisions" and act as a single point of contact for state and federal agencies. If two or more jurisdictions are affected, the OpArea activates automatically. The level of activation is dependent upon the scope of the event (Butte County, 2009).

Butte County Operational Area Disaster Plan

The Butte County Operational Area Disaster Plan (EOP) serves as the official Emergency Plan for Butte County. It includes planned operational functions and the overall responsibilities of each area of the county in addressing emergency situations. The EOP provides an overview of operational concepts, identifies components of the County's emergency management organization within the SEMS National Incident Management System (NIMS), and describes the overall responsibilities of the federal, state, and county entities and the Butte County Operational Area for protecting life and property and assuring the overall well-being of the population. While emergency services are administered at the county level, they are available to local jurisdictions.

The EOP is designed to focus on potential large-scale disasters, rather than daily emergencies that are regularly handled by local law enforcement and protection agencies. The EOP defines the County's planned response to "extraordinary" emergency situations associated with natural disasters, technological incidents, and nuclear defense operations (DC&E, 2007).

City of Chico Emergency Response/Evacuation Plan

The City of Chico is responsible for emergency operations within city boundaries. The City of Chico Emergency Management Plan specifies actions for the coordination of operations, management, and resources during emergencies in the City of Chico; governmental responsibilities during emergency events; and a plan for the organization of nongovernmental agencies providing support assistance.

4.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

This analysis evaluates the project's impacts from hazards to human health and hazardous materials based on the standards identified in State CEQA Guidelines Appendix G. The city has

determined that a hazards and hazardous materials impact is considered significant if implementation of the project would:

1) Expose people or structures to significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

2) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.

3) For a project in the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

4) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

5) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

6) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

7) Be located on a site which is included on a list of hazardous materials sites compiled by Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

8) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

METHODOLOGY

This analysis of hazards was based on review of existing documentation such as the Butte County Multi-Hazard Mitigation Plan and DTSC and USEPA databases for hazardous sites in the city, as well as review of the applicable fire codes and regulations, review of the existing City of Chico Municipal Code, and other relevant literature. A detailed list of reference material used in preparing this analysis can be found at this end of this section. This material was compared to the proposed General Plan Update's specific hazard-related impacts. The impact analysis below focuses on whether those impacts would have a significant effect on the physical environment and/or on the health of the public.

The following proposed General Plan Update policies and actions address hazards to the public health and safety or the environment:

Policy S-1.1 *(Emergency Preparedness) – Promote public safety from hazards that may cause death, injury, or property damage through emergency preparedness and awareness.*

Action S-1.1.1 *(Emergency Plan Maintenance) – Maintain and update, as needed, the City's Emergency Plan to guide emergency management in the City.*

Action S-1.1.3 *(Incident Training) - Continue to participate in the National Office of Emergency Services' National Incident Management System program, which provides a standardized approach to emergency incidents.*

Action S-4.3.3 *(Project Design) – As part of project review process in wildland fire areas, require consideration of emergency evacuation routes and defensible buffer areas.*

Policy S-4.1 *(Fire Safety Staffing) – Maintain adequate fire suppression and prevention staffing levels.*

Policy S-4.2 *(Interagency Coordination) – Continue to maintain interagency relationships to maximize fire protection services and support programs that reduce fire hazards.*

Action S-4.2.1 *(Interagency Programs) – Continue to work with CalFire and the Butte County Fire Department on programs that will enhance fire protection and firefighting capabilities in the Planning Area, including maintaining aid agreements.*

Action S-4.3.2 *(Structural Standards) – Incorporate building construction standards for the Local Resource Area, areas which are provided City fire suppression services, that are consistent with the requirements for the State Responsibility Area, areas that are provided State and County fire suppression services for State-designated Very High, High and Moderate Fire Hazard Severity Zones.*

Action S-4.3.3 *(Project Design) – As part of project review process in wildland fire areas, require consideration of emergency evacuation routes and defensible buffer areas.*

Policy S-6.1 *(Airport Operations) – Promote safe air operations by limiting the height of structures and regulating uses that would have adverse impacts on airport safety.*

Policy S-6.2 *(Safety in Airport Vicinity) – Continue to consider relevant public safety factors prior to approving development projects in the vicinity of airports.*

Action S-7.1.1 *(Coordinate with UPRR) – Request Union Pacific Railroad to verify that relevant safety measures for at-grade crossings are implemented and maintained, and assess the feasibility of improving safety features, including enhanced crossing gate practices and warning devices.*

Policy S-8.1 *(Hazardous Materials Safety Coordination) – Support efforts to reduce the potential for accidental releases of toxic and hazardous substances.*

Action S-8.1.1 *(Planning for Hazardous Materials Safety) – Consult with the State Office of Emergency Services, the State Department of Toxic Substances Control, the California Highway Patrol, Butte County, and other relevant agencies regarding hazardous materials routing and incident response programs.*

Policy LU-7.1 *(Airport Protection) – Safeguard the Chico Municipal Airport from intrusion by uses that could limit expansion of air services, and prohibit development that poses hazards to aviation.*

Action LU-7.1.1 *(Airport Compatibility) – Amend the City's Municipal Code and Zoning Map to implement airport overflight zoning district overlays, consistent with the boundaries and policy direction contained within the Butte County Airport Land Use Compatibility Plan, which address the following:*

- *Airport noise-related compatibility issues and noise-resistant construction techniques.*
- *Height limitations for both structures and landscaping.*
- *Lighting, electrical interference, glare, or other issues which may endanger the landing, takeoff, or maneuvering of aircraft.*
- *Prohibition of incompatible land uses and limitations on the density and/or intensity of land uses.*
- *Infill compatibility criteria consistent with the 2005 agreement between the City and the Butte County Airport Land Use Commission.*

Action LU-7.1.2 *(Avigation Easements) – Continue to require avigation easements and deed notices for new development within the Airport Compatibility Land Use Plan area.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant hazard impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that protect public health and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Wildland Fire Hazards (Standard of Significance 1)

Impact 4.4.1 Implementation of the proposed General Plan Update would not expose people or structures to significant hazards involving wildland fires including in areas where wildlands are adjacent to urbanized areas. This is considered to be a **less than significant** impact.

Cal-Fire designates the eastern portion of the Planning Area as having moderate to very high risk for wildland fires. In particular, lands in and surrounding Bidwell Park are in a Very High Fire Hazard Severity Zone and have a history of wildland fires. Implementation of the proposed General Plan Update includes new development and redevelopment in both the North Chico Special Planning Area (SPA-1) and the Doe Mill/Honey Run SPA (SPA-4), both of which are located in the eastern portion of the city in moderate and high fire hazard severity zones. Development in these areas has the potential to expose people or structures to significant risk of loss, injury, or death involving wildland fires.

Any new development or redevelopment in areas at risk for wildland fire hazards would be required to comply with the 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations), which requires construction methods that mitigate wildfire exposure be applied in geographical areas where wildfire burning in vegetative fuels may readily transmit fire to buildings and threaten to destroy life, overwhelm fire suppression capabilities, or result in large property losses. The Fire Code establishes minimum standards for materials and material assemblies to provide a reasonable level of exterior wildfire exposure protection for buildings in wildland-urban interface areas and requires the use of ignition-resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire.

In addition, future development associated with the proposed General Plan Update would be required to comply with Chapter 16.42, Fire Regulations, of the City of Chico Municipal Code, which contains fire regulations adopted to safeguard life and property from the hazards of fire and explosion. The proposed General Plan Update includes a policy that requires consideration of emergency evacuation routes and defensible buffer areas as part of the project review process in wildland fire areas (Action S-4.3.3). As such, future development in the North Chico SPA and the Doe Mill/Honey Run SPA would be evaluated for these wildland fire-related impacts and mitigation measures or conditions of approval would be required if necessary. The proposed General Plan Update also requires new development in State-designated Very High, High and Moderate Fire Hazard Severity Zones to incorporate building construction standards consistent with the requirements for the State Responsibility Area (Action S-4.3.2).

Furthermore, implementation of the Bidwell Park Master Management Plan Update reduces the probability of wildfire impacts to landowners and residents surrounding the park through wildfire reduction and management strategies including fuels management, wildfire detection and reporting, wildfire pre-suppression and suppression, prescribed burning, and post-fire rehabilitation.

As discussed above, implementation of proposed General Plan Update Actions S-4.3.2 and S-4.3.3 would reduce wildland fire hazards to future development by considering buffer areas and incorporating state standards to protect structures in wildland fire areas. In addition, the Bidwell Park Master Management Plan reduces the probability of wildfire impacts to landowners and residents surrounding Bidwell Park, one of the most wildland fire prone areas of the city. These policies, in conjunction with the existing California Fire Code and the Chico Municipal Code, require new development to incorporate fire prevention measures that would reduce impacts associated with wildland fires to **less than significant**.

Public and Private Airport Hazards (Standards of Significance 2 and 3)

Impact 4.4.2 Implementation of the proposed General Plan Update would not result in a safety hazard for people residing or working in the vicinity of a public or private airport in the Planning Area. This impact is considered **less than significant**.

Safety concerns associated with airport land use compatibility include 1) risks to people and property on the ground in the event of an aircraft accident; and 2) land use characteristics which may affect the survivability of an accident for occupants of an aircraft (Butte County, 2000). Potential safety hazards associated with the Ranchaero Airport and the Chico Municipal Airport (CMA) are provided below.

Ranchaero Airport

The airport compatibility zones for the Ranchaero Airport which overlay the Planning area are primarily D, C, and B2, with smaller areas of B1 and A. Because the majority of this land is already developed and is in an "area of stability" as envisioned in the General Plan, new development in this area should be minimal. Because the Aeronautics Act only gives ALUCs authority over new land development, not existing development, the total acreage which is in the overflight zones which will be subject to development will be minimal. The proposed General Plan Update does not propose any land use changes that would result in new safety hazards associated with the operation of the Ranchaero Airport.

Chico Municipal Airport

The proposed General Plan Update identifies the area to the immediate west of the CMA as an environmentally constrained area which is not expected to accommodate any further development. However, the North Chico SPA is located immediately adjacent to the western boundary of this constrained area, and the Eaton Road Opportunity Site is located southwest of the constrained area. Future residents and employees in these areas could be exposed to airport hazards associated with the CMA. In particular, the North Chico SPA is proposed for portions of this area and is located in Airport Compatibility Zones C2 and D, and the large Medium-High Density Residential-designated Webb property on Eaton Road is located in Zone C1.

According to the CalTrans *California Airport Land Use Planning Handbook* (CalTrans Handbook)there is generally a low likelihood of accident occurrence in the Traffic Patterns Zone (C1 and C2 Zones) at most airports, with risk concern primarily for uses with potentially severe consequences (i.e., uses with very high intensities such as outdoor stadiums). Similarly, the ALUCP notes that the intrusiveness of aircraft noise is the most significant compatibility factor in the C Zone and that safety is only a minor concern.

According to the CalTrans Handbook the level of individual risk for a given location near an airport is dependent to a significant extent upon the number of aircraft operations and to a lesser degree upon the type of aircraft. CMA has an average of 182 daily aircraft operations. This is expected to increase to an average of 257 daily aircraft operations during the 20-year planning period of the ALUCP (Butte County, 2000). Data shows the highest level of risk for aircraft accident occurs immediately beyond the runway ends. These risks are on the order of 1:10,000 (10^{-4}) per year and are typically contained within the limits of the airport's runway protection zones (RPZs). The extent of risks at the 1:100,000 (10^{-5}) level is more dependent upon the volume of aircraft operations on a runway, but generally is within an area immediately surrounding the RPZs. In addition, according to the ALUCP, 80 percent of arrival aircraft accidents occur within a strip extending 10,000 feet from the end of the runway and 2,000 feet on either side of the runway centerline. Similarly, 80 percent of departure aircraft accidents occur 6,000 feet from the end of the runway and 2,500 feet to each side of the runway centerline. The General Plan Update does not allow for any new development in CMA's RPZ or the immediately surrounding area. Furthermore, the eastern boundary of the North Chico SPA, which is closest to the CMA, is approximately 3,925 feet from the centerline of the closest

runway. The Webb property on Eaton Avenue is over 4,000 feet from the centerline of the closest runway.

In addition, the ALUCP identifies that one way to address safety concerns is to provide open areas in the airport vicinity where small aircraft can make a survivable landing if necessary. To that end, the ALUCP requires 10 percent of the land within Zone C to remain open. If the North Chico SPA and the Webb property on Eaton Road were to be built out consistent with its proposed General Plan land use designations, well over 10 percent of the overall Zone C would remain open, primarily because the proposed General Plan Update identifies a large portion of Zone C to the immediate west of the CMA as an environmentally constrained area which is not expected to accommodate any further development.

Given the low amount of daily flights in and out of the CMA and the particularly low probability for an aircraft accident to occur within Zones C and D (the only airport zones where new and infill development will be allowed), the General Plan Update will not result in increased safety hazards for people residing or working in the vicinity of the CMA.

As discussed in Section 4.1, Land Use, as part of the City's referral of the proposed General Plan Update to the ALUC for its consideration, and as included in proposed General Plan Update Action LU-7.1.4, the City is requesting that the ALUC consider altering the boundary between the C1 and C2 subzones on the west side of the CMA to aid in a determination that the proposed General Plan Update is consistent with the Compatibility Plan. The General Plan Update proposes the North Chico SPA to consist of a combination of multi-family, single-family, commercial mixed-use, industrial-office mixed-use, public facilities, open space, and parks. It is due to these proposed land uses that the City is requesting that the ALUC consider altering the boundary between the C1 and C2 subzones on the west side of the CMA so that the proposed North Chico SPA would lay primarily in subzone C2. The primary difference between Zones C1 and C2 is the residential density limitations of 1 dwelling unit per 5 acres and 4 dwelling units per acre, respectively. This difference is based on a determination that the intrusiveness of aircraft noise is considered the most significant compatibility factor in Zone C and the concept that noise concerns can be minimized by limiting the number of dwellings in an affected area or by allowing high densities with comparatively higher ambient noise levels. Because the difference between C1 and C2 Sub-Zones is primarily related to noise concerns, altering the boundary between the C1 and C2 subzones on the west side of the CMA would not result in significant safety impacts. The reader is referred to Section 4.1, Land Use, for a discussion of impacts associated with airport land use compatibility issues, including the General Plan Update's compatibility with the ALUCP.

The proposed General Plan Update identifies the CMA as one of the community's greatest assets and promotes its long-term protection and development. The proposed General Plan Update includes a policy framework related to airport land use compatibility. Specifically, General Plan Action LU-7.1.1 requires that the city amend its Municipal Code to establish airport compatibility overlay zoning districts that conform to the boundaries and policy direction of the ALUCP's overflight zones. The overlay districts would enforce development standards consistent with the standards in the ALUCP, including noise-resistant construction, structure and tree height limitations, density/intensity limitations on the use of land, and establishing infill criteria consistent with the 2005 agreement between the city and the ALUC. Actions LU-7.1.2 and LU-7.1.3 direct that the city continue requiring avigation easements and deed notices, and state the city's goal of maintaining Federal Aviation Administration passenger certification for the CMA. Implementation of proposed General Plan Update Policy LU-7.1 and actions LU-7.1.1 and LU-7.1.2 would ensure that no safety impacts would be created by new development in the

vicinity of the CMA. In addition, the policies prevent development that would pose hazards to aviation or interfere with or endanger the landing, taking off, or maneuvering of aircraft.

Given the low amount of daily flights in and out of the CMA and the particularly low probability for an aircraft accident to occur within Zones C and D (the only airport zones where new and infill development will be allowed), as well as adherence to FAA regulations and ALUCP requirements and implementation of the proposed General Plan Update policies and actions discussed above, airport safety hazards are considered **less than significant.**

Transportation, Use, and Disposal of Hazardous Materials (Standard of Significance 4)

Impact 4.4.3 Implementation of the proposed General Plan Update would allow for land uses that would involve the routine transportation, use, or disposal of hazardous materials in the Planning Area. Such activities would continue to be regulated in order to protect public health and will not create a significant hazard to the public or the environment. Therefore, this impact is considered **less than significant.**

Implementation of the proposed General Plan Update would allow for land uses that routinely store, use, and transport hazardous materials, including industrial uses and certain commercial uses (such as water and wastewater treatment plant operations, swimming pool facilities, gas stations, and dry cleaners). New development or redevelopment that involves construction, demolition, and landscaping activities could also result in the transport, use, and disposal of hazardous materials such as gasoline fuels, demolition materials, asphalt, lubricants, toxic solvents, pesticides, and herbicides. The transport, use, and disposal of these materials could pose a potential hazard to the public and the environment. The proposed General Plan Update also allows for increased residential development in the city, the Sphere of Influence, and the five Special Planning Areas (SPAs), which could result in the increased exposure of the public to hazardous material being transported by the Union Pacific Railroad and by trucks on Planning Area highways and roadways.

Furthermore, increased population in these areas could increase the amount of household hazardous waste being transported to the Butte Regional Household Hazardous Waste Collection Facility (BRHHWCF). State law prohibits the transportation of more than 5 gallons or 50 pounds of hazardous waste without a hazardous materials transportation license. Therefore, it is anticipated that the transport of additional household waste to the BRHHWCF would be in relatively small amounts and would not result in significant hazards to the public or environment.

The transport, use, and storage of hazardous materials by any development associated with the proposed General Plan Update would be required to comply with all applicable local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Federally, the Resource Conservation and Recovery Act (RCRA) give the USEPA the authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste. The Hazardous Materials Regulations (HMR) included in federal law governs the transportation of hazardous materials. The Federal Motor Carrier Safety Administration (FMCSA) issues regulations concerning highway routing of hazardous materials, hazardous materials endorsements for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials.

The Butte County Environmental Health Department is the CUPA for Butte County and is responsible for consolidating, coordinating, and making consistent the administrative requirements, permits, inspections, and enforcement activities of six state programs regarding the transportation, use, and disposal of hazardous materials in Butte County and the Planning Area, as discussed under the Regulatory Framework subsection above. As CUPA, the Environmental Health Department inspects businesses or facilities that handle or store hazardous materials; generate and/or treat hazardous waste; own or operate underground storage tanks; store petroleum in above-ground tanks over State thresholds; and store Federal regulated hazardous materials over State thresholds. These inspections determine compliance with the California Health and Safety Code (HSC), the CCR, and the Code of Federal Regulations (CFR) and focus on site inspections, review of Hazardous Material Business Plans, documentation of employee training programs, disposal documentation for hazardous waste generated onsite, and UST monitoring records. All development or redevelopment under the General Plan Update that handle or store hazardous materials would be subject to these inspections, which would ensure compliance with state and federal law intended to prevent potential hazards to the public and the environment.

Although the proposed General Plan Update could result in increased population and thus increased exposure of the public to hazardous material being transported by the Union Pacific Railroad and by trucks on Planning Area highways and roadways, the federal HMR address hazardous material transportation via classification, packaging, hazard communication, emergency response information and training. Training meeting HMR requirements increases a hazmat employee's safety awareness and thus contributes to a reduction in hazmat incidents. HMR emergency response requirements include initial emergency actions regarding evacuation isolation of the affected area, firefighting, leaking containers, spill containment and first aid. These requirements would also reduce the number of persons exposed to any hazmat incidents. The Safety Element of the General Plan Update also includes requirements for the city to consult with relevant local, state, and other agencies regarding hazardous materials routing and incident response programs.

As previously mentioned, the city has little influence over the types of material transported by the rail line. However, the potential for rail incidents can be reduced by ensuring that at-grade crossings in the Planning Area are operating in a safe and effective manner. The Safety Element of the proposed General Plan Update includes Action S-7.1.1 that requires the city to request verification from the UPRR that relevant safety measures for at-grade crossings are implemented and maintained. This policy would assist in ensuring that at-grade crossings in the Planning Area operate in a safe and effective manner, thus reducing the potential for rail incidents involving hazardous materials.

Therefore, even though the proposed General Plan Update could result in increased storage, use, and transportation of hazardous materials and increased exposure of the public to hazardous materials, there are federal, state, and local regulations regarding hazardous material transport, use, and disposal that are currently enforced and would continue to be enforced as discussed above. These regulations provide a comprehensive regulatory system for handling, using, and transporting hazardous materials in a manner that protects human health and the environment. Therefore, potential hazards to the public and the environment would be **less than significant**.

Release and Exposure of Hazardous Materials (Standards of Significance 5 and 7)

Impact 4.4.4 Implementation of the proposed General Plan Update could create a significant hazard to the public or the environment through reasonably

foreseeable upset and accident conditions involving the release of hazardous materials into the environment or by locating development on a site included on a list of hazardous materials sites compiled by Government Code Section 65962.5. Such activities and circumstances would continue to be regulated in order to protect public health and will not create a significant hazard to the public or the environment. This is considered **less than significant**.

As discussed under Impact 4.4.3 above, implementation of the proposed General Plan Update would allow for land uses that would involve the transportation, use, and disposal of hazardous materials in the Planning Area. These activities could result in the accidental release of hazardous materials into the environment and/or exposure of the public to hazardous materials via reasonably foreseeable upset conditions. In addition, the General Plan Update would result in increased population and thus increased exposure of the public to accidental or reasonably foreseeable releases of hazardous materials.

Accidental releases of hazardous materials are those releases that are unforeseen or that result from unforeseen circumstances, while reasonably foreseeable upset conditions are those release or exposure events that can be anticipated and planned for. As discussed under Impact 4.4.3, the transport, storage, and use of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. These regulations provide a comprehensive regulatory system for handling, using, and transporting hazardous materials in a manner that protects human health and the environment. These requirements would also reduce the number of persons exposed to any hazmat incidents. As such, both accidental and reasonably foreseeable hazardous materials releases would be expected to occur infrequently and result in minimal hazard to the public or the environment.

New development and/or increased population in the city, the proposed Sphere of Influence, and the five SPAs included in the proposed General Plan Update could also increase exposure to electrical transformers containing polychlorinated biphenyls (PCBs) and persistent residual chemicals, including pesticides, herbicides, and fertilizers, that have the potential to pose a health and safety risk via accidental release, misuse, or historic use. In addition, redevelopment activities associated with the proposed General Plan Update could result in exposure to hazardous materials by disturbing and thus releasing asbestos and/or lead during demolition and remodeling activities.

The public could also be exposed to hazardous materials if new development or redevelopment were to be located on a current or historical hazardous material site. Currently, there are 28 hazardous material sites known to handle and store hazardous materials or associated with a hazardous material-related release in the Planning Area. In addition, there are eight open LUST sites in the Planning Area. All except two of these sites are currently under investigation, in the remediation process, or remediated entirely. In addition, the Humboldt Road Burn Dump site was previously known to be contaminated by lead, arsenic, antimony, dieldrin (a pesticide), and low concentrations of dioxin. However, on December 22, 2006, the RWQCB issued a final Certificate of Completion stating that the Humboldt Road Burn Dump site had complied with the requirements of all state and local laws, ordinances, regulations, and standards that are applicable to the site investigation and remedial action. All sites that are known to contain hazardous materials and/or are identified in a hazardous material/waste search are required by state and federal regulations to be reviewed, tested, and remediated for potential hazardous materials. Furthermore, the proposed General Plan Update does not propose any development

or redevelopment on identified hazardous material sites. If future development or redevelopment were to be proposed on or near these sites, or other hazardous material sites identified in the future, the environmental review for the project would evaluate potential health and environmental impacts and require mitigation measures or conditions of approval as necessary to avoid or lessen hazards consistent with local, state and federal requirements.

Similarly, future site-specific environmental review would ensure a reasonable level of safety for residents, workers, and property owners of future development through review and mitigation of site-specific health hazards associated with electrical transformers containing PCBs and persistent residual chemicals. In addition, redevelopment activities, including demolition and remodeling, would be subject to federal state and local regulations specifically aimed at preventing lead and asbestos hazards. For example, the EPA requires contractors or firms performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and schools built before 1978 to be certified and to follow specific work practices to prevent lead contamination (EPA's Renovation, Repair and Remodeling rule). The EPA has also developed asbestos demolition and renovation requirements in the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation (40 CFR, Part 61, Subpart M). NESHAP includes notification, inspection, and emission control requirements.

As discussed under the Existing Setting subsection above, the Planning Area does not contain any areas that are have been identified by the California Department of Mines and Geology as containing ultramafic rock (DMG, 2000). Since natural asbestos occurs most commonly in association with ultramafic rocks, the potential for occurrence and distribution of naturally-occurring asbestos fibers in the Planning Area is considered very low. Additionally, the Planning Area is identified by the USEPA as being in Zone 3 for radon, which indicates a predicted average indoor radon screening level less than 2 pCi/L. Zone 3 represents the lowest potential for radon hazards. Modern building construction practices provide for adequate ventilation of structures that minimize this hazard. For these reasons, no impacts associated with naturally-occurring asbestos or radon would be expected to occur and this issue is not discussed further in this Draft EIR.

Given that federal, state, and local regulations regarding hazardous materials provide a comprehensive regulatory system that would minimize exposure of the public to hazardous materials, both from accidental/reasonably foreseeable releases and from known contaminated sites, impacts would be **less than significant**.

Release and Exposure to Hazardous Materials in the Vicinity of a School Site (Standard of Significance 6)

Impact 4.4.5 Implementation of the proposed General Plan Update would not result in significant emission of hazardous emissions or significant handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. This is considered a **less than significant** impact.

The proposed General Plan Update Land Use Map has not designated land uses that allow for acutely hazardous materials, substances, or waste within one-quarter mile of a school. In addition, zoning regulations generally discourage such uses in the vicinity of each other and, as such, future discretionary review of development projects would prevent such incompatibilities (see Section 4.1, Land Use, for a discussion of land use compatibility associated with the General Plan Update). However, it is anticipated that implementation of the proposed General Plan Update would result in the need for additional school sites in the Planning Area (see Section 4.12,

Public Services and Utilities, for more information). The City of Chico does not determine the siting of new schools. Therefore, the siting of schools in the vicinity of land uses involving the use, transport, disposal, or release of hazardous materials creates the potential for health impacts to children, who are especially sensitive receptors in regard to exposure to hazardous substances or pollution exposures.

The California Department of Education (CDE) establishes standards for school sites pursuant to Education Code Section 17251 and adopts school site regulations, which are contained in the California Code of Regulations, Title 5, commencing with Section 14001. The regulations define certain health and safety requirements for school site selection, including a potential school site's proximity to airports, high-voltage power transmission lines, railroads, and major roadways. School siting regulations also restrict the presence of toxic and hazardous substances and hazardous facilities and hazardous air emissions within one-quarter mile of a proposed school site. In addition, as required by Education Code, Section 17213, the written findings of the environmental impact report or negative declaration prepared for a proposed school site must include a statement verifying that the site is not currently or formerly a hazardous, acutely hazardous substance release, or solid waste disposal site or, if so, that the wastes have been removed. Also, the written findings must state that the site does not contain pipelines which carry hazardous wastes or substances other than a natural gas supply line to that school or neighborhood. If hazardous air emissions are identified, the written findings must state that the health risks do not and will not constitute an actual or potential danger of public health of students or staff. If corrective measures of chronic or accidental hazardous air emissions are required under an existing order by another jurisdiction, the governing board is required to make a finding that the emissions have been mitigated prior to occupancy of the school.

In addition, DTSC's School Property Evaluation and Cleanup Division is responsible for assessing, investigating, and cleaning up proposed school sites. The division ensures that proposed school sites are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school. All proposed school sites that will receive state funding for acquisition or construction are required to go through a rigorous environmental review and cleanup process under DTSC's oversight (DTSC, 2009).

Since any future siting of schools would be required to comply with state statutory and regulatory requirements addressing safety from hazards, including hazardous materials, impacts from siting schools in the vicinity of such hazards are anticipated to be **less than significant**.

Emergency Response and Evacuation Plans (Standard of Significance 8)

Impact 4.4.6 Implementation of the proposed General Plan Update would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan. This impact is considered **less than significant**.

In the event of a hazardous material emergency, several agencies are responsible for timely response. The Butte County Hazardous Materials Response Team responds to large-scale, emergency hazardous material incidents in Butte County. This team is made up of specially trained representatives of the Butte County Fire Department, California Department of Forestry, and members of the Chico, Paradise, Oroville, Gridley, and Biggs fire departments. The City of Chico is responsible for emergency operations within city boundaries. The City of Chico Emergency Management Plan specifies actions for the coordination of operations, management, and resources during emergencies. The proposed General Plan Update would

not alter the city's overall land use patterns or land use designations to such an extent that they would conflict with either the City of Chico Emergency Management Plan or with operations of the Butte County Hazardous Materials Response Team.

Additionally, an efficient circulation system is vital for the evacuation of residents and the mobility of fire suppression, emergency response, and law enforcement vehicles during an emergency. Implementation of the proposed General Plan Update would result in an increased number of people that would require evacuation in case of an emergency. Currently, incidences have occurred when emergency vehicles have been unable to access areas west of the railroad tracks as a result of stopped trains blocking at-grade crossings. Implementation of the proposed roadway connections under the Circulation Element of the proposed General Plan Update would provide additional roadway connections that offer more escape route and emergency access options (see **Figure 3.0-4**). As such, implementation of the proposed General Plan Update roadway system would improve implementation of the city's evacuation plans and the City of Chico Emergency Management Plan. Therefore, impacts are considered **less than significant**.

4.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for hazards and human health risks associated with the proposed General Plan Update includes the City of Chico as well as the surrounding areas in Butte County. Most hazardous material, human health, and safety impacts as described in CEQA Appendix G are generally site-specific and not cumulative by nature, as impacts generally vary by land use, site characteristics, and site history.

However, the cumulative setting for wildland fires would consist of the Planning Area as well as wildland hazard areas adjacent to the Planning Area, including large areas of unincorporated Butte County. Wildland fire hazards (open space, rangeland, chaparral, and forested areas) exist in varying degrees over approximately 70 percent of Butte County, which has an extensive history of large damaging fires, most of which have burned in the wildland-urban interface area (Butte County, 2007).

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Wildland Fire Hazards (Standard of Significance 1)

Impact 4.4.7 Potential development under the proposed General Plan Update, along with increased urban development in Butte County, would not result in cumulative wildland fire hazard impacts. This impact would be **less than cumulatively considerable**.

Future development in the City of Chico, along with increased urbanization in other areas of Butte County, would contribute to increased exposure of people and structures to the risk associated with wildland fire hazards in the region. In addition, urbanization of areas adjacent to open space, rangeland, chaparral, and forested areas in the county would increase the amount of wildland-urban interface area, thus resulting in cumulative wildland fire hazards.

Any new development or redevelopment in areas at risk for wildland fire hazards would be required to comply with minimum standards for materials and material assemblies to provide a reasonable level of exterior wildfire exposure protection for buildings in wildland-urban interface

areas as required by the 2007 California Fire Code. The code also requires the use of ignition-resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire. As discussed above, the proposed General Plan Update includes a policy that requires consideration of emergency evacuation routes and defensible buffer areas as part of the project review process in wildland fire areas. The proposed General Plan Update also requires new development in State-designated Very High, High and Moderate Fire Hazard Severity Zones to incorporate building construction standards consistent with the requirements for the State Responsibility Area.

In addition, the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan addresses the prevention of injury and damage from wildland fire hazards in Butte County and identifies past and present mitigation activities, current policies and programs, and mitigation strategies for wildland fire hazards.

The Bidwell Park Master Management Plan also reduces the probability of wildfire impacts to landowners and residents surrounding Bidwell Park, one of the most wildland fire prone areas of the city. These policies and regulations, in conjunction with the existing California Fire Code and the measures identified in the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan, would reduce cumulative impacts associated with wildland fires to a **less than cumulatively considerable** level.

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4.5
Traffic

This section of the Draft Environmental Impact Report (DEIR) describes the existing transportation conditions in the Planning Area and identifies the potential environmental impacts on the transportation system associated with adoption of the proposed General Plan Update and full buildout of the City by the year 2030. It should be noted that full buildout of the Land Use Diagram is not expected until well after the year 2030 and thus the traffic impact analysis and its conclusions are conservative. The impact analysis evaluates the local and regional roadway, transit, bicycle, pedestrian, and aviation components of the overall transportation system.

4.5.1 EXISTING SETTING

REGIONAL ROADWAY SYSTEM

California State Routes 32 and 99 comprise the backbone of Chico's regional transportation network and serve much of the population in Butte County. In addition, many of the existing streets serve as major arterials that create an effective "hub and spoke" system to efficiently move vehicles through the network. Collectors and local roads form the remainder of the city's roadway system.

The state highways and major arterials accommodate regional and cross-city travel, while the minor arterials, collectors, and local roads generally serve short to medium-length trips. Cohasset Road, The Esplanade, and Skyway are examples of major arterials that connect communities in and around Chico. Minor arterials, such as Lassen Avenue and Main Street, are primarily used for travel within the city. **Figure 4.5-1** presents Chico's existing roadway network, including the functional classification of these roadways.

State Highways

Freeways serve regional and intercity travel but are typically not the optimum route for intracity trips. Access is controlled, grade crossings are separated, and medians separate lanes moving in opposite directions. Typical free-flow speeds exceed 55 miles per hour.

State Route 99 (SR 99) is a north-south state highway, beginning at its intersection with Interstate 5 in Kern County and continuing north through the Central Valley, terminating in Tehama County. In Butte County, SR 99 runs through the cities of Chico, Biggs, and Gridley. SR 99 alternates between a two-lane rural highway and a four-lane freeway. In the City of Chico, SR 99 is a four-lane freeway.

State Route 32 (SR 32) is an east-west state highway that begins to the west in Glenn County and terminates to the east at its junction with SR 89 in Tehama County. In the City of Chico, SR 32 is a two-lane roadway with a 2-mile section through Downtown separated into a one-way couplet — East 8th Street heading westbound and East 9th Street heading eastbound. SR 32 then reverts to an undivided road and is designated as Nord Avenue until it exits the City of Chico to the north. SR 32 is generally a two-lane facility, except where it is a one-way couplet, where each direction has two lanes.

Expressway

Expressways serve longer-distance intracity travel as well as linking the city with other nearby urban areas. Expressways are designated to carry heavy traffic volumes at speeds of 40 to 55 miles per hour. Access is limited, crossings are generally signalized at grade, parking is not allowed, and a continuous median separates lanes in opposite directions.

Skyway is an east-west expressway that begins in the City of Chico near SR 99, continues through the Town of Paradise, and terminates to the north in the unincorporated community of Butte Meadows. Skyway is generally a divided four-lane facility from the City of Chico to the outskirts of Paradise and then continues as either an undivided four-lane or divided two-lane facility through the remainder of Paradise and as a two-lane facility until termination in Butte Meadows.

Arterials

The primary function of major arterials is to move large volumes of traffic between freeways and other arterials within Chico and to adjacent jurisdictions. Arterials generally provide four travel lanes, but may have fewer lanes. On street parking may be provided. Driveway access should be minimized, consistent with the primary function of arterials to move through traffic. Bike lanes, medians park strips, sidewalks, and transit facilities are also accommodated within the right-of-way.

Cohasset Road is a north-south arterial that begins in the unincorporated community of Cohasset, located about 10 miles north of Chico, and ends at its intersection with Esplanade in the City of Chico. Cohasset Road is generally a two-lane facility north of the city and a four-lane facility near the city's Downtown.

Nord Avenue is a north-south arterial which is also designated as SR 32 for its entire length, begins in downtown Chico at West 1st Street and terminates at West East Avenue. Nord Avenue then continues to the north past West East Avenue as SR 32. Nord Avenue is primarily a two-lane facility, which expands to a three-lane facility with a center turning lane for portions of its 2-mile length.

Chico River Road/West 5th Street is a two-lane east-west arterial in the City of Chico, beginning at its intersection with River Road, west of Downtown, and terminating at its intersection with Woodland Avenue. It is a two-lane facility with low access control east of Downtown and high access control west of Downtown. Chico River Road is designated as West 5th between Walnut Street and Woodland Avenue.

Dayton Road/Aguas Frias Road is a two-lane north-south arterial. The roadway begins to the south as a dirt road in the City of Biggs and becomes an arterial roadway at its intersection with SR 162, where it is designated Aguas Frias Road. After traveling north through the unincorporated community of Dayton, it is designated as Dayton Road and terminates in downtown Chico at its intersection with West 9th Street.

Midway/Richvale Highway is a north-south arterial that begins to the south at its intersection with SR 162 and continues into the City of Chico as Park Avenue. The roadway is predominantly two lanes in width, but widens to a four-lane roadway when it becomes Park Avenue.

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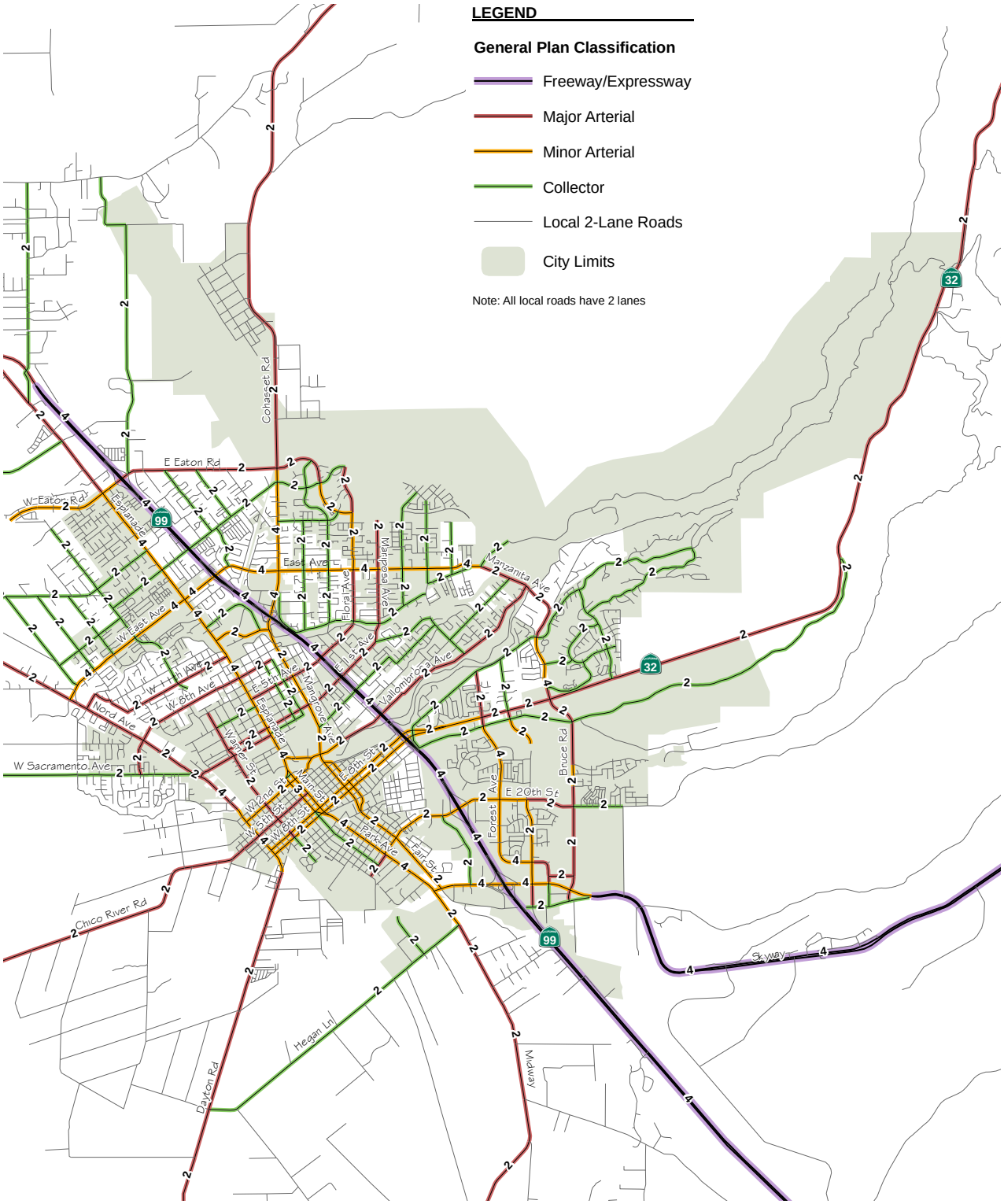

Source: Fehr & Peers, 2007

Figure 4.5-1
Existing Roadway Network

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Collectors

Collectors are intended to "collect" traffic from local roadways and carry it to roadways higher in the street classification hierarchy. These roadways also serve adjacent properties and typically have one lane of traffic in each direction. Bike lanes may be present. The following is a list of collector streets in the City of Chico.

- Humboldt Road
- Sacramento Avenue
- Lassen Avenue
- Lindo Avenue
- North Avenue
- Ceres Avenue
- Holly Avenue
- Centennial Avenue
- Yosemite Drive
- Hegan Lane
- Doe Mill Road
- Cussick Avenue
- Alamo Avenue
- Guynn Avenue

Local Streets

Local streets are intended to serve adjacent properties and should enhance community livability. They carry limited through traffic. Speed limits on local roadways typically do not exceed 25 miles per hour.

TRAFFIC ANALYSIS STUDY AREA

A detailed analysis was conducted of the following freeway facilities, roadway segments, and intersections in the Study Area. The Study Area includes roadway and transportation facilities in the city and in the Planning Area outside of the current city limits, and considers facilities and regional traffic conditions outside of the Planning Area. These roadway facilities were identified based on the availability of data with input from City staff, and in consultation with Caltrans.

FREEWAY SEGMENTS

State Route 99

1) North of Eaton Road
2) Eaton Road to East Avenue
3) East Avenue to Cohasset Road
4) Cohasset Road to East 1st Avenue
5) East 1st Avenue to SR 32
6) SR 32 to East 20th Street
7) East 20th Street to Skyway
8) South of Skyway

ROADWAY SEGMENTS

State Route 32 (Deer Creek Highway)

1) Bruce Road to Yosemite Drive
2) El Monte Avenue to Bruce Road
3) Forest Avenue to El Monte Avenue
4) Start of undivided highway to Forest Avenue
5) E. 8th Street/Fir Street until road merges into undivided highway
6) SR 99 Ramps to E. 8th Street/Fir Street

8th Street/9th Street

1) SR 99 Ramps to Bartlett Street
2) Cypress Street to Poplar Street
3) Pine Street to Cypress Street
4) Main Street to Wall Street
5) Ivy Street to Hazel Street
6) Orange Street to Cherry Street
7) Walnut Street to Cedar Street

Walnut Street

1) W 8th Street to W 9th Street
2) Bidwell Avenue to W 1st Street

SR 32 (Nord Avenue)

1) W. Sacramento Avenue (South) to W. Sacramento Avenue (North)
2) Oak Way to W. 8th Avenue
3) Glenwood Avenue (South) to Glenwood Avenue (North)
4) East Avenue to Kennedy Avenue

1st Avenue

1) Village Lane to Longfellow Avenue
2) Calgary Lane to Mildred Avenue
3) Esplanade to Oleander Avenue
4) Magnolia Avenue to Esplanade
5) Hobart Street to Citrus Avenue

2nd Street

1) Walnut Street to Cedar Street

5th Street

1) Walnut Street to Cedar Street
2) Oak Street to Walnut Street

8th Avenue

1) SR 32 (Nord Avenue) to Greenwich Drive
2) Magnolia Avenue to Esplanade

8th Street

1) Ashford Way to Centennial Avenue
2) El Monte Avenue to Husa Lane
3) Vista Verde Avenue to Park Vista Drive

20th Street

1) Bruce Road to Notre Dame Boulevard
2) Forest Avenue to Huntington Drive
3) Business Lane to Forest Avenue
4) Sierra Nevada Court to Dr. Martin Luther King Jr. Parkway

Bruce Road/Chico Canyon Road

1) East 20th Street to Raley Boulevard
2) Remington Drive to East 20th Street
3) Humboldt Road to Picholine Way
4) Lakeside Village Commons to Lakewest Drive

Cohasset Road

1) Eaton Road to Thorntree Drive
2) East Avenue to Lorinda Lane
3) Pillsbury Road to East Avenue

Dayton Road

1) Archer Avenue to Pomona Avenue

East Avenue

1) Floral Avenue to Coleman Court
2) Cohasset Road to North Avenue
3) Pillsbury Road to Cohasset Road
4) Connors Avenue to Esplanade
5) Esplanade to Ilahee Lane
6) Cussick Avenue to Alamo Avenue

7) Guynn Avenue to Streamside Court
8) Kennedy Avenue to SR 32

Eaton Road

1) Michael Way to Burnap Avenue
2) Hicks Lane to Silverbell Road
3) Constitution Drive to SR 99 Ramps

El Monte Avenue

1) E. 8th Street to Kirk Way

Esplanade/Broadway Street/Main Street/Park Avenue/Midway

Esplanade

1) W. Shasta Avenue to Mandalay Court
2) Panama Avenue to East Avenue
3) Connors Avenue to White Avenue
4) E. 2nd Avenue to E. 1st Avenue
5) E. Washington Avenue to W. Sacramento Avenue

Park Avenue

1) E. 16th Street to E. 17th Street
2) Meyers Street to E. Park Avenue

Midway

1) E. Park Avenue to Hegan Lane
2) Hegan Lane to Sandrill Court

Floral Avenue/5th Avenue

1) Ravenshoe Way to East Avenue
2) Esplanade to Oleander Avenue

Forest Avenue

1) Humboldt Road to Wildflower Court
2) E. 20th Street to Parkway Village Drive/Barney Lane

Hicks Lane

1) Eaton Road to Calle Principal

E. Lassen Avenue

1) Esplanade to San Jose Street
2) Burnap Avenue to Scenic Lane

W. Lindo Avenue

1) SR 32 (Nord Avenue) to Trenta Drive

Mangrove Avenue/Pine Street

1) Cohasset Road to E. Lindo Avenue
2) E. 3rd Avenue to E. 1st Avenue
3) E. 1st Avenue to Palmetto Avenue
4) Vallombrosa Avenue to Woodland Avenue/E. 3rd Street
5) Woodland Avenue/E. 3rd Street to E. 4th Street

Manzanita Avenue

1) Vallombrosa Avenue to Chico Canyon Road
2) Hooker Oaks Avenue to Vallombrosa Avenue
3) Mariposa Avenue to Lakewood Way

Martin Luther King Junior Parkway

1) E. 20th Street to E. 23rd Street

Mulberry Street

1) E. 14th Street to E. 15th Street

Palmetto Avenue

1) Downing Avenue to Bryant Avenue

East Park Avenue/Skyway

1) Forest Avenue to Dominic Drive
2) Country Drive to Gilman Way
3) Midway to Fair Street

Sacramento Avenue

1) Hobart Street to Citrus Avenue
2) Columbus Avenue to SR-32 (Nord Avenue)
3) SR 32 (Nord Avenue) to Oak Lawn Avenue

Salem Street

1) W. 4th Street to W. 5th Street

Vallombrosa Avenue

1) Covell Park Avenue to Manzanita Avenue
2) Rey Way to Vallombrosa Circle

Warner Street

1) W. Sacramento Avenue to Stadium Way

Hegan Lane

1) Midway to Skyway Avenue

Ivy Street

1) W. 10th Street to W. 11th Street

Intersections

1) East 1st Avenue and Mangrove Avenue
2) E. 5th Street and Mangrove Avenue
3) E. 20th Street and Park Avenue
4) E. 20th Street and Martin Luther King Junior Parkway
5) Cohasset Road and Eaton Road
6) Eaton Road and Hicks Lane
7) Esplanade and Cohasset Road
8) Mangrove Avenue and Vallombrosa Avenue
9) Midway and Hegan Lane
10) Park Avenue and Midway

EXISTING TRAFFIC VOLUMES

Freeway segment counts were provided by Caltrans and were taken during 2008. Roadway segment and intersection counts were obtained from a variety of internal and external sources collected between 2004 and 2009 including the City's count database, the Butte County Association of Governments' (BCAG's) count database, and other available sources. **Figure 4.5-2** shows existing peak hour roadway segment traffic volumes for local roadways in the Planning Area.

EXISTING TRAFFIC CONDITIONS

The existing operation of Study Area roadways, freeways, transit system, and bicycle/pedestrian facilities are discussed below.

ROADWAY SEGMENTS AND INTERSECTIONS

Analysis Methodology

Vehicle traffic operations conditions at intersections and roadway segments can be described in terms of a level of service (LOS). LOS is a common qualitative measurement of the effects that various factors such as speed, travel time, traffic interruptions, freedom to maneuver and safety have on traffic operations from the perspective of the driver. Intersection and roadway segment LOS criteria range from A, representing the best conditions, to F representing overcapacity conditions. LOS E represents "at capacity" operations. The Transportation Research Board (TRB) has developed empirical LOS standards that have been published in the most recent edition of the *Highway Capacity Manual 2000* (HCM).[1]

Throughout the United States, the HCM 2000 methodology is the prevailing measurement standard utilized. The 2000 HCM methodology identifies LOS for roadway segments based on the roadway volume for the roadway's functional classification. For signalized and all-way stop-controlled intersections, LOS is calculated using the average control per vehicle, and for side street stop-controlled intersections, LOS is based on the average control delay for the worst-case (longest delayed) approach. Control delay is the delay experienced by a driver due to the type of traffic control implemented at an intersection, which may be delay due to a traffic signal, all-way stop control, or side-street stop control. Average control delay is total control delay at an intersection divided by the total number of vehicles traveling through the intersection.

Freeway and roadway segments were also analyzed for the PM peak hour. **Table 4.5-1** describes HCM 2000 criteria for peak-hour LOS by roadway function and shows the PM peak hour traffic volume thresholds for each LOS. Except as noted in the table, the thresholds represent two-way traffic volumes.

TABLE 4.5-1
HCM 2000 PM PEAK HOUR ROADWAY SEGMENT LOS THRESHOLDS

Facility Type	Level of Service					
	A	B	C	D	E	F
Minor 2-Lane Highway	90	200	680	1,410	1,740	>1,740
Major 2-Lane Highway	120	290	790	1,600	2,050	>2,050
4-Lane, Multilane Highway[1]	1,070	1,760	2,530	3,280	3,650	>3,650
Major 2-Lane Collector	–	–	550	1,180	1,520	>1,520
2-Lane Arterial	–	–	970	1,760	1,870	>1,870
4-Lane Arterial, Undivided	–	–	1,750	2,740	2,890	>2,890
4-Lane Arterial, Divided	–	–	1,920	3,540	3,740	>3,740

[1] The *Highway Capacity Manual 2000* (HCM) provides level of service (LOS) calculation methodologies for automobiles but does not provide any LOS methodologies for other transportation modes such as pedestrians or bicycles. However the next release of the HCM (2010) is expected to provide MMLOS (Multi-Modal Level of Service) methodologies for transit, bicycles, and pedestrians in addition to automobiles. HCM 2000 was used in this environmental assessment as it is considered state of the practice for assessing transportation impacts. However, once the HCM 2010 has been adopted, it would be the preferable method for assessing impacts for all future assessments in the city.

Facility Type	Level of Service					
	A	B	C	D	E	F
6-Lane Arterial, Divided	–	–	2,710	5,320	5,600	>5,600
8-Lane Arterial, Divided	–	–	3,720	7,110	7,470	>7.470
2-Lane Freeway[1]	1,110	2,010	2,880	3,570	4,010	>4,010
2-Lane Freeway + Auxiliary Lane[1]	1,410	2,550	3,640	4,490	5,035	>5,035
3-Lane Freeway[1]	1,700	3,080	4,400	5,410	6,060	>6,060
3-Lane Freeway + Auxiliary Lane[1]	2,010	3,640	5,180	6,350	7,100	>7,100
4-Lane Freeway[1]	2,320	4,200	5,950	7,280	8,140	>8,140
6-Lane Freeway	3,400	6,160	8,800	10,820	12,120	>12,120
6-Lane Freeway + Auxiliary Lane	3,740	6,720	9,580	11,760	13,160	>13,160

Source: TRB, 2000
Notes: [1] LOS capacity threshold is for one direction.
– LOS is not achievable due to type of facility.

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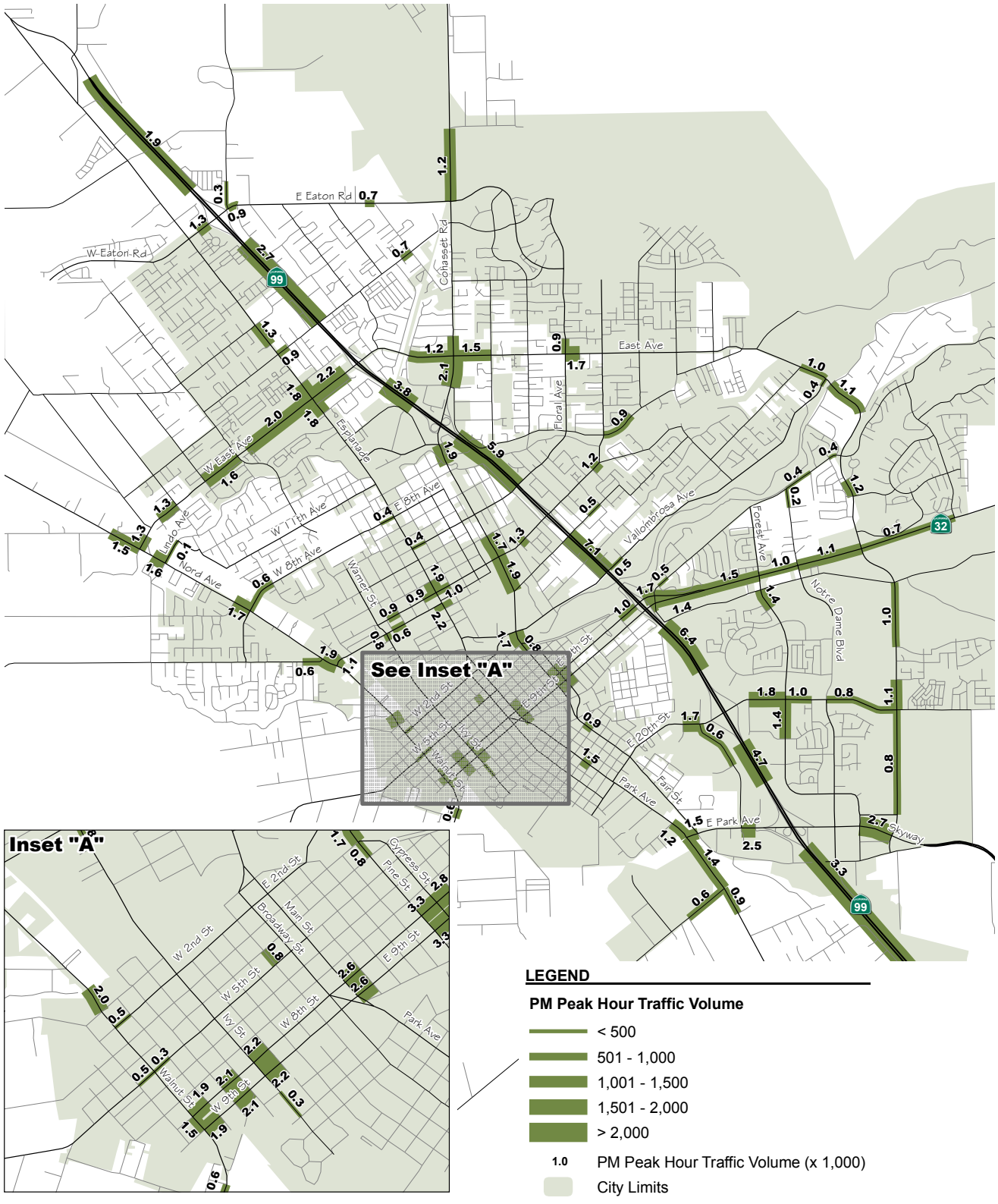

Source: Fehr & Peers, 2010

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Figure 4.5-2
Existing Traffic Volumes

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Tables 4.5-2 and **4.5-3** represent the LOS designation for a general description of traffic operations at signalized and unsignalized intersections, respectively.

TABLE 4.5-2
HCM 2000 SIGNALIZED INTERSECTION CRITERIA

LOS	Average Control Delay (seconds/vehicle)	Description
A	≤ 10.0	Very low delay. Most vehicles do not stop.
B	> 10.0 to 20.0	Generally good progression of vehicles. Slight delays.
C	> 20.0 to 35.0	Fair progression of vehicles. Slight delays.
D	> 35.0 to 55.0	Noticeable congestion. Large portion of vehicles stopped.
E	> 55.0 to 80.0	Poor progression. High delays and frequent cycle failure.
F	> 80.0	Oversaturation. Forced flow. Extensive queuing.

Source: TRB, 2000

TABLE 4.5-3
HCM 2000 UNSIGNALIZED INTERSECTION CRITERIA

LOS	Average Control Delay (seconds/vehicle)	Description
A	≤ 10.0	Little or no conflicting traffic for minor street approach.
B	> 10.0 to 15.0	Minor street approach begins to notice presence of available gaps.
C	> 15.0 to 25.0	Minor street approach begins experiencing delays for available gaps.
D	> 25.0 to 35.0	Minor street approach experiences queuing due to a reduction in available gaps.
E	> 35.0 to 50.0	Extensive minor street queuing due to insufficient gaps.
F	> 50.0	Insufficient gaps of suitable size to allow minor street traffic demand to cross safely through the major traffic stream.

Source: TRB, 2000

The intersection level of service analysis for all intersections was conducted using the Synchro 6.0 software package. This software reports the average control delay using HCM 2000 procedures along with an associated LOS.

Existing Traffic Conditions

The study freeway and roadway segments were analyzed during the PM peak hour. Study intersections were analyzed during both the AM and PM peak hour. **Tables 4.5-4** and **4.5-5** present the existing conditions analysis for freeway segments and roadway segments, respectively. The existing LOS policy for the City of Chico describes "acceptable" conditions based upon the type of roadway. The City of Chico currently strives to maintain LOS C on residential streets and LOS D or better on arterial streets and collector streets, at all intersections, and on principal arterials. LOS E is allowed on arterials that are served by transit. In the impact analysis discussions, both the City's existing and proposed 2030 General Plan LOS standards are assessed.

TABLE 4.5-4
FREEWAY LEVEL OF SERVICE – EXISTING CONDITIONS

Freeway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
SR 99 – North of Eaton Road	4-Lane Freeway	E	1,900	0.23	C
SR 99 – Eaton Road to East Avenue	4-Lane Freeway	E	2,700	0.33	B
SR 99 – East Avenue to Cohasset Road	4-Lane Freeway	E	3,800	0.47	B
SR 99 – Cohasset Road to East 1st Avenue	4-Lane Freeway	E	5,900	0.72	C
SR 99 – East 1st Avenue to SR 32	4-Lane Freeway	E	7,100	0.87	D
SR 99 – SR 32 to East 20th Street	4-Lane Freeway	E	6,400	0.79	D
SR 99 – East 20th Street to Skyway	4-Lane Freeway	E	4,700	0.58	C
SR 99 – South of Skyway	4-Lane Freeway	E	3,300	0.41	B

Note: V/C = volume to capacity

TABLE 4.5-5
ROADWAY LEVEL OF SERVICE – EXISTING CONDITIONS

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
SR 32 (Deer Creek Highway/8th Street/9th Street/Walnut Street/Nord Avenue)					
Deer Creek Highway					
Bruce Road to Yosemite Dr	2-Lane Arterial	E	700	0.37	C
El Monte Ave to Bruce Road	2-Lane Arterial	E	1,100	0.59	D
Forest Ave to El Monte Ave	2-Lane Arterial	E	1,000	0.53	D
Road merge at undivided highway to Forest Ave	2-Lane Arterial	E	1,500	0.8	D
E 8th St/Fir St to road merge at undivided highway	4-Lane Arterial, Divided	E	1,400	0.37	C
SR 99 NB Ramp to E 8th St/Fir St	4-Lane Arterial, Divided	E	1,700	0.45	C
8th Street/9th Street (one-way couplets functioning as divided arterial)					
SR 99 SB Ramp to Bartlett St (8th Street only, half-capacity)	4-Lane Arterial, Divided	E	1,000	0.53	D
Cypress St to Poplar St	4-Lane Arterial, Divided	E	2,800	0.75	D
Pine St to Cypress St	4-Lane Arterial, Divided	E	3,300	0.88	D

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
Main St to Wall St	4-Lane Arterial, Divided	E	2,600	0.7	D
Ivy St to Hazel St	4-Lane Arterial, Divided	E	2,200	0.59	D
Orange St to Cherry St	4-Lane Arterial, Divided	E	2,100	0.56	D
Walnut St to Cedar St	4-Lane Arterial, Divided	E	1,900	0.51	C
Walnut Street					
W 8th St to W 9th St	4-Lane Arterial, Undivided	E	1,500	0.52	C
Bidwell Ave to W 1st St	4-Lane Arterial, Undivided	E	2,000	0.69	D
Nord Avenue					
W Sacramento Ave to W Sacramento Ave	2-Lane Arterial	E	1,900	1.02	F
Oak Way to W 8th Ave	2-Lane Arterial	E	1,700	0.91	D
Glenwood Ave to Glenwood Ave	2-Lane Arterial	E	1,600	0.86	D
East Ave to Kennedy Ave	2-Lane Arterial	E	1,500	0.8	D
1st Avenue					
Village Lane to Longfellow Ave	2-Lane Arterial	D	1,200	0.64	D
Calgary Lane to Mildred Ave	2-Lane Arterial	D	1,300	0.7	D
Esplanade to Oleander Ave	2-Lane Arterial	D	1,000	0.53	D
Magnolia Ave to Esplanade	2-Lane Arterial	D	900	0.48	C
Hobart St to Citrus Ave	2-Lane Arterial	D	900	0.48	C
2nd Street					
Walnut St to Cedar St	4-Lane Arterial, Undivided	E	500	0.17	C
5th Street					
Walnut St to Cedar St	2-Lane Arterial	E	300	0.16	C
Oak St to Walnut St	2-Lane Arterial	E	500	0.27	C
8th Avenue					
SR 32 (Nord Ave) to Greenwich Dr	2-Lane Arterial	D	600	0.32	C
Magnolia Ave to Esplanade	2-Lane Arterial	D	400	0.21	C
8th Street					
Ashford Way to Centennial Ave	Major 2-Lane Collector	D	400	0.26	C

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
El Monte Ave to Husa Lane	Major 2-Lane Collector	D	400	0.26	C
Vista Verde Ave to Park Vista Dr	Major 2-Lane Collector	D	500	0.33	C
20th Street					
Bruce Road to Notre Dame Blvd	2-Lane Arterial	D	800	0.43	C
Forest Ave to Huntington Dr	4-Lane Arterial, Divided	D	1,000	0.27	C
Business Lane to Forest Ave	4-Lane Arterial, Divided	D	1,800	0.48	C
Sierra Nevada Ct to Dr MLK JR Pkwy	4-Lane Arterial, Divided	D	1,700	0.45	C
Bruce Road/Chico Canyon Road					
E 20th St to Raley Blvd	2-Lane Arterial	D	800	0.43	C
Remington Dr to E 20th St	2-Lane Arterial	D	1,100	0.59	D
Humboldt Road to Picholine Way	2-Lane Arterial	D	1,000	0.53	D
Lakeside Village Commons to Lakewest Dr	4-Lane Arterial, Divided	D	1,200	0.32	C
Cohasset Road					
Eaton Rd to Thorntree Dr	2-Lane Arterial	D	1,200	0.64	D
East Ave to Lorinda Ln	4-Lane Arterial, Undivided	D	1,500	0.52	C
Pillsbury Rd to East Ave	4-Lane Arterial, Undivided	D	2,100	0.73	D
Dayton Road					
Archer Ave to Pomona Ave	2-Lane Arterial	D	600	0.32	C
East Avenue					
Floral Ave to Coleman Ct	4-Lane Arterial, Undivided	D	1,700	0.59	C
Cohasset Road to North Ave	4-Lane Arterial, Undivided	D	1,500	0.52	C
Pillsbury Rd to Cohasset Road	4-Lane Arterial, Divided	D	1,200	0.32	C
Connors Ave to Esplanade	4-Lane Arterial, Divided	D	2,200	0.59	D
Esplanade to Ilahee Lane	4-Lane Arterial, Divided	D	2,000	0.53	D
Cussick Ave to Alamo Ave	4-Lane Arterial, Divided	D	1,600	0.43	C

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
Guynn Ave to Streamside Ct	4-Lane Arterial, Divided	D	1,300	0.35	C
Kennedy Ave to SR 32	4-Lane Arterial, Divided	D	1,300	0.35	C
Eaton Road					
Michael Way to Burnap Ave	2-Lane Arterial	D	700	0.37	C
Hicks Lane to Silverbell Road	2-Lane Arterial	D	900	0.48	C
Constitution Drive to SR 99 SB Ramp	2-Lane Arterial	D	1,300	0.7	D
El Monte Avenue					
E 8th St to Kirk Way	Major 2-Lane Collector	D	200	0.13	C
Esplanade/Broadway Street/Main Street/Park Avenue/Midway					
Esplanade					
W Shasta Ave to Mandalay Ct	4-Lane Arterial, Undivided	D	1,300	0.45	C
Panama Ave to East Ave	4-Lane Arterial, Undivided	D	1,800	0.62	D
Connors Ave to White Ave	4-Lane Arterial, Undivided	D	1,800	0.62	D
E 2nd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	1,900	0.66	D
E Washington Ave to W Sacramento	4-Lane Arterial, Undivided	D	2,200	0.76	D
Park Avenue					
E 16th St to E 17th St	4-Lane Arterial, Undivided	D	1,500	0.52	C
Meyers St to E Park Ave	4-Lane Arterial, Undivided	D	1,200	0.42	C
Midway					
E Park Ave to Hegan Lane	2-Lane Arterial	D	1,400	0.75	D
Hegan Lane to Sandrill Ct	2-Lane Arterial	D	900	0.48	C
Floral Avenue/ 5th Avenue					
Ravenshoe Way to East Ave	4-Lane Arterial, Undivided	D	900	0.31	C
Esplanade to Oleander Ave	2-Lane Arterial	D	400	0.21	C
Forest Avenue					
Humboldt Rd to Wildflower Ct	4-Lane Arterial, Undivided	D	1,400	0.48	C

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
E 20th St to Pkwy Village Dr/Barney Ln	4-Lane Arterial, Undivided	D	1,400	0.48	C
Hicks Lane					
Eaton Road to Calle Principal	Major 2-Lane Collector	D	300	0.2	C
E. Lassen Avenue					
Esplanade to San Jose St	Major 2-Lane Collector	D	900	0.59	D
Burnap Ave to Scenic Lane	Major 2-Lane Collector	D	700	0.46	D
W. Lindo Ave					
CA 32 (Nord Ave) to Trenta Dr	2-Lane Arterial	D	100	0.05	C
Mangrove Avenue/Pine Street					
Cohasset Road to E Lindo Ave	4-Lane Arterial, Undivided	D	1,900	0.66	D
E 3rd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	1,700	0.59	C
E 1st Ave to Palmetto Ave	4-Lane Arterial, Undivided	D	1,900	0.66	D
Vallombrosa Ave to Woodland Ave/E 3rd St	4-Lane Arterial, Divided	E	1,700	0.45	C
Woodland Ave/E 3rd St to E 4th St (couplet, half-capacity)	4-Lane Arterial, Divided	E	800	0.21	C
Manzanita Avenue					
Vallombrosa Ave to Chico Canyon Rd	2-Lane Arterial	D	1,100	0.59	D
Hooker Oaks Ave to Vallombrosa Ave	2-Lane Arterial	D	1,000	0.53	D
Mariposa Ave to Lakewood Way	Major 2-Lane Collector	D	900	0.59	D
Martin Luther King Junior Parkway					
E 20th St to E 23rd St	Major 2-Lane Collector	D	600	0.39	D
Mulberry Street					
E 14th St to E 15th St	2-Lane Arterial	D	900	0.48	C
Palmetto Avenue					
Downing Ave to Bryant Ave	Major 2-Lane Collector	D	500	0.33	C
East Park Avenue/Skyway					

Roadway Segment	Facility Type	1994 General Plan LOS Threshold	PM Peak		
			Volume	V/C	LOS
Forest Ave to Dominic Dr	4-Lane Arterial, Divided	D	2,720	0.73	D
Country Dr to Gilman Way	4-Lane Arterial, Divided	D	2,470	0.66	D
Midway to Fair St	4-Lane Arterial, Divided	D	1,500	0.4	C
Forest Ave to Dominic Dr	4-Lane Arterial, Divided	D	2,720	0.73	D
Sacramento Avenue					
Hobart St to Citrus Ave	2-Lane Arterial	D	600	0.32	C
Columbus Ave to SR 32 (Nord Ave)	2-Lane Arterial	D	1,100	0.59	D
SR 32 (Nord Ave) to Oak Lawn Ave	Major 2-Lane Collector	D	600	0.39	D
Salem Street					
W 4th St to W 5th St	Major 2-Lane Collector	E	800	0.53	D
Vallombrosa Avenue					
Covell Park Ave to Manzanita Ave	2-Lane Arterial	D	400	0.21	C
Rey Way to Vallombrosa Circle	2-Lane Arterial	D	500	0.27	C
Warner Street/Ivy Street					
W Sacramento Ave to Stadium Way	2-Lane Arterial	E	800	0.43	C
W 10th St to W 11th St	2-Lane Arterial	E	300	0.16	C
Hegan Lane					
Midway to Skyway Ave	2-Lane Arterial	E	560	0.3	C

Note: V/C = volume to capacity

Table 4.5-6 presents the existing conditions analysis for study intersections.

TABLE 4.5-6
INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay	LOS	Delay	LOS
East 1st Avenue & Mangrove Avenue	Signal	28.3	C	41.9	D
East 5th Street & Mangrove Avenue	Signal	36.9	D	21.4	C
East 20th Street & Park Avenue	Signal	10.9	B	15.4	B
East 20th Street & MLK Jr. Parkway	Signal	13.2	B	26	C
Cohasset Road & Eaton Road	Signal	22	C	26	C

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay	LOS	Delay	LOS
Eaton Road & Hicks Lane	AWSC	14.2	B	18.2	C
Esplanade & Cohasset Road	Signal	12.6	B	18.9	B
Mangrove Avenue & Vallombrosa Avenue	Signal	42.9	D	**94.2**	**F**
Midway & Hegan Lane	Signal	27	C	11.1	B
Park Avenue & Midway	Signal	31.4	C	28.8	C

Under existing conditions, all freeway segments operate acceptably. The Mangrove Avenue/Vallombrosa Avenue intersection operates at LOS F during the PM peak hour.

TRAFFIC SAFETY

Recent accident history (January 1, 2004, to December 31, 2006) for the City of Chico was collected to identify locations in the city with the highest number of accidents (summarized in **Table 4.5-7** below).

TABLE 4.5-7
HISTORICAL TRAFFIC ACCIDENT DATA

Location	Number of Accidents
SR 99 at 1st Avenue	46
SR 99 at Estates Drive	39
SR 99 at SR 32	36
SR 99 at SR 149	27
Skyway at Honey Run Road	27
SR 99 at 20th Street	26
Skyway at Rocky Bluff Drive	25
SR 99 at Southgate Avenue	25
SR 99 at East Avenue	20
Nord Avenue at Sacramento Avenue	19
SR 99 at Neal Road	19
SR 99 at Garner Lane	18
Skyway at Media Way	17
SR 99 at Palmetto Avenue	16
Cohasset Road at East Avenue	15
SR 99 at Cohasset Road	15
SR 99 at Skyway	14
SR 99 at Hamilton-Nord-Cana Hwy	14
SR 99 at Meridian Road	13

Location	Number of Accidents
SR 99 at 8th Street	13
SR 32 at Meridian Road	12
SR 99 at Cana Hwy	12

Source: Butte County, 2006

TRANSIT SYSTEM

Public transportation in the City of Chico is provided by Butte County, Plumas County, Glenn County, Amtrak, and Greyhound Lines, Inc. These entities offer local bus service, regional motorcoach service, and passenger rail service in Chico.

Public Bus Service

B-Line – Butte County

The B-Line is operated by Butte County Association of Governments and offers 20 fixed-route bus lines in the county, including service in and between the communities of Chico, Oroville, and Paradise. Thirteen of the 20 routes stop in the City of Chico. Annually, the B-Line serves approximately 850,000 riders on its fixed routes in Chico.

Plumas Transit System – Plumas County

The Plumas County Transit System offers round-trip bus service between Quincy and Chico once a week on Wednesdays. The bus enters the City of Chico along SR 99 and travels to the Chico Mall, Wal-Mart, 2nd St and Normal Avenue, and the Greyhound/Amtrak station.

Glenn Ride – Glenn County

Provided by Glenn County, the Glenn Ride bus provides seven daily weekday trips, two weekday express routes, and three daily Saturday trips that pass through the City of Chico. While Glenn Ride provides service between Butte and Glenn counties, the City of Chico is the only stop in Butte County. Glenn Ride provides service in the Glenn County cities of Willows, Artois, Orland, and Hamilton City before terminating the route at the Chico Amtrak/Greyhound station. The bus travels into the city along SR 32 and provides weekday service at two-hour headways and Saturday service at four-hour headways.

Paratransit

B-Line Paratransit, part of Butte Regional Transit, is designed to meet the needs of seniors and qualified disabled persons who are unable to utilize the B-Line Fixed Route Service. B-Line offers two types of paratransit services.

ADA Service provides transit service for certified Americans with Disabilities Act (ADA) individuals who cannot utilize the fixed-route system. The ADA service is intended to be equivalent to the fixed-route service.

Dial-A-Ride service is designed for individuals with disabilities not eligible for ADA and seniors over the age of 65. This service is provided on a space-available basis, with priority given to ADA-certified individuals.

Passenger Rail

The City of Chico is serviced by intercity passenger rail provided by Amtrak. Amtrak operates the Coast Starlight train originating in Seattle with major stops in Portland, Eugene, Sacramento, Oakland, and terminating in Los Angeles. Trains operate daily through Chico. The southbound route to Los Angeles stops at Chico at 3:50 AM while the northbound route to Seattle stops at 1:55 AM. The Chico Amtrak Station is fully accessible to wheelchairs and is located at 5th Street and Orange Street.

Motorcoach

Passenger motorcoach service through the City of Chico is provided by Greyhound Lines Inc. Greyhound provides three daily buses to Sacramento from Chico with stops in Oroville and Marysville. Travel time from Chico to Sacramento is approximately 2 hours and 15 minutes.

BICYCLE AND PEDESTRIAN FACILITIES

The City of Chico has maintained a strong commitment to incorporating bicycle transportation within the city. The City has been designated a Bronze Level Bicycle Friendly Community by the League of American Bicyclists.

The Chico Urban Area Bicycle Plan (2008) identifies existing and planned bikeway facilities in the City. The facilities identified in the Master Plan are defined as follows.

- Class I Bike Path. Provides a completely separated facility designed for the exclusive use of bicycles and pedestrians with minimal cross flows by motorists. Caltrans standards call for Class I bikeways to have a minimum of 8 feet of pavement with 2-foot graded shoulders on either side, for a total right-of-way of 12 feet. These bikeways must also be at least 5 feet from the edge of a paved roadway.

- Class II Bike Lane. Provides a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross flows by pedestrians and motorists permitted. Caltrans standards generally require a 5-foot bike lane from face of curb or edge of roadway with a 6-inch white stripe separating the roadway from the bike lane.

- Class III Bike Route. Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists. Roadways designated as Class III bike routes should have sufficient width to accommodate motorists, bicyclists, and pedestrians. Other than a street sign, there are no special markings required for a Class III bike route.

The City has the most extensive bikeway system in Butte County. Existing bicycle transportation facilities include 19.96 miles of Class I bicycle facilities, 24.99 miles of Class II bicycle lanes, and 16.32 miles of Class III routes, for a total of 61.27 miles. Existing Class I, II, and III bicycle facilities in the City are shown on **Figure 4.5-3**.

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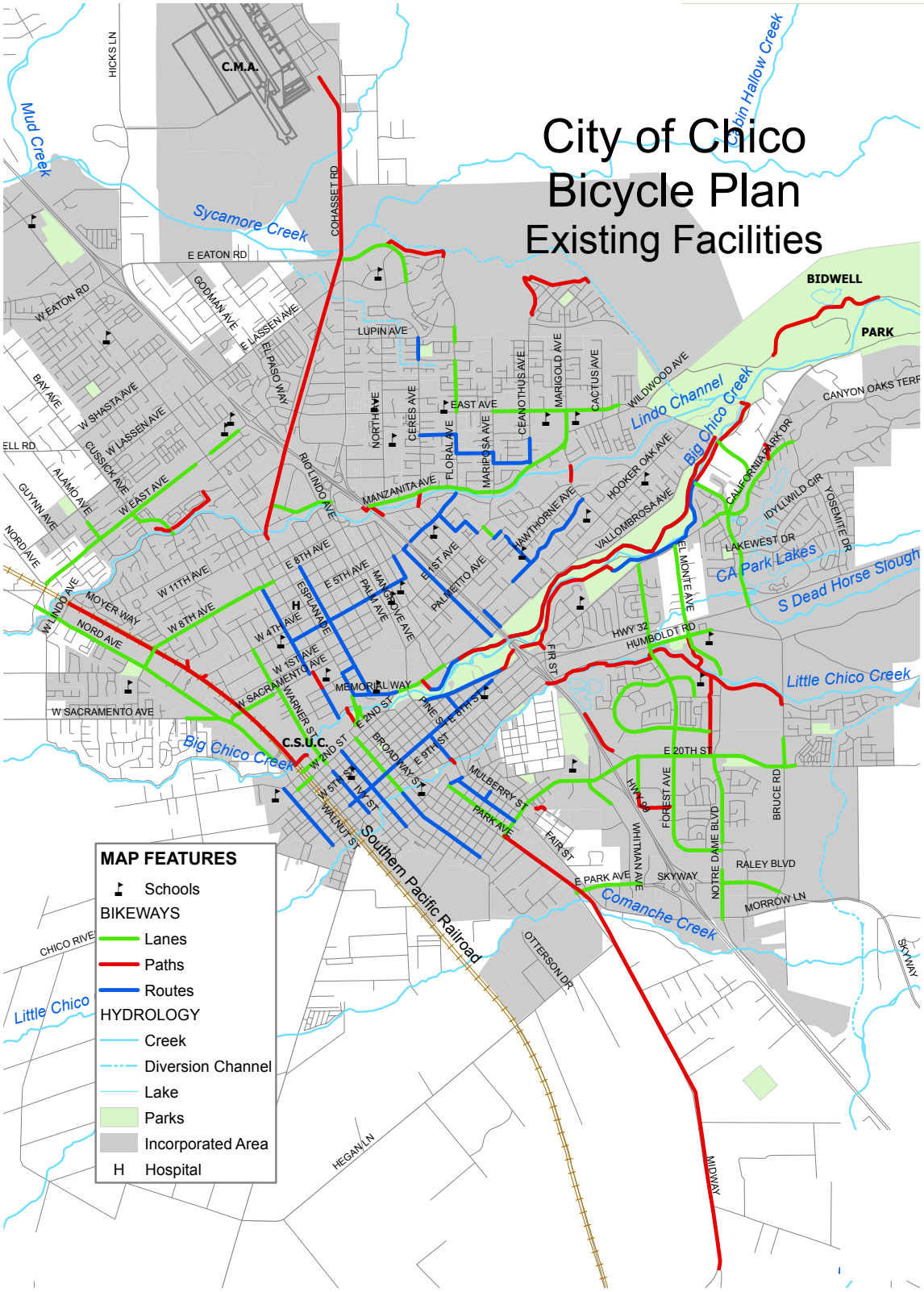

Source: City of Chico, 2007

Not to scale

Figure 4.5-3
Existing Bikeway Facilities

PMC

Freight Movement

In addition to the state highway system that provides freight transportation by way of truck, the City of Chico is also serviced by freight railways.

Rail Freight

The City of Chico is served by Amtrak and Union Pacific Railroad. On an average day, 24 to 50 trains move through Butte County on the Union Pacific tracks.

One important issue concerning freight rail transportation in Chico is at-grade roadway/rail crossings. The railroad line runs through the community parallel to SR 32 and Midway to the north and south, respectively. As a result, there are times of the day in which automobile traffic and emergency service vehicles are unable to access various parts of the city. These facilities are shown on **Figure 4.5-4**.

Highway Freight

All state highways within Chico have been designated as truck routes by Caltrans. Some roadway segments of the state highways are included in the National Network for Service Transportation Assistance Act of 1982 (STAA).

AVIATION SYSTEM

The City of Chico is serviced by two general aviation airports, Chico Municipal Airport and Ranchaero Airport.

Chico Municipal Airport

Chico Municipal Airport is a public general aviation airport that covers approximately 1,475 acres, containing two runways and one helipad. It is located in the northern part of the City. Aside from general aviation and air cargo, Chico Municipal Airport is served by United Airlines Express, providing four daily flights to San Francisco International Airport, as well as Cal-Fire. Chico Municipal Airport is owned and operated by the City. The reader is referred to Section 4.1, Land Use, and Section 4.4, Human Health/Risk of Upset, for further discussion of the airport.

Ranchaero Airport

Ranchaero Airport is a privately owned airport located on the western side of Chico, near Oak Park Avenue. Ranchaero Airport, which covers approximately 23 acres, is open to the public for general aviation. There is one asphalt paved runway that is rated in poor condition.

TRAVEL PATTERNS

Chico Travel Behavior

Within the City of Chico, most trips occur via private automobile. The 2000 U.S. Census "journey to work" data indicates that nearly 75 percent of city residents work within the city, a 9 percent increase from the 1990 Census. The average commute time is approximately 17 minutes.

Table 4.5-8 summarizes the commuting patterns identified in the 2000 Census.

TABLE 4.5-8
WORKERS' COMMUTING PATTERNS, 2000

Place of Work	Percentage of Workers	
	City of Chico	Butte County
City of Chico	75%	41%
Other Butte County Locations	18%	50%
Outside Butte County	7%	9%
Out of State	< 1%	< 1%
Total	100%	100%

Source: U.S. Census, 2000

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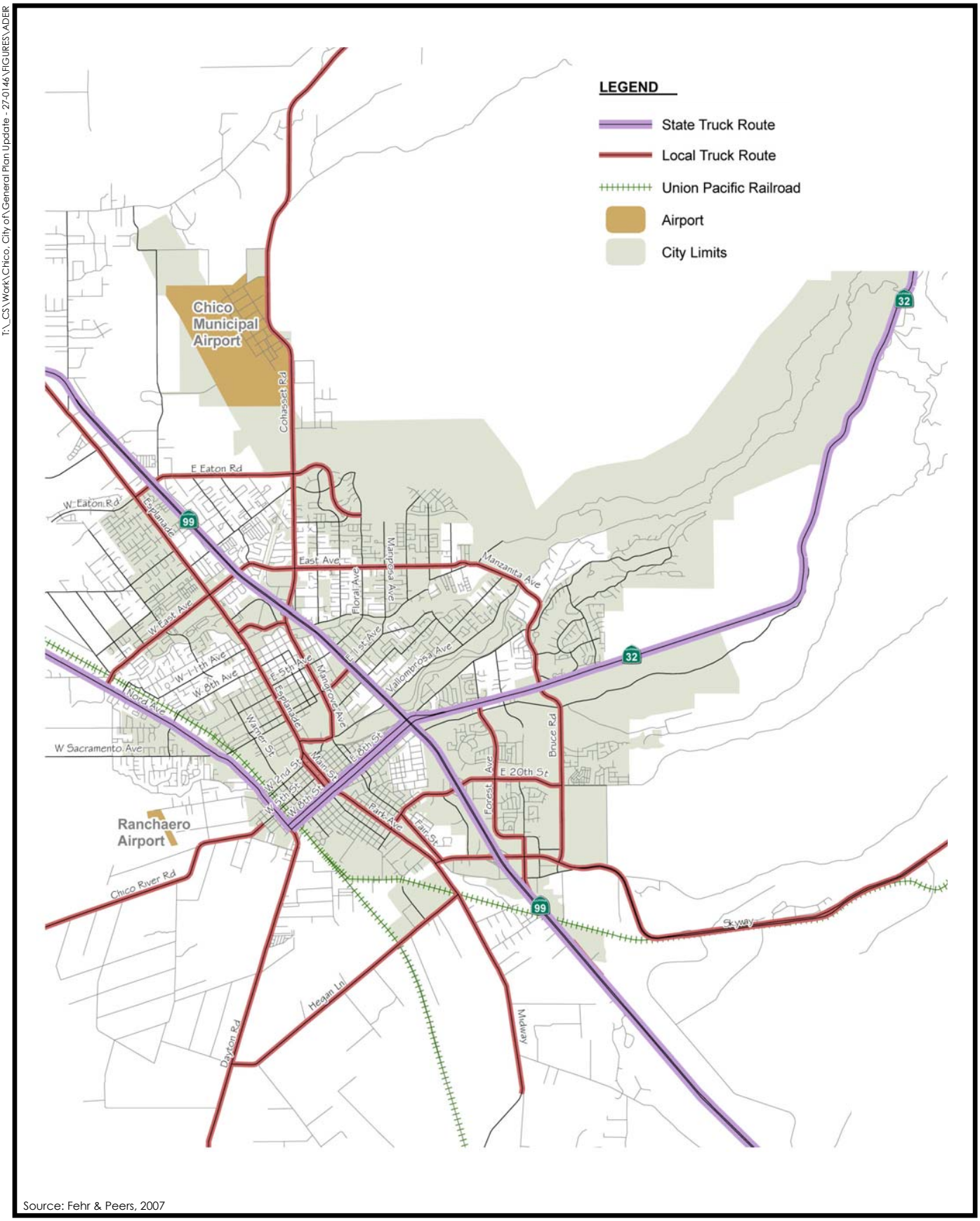


Source: Fehr & Peers, 2007

Not to scale

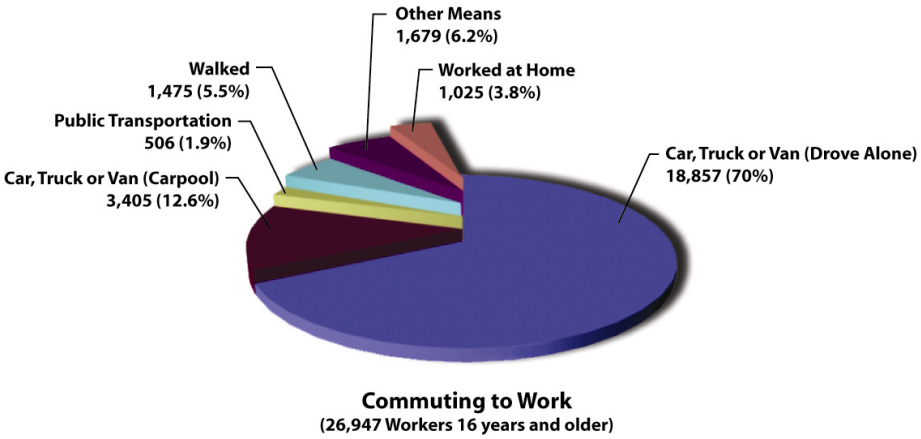
N

Figure 4.5-4
Existing Goods Movement and Aviation Facilities

PMC®

Data from the 2000 U.S. Census also documents the methods used by commuters in Chico. **Chart 4.5-1** shows that 82 percent of all working city residents travel from home to work by automobile, of which 12 percent travel in a carpool of two or more people. Walking, bicycling, and public transit modes account for 13 percent of the total work trips by Chico residents, while 4 percent of people work from home. Subsequent data collected in 2006-2008 through the American Community Survey indicates that commuting patterns in Chico have not changed considerably.

CHART 4.5-1
METHODS OF COMMUTING IN CHICO



4.5.2 REGULATORY FRAMEWORK

Transportation policies, laws, and regulations that would apply to the Circulation Element of the proposed General Plan Update are summarized below. This information provides a context for the impact discussion related to the proposed General Plan Update's consistency with applicable regulatory conditions.

STATE

State of California Transportation Concept Reports

Caltrans prepares a Transportation Concept Report (TCR) for each of its facilities. The TCR is a long-term planning document that each Caltrans district prepares for every state highway or portion thereof in its jurisdiction. The TCR usually represents the first step in Caltrans' long-range corridor planning process. The purpose of a TCR is to determine how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept." In addition to the 20-year route concept level, the TCR includes an "ultimate concept," which is the ultimate goal for the route beyond the 20-year planning horizon.

- Most of State Route 32 in the Study Area has a route concept level of LOS E except for the segment east of Forest Avenue, which is LOS D. The route concept in the project area includes the following improvements:

  – Planned

  - Widen SR 32 to four lanes from Fir Street to Yosemite Drive.

  - Conceptual

  - Near Nord Avenue, widen to four lanes as needed.

  - Nord Avenue is designated a "complete street," and improvements will be considered for all modes of transportation. Future concepts will be determined based on the Community Plan for Nord Avenue.

  - Add signal modifications at SR 32/SR 99 ramps and at Fir Street/SR 32.

- Most of State Route 99 in the Study Area has a route concept level of LOS E except for the segment south of Skyway, which is LOS D. The route concept in this area includes adding an auxiliary lane in each direction.

It is important that Caltrans is included in the General Plan Update and supporting environmental review process to ensure that its planning process includes and addresses Chico's circulation plans.

REGIONAL

Butte County General Plan

The Butte County General Plan is currently being updated. Key policies regarding transportation and circulation that are applicable to the Planning Area outside of the city limits include:

- Regional land use and transportation planning (policies 1.1, 3.4, 3.5, 3.7, 3.8, 7.1 through 7.3, 8.1 through 8.3, 9.1, 11.1, 11.2)

- Provisions for transit (Policy 4.1)

- Provisions for bicycles and pedestrians (policies 3.1 through 3.3, 3.6, 5.1 through 5.5, 9.2, 10.1, 10.2)

- Level of service standards (LOS C for county roadways and route concept LOS for Caltrans facilities) and mitigation of traffic impacts (policies 6.1 through 6.6)

Butte County Bikeway Master Plan

The Bikeway Master Plan, prepared in 1998, identifies existing and planned bicycle routes through and near the Planning Area. The Master Plan also contains design, safety, and traffic control standards for use in constructing and/or upgrading facilities. Updates to the existing and planned routes were released in 2007. The proposed facilities are described below.

Proposed Bicycle Facilities in the City of Chico

1) Class I bike path along abandoned Sacramento Northern Railroad tracks from East Park Avenue to south city limits near Hegan Lane (to connect with existing bikeways at either end)

2) Class I bike path along Union Pacific Railroad line from East Avenue to Big Chico Creek

3) Class I bike path along east side of SR 99 from Big Chico Creek to Skyway/Notre Dame Boulevard

4) Class I bike path along abandoned railroad right-of-way from Union Pacific Railroad tracks near the end of West 20th Street east along SR 99 to the Skyway

5) Class II bike lane along Madrone Avenue from Lindo Channel to Bidwell Park; Class I bike path through Bidwell Park from Madrone Avenue to Forest Avenue; Class II bike lane along Forest Avenue from Bidwell Park to Notre Dame Boulevard

6) Class I/II bike lane along Eaton Road from SR 32 to Manzanita Avenue; Class II bike lane along Manzanita Avenue, Chico Canyon Road, and Bruce Road to the Skyway

7) Class II bike lane on Warner Street from W. 4th Avenue to W. 6th Avenue; Class I bike path on Warner Street from W. 6th Avenue to W. 8th Avenue; Class II bike lane on Holly Avenue from W. 8th Avenue to East Avenue

8) Class I bike path along Little Chico Creek from Bruce Road to the Butte Creek Diversion Channel

9) Class I bike path along Butte Creek Diversion Channel from Little Chico Creek south to Butte Creek

10) Class I bike path along Potter Drive from Warfield Lane to Honey Run Road

11) Class I bike path along Sycamore Creek Diversion Channel from Wildwood Avenue to West Sacramento Avenue

12) Class I bike path connecting existing path on northwest side of SR 99 at Little Chico Creek to 20th Street Park facility

13) Class I bike path adjacent to proposed Eaton Road extension from Esplanade to SR 32

14) Class I bike path from Chico Municipal Airport to Keefer Road

15) Class I bike path adjacent to Wildwood Avenue in Bidwell Park connecting to existing path at the golf course

16) Class I bike path adjacent to or on Humboldt Road from Bruce Road to SR 32

17) Class I bike path adjacent to east side of SR 99 along drainage easement from Garner Lane to Panama Avenue

Butte County Association of Governments 2008 Regional Transportation Plan

The *Butte County 2008 Regional Transportation Plan (RTP)* (2008) is a long-range planning document for identifying and programming roadway improvements throughout Butte County. The RTP identifies goals, policies, and actions over three horizons: group 1 (2008–2010), group 2 (2011–2018), and group 3 (2019–2025). Projects are also grouped as constrained or unconstrained. The constrained projects list includes only projects that are budgeted and completely funded within the RTP and have undergone air quality conformity analyses, while unconstrained projects list are within the region's vision but cannot be implemented within

current fiscal constraints. A summary of projects in the Planning Area that are identified in the RTP are as follows:

- Add new auxiliary lanes along SR 99 between Skyway and First Avenue (under construction)
- Widen SR 32 between Fir Street and Yosemite Drive (local funds group 2)
- Widen Cohasset Road to four lanes between Boeing Avenue and Eaton Road (local funds group 1)
- Along Eaton Road, construct a new two-lane road between SR 32 and the current western terminus; widen Eaton Road to four lanes between the new western extension and Lassen Avenue; build a new four-lane road between Floral Avenue and Manzanita Avenue (local funds group 1)
- Widen Bruce Road to four lanes between SR 32 and Skyway (local funds group 2)
- Widen Midway to four lanes between Park Avenue and Hegan Lane (local funds group 2)
- Construct a new two-lane road between the current southern terminus of Fair Street and Enter Avenue (local funds group 2)
- Widen Manzanita Avenue to four lanes between East Avenue and Chico Canyon Road (local funds group 3)
- Widen Esplanade to four lanes between Nord Highway and Eaton Road (local funds group 3)

LOCAL

Nord Avenue Corridor Plan

In 2006, BCAG prepared a corridor plan for Nord Avenue, a segment of SR 32 in Chico. The purpose was to create a vision for this roadway and prepare a plan for improvements and implementation. The overall concept for the Corridor Plan was to make Nord Avenue a complete street, with pedestrian and bicycle facilities in addition to vehicle travel lanes. Recommendations also include adding traffic calming measures, expanding the local roadway network, and making this roadway network more cohesive.

Chico Urban Area Bicycle Plan

In 2008, the City of Chico adopted its fourth version of the Chico Urban Area Bicycle Plan. The purpose of Bicycle Plan is to assess the needs of bicyclists within the City of Chico and to try to assure needed facilities will be provided in the future. The plan describes the following six goals:

1) Provide safe and direct routes for cyclists between and through residential neighborhoods, commercial areas, schools, and other major destinations within the Chico Urban Area.

2) Improve safety, efficiency, and comfort for bicyclists and pedestrians through traffic engineering and law enforcement efforts and provide for shaded through-routes where possible.

3) Provide adequate bicycle parking facilities.

4) Provide and plan for bicycle and pedestrian access to new development, including on-site access for new residential development.

5) Promote bicycling as a part of the intermodal transportation system.

6) Improve bicycling safety through driver and cyclist educational programs.

The Chico Urban Area Bicycle Plan addresses Chico land use patterns, commute patterns, current bicycling issues, existing bicycle facilities, planned facilities, support facilities such as parking, intermodal connections, hygienic facilities, current safety concerns, and funding sources.

4.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The standards of significance used for the impact analysis of the proposed General Plan Update were developed by considering the State CEQA Guidelines Appendix G, which include thresholds related to traffic volume increase, change in air traffic patterns, and hazards due to design features.

Significant impacts of the proposed General Plan Update were considered based on the following standards of significance, which address and include the CEQA Appendix G criteria:

1) **Existing 1994 General Plan LOS Standards**: Maintain traffic LOS C on residential streets and LOS D or better on arterial and collector streets, at all intersections, and on principal arterials during peak hours. Accept LOS E for arterials served by transit.

2) **Proposed 2030 General Plan LOS Standards** (draft 2030 General Plan Update Policy CIRC-1.4):

    - Maintain LOS D or better for City roadways and intersections at the peak PM period. LOS E is an acceptable threshold for City roadways and intersections under the following circumstances:

        - Downtown streets within the boundaries identified in Figure DT-1 of the Downtown Element.

        - Arterials served by scheduled transit.

        - Arterials not served by scheduled transit, if bicycle and pedestrian facilities are provided within or adjacent to the roadway.

        - Utilize Caltrans LOS standards for Caltrans' facilities.

The LOS standard for State Route 32 is LOS E except for the segment east of Forest Avenue, which is LOS D. The LOS standard for State Route 99 is LOS E except for the segment south of Skyway, which is LOS D.

- There are not LOS standards for private roads.

3) Conflict with policies, plans, or programs supporting alternative transportation or increase demands for transit facilities greater than planned capacity.

4) Increase demand in air traffic patterns or change the airport location that results in substantial safety risks.

5) The project is considered to have a significant effect on bike and pedestrian facilities if it would result in adverse affects to existing bikeways or pedestrian facilities that would discourage their use or result in safety issues.

6) Result in roadway or traffic hazards.

7) Result in inadequate emergency access.

The proposed General Plan Update would not increase the demand in air traffic patterns or alter the location of airports in the Planning Area. Thus, standard of significance 3 is not addressed in this section. The reader is referred to Section 4.1, Land Use, and Section 4.4, Human Health/Risk of Upset, regarding other potential safety impacts related to airports.

ENVIRONMENTAL EFFECTS OF PROPOSED GENERAL PLAN UPDATE CIRCULATION IMPROVEMENTS

As noted above and in Section 3.0, Project Description, the proposed General Plan Update identifies roadway connections (see **Figure 3.0-4**), bikeway and trail improvements, and transit system improvements. The anticipated environmental effects of these circulation improvements are programmatically considered in this Draft EIR based on available environmental documentation, field review at a reconnaissance level, and review of aerial photography. The anticipated environmental effects are listed below. Subsequent site-specific environmental review of circulation improvements would be conducted once the improvements have been designed and exact alignments have been established, and would consider the following potential impacts:

- Temporary construction-related land use conflicts on adjacent uses associated with noise, construction traffic/access conflicts, and visual impacts.

- Conversion of agricultural land from roadway extension and widening.

- Temporary construction traffic impacts from construction vehicles and construction traffic control.

- Hazardous material exposure impacts from construction of facilities (roadways, trails, and transit).

- Air quality impacts from construction and operation of facilities (roadways, trails, and transit).

- Noise impacts from construction and operation of facilities (roadways, trails, and transit).

- Soil erosion and geologic stability impacts from construction and operation of facilities (roadways, trails, and transit).

- Water quality (surface water and groundwater) and drainage impacts from construction and operation of facilities (roadways, trails, and transit).

- Biological resource impacts associated with construction and operation of facilities (roadways, trails, and transit). This would include direct and indirect impacts to special-status species, vernal pools, and wildlife corridors.

- Cultural and paleontological resource impacts associated with construction activities that could impact undiscovered resources.

- Conflicts with existing and planned alignments of infrastructure facilities (water supply, wastewater conveyance, electrical distribution, natural gas, telephone, and cable).

- Visual impacts with the construction of urban-type circulation improvements (e.g., four-lane and larger roadways, transit facilities, urban interchanges).

The reader is referred to Sections 4.1 through 4.14 of this Draft EIR regarding these impacts.

PROPOSED GENERAL PLAN UPDATE DEVELOPMENT ASSUMPTIONS

For the purposes of the analysis for traffic and circulation impacts, a quantitative transportation/traffic impact analysis was conducted for the "analysis scenarios," or the growth that could occur by year 2030. This development scenario is based on expected build-out conditions within the Planning Area, as proposed by the General Plan Update, and anticipated development conditions within Butte County by year 2030. This analysis incorporates the roadway system identified in the proposed General Plan Update as being implemented by year 2030 (see **Figure 3.0-4**).

TRANSPORTATION ANALYSIS METHODOLOGY AND RESULTS

The City of Chico travel demand forecasting (TDF) model was used to develop peak hour traffic volume forecasts for the study area freeways, roadways, and intersections for the analysis scenarios.

Traffic Operations Analysis Methodology

The transportation impact analysis is focused on potential LOS impacts that would occur from increased travel demand associated with new land development under the proposed General Plan Update. Preparation of the transportation analysis for the roadway system followed the steps described below. For other components of the transportation system, the policies and implementation measures were evaluated against the significance thresholds.

Levels of Service

For this analysis, level of service (LOS) was determined by comparing existing and forecast traffic volumes for selected roadway segments and intersections with peak hour LOS capacity thresholds. A description of the LOS concept can be seen under the Analysis Methodology section under Roadway Segments and Intersections described above. All LOS calculations for roadway segments and intersections utilized the HCM 2000 methodologies.

The HCM 2000 roadway segment peak-hour LOS thresholds are shown in **Table 4.5-1** while the HCM 2000 signalized and unsignalized intersection thresholds are shown in **Table 4.5-2** and **Table 4.5-3,** respectively.

TDF Model Development

The City of Chico VISUM travel demand forecasting model was used to develop peak-hour volume forecasts for the study facilities for the analysis scenario (year 2030 conditions, with build-out of proposed General Plan Update). The City's model was validated to year 2007 conditions, the future model incorporates build-out of the proposed General Plan Update (from both the land use and transportation network perspective), and forecasts were adjusted using NCHRP 255 procedures.

Land Use Data

Land use data for the Planning Area was developed by the City of Chico in 2009. The land use data was provided by traffic analysis zone (TAZ) for proposed General Plan Update build-out conditions. TAZs are geographic polygons used to organize land use data for input into a travel demand forecasting model. The TAZs are defined by natural borders such as roads, waterways, and topography that typically represent areas of homogenous travel behavior.

Land use outside the Planning Area was consistent with the year 2030 horizon from the Butte County Association of Governments model.

Roadway Network Modifications

Roadway improvements included in the forecasting model outside the Planning Area are based on Tier 1 (funded) roadway improvements identified in the Butte County 2008 RTP. Roadway improvements within the city limits are based on the proposed General Plan Update roadway network shown in **Figure 3.0-4**. The proposed General Plan Update Circulation Element includes 17 future connections. While factored in the analysis, most of these roadway connections are not necessary to meet City LOS standards. Rather, these roadway connections improve connectivity, increase travel choice, reduce VMT, support economic development, accommodate efficient goods movement, and support other community goals.

Proposed General Plan Update Policy Provisions Associated with Transportation and Circulation

The following proposed General Plan Update policies and actions address transportation and circulation:

Action CIRC-1.1.1 (Road Network) – Develop the Circulation Plan shown in Figure CIRC-1 over the life of the General Plan as needed to accommodate development.

Policy CIRC-1.2 (Project-level Circulation Improvements) – Require new development to finance and construct internal and adjacent roadway circulation improvements as necessary to mitigate project impacts, including roadway, transit, pedestrian and bicycle facilities.

Policy CIRC-1.3 (Citywide Circulation Improvements) – Collect the fair share cost of circulation improvements necessary to address

cumulative transportation impacts, including roadway, transit, pedestrian and bicycle facilities, through the City's development impact fee program.

Policy CIRC-1.4 (Level of Service Standards) – Until a Multimodal Level of Service (MMLOS) methodology is adopted by the City, maintain LOS D or better for roadways and intersections at the peak PM period, except as specified below:

- *LOS E is an acceptable threshold for City streets and intersections under the following circumstances:*
  - *Downtown streets within the boundaries identified in Figure DT-1 of the Downtown Element.*
  - *Arterials served by scheduled transit.*
  - *Arterials not served by scheduled transit, if bicycle and pedestrian facilities are provided within or adjacent to the roadway.*
- *Utilize Caltrans LOS standards for Caltrans' facilities.*
- *There are no LOS standards for private roads.*
- *Exceptions to the LOS standards above may be considered by the City Council where reducing the level of service would result in a clear public benefit. Such circumstances include, but are not limited to, the following:*
  - *If improvements necessary to achieve the LOS standard results in impacts to a unique historical resource, a highly sensitive environmental area, requires infeasible right-of-way acquisition, or some other unusual physical constraint exists.*
  - *If the intersection is located within a corridor that utilizes coordinated signal timing, in which case, the operation of the corridor as a whole should be considered.*

Policy CIRC-1.5 (Multimodal Level of Service Program) – Support implementation of a Multimodal Level of Service (MMLOS) assessment methodology.

Action CIRC-1.5.1 (Traffic Analysis) – Monitor the development of MMLOS standards by the Transportation Research Board and other jurisdictions. When a valid methodology for Chico is identified, develop and adopt Transportation Impact Analysis (TIA) guidelines that include MMLOS standards specific to Chico to supersede the LOS standards. The MMLOS standards will apply to City-maintained roadways and will allow for flexibility as necessary to recognize site specific constraints, such as

protecting sensitive resources, or ensuring pedestrian and bicycle safety.

Policy CIRC-1.6 (Multimodal LOS Standards) – After adoption of MMLOS standards, maintain adequate MMLOS at intersections and along roadway segments as defined in the City's Transportation Impact Analysis Guidelines called for in Action CIRC-1.5.1.

Action CIRC-1.6.1 (Collect Multimodal Data) – Collect and analyze multimodal volume data for the City's intersections and roadway segments, paying particular attention to higher traffic volume intersections. Use this information on multimodal travel behavior to update, refine, and recalibrate, if necessary, the City's Travel Demand Forecasting Model, which projects future traffic volumes.

Action CIRC 1.6.2 (Travel Demand Model) – Enhance the City's Travel Demand Forecasting Model to include the effects of smart growth on travel behavior and measure how changes in land uses and transportation facilities can reduce Vehicle Miles Traveled (VMT) and greenhouse gas emissions.

Action CIRC-1.7.1 (Truck Routes) – In consultation with Butte County, the Butte County Association of Governments, and Caltrans, continue to designate and provide signed truck routes through the City, and ensure that City roadways are maintained.

Policy CIRC-1.8 (Regional Transportation Planning) – Continue to participate in Butte County Association of Governments' (BCAG) efforts to coordinate regional transportation planning with other jurisdictions, and continue to consult with Caltrans on transportation planning, operations, and funding to develop the City's circulation system.

Action CIRC-1.8.1 (BCAG Collaboration) – Consult with BCAG on the development of the Regional Transportation Plan, and provide all information necessary for the Countywide traffic model to accurately reflect City development.

Action CIRC-1.8.2 (Sustainable Communities Strategy) – Participate in BCAG's effort to prepare the regional Sustainable Communities Strategy.

Action CIRC-1.8.3 (Caltrans Highway Improvements) – Consult with BCAG and Caltrans regarding the prioritization and timely construction of programmed freeway and interchange improvements on the state highway system.

Policy CIRC-1.9 (Dedicated Funding Sources) – Identify outside sources of funding, and maximize the use of federal and other matching funding sources to provide ongoing maintenance, operation, and management of the City's circulation network.

Policy CIRC-2.1 (Complete Streets) – Develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the role of the street as a public space that unites the City.

Action CIRC-2.1.1 (Complete Street Standards) – With consideration of street classification and function, design new streets to accommodate all modes of travel, including transit, bicycles, pedestrians, vehicles, and,parking.

Action CIRC-2.1.2 (Retrofitting Existing Streets) – Retrofit and upgrade existing streets, as funding allows, to include complete street amenities where appropriate, prioritizing improvements in locations that will improve the overall connectivity of the City's network of bicycle and pedestrian facilities or result in increased safety.

Action CIRC-2.1.3 (Multimodal Connections) – Provide connections between and within existing and new neighborhoods for bicycles, pedestrians, and automobiles.

Policy CIRC-2.2 (Circulation Connectivity and Efficiency) – Provide for greater street connectivity and efficiency for all transportation modes.

Action CIRC-2.2.1 (Connectivity in Project Review) – New development shall include the following internal circulation features:

- *A grid or modified grid-based primary street system. Cul-de-sacs are discouraged, but may be approved in situations where difficult site planning issues, such as odd lot size, topography, or physical constraints exist or where their use results in a more efficient use of land, however in all cases the overall grid pattern of streets should be maintained;*
- *Traffic-calming measures, where appropriate;*
- *Roundabouts as alternative intersection controls, where appropriate;*
- *Bicycle and pedestrian connections to adjacent streets, trails, public spaces, and bicycle paths; and*
- *Short block lengths consistent with City design standards.*

Action CIRC-2.2.2 (Traffic Management) – Perform routine, ongoing evaluation of the street traffic control system, with emphasis on traffic

management, such as signal timing and coordination or the use of roundabouts, to optimize traffic flow along arterial corridors and reduce vehicle emissions.

Action CIRC-2.2.3 (Traffic-Calming Measures) – Install appropriate traffic-calming devices, such as bulbing and reduced street widths, to discourage speeding and "cut-through" traffic on existing local streets.

Policy CIRC-3.1 (Bikeway Master Plan) – Implement and update the Chico Urban Area Bicycle Plan (CUABP) consistent with the goals and policies of the General Plan.

Action CIRC-3.1.1 (Add Bicycle Facilities) – Incorporate bicycle facilities identified in the CUABP into public road construction projects and private development projects.

Action CIRC-3.1.2 (Bicycle Crossings) – Identify and pursue funding to construct crossings at creeks, railroads, and roadways consistent with the CUABP to improve bicycle and pedestrian connectivity.

Action CIRC-3.1.3 (Regional Bicycle Trail Coordination) – Consult with Butte County, Butte County Association of Governments, and other agencies regarding implementation of a regional bikeway system.

Action CIRC-3.1.4 (Bikeway Map) – Promote bicycle use by providing an updated map of Chico's bikeways to bicycle stores, CSU Chico, and other key meeting places for bicyclists.

Policy CIRC-3.2 (CSU Chico Bicycle Access) – Continue to encourage CSU Chico to reintroduce opportunities for safe bicycle access into, around and through the main campus area.

Policy CIRC-3.3 (New Development and Bikeway Connections) – Ensure that new residential and non-residential development projects provide connections to the nearest bikeways.

Action CIRC-3.3.1 (Bikeway Requirements) – Require pedestrian and bicycle connections to the Citywide bikeway system every 500 feet, where feasible, as part of project approval and as identified in the Chico Urban Area Bicycle Plan.

Policy CIRC-3.4 (Bicycle Safety) – Improve safety conditions, efficiency, and comfort for bicyclists through traffic engineering, maintenance and law enforcement.

Action CIRC-3.4.1 (Construction and Maintenance) – Continue to ensure that all new and improved streets have bicycle-safe drainage grates

and are free of hazards such as uneven pavement and gravel. Maintain a program for the sweeping and repair of bikeways.

Action CIRC-3.4.2 (Signing, Markings, and Lighting) – Continue to provide signage and markings to warn vehicular traffic of the existence of merging or crossing bicycle traffic where bikeways make transitions into or across roadways. Delineate and sign bikeways in accordance with Caltrans' standards and install, where feasible, lighting for safety and comfort.

Action CIRC-3.4.3 (Bike Safety in Schools) – Consult with the Chico Unified School District, CSU Chico, and Butte College regarding development of an educational campaign promoting bicycle safety and safe routes to school programs.

Action CIRC-3.4.4 (Bicycle Detection at Traffic Signals) – Continue to install bicycle detector loops at high volume bicycle/automobile intersections that have actuated signals.

Policy CIRC-3.5 (Funding Bicycle Improvements) – Consider bikeway improvements when establishing funding priorities for the City and adopting the Capital Improvement Program.

Action CIRC-3.5.1 (Other Funding Sources) – Continue to pursue funding sources, including state and federal grants, for new bicycle facilities.

Policy CIRC-3.6 (Bicycle Parking) – Provide adequate bicycle parking and support facilities.

Action CIRC-3.6.1 (Secure Bicycle Parking and Facilities) – Update the Municipal Code requirements for bicycle parking, and include where appropriate, requirements for bicycle-support facilities, such as personal lockers and showers.

Policy CIRC-4.1 (Pedestrian Master Planning) – Continue to integrate and highlight pedestrian access and dual use bicycle and pedestrian pathways in the Chico Urban Area Bicycle Plan.

Policy CIRC-4.2 (Continuous Network) – Provide a pedestrian network in existing and new neighborhoods that facilitates convenient and continuous pedestrian travel free of major impediments and obstacles.

Action CIRC-4.2.1 (Housing or Destination Connections) – Amend the Municipal Code to require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops, schools, parks, shopping centers, and jobs.

Action CIRC-4.2.2 (Neighborhood Planning of Street Improvements) – Continue to use the neighborhood planning process to identify neighborhood priorities for the improvement of existing streets, including pedestrian facilities.

Policy CIRC-4.3 (Pedestrian-Friendly Streets) – Ensure that streets in areas with high levels of pedestrian activity (such as employment centers, residential areas, mixed-use areas, and schools) support safe pedestrian travel by providing elements such as detached sidewalks, bulb-outs, enhanced pedestrian crossings, and medians.

Action CIRC-4.3.1 (Safe Pedestrian Crossings) – As funding allows, improve pedestrian safety at intersections and other crossing locations by providing safe, well-marked pedestrian crossings, bulb-outs, audible warnings, or median refuges that reduce crossing widths.

Action CIRC-4.3.2 (Expand Sidewalk Infrastructure) – As funding allows, continue installation of sidewalk and pedestrian enhancement infrastructure in areas not currently served.

Policy CIRC-5.1 (Transit Planning) – Consult with and encourage the Butte County Association of Governments (BCAG) to implement a comprehensive transit system that serves Chico's current and future needs.

Action CIRC-5.1.1 (Transit Master Plan) – Participate in BCAG's transit master planning efforts to help ensure that transit routes coincide with Chico's major destinations for employment and shopping, concentrations of housing, key institutions, and other land uses likely to supply riders for public transit.

Action CIRC-5.1.2 (Intercity Bus Service) – In consultation with BCAG, Greyhound, and Amtrak, monitor demand for intercity bus transit service.

Action CIRC-5.1.3 (Transit Center) – Maintain the Downtown Transit Center as the key hub for intracity public transportation.

Action CIRC-5.1.4 (Enhanced B-Line) – In consultation with BCAG, pursue funding sources and partnerships to support an enhanced B-Line with more frequent headways.

Policy CIRC-5.2 (Central City Transit Route) – Encourage the creation of a pilot program Central City Transit Route that is frequently served by branded transit vehicles connecting heavily visited City locations, such as CSU Chico, Enloe Medical Center, shopping, entertainment areas and Downtown.

Action CIRC-5.2.1 (Transit Oriented Development) – Support new development and redevelopment within the Central City and Corridor Opportunity Sites to support ridership.

Action CIRC-5.2.2 (Central City Route Marketing) – Bolster community support, awareness, and ridership of a Central City Transit Route by encouraging BCAG to solicit public input on the naming and exterior design of transit vehicles.

Policy CIRC-5.3 (Transit Connectivity in Projects) – Ensure that new development supports public transit.

Action CIRC-5.3.1 (Roadway Transit Features) – When planning or retrofitting roadways, consult with BCAG regarding the inclusion of transit stops, shelters, bus turnouts, and other transit improvements.

Action CIRC-5.3.2 (Transit Improvements for New Development) – During the project review process, consult with BCAG to determine appropriate requirements for the installation of stops and streetscape improvements if needed to accommodate transit.

Policy CIRC-7.1 (Rail Services) – Consult with other agencies and private entities to identify ways to maintain, improve, and expand rail services to safely meet existing and future needs of residents and businesses.

Action CIRC-7.1.1 (Passenger Rail Service) – Investigate opportunities to partner with other agencies in exploring the feasibility of expanding passenger rail service to Chico as part of a statewide system.

Action CIRC-7.1.2 (Existing Railroad Crossings) – Continue ongoing partnerships to improve the condition and safety of railroad crossings by upgrading surface conditions and providing adequate signs and signals.

Action CIRC-7.1.3 (New Grade-Separated Crossings) – Explore the feasibility of constructing new grade-separated crossings based on state criteria and funding availability at the following locations:

- *State Route 32 at 8th and 9th streets (included in the Regional Transportation Plan);*
- *West 8th Avenue;*
- *West East Avenue; and*
- *West Second Street.*

Action CIRC-7.1.4 (Train Depot) – Upgrade the historic Train Depot to serve as the regional transit hub for Greyhound and Amtrak and consult with Union Pacific Railroad regarding an upgrade of the depot landing adjacent to the tracks.

Policy CIRC-9.1 (Reduce Peak-Hour Trips) – Strive to reduce single occupant vehicle trips through the use of travel demand management strategies.

Action CIRC-9.1.1 (City Travel Demand Management) – Implement a City of Chico Travel Demand Management Plan that provides incentives for City employees to commute in modes other than single-occupant vehicles.

Action CIRC-9.1.2 (Employer Trip Reduction Programs) – Encourage employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, and preferential parking for carpools/vanpools.

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant transportation impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that improve transportation and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

City Roadway Facilities (Standard of Significance 1)

Impact 4.5.1 Implementation of the proposed General Plan Update would result in acceptable traffic operations on City roadway facilities. This would be a **less than significant** impact.

The peak-hour roadway and freeway segment traffic volumes shown in **Tables 4.5-9** and **4.5-10** were compared to the freeway and roadway segment thresholds summarized in **Table 4.5-1** to analyze traffic operations on the Study Area roadway segments for the year 2030 future analysis scenario. The peak-hour signalized and unsignalized intersection delays shown in **Table 4.5-11** were compared to the HCM 2000 control delay in **Tables 4.5-2** and **4.5-3** to analyze traffic operations on the study intersections for the year 2030 future analysis scenario.

TABLE 4.5-9
FREEWAY LEVEL OF SERVICE – PROPOSED GENERAL PLAN UPDATE YEAR 2030 CONDITIONS

Freeway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
SR 99 – North of Eaton Road	4-Lane Freeway	E	3,320	0.41	B
SR 99 – Eaton Road to East Avenue	4-Lane Freeway	E	4,840	0.6	C
SR 99 – East Avenue to Cohasset Road	4-Lane Freeway + Auxiliary Lanes	E	6,290	0.62	C
SR 99 – Cohasset Road to East 1st Avenue	4-Lane Freeway + Auxiliary Lanes	E	8,470	0.84	D
SR 99 – East 1st Avenue to SR 32	4-Lane Freeway + Auxiliary Lanes	E	10,380	1.03	F

Freeway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
SR 99 – SR 32 to East 20th Street	4-Lane Freeway + Auxiliary Lanes	E	8,830	0.88	D
SR 99 – East 20th Street to Skyway	4-Lane Freeway + Auxiliary Lanes	E	6,430	0.64	C
SR 99 – South of Skyway	4-Lane Freeway	D	3,920	0.49	B

Note: V/C = volume to capacity

TABLE 4.5-10
ROADWAY LEVEL OF SERVICE – PROPOSED GENERAL PLAN UPDATE YEAR 2030 CONDITIONS

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
SR 32 (Deer Creek Highway/8th Street/9th Street/Walnut Street/Nord Avenue)					
Deer Creek Highway					
Bruce Road to Yosemite Dr	4-Lane Arterial	D	1,410	0.49	C
El Monte Ave to Bruce Road	4-Lane Arterial, Divided	D	2,920	0.78	D
Forest Ave to El Monte Ave	4-Lane Arterial, Divided	D	2,820	0.75	D
Start of undivided highway to Forest Ave	4-Lane Arterial, Divided	E	3,320	0.89	D
E 8th St/Fir St to road merge at undivided highway	4-Lane Arterial, Divided	E	3,220	0.86	D
CA 99 NB Ramp to E 8th St/Fir St	4-Lane Arterial, Divided	E	3,490	0.93	D
8th Street/9th Street (one-way couplets functioning as divided arterial)					
SR 99 SB Ramp to Bartlett St (8th Street only, half-capacity)	4-Lane Arterial, Divided	E	1,130	0.6	D
Cypress St to Poplar St	4-Lane Arterial, Divided	E	3,000	0.8	D
Pine St to Cypress St	4-Lane Arterial, Divided	E	3,700	0.99	E
Main St to Wall St	4-Lane Arterial, Divided	E	2,610	0.7	D
Ivy St to Hazel St	4-Lane Arterial, Divided	E	2,300	0.61	D
Orange St to Cherry St	4-Lane Arterial, Divided	E	2,380	0.64	D

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
Walnut St to Cedar St	4-Lane Arterial, Divided	E	2,170	0.58	D
Walnut Street					
W 8th St to W 9th St	4-Lane Arterial, Undivided	E	1,710	0.59	C
Bidwell Ave to W 1st St	4-Lane Arterial, Undivided	E	2,240	0.78	D
Nord Avenue					
W Sacramento Ave to W Sacramento Ave	2-Lane Arterial	E	2,020	1.08	F
Oak Way to W 8th Ave	2-Lane Arterial	E	1,830	0.98	E
Glenwood Ave to Glenwood Ave	2-Lane Arterial	E	1,790	0.96	E
East Ave to Kennedy Ave	2-Lane Arterial	E	1,620	0.87	D
1st Avenue					
Village Lane to Longfellow Ave	2-Lane Arterial	D	1,410	0.75	D
Calgary Lane to Mildred Ave	2-Lane Arterial	D	1,390	0.74	D
Esplanade to Oleander Ave	2-Lane Arterial	D	1,100	0.59	D
Magnolia Ave to Esplanade	2-Lane Arterial	D	940	0.5	C
Hobart St to Citrus Ave	2-Lane Arterial	D	920	0.49	C
2nd Street					
Walnut St to Cedar St	4-Lane Arterial, Undivided	E	600	0.21	C
5th Street					
Walnut St to Cedar St	2-Lane Arterial	E	370	0.2	C
Oak St to Walnut St	2-Lane Arterial	E	570	0.3	C
8th Avenue					
CA 32 (Nord Ave) to Greenwich Dr	2-Lane Arterial	D	860	0.46	C
Magnolia Ave to Esplanade	2-Lane Arterial	D	730	0.39	C
8th Street					
Ashford Way to Centennial Ave	Major 2-Lane Collector	D	610	0.4	D
El Monte Ave to Husa Lane	Major 2-Lane Collector	D	610	0.4	D
Vista Verde Ave to Park Vista Dr	Major 2-Lane Collector	D	600	0.39	D
20th Street					

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
Bruce Road to Notre Dame Blvd	4-Lane Arterial, Divided	D	2,100	0.56	D
Forest Ave to Huntington Dr	4-Lane Arterial, Divided	D	1,760	0.47	C
Business Lane to Forest Ave	4-Lane Arterial, Divided	D	2,550	0.68	D
Sierra Nevada Ct to Dr MLK JR Pkwy	4-Lane Arterial, Divided	D	1,740	0.47	C
Bruce Road/Chico Canyon Road					
E 20th St to Raley Blvd	4-Lane Arterial, Divided	D	1,890	0.51	C
Remington Dr to E 20th St	4-Lane Arterial, Divided	D	2,290	0.61	D
Humboldt Road to Picholine Way	4-Lane Arterial, Divided	D	2,910	0.78	D
Lakeside Village Commons to Lakewest Dr	4-Lane Arterial, Divided	D	1,770	0.47	C
Cohasset Road					
Eaton Rd to Thorntree Dr	4-Lane Arterial, Undivided	D	1,960	0.68	D
East Ave to Lorinda Lane	4-Lane Arterial, Undivided	D	1,820	0.63	D
Pillsbury Rd to East Ave	4-Lane Arterial, Undivided	D	2,380	0.82	D
Dayton Road					
Archer Ave to Pomona Ave	2-Lane Arterial	D	680	0.36	C
East Avenue					
Floral Ave to Coleman Ct	4-Lane Arterial, Undivided	D	1,800	0.62	D
Cohasset Road to North Ave	4-Lane Arterial, Undivided	D	1,530	0.53	C
Pillsbury Rd to Cohasset Road	4-Lane Arterial, Divided	D	1,210	0.32	C
Connors Ave to Esplanade	4-Lane Arterial, Divided	D	2,530	0.68	D
Esplanade to Ilahee Lane	4-Lane Arterial, Divided	D	2,260	0.6	D
Cussick Ave to Alamo Ave	4-Lane Arterial, Divided	D	1,620	0.43	C

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
Guynn Ave to Streamside Ct	4-Lane Arterial, Divided	D	1,400	0.37	C
Kennedy Ave to SR 32	4-Lane Arterial, Divided	D	1,520	0.41	C
Eaton Road					
Michael Way to Burnap Ave	4-Lane Arterial, Divided	D	1,460	0.39	C
Hicks Lane to Silverbell Road	4-Lane Arterial, Divided	D	2,790	0.75	D
Constitution Drive to SR 99 SB Ramp	4-Lane Arterial, Divided	D	2,410	0.64	D
El Monte Avenue					
E 8th St to Kirk Way	Major 2-Lane Collector	D	330	0.22	C
Esplanade/Broadway Street/Main Street/Park Avenue/Midway					
Esplanade					
W Shasta Ave to Mandalay Ct	4-Lane Arterial, Undivided	D	1,840	0.64	D
Panama Ave to East Ave	4-Lane Arterial, Undivided	D	2,050	0.71	D
Connors Ave to White Ave	4-Lane Arterial, Undivided	D	1,890	0.65	D
E 2nd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	2,020	0.7	D
E Washington Ave to W Sacramento	4-Lane Arterial, Undivided	D	2,440	0.84	D
Park Avenue					
E 16th St to E 17th St	4-Lane Arterial, Undivided	D	1,720	0.6	C
Meyers St to E Park Ave	4-Lane Arterial, Undivided	D	1,880	0.65	D
Midway					
E Park Ave to Hegan Lane	2-Lane Arterial	D	1,530	0.82	D
Hegan Lane to Sandrill Ct	2-Lane Arterial	D	1,070	0.57	D
Floral Avenue/5th Avenue					
Ravenshoe Way to East Ave	4-Lane Arterial, Undivided	D	1,000	0.35	C
Esplanade to Oleander Ave	2-Lane Arterial	D	600	0.32	C

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
Forest Avenue					
Humboldt Rd to Wildflower Ct	4-Lane Arterial, Undivided	D	2,030	0.7	D
E 20th St to Pkwy Village Dr/Barney Lane	4-Lane Arterial, Undivided	D	1,780	0.62	D
Hicks Lane					
Eaton Road to Calle Principal	4-Lane Arterial, Undivided	D	1,170	0.4	C
E. Lassen Avenue					
Esplanade to San Jose St	Major 2-Lane Collector	D	1,040	0.68	D
Burnap Ave to Scenic Ln	Major 2-Lane Collector	D	830	0.55	D
W. Lindo Ave					
SR 32 (Nord Ave) to Trenta Dr	2-Lane Arterial	D	160	0.09	C
Mangrove Avenue/Pine Street					
Cohasset Road to E Lindo Ave	4-Lane Arterial, Undivided	D	2,080	0.72	D
E 3rd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	1,890	0.65	D
E 1st Ave to Palmetto Ave	4-Lane Arterial, Undivided	D	1,960	0.68	D
Vallombrosa Ave to Woodland Ave/E 3rd St	4-Lane Arterial, Divided	E	1,840	0.49	C
Woodland Ave/E 3rd St to E 4th St (couplet, half-capacity)	4-Lane Arterial, Divided	E	810	0.22	C
Manzanita Avenue					
Vallombrosa Ave to Chico Canyon Rd	2-Lane Arterial	D	1,580	0.84	D
Hooker Oaks Ave to Vallombrosa Ave	2-Lane Arterial	D	1,370	0.73	D
Mariposa Ave to Lakewood Way	Major 2-Lane Collector	D	990	0.65	D
Martin Luther King Junior Parkway					
Dr MLK JR Pkwy - E 20th St to E 23rd St	Major 2-Lane Collector	D	640	0.42	D
Mulberry Street					
E 14th St to E 15th St	4-Lane Arterial, Undivided	D	970	0.34	C
Palmetto Avenue					

Roadway Segment	Facility Type	Proposed General Plan Update LOS Threshold	PM Peak		
			Volume	V/C	LOS
Downing Ave to Bryant Ave	Major 2-Lane Collector	D	540	0.36	C
East Park Avenue/Skyway					
Forest Ave to Dominic Dr	4-Lane Arterial, Divided	D	3,100	0.83	D
Country Dr to Gilman Way	4-Lane Arterial, Divided	D	3,540	0.95	D
Midway to Fair St	4-Lane Arterial, Divided	D	1,600	0.43	C
Sacramento Avenue					
Hobart St to Citrus Ave	2-Lane Arterial	D	700	0.37	C
Columbus Ave to SR 32 (Nord Ave)	2-Lane Arterial	D	1,200	0.64	D
SR 32 (Nord Ave) to Oak Lawn Ave	Major 2-Lane Collector	D	650	0.43	D
Salem Street					
W 4th St to W 5th St	Major 2-Lane Collector	E	840	0.55	D
Vallombrosa Avenue					
Covell Park Ave to Manzanita Ave	2-Lane Arterial	D	470	0.25	C
Rey Way to Vallombrosa Circle	2-Lane Arterial	D	650	0.35	C
Warner Street/Ivy Street					
W Sacramento Ave to Stadium Way	2-Lane Arterial	E	1050	0.56	D
W 10th St to W 11th St	2-Lane Arterial	E	970	0.52	C
Hegan Lane					
Midway to Skyway Ave	2-Lane Arterial	E	700	0.37	C

Note: V/C = volume to capacity

Table 4.5-11 presents the year 2030 conditions analysis for intersections.

TABLE 4.5-11
INTERSECTION LEVEL OF SERVICE – PROPOSED GENERAL PLAN UPDATE YEAR 2030 CONDITIONS

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay	LOS	Delay	LOS
East 1st Avenue & Mangrove Avenue	Signal	31	C	54.8	D
East 5th Avenue & Mangrove Avenue	Signal	62.3	E	29.9	C
East 20th Street & Park Avenue	Signal	13.8	B	22.2	C

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay	LOS	Delay	LOS
East 20th Street & MLK Jr. Parkway	Signal	15.7	B	36.1	D
Cohasset Road & Eaton Road	Signal	24.7	C	24.8	C
Eaton Road & Hicks Lane	AWSC	32.7	C	43.2	D
Esplanade & Cohasset Road	Signal	11.8	B	21.7	C
Mangrove Avenue & Vallombrosa Avenue	Signal	35.6	D	60.1	E
Midway & Hegan Lane	Signal	34.6	C	16.8	B
Park Avenue & Midway	Signal	44.3	D	41.8	D

The analysis presented in **Table, 4.5-9**, **Table 4.5-10**, and **Table 4.5-11** represents the development potential of the proposed Land Use Diagram within a year 2030 horizon. This represents a conservative assumption of development by 2030 since build-out of the land uses in the planning area will likely be much longer. While factored in the analysis, most of the future 17 roadway connections identified in the Circulation Element are not necessary to meet City LOS standards. Rather, these roadway connections improve connectivity, increase travel choice, reduce VMT, support economic development, accommodate efficient goods movement, and support other community goals. New streets would be designed to accommodate all modes of travel, including transit, bicycles, and vehicles (Action CIRC-2.1.1). In addition, proposed General Plan Update Policy CIRC-1.2 requires new development to finance and construct internal and adjacent roadway circulation improvements as necessary to mitigate project impacts, including roadway, transit, pedestrian and bicycle facilities. The City shall perform routine and ongoing evaluation of the street traffic control system with the goal of efficient traffic management, such as signal timing and coordination or the use of roundabouts to optimize traffic flow along arterial corridors (Action CIRC-2.2.2).

As shown in **Table 4.5-10**, all of the City roadway facilities will operate acceptably during the PM peak hour. While **Table 4.5-11** identifies that the intersection of Mangrove Avenue and Vallombrosa Avenue would operate at LOS E. This is consistent with both the City's current LOS standard, and the proposed LOS standards set forth in draft Circulation Element due to the fact that Mangrove is served by scheduled transit. This would be a **less than significant** impact. No mitigation measures are required.

State Highway Facilities (Standard of Significance 1)

Impact 4.5.2 Implementation of the proposed General Plan Update would result in an increase in traffic volumes on state facilities that would operate below Caltrans LOS thresholds under year 2030 conditions. This would be a **significant** impact.

Based on **Tables 4.5-9** and **4.5-10**, the segment of SR 99 between East 1st Avenue and SR 32 and the segment of SR 32 (Nord Avenue) between West Sacramento Avenue (west) and West Sacramento Avenue (east) would operate unacceptably at LOS F during the PM peak hour under year 2030 conditions.

Widening SR 99 to three lanes without or with auxiliary lanes (northbound and southbound) between East 1st Avenue and SR 32 would result in acceptable LOS E or better operations on this

segment of SR 99. The auxiliary lane improvements for this segment of SR 99 are an identified BCAG project anticipated to proceed in the upcoming several years. However, given state funding shortfalls, and the fact that the City is not in control of the timing or implementation of this improvement, there is uncertainty regarding the ultimate timing of the improvement.

This portion of SR 32 between West Sacramento Avenue (west) and West Sacramento Avenue (east) was part of a collaborative planning process (The Nord Avenue Corridor Plan) that included BCAG, Caltrans, Butte County and the City of Chico. The planning process aimed to develop a complete street concept that balanced the efficient movement of people along a state highway that traverses a built community. Recommendations from the process included the addition of traffic calming measures and expanding the local roadway network to improve accessibility.

The resulting LOS is attributed to cumulative traffic assuming build-out of the proposed General Plan Update combined with cumulative traffic generated in the rest of Butte County. The proposed General Plan Update includes Policy CIRC-1.3 that identifies the collection of the fair share cost of improvements necessary to address cumulative transportation impacts, including roadway, transit, pedestrian, and bicycle facilities through the City's development impact fee program. In addition, the City of Chico and Caltrans have entered into a funding agreement for mitigating local developments' impact to state facilities. Further, Action CIRC-1.8.3 commits the City to continue to consult with BCAG and Caltrans regarding the prioritization and timely construction of programmed freeway and interchange improvements on the state highway system. The policies and actions included in the proposed General Plan Update are intended to mitigate the City's impact to state facilities due to planned development as the result of the proposed General Plan Update. However, implementation of future improvements on state facilities is uncertain because the future improvements of Caltrans facilities do not fall under the jurisdiction (or control) of the City. So while the collaborative Nord Avenue Corridor Plan identifies strategies to address some of the movement and noise considerations of this constrained state highway corridor, no final solution to address cumulative LOS impacts has been developed for this roadway.

Given the uncertainty of the type and/or timing of improvements to these two segments of state facilities, this impact is considered **significant and unavoidable**.

Transit System (Standard of Significance 2)

Impact 4.5.3 Implementation of the proposed General Plan Update would result in an increase in demand for public transit services in the Planning Area. However, implementation of proposed General Plan Update policy provisions would not conflict with policies, plans, or programs supporting alternative transportation or increase demand for transit facilities greater than planned capacity. This is considered a **less than significant** impact.

BCAG administers Butte County's countywide public transit system (B-Line) that provides both inter-city and intra-city transit service. In the City of Chico, B-line provides fixed-route and paratransit transit services. The proposed General Plan includes numerous policies and actions to support BCAG's transit planning efforts like the annual Transit Needs assessment and longer range planning efforts through the regional planning efforts (Policy CIRC-5.1, Action CIRC-5.1.1, and Action CIRC-5.1.2). In addition, the General Plan Update contains Action CIRC-5.3.1 which states that during the planning or retrofitting of roadways, the City is required to consult with BCAG regarding the inclusion of transit stops, shelters, bus turnouts, and other transit improvements, and Action CIRC-5.3.2 which requires consultation with BCAG during the review

process for new development in order to determine the need for the installation of stops and streetscape improvements to accommodate transit.

Funding for transit operations and maintenance includes two sources from the Transportation Development Act (TDA) that are based in part on local sales tax revenue, with allocation based on population and transit operator revenue. Historically, TDA funds have kept pace with inflation. In addition, since a portion of the funding is indexed to population, it is reasonable to expect that funding for expanded transit service will be available to maintain a balance of demand and capacity. Action CIRC-5.1.4 states that the City, in consultation with BCAG, will pursue funding sources and partnerships to support an enhanced B-Line with more frequent headways and Policy CIRC-5.3 ensures that new development support public transit.

The proposed General Plan Update's consistency with local transit plans as well as implementation of the proposed policies and actions described above would reduce this impact to a **less than significant** level and no mitigation is necessary.

Bicycle and Pedestrian System (Standards of Significance 4)

Impact 4.5.4 Implementation of the proposed General Plan Update would result in an increase in the demand for pedestrian and bicycle infrastructure. However, implementation of proposed General Plan would not result in adverse affects to existing bikeways or pedestrian facilities that would discourage their use or result in safety issues. This is considered a **less than significant** impact.

Implementation of the proposed General Plan Update would result in increased pedestrian and bicycle use in the Planning Area. However, the proposed General Plan Update would be consistent with proposed pedestrian and bicycle facilities in the area and would allow for a mix of residential densities and commercial uses to promote options for movement other than the use of motor vehicles. The General Plan Update aims to develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles (Policy CIRC-2.1, Actions CIRC-2.1.1 through Action CIRC-2.1.3, Policy CIRC-2.2, and Action CIRC-2.2.1). Furthermore, Action CIRC-3.1.1 mandates the incorporation of bicycle facilities identified in the Chico Urban Area Bicycle Plan into public road construction projects and private development projects. Similarly, General Plan Update Policy CIRC-3.3 ensures that new residential and non-residential development projects provide connections to the nearest bikeways while Action CIRC-3.3.1 requires pedestrian and bicycle connections to the Citywide bikeway system every 500 feet, where feasible.

In addition to these policies and actions, the City has developed a Public Facilities Assessment (PFA) associated with development under the proposed General Plan Update that identifies public facility and infrastructure needs and how they might be financed, including roadway and bicycle facility improvements.

The intent of the proposed General Plan Update is to accommodate anticipated growth through compact, walkable, infill, new complete neighborhoods and mixed-use development, as well as focusing redevelopment along transit corridors and at other key locations. The proposed General Plan Update and its Land Use Diagram would provide for this growth, minimize outward expansion of the city's boundaries. The proposed mixed of land uses within the Planning Area and consistency with planned bicycle and pedestrian facilities as well as implementation of the proposed General Plan Update policies and action listed above would reduce this impact to a **less than significant** level and no mitigation is necessary.

Roadway or Traffic Hazards (Standard of Significance 5)

Impact 4.5.5 Implementation of the proposed General Plan Update would result in an increase in traffic volumes that could result in the greater potential for roadway or traffic hazards. This is considered a **less than significant** impact due to policy provisions of the proposed General Plan Update.

The implementation of the proposed General Plan Update would increase the amount of vehicle traffic that will require improvement and expansion of the City's roadway system. However, new and upgraded roadways will be designed according to applicable federal, state, and local design appropriate standards, which will minimize traffic hazards. As previously mentioned, there are several new roadway connections and improvements throughout the Planning Area proposed under the General Plan Update (see **Figure 3.0-4**). An enhanced roadway network that accommodates forecasted travel demand would also address potential traffic hazards. Policy CIRC-1.2 requires new development to finance and construct internal and adjacent roadway circulation improvements as necessary to mitigate project impacts, including impacts resulting from traffic hazards. Policy CIRC-1.9 identifies outside sources of funding, and seeks to provide ongoing maintenance, operation, and management of the City's circulation network and as funding allows, pedestrian safety at intersection and other crossing locations will be improved by provided safe, well-marked pedestrian crossings, bulb-outs, audible warning or median refuges that reduce crossing widths (Action CIRC-4.3.1). Action CIRC-2.2.1 states that new development shall include traffic calming measures where appropriate, which reduces hazardous roadways. Action CIRC-2.2.2 would provide for a routine, ongoing evaluation of the street traffic control system, with emphasis on traffic management, thus leading to less hazardous roadways. In relation to railroad safety, Action CIRC-7.1.2 would maintain ongoing partnerships to improve the condition and safety of railroad crossings by upgrading surface conditions and providing adequate signs and signals.

The implementation of the proposed General Plan Update would increase the amount of vehicle traffic which will require improvement and expansion of the City's roadway system. However, new and upgraded roadways will be designed according to applicable federal, state, and local design appropriate standards. The proposed General Plan Update does not contain any provisions which would exacerbate a hazardous situation associated with roadway hazards. Thus, this impact is **less than significant**.

Emergency Access (Standard of Significance 6)

Impact 4.5.6 Implementation of the proposed General Plan Update would result in an increase in traffic volumes, which could increase the potential opportunities for safety conflicts as well as potential conflicts with emergency access. However, implementation of the proposed General Plan Update would not result in inadequate emergency access. Therefore, this impact is considered **less than significant.**

While implementation of the proposed General Plan Update would increase the amount of vehicle traffic, implementation of the proposed roadway system under the proposed General Plan Update would increase the capacity of the roadway network to accommodate forecasted travel demand as well as largely maintain adequate traffic operations (LOS) in the City (see Impacts 4.5.1 and 4.5.2). In addition, there are several new roadway connections that offer emergency access options, as well as new north-south and east-west routes throughout the Planning Area (Action CIRC-1.1.1) (see **Figure 3.0-4**). An enhanced roadway network that accommodates forecasted travel demand would also accommodate the need for emergency

access. Policy CIRC-1.2 requires new development to finance and construct internal and adjacent roadway circulation improvements as necessary to mitigate project impacts, including impacts to roadway emergency access. Policy CIRC-2.2 aims to provide for greater street connectivity and efficiency for all transportation modes, which would benefit emergency access and Action CIRC-2.1.3 would provide for connections between and within existing and new neighborhoods for bicycles, pedestrians, and automobiles, including emergency response automobiles. Policy CIRC-1.9 identifies outside sources of funding, and seeks to provide ongoing maintenance, operation, and management of the City's circulation network.

In addition to General Plan policy and actions, the City has developed the Public Facilities Assessment (PFA) associated with development under the proposed General Plan Update that identifies public facility and infrastructure needs and how they might be financed, including roadway improvements. Because implementation of the proposed roadway system within the proposed General Plan Update and implementation of proposed policy provisions would improve city roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents, this impact is considered **less than significant**. No mitigation measures are required.

4.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The setting for this cumulative analysis includes existing, proposed, planned, and approved projects in the Planning Area. The cumulative setting also assumes anticipated and planned development outside of the City's Planning Area and in Butte County. Development in this region (further identified in Section 4.0) would change the intensity of land uses in the region and increase housing, employment, shopping, and recreational opportunities. This analysis also accounts for regional traffic volume conditions anticipated for year 2030 for regional routes in the City of Chico.

The following cumulative analysis is focused on cumulative traffic impacts to local roadway and state highways where City generated traffic would contribute to future traffic volumes from Butte County and other regional traffic. Impacts to transit service, bicycle/pedestrian facilities, roadway safety and emergency access addressed above are area-specific impacts to the City and are not expected to result to be adversely impacted by cumulative conditions.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Traffic Impacts on Local Roadways and State Highways (Standard of Significance 1)

Impact 4.5.7 When considered with existing, proposed, planned, and approved development in the region, implementation of the proposed General Plan Update would contribute to cumulative traffic volumes in the region that result in significant impacts to level of service and operations. This is considered a **cumulatively considerable** impact.

The traffic impact analyses provided in Impact 4.5.1 and 4.5.2 are based on cumulative conditions (year 2030 that take into account anticipated traffic volumes from development in the region. However, the proposed General Plan Update would still add substantial traffic volumes on local roadways and state highway facilities that would result in significant traffic impacts within the Planning Area as well as in adjoining jurisdictions in Butte County. Improvements to regional transportation facilities associated with cumulative traffic conditions

are intended to be addressed through implementation of regional programs, such as the Butte County Regional Transportation Plan. Impacted facilities include segments of SR 32 and SR 99.

Implementation of proposed General Plan Update policies and action items would assist in reducing its cumulative contribution to regional traffic effects (see Impact 4.5.1 and 4.5.2 regarding specific policies and action that address traffic impacts). However, this impact would still be considered **cumulatively considerable** and **significant and unavoidable** as the City does not have authority over improvements outside of the City's jurisdiction (e.g., facilities in Butte County and Caltrans facilities), and the City cannot ensure that these improvements would be completed. With the exception of funding sources for regional traffic improvements associated with the BCAG RTP, there are no other regional traffic mitigation programs in which the City could participate to minimize its regional traffic impact.

REFERENCES

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4.6
Air Quality

This section examines the air quality in the Planning Area and region, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed General Plan Update.

4.6.1 EXISTING SETTING

AIR BASIN CHARACTERISTICS

Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The City of Chico is located in the 11-county Sacramento Valley Air Basin (SVAB), which includes all of Sacramento, Yolo, Yuba, Sutter, Colusa, Glenn, Butte, Tehama, and Shasta counties and parts of Solano and Placer counties. The SVAB climate is characterized by hot, dry summers and cool, wet winters. Chico's annual average temperature is 61 degrees Fahrenheit, with summer highs usually in the 90s and winter lows usually in the 30s. Rainfall in Chico averages about 26 inches per year, with about 55 percent of rainfall occurring in winter and 2 percent during the summer (WRCC, 2009). Prevailing winds are moderate in strength and vary from dry land flows from the north to moist ocean breezes from the south. The mountains surrounding the SVAB create a barrier to airflow which, under certain meteorological conditions, trap pollutants in the valley.

AMBIENT AIR QUALITY STANDARDS

Both the U.S. Environmental Protection Agency (USEPA) and CARB established ambient air quality standards for common air pollutants. These ambient air quality standards are levels of contaminants that represent safe levels which avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and California ambient air quality standards for important pollutants are summarized in **Table 4.6-1**. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, federal and state standards differ in some cases. In general, California standards are more stringent. This is particularly true for nitrogen dioxide (NO_2) and coarse particulate matter (PM_{10}).

On January 6, 2010, EPA announced that they are reconsidering the ozone standards set in 2008. EPA is proposing to strengthen the 2008 ozone 8-hour standards from 0.075 ppm down to a level within the range of 0.060-0.070 ppm, and establish a seasonal "secondary" standard with the range of 7-15 ppm-hour to protect sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas. The scheduled deadline for ARB to submit the new nonattainment recommendations to EPA will be in January 2011. EPA plans to publish the final area designations in July 2011 and the new SIP would then be due to EPA in December 2013.

TABLE 4.6-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone (O_3)	1-Hour 8-Hour	– 0.075 ppm	0.09 ppm 0.07 ppm
Coarse Particulate Matter (PM_{10})	24-Hour Annual Average	150 $\mu g/m^3$ –	50 $\mu g/m^3$ 20 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual Average	35 $\mu g/m^3$ 15 $\mu g/m^3$	– 12 $\mu g/m^3$
Carbon Monoxide (CO)	1-Hour 8-Hour	35 ppm 9.0 ppm	20 ppm 9.0 ppm
Nitrogen Dioxide (NO_2)	1-Hour Annual Average	– 0.053 ppm	0.18 ppm 0.03 ppm
Sulfur Dioxide (SO_2)	1-Hour 24-Hour Annual Average	– 0.14 ppm 0.03 ppm	0.25 ppm 0.04 ppm --

Notes: ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter
Source: CARB, 2009a

AMBIENT AIR QUALITY

CARB maintains several air quality monitoring sites in the SVAB, including a site in Chico on Manzanita Avenue. **Table 4.6-2** shows historical occurrences of pollutant levels exceeding state and federal ambient air quality standards for the three-year period of 2006 through 2008. The number of days that each standard was exceeded is shown. For example, the monitoring site at Manzanita Avenue measured 37 days of 2008 in which California PM_{10} emission standards were exceeded.

TABLE 4.6-2
AMBIENT AIR QUALITY MONITORING DATA FOR CHICO (MANZANITA AVENUE)

Pollutant Standards	2006	2007	2008
Ozone			
Max 1-hour concentration (ppm)	0.090	0.094	0.111
Max 8-hour concentration (ppm) (federal/state)	0.080/0.080	0.084/0.084	0.096/0.097
Number of days standard exceeded			
State 1-hour standard	0	0	2
Federal 8-hour standard	4	3	6
State 8-hour standard	19	10	14
Coarse Particulate Matter (PM_{10})			
Max 24-hour concentration ($\mu g/m^3$) (federal/state)	76.0/81.0	61.9/66.1	143.5/140.8

Pollutant Standards	2006	2007	2008
Annual average concentration ($\mu g/m^3$)	26.8	21.7	27.6
Number of days standard exceeded			
Federal 24-hour standard	0	0	0
State 24-hour standard	41.0	12.1	37.0
Fine Particulate Matter ($PM_{2.5}$)			
Max 24-hour concentration ($\mu g/m^3$) (federal/state)	67.0/76.1	53.9/83.7	107.6/190.9
Annual average concentration ($\mu g/m^3$) (federal/state)	13.1/14.6	10.6/14.3	16.4/18.1
Number of days standard exceeded			
Federal 24-hour standard	28.8	24.3	36.5

Pollutant Standards	2006	2007	2008
Carbon Monoxide (CO)			
Max 8-hour concentration (ppm)	2.70	2.16	2.74
Number of days standard exceeded			
Federal 8-hour standard	0	0	0
State 8-hour standard	0	0	0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.048	0.046	0.048
Annual Concentration (ppm)	0.009	0.010	0.009
Number of days standard exceeded			
State 1-hour standard	0	0	0
Sulfur Dioxide (SO_2) - no data			

Source: CARB, 2009a

AMBIENT AIR QUALITY ATTAINMENT STATUS

Table 4.6-3 shows the federal and state attainment status for the SVAB. The region is nonattainment for federal ozone and $PM_{2.5}$ standards, and nonattainment for state ozone and PM_{10} and $PM_{2.5}$ standards.

Areas with air quality that exceed adopted air quality standards are designated as "nonattainment" areas for the relevant air pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe, and extreme for ozone, and moderate and serious for carbon monoxide and PM_{10}) or status ("nonattainment-transitional"). Areas that comply with air quality standards are designated as "attainment" areas for the relevant air pollutants. "Unclassified" areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to comply with the ambient air quality standard. State Implementation Plans must be prepared by States for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded federal ambient air quality standard.

As detailed in the Regulatory Framework discussion below, both the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) have established air pollution standards in an effort to protect human health and welfare. Geographic areas are designated attainment if these standards are met and nonattainment if they are not met. In addition, each agency has several levels of classifications based on severity of the problem. For example, the SVAB is classified moderate nonattainment area for 1-hour ozone, as summarized in **Table 4.6-3**.

TABLE 4.6-3
FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS
FOR SACRAMENTO VALLEY AIR BASIN

Pollutant	Federal	State
1-hour Ozone (O_3)	–	Moderate Nonattainment
8-hour Ozone (O_3)	Nonattainment	Nonattainment
Coarse Particulate Matter (PM_{10})	Unclassified	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment

Source: BCAQMD, 2009; CARB, 2010

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in the Chico area include ozone and particulate matter. The health effects and major sources of these pollutants, as well as other key pollutants, are described below. Toxic air contaminants are a separate class of pollutants and are discussed later in this section.

Ozone

Ground-level ozone (O_3), commonly referred to as smog, is greatest on warm, windless, sunny days. O_3 is not emitted directly into the air, but is formed through a complex series of chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X). These reactions occur over time in the presence of sunlight. O_3 formation can occur in a matter of hours under ideal conditions. The time required for O_3 formation allows the reacting compounds to spread over a large area, producing a regional pollution concern. Once formed, O_3 can remain in the atmosphere for one or two days.

O_3 is also a public health concern because it is a respiratory irritant that increases susceptibility to respiratory infections and diseases, and because it can harm lung tissue at high concentrations. In addition, O_3 can cause substantial damage to leaf tissues of crops and natural vegetation and can damage many natural and manmade materials by acting as a chemical oxidizing agent. The principal sources of the O_3 precursors (ROG and NO_X) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Particulate Matter

Particulate matter (PM) can be divided into several size fractions. Coarse particles (PM_{10}) are between 2.5 and 10 microns in diameter and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles ($PM_{2.5}$) are less than 2.5 microns in diameter and are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produces fine particles.

The level of $PM_{2.5}$ in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research

has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicle emissions are the dominant source of CO in the SVAB. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease. Relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream because CO binds to hemoglobin 220 to 245 times more strongly than oxygen.

CO emissions and ambient concentrations have decreased significantly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicles and motor vehicle fuels. CO is still a pollutant that must be closely monitored, however, due to its severe effect on human health.

Elevated CO concentrations are usually localized and are often the result of a combination of high traffic volumes and traffic congestion. Elevated CO levels develop primarily during winter periods of light winds or calm conditions combined with the formation of ground-level temperature inversions. Wintertime CO concentrations are higher because of reduced dispersion of vehicle emissions and because CO emission rates from motor vehicles increase as temperature decreases.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Construction devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X. Because NO_2 is formed and depleted by reactions associated with O_3, the NO_2 concentration in a particular geographic area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure can result in a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation. Symptoms that are more significant may include chemical pneumonitis or pulmonary edema with breathing abnormalities, cyanosis, chest pain, and rapid heartbeat.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with exposure to SO_2 pertain to the upper respiratory tract. SO_2 is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Similar to NO_2, the severity of adverse health effects depends primarily on the concentration inhaled rather than

the duration of the exposure. Exposure to high concentrations of SO_2 may result in edema of the lungs or glottis and respiratory paralysis.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death. **Table 4.6-4** displays potential sources of TAC emissions for various land uses. According to CARB records, 238 facilities were located in Chico in 2007 that were potential sources of TAC emissions (CARB, 2009a).

TABLE 4.6-4
TOXIC AIR EMISSION BY LAND USE

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene (phased out in 2011)
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Funeral Home	Formaldehyde
Gasoline Station	Benzene
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Source: EDCAPCD, 2002

Diesel Exhaust

Diesel exhaust is a TAC of growing concern in California. According to the California Almanac of Emissions and Air Quality (CARB, 2009b), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). In 1998, CARB identified diesel PM as a TAC. Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances.

The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. Diesel engine particulate has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment, are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections.

Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. No ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses CARB's emissions inventory PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California. However, diesel PM poses the greatest health risk among the ten TACs mentioned. Based on receptor modeling techniques, CARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB. Since 1990, the health risk from diesel PMs has been reduced by 52 percent. Overall, levels of most TACs have decreased since 1990 except for para-dichlorobenzene and formaldehyde (CARB, 2009b).

In 1998, after a 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). Unlike criteria pollutants like carbon monoxide, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Diesel particulate has been identified as a carcinogenic material but is not considered to have acute non-cancer risks. The State has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. The plan consists of new regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles, new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include:

- Railroad operations
- Warehouses
- Schools with a high volume of bus traffic
- High volume highways
- High volume arterials and local roadways with a high level of diesel traffic

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and CO concentrations, reduces visibility, and contains numerous TACs. Present controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. Interest in wood smoke is likely to increase with the recent adoption of a $PM_{2.5}$ national standard.

Asbestos

Asbestos is the common name for a group of naturally-occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally-occurring asbestos (NOA), which was identified as a TAC in 1986 by CARB, is located in many parts of California and is commonly associated with ultamafic rock. Chico is not located near any areas that are likely to contain ultramafic rock. For a complete discussion on asbestos and associated risks, the reader is referred to the discussion in Section 4.4, Human Health/Risk of Upset.

Pesticides

Most pesticides are designed to harm or kill pests, and because some pests have systems similar to the human system, some pesticides also can harm or kill humans (USEPA, 2009a). The hazards associated with pesticides depend on the toxicity of the pesticide and the exposure a human may receive in any situation.

The effects, or symptoms, of pesticide poisoning can be defined as either topical or systemic. Topical effects generally develop at the site of pesticide contact and are a result of either the pesticide's irritant properties or an allergic response by the victim. Dermatitis, or inflammation of the skin, is the most commonly reported topical effect associated with pesticide exposure. Symptoms of dermatitis range from reddening of the skin to rashes and/or blisters. Other symptoms include coughing, wheezing and sneezing when exposed to pesticide sprays (Penn State, 2007).

Systemic effects often occur away from the original point of contact as a result of the pesticide being absorbed into and distributed throughout the body. Systemic effects often include nausea, vomiting, fatigue, headache, and intestinal disorders. In advanced poisoning cases, the individual may experience changes in heart rate, difficulty breathing, convulsions, and coma, which could lead to death (Penn State, 2007).

Common locations for pesticide use are agricultural land uses, where they are often used to prevent insect damage to crops. Because of this, the proximity of sensitive receptors to agricultural land uses could expose people to the hazards listed above.

Odors

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same

sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Sensitive Receptors and Pollution Sources

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals, and medical clinics.

4.6.2 REGULATORY FRAMEWORK

Air quality in the SVAB is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies primarily responsible for improving the air quality in the City of Chico are discussed below along with their individual responsibilities.

FEDERAL

U.S. Environmental Protection Agency

The USEPA is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it, as well as the national ambient air quality standards (federal standards) that the USEPA establishes. These standards identify levels of air quality for six criteria pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include O_3, CO, NO_2, SO_2, PM_{10}, and lead. The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf) and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

STATE

California Air Resources Board

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAAA requirements, and regulating emissions from motor vehicles and consumer products within the state. CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the federal CAA and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM_{10} and NO_2, far more stringent.

Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (Tanner Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technology (BACT) to minimize emissions.

Assembly Bill (AB) 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

Air Quality and Land Use Handbook

As part of its Community Health Program, CARB developed an Air Quality and Land Use Handbook, which serves as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. CARB is also developing related information and technical evaluation tools for addressing cumulative air pollution impacts in a community. Any recommendations or considerations contained in the handbook are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

The primary goal in developing this document was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high-traffic roadways. Other

studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California.

The handbook identifies CARB's recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that have been evaluated from the standpoint of the proximity issue. **Table 4.6-5** summarizes CARB's recommendations.

TABLE 4.6-5
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES NEAR AIR POLLUTANT SOURCES

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.
	Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Note: Recommendations are advisory, are not site-specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of CARB's Diesel Risk Reduction Plan.

Source: CARB, 2005

Senate Bill 656

In 2003, the California Legislature enacted Senate Bill 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce PM_{10} and $PM_{2.5}$ (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. In 2005, air districts adopted

implementation schedules for selected measures from the list. The implementation schedules identify the appropriate subset of measures and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district prioritized measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration was also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process.

LOCAL

Butte County Air Quality Management District

In Butte County, the air quality regulating authority is the Butte County Air Quality Management District (BCAQMD). BCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality.

All projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to future construction resulting from implementation of the proposed General Plan Update may include, but are not limited to:

- Emissions must be prevented from creating a nuisance to surrounding properties as regulated under BCAQMD Rule 200 Nuisance.

- Visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one hour, as regulated under BCAQMD Rule 201 Visible Emissions.

- Fugitive dust emissions must be prevented from being airborne beyond the property line, as regulated under BCAQMD Rule 205 Fugitive Dust Emissions.

- Under BCAQMD Rule 300 General Prohibitions and Exemptions on Open Burning, certain materials are prohibited from open fires for the purpose of disposing petroleum waste, demolition debris, construction debris, tires or other rubber materials, materials containing tar, or for metal salvage or burning of vehicle bodies. Any open burning requires approval and issuance of a burn permit from BCAQMD and shall be performed in accordance with the BCAQMD Rule and Regulations.

- Portable equipment, other than vehicles, must be registered with either CARB's Portable Equipment Registration Program (PERP) or with BCAQMD in accordance with BCAQMD Rule 440 Portable Equipment Registration.

- Architectural coatings and solvents used at the project shall be compliant with BCAQMD Rule 230 Architectural Coatings.

- Cutback and emulsified asphalt application shall be conducted in accordance with BCAQMD Rule 231 Cutback and Emulsified Asphalt.

- All stationary equipment, other than internal combustion engines less than 50 horsepower, emitting air pollutants controlled under BCAQMD rules and regulations require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District.

- BCAQMD Rule 207 Residential Wood Combustion prohibits installation of any new traditional "open hearth" type fireplaces or non-USEPA-certified Phase II appliance.

- In the event that demolition, renovation, or removal of asbestos-containing materials is involved, CARB must be contacted.

Air Quality Plans

In 1994, the air districts within the Northern Sacramento Valley Planning Area (NSVPA), a subsection of the greater Sacramento Valley Air Basin which includes BCAQMD, prepared an Air Quality Attainment Plan for O_3. This plan was updated in 1997, 2000, 2003, and again in 2006. Like the preceding plans, the 2006 plan focuses on the adoption and implementation of control measures for stationary sources, area-wide sources, indirect sources, and public information and education programs. The 2006 plan also addresses the effect that pollutant transport has on the NSVPA's ability to meet and attain the state standards. An update to the 2006 plan is anticipated to be adopted by BCAQMD in 2010 (Williams, 2010).

In 2007, BCAQMD staff ceased work on an 8-hour O_3 SIP when the USEPA announced that a new SIP was not required to meet federal nonattainment area planning requirements. The status changed as a result of litigation against the USEPA by other entities and because BCAQMD met the 8-hour standard based on the most current air quality data. Subsequently, the USEPA established a new 8-hour O_3 standard in March 2008. CARB recommended that Butte County be designated nonattainment for the new standard in March 2009. The USEPA is expected to make the final area designations by the end of 2010. BCAQMD expects the 8-hour O_3 SIP will be due by 2013 (BCAQMD, 2009).

In December 2009, the USEPA designated the Chico area and much of Butte County as nonattainment for the new $PM_{2.5}$ standard. BCAQMD staff expects the $PM_{2.5}$ SIP to be completed by 2012 (BCAQMD, 2009).

4.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G of the California Environmental Quality Act (CEQA) Guidelines and BCAQMD recommendations, air quality impacts are considered significant if implementation of the proposed project would:

1) Conflict with or obstruct implementation of an applicable air quality plan.

2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

4) Expose sensitive receptors to substantial pollutant concentrations.

5) Create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. According to BCAQMD, an air quality impact is considered significant if the proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations (25 pounds per day of ROG, 25 pounds per day of NO_X, or 80 pounds per day of PM_{10}).

For the evaluation of general plans, BCAQMD recommends that the air quality impacts of the proposed general plan would be considered significant if:

- The plan is inconsistent with the adopted air quality attainment plan (AQAP) and State Implementation Plan population and vehicle use projections.
- The plan does not implement AQAP and SIP transportation control measures.
- The plan does not provide buffer zones around sources of odors and TACs.

METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by CARB and BCAQMD. Where quantification was required, emissions were modeled using the URBEMIS 2007 (v9.2.4) computer program. This program estimates pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for the proposed General Plan Update, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but the model has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan Update. It is important to note that the URBEMIS analysis uses the Feather River Air Quality Management District EMFAC database because a database specific to Butte County is not available. This approach is considered appropriate by BCAQMD staff (Williams, 2010).

The following proposed General Plan Update policies and actions address air quality-related impacts:

Policy SUS-3.4 *(Sustainable Fleet) – Support sustainable modes of transportation for City vehicles.*

Policy SUS-5.3 *(Facilities for Emerging Technologies) – Support the construction of facilities for emerging transportation technologies such as alternative fueling stations.*

Policy LU-1.2 *(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form.*

Action LU-1.2.1 *(Greenline) – Retain the Greenline.*

Policy LU-2.4 *(Land Use Compatibility) – Promote land use compatibility through use restrictions, development standards, and special design considerations.*

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and open space uses are permitted within the buffer. Design criteria for buffers are as follows:*

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*
- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-1.3 *(Growth Plan) – Maintain balanced growth by encouraging infill development where City services are in place, and allowing expansion into Special Planning Areas.*

Policy LU-2.3 *(Sustainable Land Use Pattern) – Ensure sustainable land use patterns in both developed areas of the City and new growth areas.*

Action LU-2.3.3 *(Encourage Mixed-Use) – Allow horizontal and/or vertical mixed-uses in the following land use designations:*

- *Residential Mixed Use*
- *Neighborhood Commercial*
- *Commercial Mixed Use*
- *Regional Commercial*
- *Office Mixed Use*
- *Industrial Office Mixed Use*

Action LU-2.3.4 *(Require Mixed-Use) – Require horizontal or vertical mixed-use in the following land use designations:*

- *Special Mixed Use*
- *Mixed Use Neighborhood Core*
- *Special Planning Areas (with the exception of the Bell-*Muir SPA)

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and*

open space uses are permitted within the buffer. Design criteria for buffers are as follows:

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*
- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-3.1 *(Complete Neighborhoods) – Direct growth into complete neighborhoods with a land use mix and distribution to reduce auto trips and support walking, biking, and transit use.*

Policy LU-3.2 *(Neighborhood Serving Centers) – Promote the development of strategically located neighborhood serving centers with commercial, employment or entertainment uses; provide housing opportunities; are within walking distance of surrounding residents; and are served by transit. Neighborhood center designations are Neighborhood Commercial (NC) and Mixed Use Neighborhood Core (MUNC).*

Policy LU-3.4 *(Neighborhood Enhancement) – Strengthen the character of existing residential neighborhoods and districts.*

Policy LU-4.1 *(Promote Infill and Redevelopment) – Facilitate infill development through active leadership, education and the provision of infrastructure and services.*

Action LU-4.1.1 *(Education about the Benefits of Infill) – Provide community education regarding the benefits of infill over sprawl through the neighborhood planning process and in the analysis, recommendations, and findings for infill development projects and capital expenditures that support infill and development.*

Policy LU-4.2 *(Infill Compatibility) – Support infill development, redevelopment, and rehabilitation projects, which are compatible with surrounding properties and neighborhoods.*

Action LU-4.2.3 *(Mix of Dwelling Types) – Allow a mix of dwelling types within all residential land use designations consistent with density requirements and applicable design criteria.*

Policy LU-5.1 *(Opportunity Sites) – Facilitate increased density and intensity of development and revitalization in the following Opportunity Sites:*

- *Central City Opportunity Sites – Downtown, South Campus, and East 8th and 9th Street Corridors.*
- *Corridor Opportunity Sites – North Esplanade, Mangrove Avenue, Park Avenue, Nord Avenue, and East Avenue.*

- *Regional Center Opportunity Sites – North Valley Plaza, East 20th Street, and Skyway.*

- *Other Opportunity Sites – The Wedge, Vanella Orchard, Pomona Avenue, and Eaton Road.*

Action LU-5.1.1 *(Incentives for Opportunity Site Development) – Utilize City incentives identified in Action LU-2.3.1 to promote infill development, redevelopment, rehabilitation, and mixed-use projects in the designated Opportunity Sites.*

Action LU-5.1.2 *(Midpoint Density and Intensity for Infill) – Require that infill located within designated Opportunity Sites be developed at or above the midpoint of the allowable density range or floor area ratio equivalent unless one or more of the following findings are made:*

- *The proposed project does not include residential development because the land use designation does not require (but rather allows) residential development.*

- *Site considerations such as parcel size, configuration, environmental resources, or other features make achieving the density midpoint infeasible or undesirable.*

- *Infrastructure constraints make achieving the density midpoint impractical.*

Action LU-5.1.4 *(Streetscape Enhancement) – As part of future roadway improvement projects in the Corridor Opportunity Sites, incorporate streetscape enhancements such as bulb-outs, benches, wide and separated sidewalks, and street trees to improve the pedestrian environment and serve as a catalyst for revitalization.*

Action LU-6.2.3 *(Diamond Match SPA Planning) – Plan the Diamond Match SPA with a mix of low, medium and high residential densities, a neighborhood core or commercial mixed-use center, office and light industrial uses, and parks and open space. Subsequent planning will:*

- *Address circulation with a focus on extending and improving existing streets into the site that will distribute traffic on multiple streets, and improving connectivity to the south in order to reduce traffic impacts on the existing residential neighborhood.*

- *Incorporate adaptive reuse of existing buildings, where feasible.*

Action LU-6.2.4 *(Doe Mill/Honey Run SPA Planning) – Plan the Doe Mill/Honey Run SPA with a broad range of housing types and densities integrated with significant open space and recreational areas,*

supporting commercial services, and public facilities. Subsequent planning will:

- *Address circulation with primary connections to the site via Skyway and E. 20th Street.*
- *Incorporate significant accessible open space on the eastern portion of the SPA, a community park, as well as neighborhood and pocket parks.*
- *Maintain open space by clustering development and providing open space buffers on the northern, eastern, and southern edges of the SPA.*
- *Include visual simulations to ensure that development is not visually intrusive as viewed from lower elevations.*
- *Incorporate special lighting standards to reduce impacts on the nighttime sky.*

Action LU-6.2.5 *(North Chico SPA Planning) – Plan the North Chico SPA with a combination of residential densities and supporting commercial mixed-use along with industrial and office uses. Subsequent planning will:*

- *Address the Hicks Lane/Eaton Road/SR 99 intersection and include an arterial roadway originating at Hicks Lane, extending to State Route 99.*
- *Address Chico Municipal Airport overflight zone compatibility.*
- *Avoid FEMA-designated flood zones, or incorporate strategies that allow development to occur in flood zones.*

Action LU-6.2.6 *(South Entler SPA Planning) – Plan the South Entler SPA with regional and community commercial uses integrated with office and industrial uses; a mix of residential densities, and open space. Subsequent planning will:*

- *Address circulation with a focus on the intersection at Southgate Avenue and State Route 99 and providing multiple access points to the site.*
- *Ensure that the SPA serves as a visually attractive "landmark" gateway at the south end of the City with freeway visibility.*
- *Preserve and/or provide trees along the southern border of the SPA to provide a buffer to adjacent agricultural uses and open space.*

Policy CIRC-1.8 *(Regional Transportation Planning) – Continue to participate in Butte County Association of Government's (BCAG) regional*

transportation planning efforts to coordinate priorities with other jurisdictions, and continue to consult with Caltrans on transportation planning, operations, and funding to develop the City's circulation infrastructure.

Action CIRC-1.8.2 (Sustainable Communities Strategy) – Participate in BCAG's effort to prepare the regional Sustainable Communities Strategy.

Policy CIRC-2.1 (Complete Streets) – Develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the role of the street as a public space that unites the City.

Action CIRC-2.1.1 (Complete Street Standards) – With consideration of street classification and function, design new streets to accommodate all modes of travel, including transit, bicycles, pedestrians, vehicles, and, where appropriate, parking.

Action CIRC-2.1.2 (Retrofitting Existing Streets) – Retrofit and upgrade existing streets, as funding allows, to include complete street amenities where appropriate, prioritizing improvements in locations that will improve the overall connectivity of the City's network of bicycle and pedestrian facilities or result in increased safety.

Action CIRC-2.1.3 (Multimodal Connections) – Provide connections between and within existing and new neighborhoods for bicycles, pedestrians, and automobiles.

Policy CIRC-2.2 (Circulation Connectivity and Efficiency) – Provide for greater street connectivity and efficiency for all transportation modes.

Action CIRC-2.2.1 (Connectivity in Project Review) – New development shall include the following internal circulation features:

- *A grid- or modified grid-based street system. Cul-de-sacs are discouraged, but may be approved in situations where difficult site planning issues, such as odd lot size, topography, or physical constraints exist or where their use results in a more efficient use of land; however in all cases the overall grid pattern of streets should be maintained;*
- *Traffic-calming measures, where appropriate;*
- *Roundabouts as an alternative intersection control, where appropriate;*
- *Bicycle and pedestrian connections to adjacent streets, trails, public spaces, and bicycle paths; and*
- *Short block lengths consistent with City design standards.*

Policy CIRC-3.1 (Bikeway Master Plan) – Implement and update the Chico Urban Area Bicycle Plan (CUABP) consistent with the goals and policies of the General Plan.

Action CIRC-3.1.1 (Add Bicycle Facilities) – Incorporate bicycle facilities identified in the CUABP into public road construction projects and private development projects.

Action CIRC-3.1.2 (Bicycle Crossings) – Identify and pursue funding to construct crossings at creeks, railroads, and roadways consistent with the CUABP to improve bicycle and pedestrian connectivity.

Action CIRC-3.1.3 (Regional Bicycle Trail Coordination) – Consult with Butte County, Butte County Association of Governments, and other agencies regarding implementation of a regional bikeway system.

Action CIRC-3.1.4 (Bikeway Map) – Promote bicycle use by providing an updated map of Chico's bikeways to bike stores, CSU Chico, and other key meeting places for bicyclists.

Policy CIRC-3.2 (CSU Chico Bicycle Access) – Continue to support CSU Chico planning efforts to reintroduce opportunities for safe bicycle access into, around and through the main campus area.

Policy CIRC-3.3 (New Development and Bikeway Connections) – Ensure that new residential and non-residential development projects provide connections to the nearest bikeways.

Action CIRC-3.3.1 (Bikeway Requirements) – Require pedestrian and bicycle access to the Citywide bikeway system every 500 feet, where feasible, as part of project approval and as identified in the Chico Urban Area Bicycle Plan.

Policy CIRC-3.4 (Bicycle Safety) – Improve safety conditions, efficiency, and comfort for bicyclists through traffic engineering, maintenance and law enforcement.

Action CIRC-3.4.1 (Construction and Maintenance) – Continue to ensure that all new and improved streets have bicycle-safe drainage grates and are free of hazards such as uneven pavement and gravel. Maintain a program for the sweeping and repair of bikeways.

Action CIRC-3.4.2 (Signing, Markings, and Lighting) – Continue to provide signage and markings to warn vehicular traffic of the existence of merging or crossing bicycle traffic where bikeways make transitions into or across roadways. Delineate and sign bikeways in accordance with Caltrans' standards and install, where feasible, lighting for safety and comfort.

Action CIRC-3.4.3 (Bike Safety in Schools) – Consult with the Chico Unified School District, CSU Chico, and Butte College regarding development

of an educational campaign promoting bicycle safety and safe routes to school programs.

Action CIRC-3.4.4 (Bicycle Detection at Traffic Signals) – Continue to install bicycle detector loops at high volume bicycle/automobile intersections that have actuated signals.

Policy CIRC-3.5 (Funding Bicycle Improvements) – Consider bikeway improvements when establishing funding priorities for the City and adopting the Capital Improvement Program.

Action CIRC-3.5.1 (Other Funding Sources) – Continue to pursue funding sources, including state and federal grants, for new bicycle facilities.

Policy CIRC-3.6 (Bicycle Parking) – Provide adequate bicycle parking and support facilities.

Action CIRC-3.6.1 (Secure Bicycle Parking and Facilities) – Update the Municipal Code requirements for bicycle parking, and include, where appropriate, requirements for bicycle-support facilities, such as personal lockers and showers.

Policy CIRC-4.1 (Pedestrian Master Planning) – Continue to integrate and highlight pedestrian access and dual use bicycle and pedestrian pathways in the Chico Urban Area Bicycle Plan.

Policy CIRC-4.2 (Continuous Network) – Provide a pedestrian network in existing and new neighborhoods that facilitates convenient and continuous pedestrian travel free of major impediments and obstacles.

Action CIRC-4.2.1 (Housing or Destination Connections) – Amend the Municipal Code to require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops, schools, parks, shopping centers, and jobs.

Policy CIRC-4.3 (Pedestrian-Friendly Streets) – Ensure that streets in areas with high levels of pedestrian activity (such as employment centers, residential areas, mixed-use areas, and schools) support safe pedestrian travel by providing elements such as detached sidewalks, bulb-outs, enhanced pedestrian crossings, and medians.

Action CIRC-4.3.1 (Safe Pedestrian Crossings) – As funding allows, improve pedestrian safety at intersections and other crossing locations by providing safe, well-marked pedestrian crossings, bulb-outs, audible warnings, or median refuges that reduce crossing widths.

Policy CIRC-5.1 (Transit Planning) – Consult with and encourage the Butte County Association of Governments (BCAG) to implement a comprehensive transit system that serves Chico's current and future needs.

Action CIRC-5.1.1 (Transit Master Plan) – Participate in BCAG's transit master planning efforts to ensure that transit routes coincide with Chico's major destinations for employment and shopping, concentrations of housing, key institutions, and other land uses likely to supply riders for public transit.

Action CIRC-5.1.2 (Intercity Bus Service) – In consultation with BCAG, Greyhound, and Amtrak, monitor demand for intercity bus transit service.

Action CIRC-5.1.4 (Enhanced B-Line) – In consultation with BCAG, pursue funding sources and partnerships to support an enhanced B-Line with more frequent headways.

Policy CIRC-5.2 (Central City Transit Route) – Encourage the creation of a pilot program Central City Transit Route that is frequently served by branded transit vehicles connecting heavily visited City locations, such as CSU Chico, Enloe Medical Center, shopping, entertainment areas and Downtown.

Action CIRC-5.2.1 (Transit Oriented Development) – Support new development and redevelopment within the Central City and Corridor Opportunity Sites to support ridership.

Policy CIRC-5.3 (Transit Connectivity in Projects) – Ensure that new development supports public transit.

Action CIRC-5.3.1 (Roadway Transit Features) – When planning or retrofitting roadways, consult with BCAG regarding the inclusion of transit stops, shelters, bus turnouts, and other transit improvements.

Action CIRC-5.3.2 (Transit Improvements for New Development) – During the project review process, consult with BCAG to determine appropriate requirements for the installation of needed stops and streetscape improvements if needed to accommodate transit.

Action CIRC-8.1.1 (Parking Standards) – Amend the Municipal Code to establish parking standards that support trip reduction goals by:

- *Allowing parking reductions for projects that implement trip reduction methods (such as vehicle loan program and transit passes) and for mixed-use developments; and*
- *Requiring new office projects with more than 25 employees to provide preferential on-site parking for carpools.*

Policy CIRC-8.2 *(Parking Improvements) – Ensure that new parking facilities and renovations are designed to be safe, efficient, and pedestrian-friendly.*

Action CIRC-8.2.1 *(Parking Facility Design) – Require that parking facilities are designed with convenient connections to adjoining businesses and the public right-of-way and, where possible, shared access between land uses. This may include reducing barriers between existing parking lots to facilitate shared parking and providing pedestrian connections between adjacent developments.*

Policy CIRC-9.1 *(Reduce Peak-Hour Trips) – Strive to reduce single occupant vehicle trips through the use of transportation demand management strategies.*

Action CIRC-9.1.1 *(City Transportation Demand Management) – Implement a City of Chico Transportation Demand Management Plan that provides incentives for City employees who commute in modes other than single-occupant vehicles.*

Action CIRC-9.1.2 *(Employer Trip Reduction Programs) – Encourage employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, and preferential parking for carpools/vanpools.*

Policy CIRC-9.2 *(Off-Peak Deliveries) – Encourage business owners to schedule deliveries during off-peak traffic periods.*

Policy CD-2.1 *(Walkable Grid and Creek Access) – Reinforce a walkable grid street layout and provide linkages to creeks.*

Action CD-2.1.2 *(Bike Trails, Paths and Medians) – Establish linkages and an improved sense of place through enhanced bike trails, pedestrian paths, landscaped medians and parkways.*

Policy CD-3.2 *(Bicycles and Pedestrians) – Maintain and enhance the pedestrian- and bicycle-friendly environment of Chico.*

Action CD-3.2.1 *(Pedestrian-Scale Site Planning) – Utilize design techniques provided in the City's Design Guidelines Manual that support pedestrian- and bicycle-friendly site planning.*

Policy CD-3.3 *(Pedestrian Environment and Amenities) – Locate parking areas and design public spaces within commercial and mixed-use projects in a manner that promotes pedestrian activity.*

Action DT-2.1.1 *(Incentives for Mixed-Use Downtown) – Utilize City incentives identified in Action LU-2.3.1 to support developers who construct vertical mixed-use projects within Downtown.*

Policy DT-3.1 *(Design for Pedestrian Environment) – Maintain and enhance the high-quality pedestrian environment within Downtown through the design of buildings and sidewalks.*

Policy DT-3.2 *(Streetscape Environment) – Ensure a lively streetscape environment.*

Action DT-3.2.1 *(Ground-Floor Uses) – Amend the Municipal Code to establish a Downtown Retail Zone in North Downtown that requires development to incorporate retail or other uses that contribute to increased pedestrian activity on the ground floor and requires use permit approval for other ground-floor uses.*

Action DT-3.2.2 *(Mixed-Use Parking Structures) – New parking structures in Downtown will be ringed primarily with ground-floor retail suites, other pedestrian-oriented uses, or will be otherwise integrated into larger mixed-use development projects.*

Action DT-3.3.1 *(Sidewalk Uses) – Encourage the active use of sidewalks by expanding their allowed uses to include outdoor seating and dining, streetscape and landscape furnishings, and other pedestrian features, while maintaining space for a path of travel.*

Action DT-3.3.2 *(Enhance Downtown Open Space) – Increase the use of public open space by providing pedestrian pathways, landscaping, street furniture, lighting, courtyards, shade, and other amenities.*

Policy DT-3.5 *(Pedestrian Priorities) – Prioritize facilities for pedestrian travel within Downtown.*

Action DT-3.5.1 *(Enhance Sidewalks) – Enhance pedestrian facilities with features such as wide sidewalks, bulb-out corners, and street furniture, with an emphasis on extending sidewalk features to South Downtown.*

Action DT-3.5.2 *(Bicycling and Skating on Sidewalks) – Enforce regulations prohibiting bicycling and skating on sidewalks to maintain pedestrian safety and encourage alternate routes for bicyclists.*

Action DT-3.7.1 *(Number of Travel Lanes) – Giving special consideration for north-south circulation patterns and the delivery needs of Downtown businesses, identify options to reduce the number of travel lanes on Downtown streets to accommodate additional diagonal parking or an enhanced pedestrian environment.*

Policy DT-5.1 *(Multimodal Circulation) – Promote a balanced multimodal circulation system to and throughout Downtown that includes pedestrian, bicycle, vehicular, and public transit.*

Action DT-5.1.2 *(Expand Bicycle Amenities) – Create additional bicycle lanes and safe, convenient, and attractive bicycle parking.*

Action DT-5.1.3 *(Bicycle and Pedestrian Safety) – Identify and address hazards for pedestrians and bicyclists.*

Action DT-6.2.2 *(Creek Path) – Create a pedestrian/bicycle path along the south side of Big Chico Creek to improve circulation through Downtown and provide public access to the creek.*

Action DT-7.1.2 *(Parking Facilities) – Develop and charge for publicly-owned, safe parking facilities that allow pedestrians 24-hour access to Downtown and provide employee parking.*

Policy PPFS-2.1 *(Use of Creeks and Greenways) – Utilize the City's creekside greenways and other open spaces for public access and to enhance community connectivity.*

Action OS-1.1.3 *(Sustainable Community Strategy) – Work with Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart growth development to urbanized areas.*

Policy OS-2.2 *(Creek Corridors and Greenways) – Expand creekside greenway areas for open space and additional pedestrian/bicycle routes.*

Policy OS-4.1 *(Air Quality Standards) – Work to comply with state and federal ambient air quality standards.*

Action OS-4.1.1 *(Air Quality Impact Fee) – Consult with the Butte County Air Quality Management District regarding development by the District of an air quality impact fee as a method to mitigate air quality impacts.*

Action OS-4.1.2 *(Air Quality Impact Mitigation) – During project and environmental review, evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with Butte County Air Quality Management District requirements.*

Action OS-4.1.3 *(Wood Burning) – Work with the Butte County Air Quality Management District to reduce air pollution from wood burning.*

Action OS-4.1.4 *(Pollution from City Equipment) – As viable alternatives become available, replace City-owned, gas-powered equipment with less polluting models.*

Action OS-4.1.5 *(Leaf Removal) – Continue the residential leaf pick-up program, encourage composting, and enforce the City's no burn regulations.*

Policy OS-4.2 *(Air Quality Education) – Participate in public education efforts to improve air quality.*

Action OS-4.2.1 *(Air Quality Education) – In consultation with the Butte County Air Quality Management District, disseminate information to educate the community about how to improve air quality.*

Policy OS-5.2 *(Agricultural Resources) – Minimize conflicts between urban and agricultural uses by requiring buffers or use restrictions.*

Action OS-5.2.1 *(Agricultural Buffers) – Require buffers for development adjacent to active agricultural operations along the Greenline reduce incompatibilities.*

Policy S-8.1 *(Hazardous Materials Safety Coordination) – Support efforts to reduce the potential for accidental releases of toxic and hazardous substances.*

Action S-8.1.1 *(Planning for Hazardous Materials Safety) – Consult with the State Office of Emergency Services, the State Department of Toxic Substances Control, the California Highway Patrol, Butte County, and other relevant agencies regarding hazardous materials routing and incident response programs.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that protect air quality and avoid or minimize significant impacts.

IMPACTS AND MITIGATION MEASURES

Conflict with the NSVPA 2006 Air Quality Attainment Plan (Standard of Significance 1)

Impact 4.6.1 Subsequent land use activities associated with implementation of the proposed General Plan Update would not conflict with or obstruct implementation of the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. The proposed General Plan Update also includes several policy provisions that would further assist in air quality attainment efforts. This impact is considered to be **less than significant**.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under State law, the California Clean Air Act requires an air quality attainment plan (AQAP) to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The NSVPA 2006 Air Quality Attainment Plan is the most recent air quality planning document for Butte County and constitutes the regions SIP. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and federal controls describing how the state will attain national ambient air quality standards (NAAQS) for ozone and particulate matter. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. The NSVPA 2006 AQAP includes forecasted ROG and NO_x emissions (ozone precursors) for the entire NSVPA region through the year 2020. These emissions are not appropriated by county or municipality.

According to BCAQMD, the consistency of the proposed General Plan Update with the NSVPA 2006 Air Quality Attainment Plan, which is also the SIP for the air basin, should be determined by both (a) the General Plan Update's consistency with population and vehicle use projections utilized by the AQAP and (b) the extent to which the General Plan Update implements AQAP transportation control measures (BCAQMD, 2008).

Implementation of the proposed General Plan Update could increase population and vehicle miles traveled, which could conflict with BCAQMD air quality planning efforts. However, the NSVPA 2006 Air Quality Attainment Plan does not cite vehicle miles traveled or population numbers as the basis for its air quality planning efforts. The NSVPA 2006 Air Quality Attainment Plan does cite projected O_3 precursor emissions (ROG and NO_x) through the year 2020. For the purposes of this analysis, the resulting emissions of the draft General Plan's assumption of a year 2030 City population of 139,713 was quantified and compared with the NSVPA 2006 Air Quality Attainment Plan 2020 O_3 precursor emission projections.

As noted in Section 3.0, Project Description, the proposed General Plan Update seeks to reduce the environmental impact (including air quality) of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. According to the traffic analysis conducted for the proposed General Plan Update which compared the "smart growth" strategies of the proposed General Plan Update to the relatively sprawling, low-density land use pattern outlined in the 1994 General Plan, build-out of the proposed General Plan Update would result in an average 56 daily vehicle miles traveled per Chico household compared with an average 64 daily vehicle miles traveled per Chico household under build-out of the current 1994 General Plan (see *City of Chico 4D Model Development and Results*, Fehr & Peers, 2010).

The NSVPA 2006 Air Quality Attainment Plan includes control strategies necessary to attain the California ozone standard at the earliest practicable date as well as developed emission inventories and associated emissions projections for the NSVPA showing a downtrend for both ROG and NOx. Implementation of the proposed General Plan Update will result in long-term emissions from area and mobile emission sources associated with future growth. As illustrated in **Table 4.6-7**, the O_3 precursor emissions, ROG and NO_x, are anticipated to decrease with 2030 conditions versus existing conditions (2008) by 18.5 percent and 67 percent, respectively, due to improvements in vehicle emission technology. The downward trend in O_3 precursor emissions is reflective of the projected O_3 emissions reductions documented in the NSVPA 2006 Air Quality Attainment Plan, which projects a 21.7 percent reduction in ROG emissions and a 31.5 percent reduction of NO_x emissions within the NSVPA by the year 2020 (the latest year projected in the NSVPA 2006 Air Quality Attainment Plan). Proposed General Plan Update Action OS-4.1.2 states that during project and environmental review, applicable mitigations to reduce impacts consistent with Butte County Air Quality Management District requirements shall be incorporated.

TABLE 4.6-7
CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (2008 AND 2030)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2008 Existing Conditions						
Area Sources	6,927.94	1,062.92	22,769.44	68.36	3,526.79	3,394.74
Mobile Sources	6,524.38	9,244.11	70,456.71	28.52	4,972.62	1,009.14
Total Unmitigated	13,452.32	10,307.03	93,226.15	96.88	8,499.41	4,403.88
2030 Conditions						
Area Sources	9,126.99	1,512.52	33,107.98	101.26	5,164.86	4,971.47
Mobile Sources	1,829.64	1,808.60	17,151.71	33.81	5,927.33	1,127.14
Total Unmitigated	10,956.63	3,321.12	50,259.69	135.07	11,092.19	6,098.61
Net Difference (2030 Conditions – 2008 Existing Conditions)						
Net Difference	(2,495.69)	(6,985.91)	(42,966.46)	38.19	2,592.78	1,694.73

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (see Appendix C)

The proposed General Plan Update is designed to ensure that subsequent land use activities associated with implementation of the proposed General Plan Update would not conflict with applicable air quality plans. The intent of the proposed General Plan Update is to accommodate anticipated growth in a compact urban form, including infill, new complete neighborhoods and mixed-use development, as well as focusing redevelopment along transit corridors and at other key locations. The proposed General Plan Update and its Land Use Diagram would provide for this growth, minimize outward expansion of the city's boundaries, and retain the current Greenline along the western boundary of the city. Further, O_3 precursor (ROG and NO_x) emissions are anticipated to decrease with 2030 conditions versus existing conditions (2008) by 2,495 pounds per day of ROG (18.5 percent reduction) and 6,985 pounds per day of NO_x (67 percent reduction) due to improvements in vehicle emission technology (**Table 4.6-7**). Since it is the intent of the NSVPA 2006 Air Quality Attainment Plan to achieve O_3 attainment status, and O_3 precursor emissions are projected to decrease as a result of the General Plan Update, this impact is expected to be **less than significant.**

It is important to note that while the proposed General Plan Update would result in an increase in PM_{10} and $PM_{2.5}$ emissions for which BCAQMD is in nonattainment, the NSVPA 2006 Air Quality Attainment Plan only includes forecast ROG and NO_x emissions for the NSVPA region, not PM_{10} and $PM_{2.5}$ emissions. Therefore, the proposed General Plan Update would not conflict with PM_{10} and $PM_{2.5}$ emissions projections as there are none. (As previously mentioned, BCAQMD staff expects the $PM_{2.5}$ State Implementation Plan to be completed by 2012).

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Standards of Significance 2 and 3)

Impact 4.6.2 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter. This impact is considered to be **potentially significant**.

Implementation of the proposed General Plan Update will result in short-term emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM_{10} and $PM_{2.5}$ emissions. Off-road construction equipment is often diesel-powered and can be a substantial source of NO_X emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

Since the actual phasing of the proposed General Plan Update build-out is not known at this time, construction-related emissions were modeled assuming an equal distribution of development over the plan period. For example, the proposed General Plan Update projects a future growth potential of an additional 5,836,549 square feet of commercial, 1,761,594 square feet of office, 7,980,786 square feet of industrial, and 183,749 square feet of other land uses over baseline conditions. For the purposes of this analysis, this projected square footage was divided by 20 (the number of years accounted for in the proposed General Plan Update) in order to roughly depict potential construction-related criteria pollutant emissions which may result in any given year over the span of the proposed General Plan Update. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its growth potential be attained. Not all of the identified land will be available for development at any given time based on landowner willingness to sell or develop, site readiness, environmental constraints, market changes, and other factors. This impact discussion assumes full growth potential under the General Plan Update in order to present the maximum amount of pollutant emissions possible. Unlike the impact discussion above, it is not possible to rely on population increase alone for modeling purposes, and so the total build-out potential of the General Plan needs to be used. Thus, the emissions identified in Table 4.6-8 are considered very conservative and likely overstate the extent of air pollutant emissions that would occur during these time periods. **Table 4.6-8** illustrates the beginning year (2010) and ending year (2030) construction-related criteria and precursor emissions that would result from implementation of the proposed General Plan Update. As shown in **Table 4.6-8**, O_3 precursor (ROG and NO_x) emissions as well as CO emissions are anticipated to decrease with build-out of the proposed General Plan Update versus existing conditions due to improvements in construction vehicle/equipment emission technology. However, as illustrated in the table, construction emissions could exceed BCAQMD emission thresholds for ROG (25 pounds per day), NO_X (25 pounds per day), and PM_{10} (80 pounds per day). It should be noted that all projects in the City of Chico are subject to applicable BCAQMD rules and regulations identified above in effect at the time of construction that address particulate matter, open burning, and equipment emissions.

TABLE 4.6-8
CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (2010 AND 2030)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2010 Construction Activities						
Site Grading	11.34	95.76	50.36	0.00	1,248.28	264.01
Asphalt Paving	4.24	21.90	13.15	0.00	1.80	1.64

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Building Construction	18.19	92.55	319.50	0.28	5.23	4.11
Architectural Coating	294.80	0.31	5.16	0.00	0.03	0.01
Total Unmitigated	328.57	210.51	388.17	0.28	1,255.40	269.78
BCAQMD Potentially Significant Impact Threshold	*25 pounds/day*	*25 pounds/day*	–	–	*80 pounds/day*	–
2030 Construction Activities						
Site Grading	6.24	42.82	32.52	0.00	1,245.34	261.31
Asphalt Paving	2.58	10.96	10.16	0.00	0.86	0.78
Building Construction	3.79	21.02	67.11	0.28	2.53	1.57
Architectural Coating	294.62	0.04	0.85	0.00	0.03	0.01
Total Unmitigated	307.23	74.84	110.64	0.28	1,248.75	263.67
BCAQMD Potentially Significant Impact Threshold	*25 pounds/day*	*25 pounds/day*	–	–	*80 pounds/day*	–

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (See Appendix C)

Implementation of BCAQMD rules and regulations and proposed General Plan Update policies and actions and would prevent, reduce, and minimize potential construction-related air quality impacts. BCAQMD monitors air quality, prepares clean air plans, and responds to citizen complaints concerning air quality. All projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. For instance, all stationary construction equipment, other than internal combustion engines less than 50 horsepower, require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District, emissions must be prevented from creating a nuisance to surrounding properties as regulated under BCAQMD Rule 200 Nuisance, and visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one hour, as regulated under BCAQMD Rule 201 Visible Emissions. The proposed General Plan Update contains Action OS-4.1.2 which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. BCAQMD's CEQA Air Quality Handbook (BCAQMD, 2008), identifies a list of best available mitigation strategies tailored to the type of project being proposed.

However, these actions might not fully offset air pollutant emissions resulting from construction activities. Projected growth under the General Plan Update could add a significant amount of development and supporting infrastructure in Chico. Construction of these projects could result in construction emission in excess of the BCAQMD threshold levels that are provided in **Table 4.6-8.** Thus, this impact is considered **significant and unavoidable**.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Standards of Significance 2 and 3)

Impact 4.6.3 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in long-term, operational emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter. This impact is considered to be **significant**.

Area Source and Mobile Source Emissions

Implementation of the proposed General Plan Update will result in long-term emissions from operation and use of subsequent development. **Table 4.6-7** summarizes the emissions associated with 2030 build-out conditions with implementation of the proposed General Plan Update. As shown in the table, the proposed General Plan Update would result in emissions in excess of BCAQMD thresholds for criteria air pollutants and precursors for which BCAQMD is in nonattainment. While ozone emission sources are expected to be reduced as compared to existing conditions (O_3 precursor (ROG and NO_x) emissions are anticipated to decrease with build-out of the proposed General Plan Update (2030) versus existing conditions (2008) due to improvements in vehicle emission technology), future particulate matter emissions would increase at build-out. As a result, this impact is considered significant.

Stationary Source Emissions

Implementation of the proposed General Plan Update could include stationary sources of pollutants that would be required to obtain permits to operate in compliance with BCAQMD rules. These sources include, but are not limited to, gasoline stations, dry cleaners, internal combustion engines, and surface coating operations. The permit process ensures that these sources would be equipped with the required emission controls and that, individually, these sources would result in a less than significant impact. However, the emissions from these sources would be additive to the area source and mobile source emissions noted above.

The proposed General Plan Update includes a number of policies and actions that would reduce the potential impacts associated with long-term operational emissions. Policy CIRC-2.1 seeks to develop an integrated, multimodal circulation system that provides opportunities to reduce air pollution such as the development of non-polluting bicycle and pedestrian facilities. Indeed the General Plan Update Circulation Element contains more than 22 provisions instigating the improvement/expansion of bicycle and pedestrian facilities in the City. For example, Action CIRC-3.1.1 will incorporate bicycle facilities into public road construction projects and private development projects while Policy CIRC-4.3 ensures that streets in areas with high levels of pedestrian activity support safe pedestrian travel by providing elements such as detached sidewalks, bulb-outs, enhanced pedestrian crossings, and medians.

BCAQMD's recommends general strategies for all projects and standard mitigation measures for residential, commercial, or industrial projects to reduce operational emissions (BCAQMD, 2009). **Table 4.6-9** summarizes the level of compliance of the proposed General Plan Update with these recommended emission reduction strategies and standard mitigation measures, including the reference to the relevant proposed General Plan Update policies and actions.

TABLE 4.6-9
COMPLIANCE OF GENERAL PLAN UPDATE WITH
BCAQMD-RECOMMENDED OPERATION EMISSION REDUCTION STRATEGIES

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Land Use	
Build compact communities to limit urban sprawl.	Compliant See Policy LU-1.2; Policy LU-1.3; Action LU-1.3.1; Policy LU-5.1; Action LU-5.1.1; Action LU-5.1.2; Policy LU-5.2; Action LU-5.2.1; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4
Mix complementary land uses, such as commercial services and employment located within and/or adjacent to medium or higher density housing.	Compliant See Policy LU-2.3; Policy LU-3.1; Action LU-5.2.1; Policy LU-6.1; Policy LU-6.4; Action LU-6.4.1; Action LU-6.4.2; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1; Policy LU-7.5; Action LU-7.5.1; Policy LU-7.6; Action LU-7.6.1; Policy LU-7.7; Action LU-7.7.1; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Action DT-3.2.2
Develop core commercial areas within 1/4 to 1/2 mile of residential housing areas.	Compliant See Action LU-2.2.2; Action LU-2.2.3; Action LU-5.2.1; Policy LU-6.1; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1
Increase residential and commercial densities along transit corridors.	Compliant See Action LU-3.1; Policy LU-3.2; Policy LU-6.1; Action LU-6.1.3; Policy LU-6.2; Action LU6.2.1; Policy LU-6.3; Action CIRC-6.3.1; Policy DT-2.1; Action DT-2.1.1; Policy DT-2.2; Action DT-2.2.1; Policy DT-2.4; Action DT-3.2.1; Action DT-3.2.2
Prioritize in-fill projects that provide development within the urban core and urban reserve boundaries.	Compliant See Policy LU-5.2; Action LU-5.2.1; Action LU-5.2.2; Action LU-5.2.3; Action LU-5.2.2; Action LU-5.2.3; Action LU-6.1.2; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Policy DT-2.4; Action DT-3.2.2; Action ED-1.5.6; Action ED-1.5.7
Neighborhood park(s) or other recreational options such as trails within the development to minimize vehicle travel to off-site recreational uses and/or commercial areas.	Compliant See Policy DT-6.2; Action 6.2.2; Policy PPFS-3.1; Action PPFS-3.1.5; Policy OS-2.2
Orient buildings toward streets with automobile parking in the rear to promote a pedestrian-friendly environment and to provide convenient pedestrian and transit access.	Compliant See Action CIRC-2.1.4; Policy CIRC-6.4; Policy CD-3.2; Action CD-3.2.1; Policy CD-3.3; Action CD-3.3.1; CD-3.3.2; Policy DT-3.1; Action DT-3.1.1; Action DT-3.2.1; Action DT-3.2.2

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Energy Efficiency	
Orient building structures to maximize the potential for natural heating and cooling and passive solar design principles (this may include the use of appropriate landscaping).	Compliant See Action SUS-5.2.4
Use of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces, and boiler units.	Compliant See Policy SUS-3.2 The use of such energy-efficient hardware is mandated in California Energy Code Sections 113, 119, and 144
Use of energy-efficient and automated controls for air conditioning.	Compliant See Policy SUS-3.2
Transit	
Develop residential housing areas within 1/4 mile of transit centers and transit corridors.	Compliant See Policy LU-3.1; Policy LU-3.2; Policy LU-6.3; Action CIRC-6.3.3; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Policy DT-2.4
Provide abundant and safe access for pedestrians, bicyclists, and transit users.	Compliant See Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.3; Action CIRC-4.1.2; Policy CIRC-4.2; Policy CIRC-4.3; Policy CIRC-5.2
Arterial and collector streets planned as transit routes to allow the efficient operation of public transit.	Compliant See Policy CIRC-2.1; Action CIRC-2.1.1
Pedestrian	
Provide a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe.	Compliant See Action LU-6.3.1; Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.3; Policy CIRC-5.2; Policy CD-2.1; Action CD-2.1.3; Policy CD-3.3; Action CD-3.3.1; Action CD-3.3.2; Policy CD-4.1; Policy DT-3.1; Action DT-3.1.1; Policy DT-3.5; Action DT-3.5.1
Services	
Provide a balance of job opportunities and housing within communities.	Compliant Action LU-2.2.2; Action LU-2.2.3; Policy LU-5.1; Action LU-6.2.3; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1; Policy LU-7.5; Action LU-7.5.1; Policy LU-7.6; Action LU-7.6.1; Policy LU-7.7; Action LU-7.7.1; Policy DT-2.1; Action DT-2.1.1; Policy DT-2.2; Action DT-2.2.1; Policy DT-2.4
Development of a neighborhood telecommunication infrastructure or telework center.	Compliant See Policy LU-1.4; Policy LU-3.2; Policy CIRC-10.1; Action CIRC-10.1.1; Action CIRC-10.1.2
Standard Mitigation Measure	

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Link or minimize cul-de-sacs and dead-end streets, to encourage pedestrian and bicycle travel.	Compliant See Action CIRC-2.1.3; Policy CIRC-3.1; Action CIRC-3.1.1; Policy CIRC-4.3; Action CIRC-4.3.1; Policy CD-2.1
Traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, thus encouraging pedestrian and bicycle travel.	Compliant See Action CIRC-3.1.1; Policy CIRC-5.3; Action CIRC-5.3.2; Action DT-3.5.1
Synchronize traffic signals along streets impacted by project development.	Compliant See Policy CIRC-1.2; Policy CIRC-1.3; Action CIRC-1.3.2; Policy CIRC-3.1
Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.	Compliant See Policy CIRC-5.2; Action CIRC-5.2.1; Policy CIRC-5.3; Action DT-3.7.1
Provide adequate lighting for sidewalk, along with crosswalks at intersections.	Compliant See Policy CIRC-4.4; Action CIRC-4.4.2; Action DT-5.1.4
Increase the building energy efficiency rating by 10% above what is required by Title 24 requirements. This can be accomplished in a number of ways (increasing attic, wall or floor insulation, etc.).	Compliant See Policy SUS-4.1; Action SUS-4.1.1; Policy SUS-5.2; Action SUS-5.2.2; Action SUS-5.2.3
Improvement of thermal efficiency of commercial and industrial structures as appropriate by reducing thermal load with automated and timed temperature controls, or occupancy load limits.	Compliant See Policy SUS-4.1; Action SUS-4.1.1; Action SUS-4.3.4; Action SUS-5.2.4 Improvement of thermal efficiency is also mandated in California Energy Code Sections 114, 124, and 160
Incorporate shade trees, adequate in number and proportional to the project size, throughout the project site to reduce building heating and cooling requirements.	Compliant Action LU-6.2.2; Policy OS-8.1; Action OS-8.1.1; Action OS-8.1.2; Action OS-8.1.3; Action OX-8.1.4; Policy OS-8.2; Action OS-8.2.1; Action OS-8.2.2
Use fleet vehicles that run on clean-burning fuels as may be practicable.	Compliant See Policy SUS-3.4; Action SUS3.4.2; Policy SUS-5.3; Action OS-5.1.4

Implementation of the proposed General Plan Update policies and actions direct maintaining consistency with BCAQMD standards and requirements (Actions OS-4.1.1, OS-4.1.2, and OS-4.1.3), and would reduce potential long-term operational air quality impacts. As previously mentioned, BCAQMD's CEQA Air Quality Handbook identifies a list of best available mitigation strategies tailored to the type of project being proposed. For instance, mitigation measures to be implemented for a hypothetical future commercial development could include a provision for the minimum parking required in order to discourage vehicle trips and/or an increase in parking lot shading by 20 percent over the minimum requirement. However, these actions would not fully offset air pollutant emissions resulting from long-term operations consequential to build-out of the proposed General Plan Update. The region is nonattainment for federal ozone and $PM_{2.5}$ standards, and nonattainment for state O_3 and PM_{10} and $PM_{2.5}$ standards and even with implementation of relevant policies and actions from the proposed General Plan Update, the long-term, operational emissions resulting from build-out could violate or substantially contribute

to a violation in O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards (while ozone emission sources are expected to be reduced as compared to existing conditions, future particulate matter emissions would increase at build-out).

The intent of the proposed General Plan Update is to accommodate anticipated growth in a compact, walkable community, through thoughtful infill, focused redevelopment along transit corridors and at other key locations, and new mixed-use and complete neighborhoods. The proposed General Plan Update and its Land Use Diagram would provide for this growth and would minimize outward expansion of the City's boundaries. The General Plan identifies new growth areas (Special Planning Areas) with a mix of uses and higher density residential development. Thus, growth accommodated under the proposed General Plan Update would avoid growth effects of a sprawl development patterns (sprawl development patterns contribute to increased vehicle miles traveled and thus air pollutants emissions).

Implementation of the proposed General Plan Land Use Diagram, however, could violate or substantially contribute to a violation in already nonattainment O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards (see **Table 4.6-7**). Thus, this impact is considered **significant and unavoidable**.

Exposes Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations (Standard of Significance 4)

Impact 4.6.4 Implementation of the proposed General Plan Update would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. However, traffic volumes would not be large enough to generate excessive carbon monoxide emission levels. This is considered to be a **less than significant** impact.

Localized CO concentrations near roadway intersections are a function of traffic volume, speed, and delay (Toxic Air Contaminants are discussed under **Impact 4.6.5**). Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to sensitive receptors, often referred to as a "CO hotspot."

BCAQMD recommends use of a screening approach to determine if long-term project operations would have the potential to create a violation of the CO standard (BCAQMD, 2008). Based on BCAQMD guidance, the proposed General Plan Update could have a significant impact on localized CO concentrations if:

- A traffic study indicates that the peak hour level of service (LOS) on 1 or more streets or at 1 or more intersections will be reduced to LOS E or F; or

- A traffic study indicates that the project will substantially worsen (i.e., increase delay by 10 or more seconds) an already existing LOS F on one or more streets or intersections.

If either of the above criteria can be associated with any road segment or intersection affected by the proposed General Plan Update additional CO analysis would be needed to determine significance.

The traffic modeling conducted for this Draft EIR projected that one road segment, Nord Avenue between W. Sacramento Avenue to W. Sacramento Avenue in front of the Safeway shopping center complex will be reduced from LOS E to F as a result of the General Plan Update and one intersection at Mangrove Avenue and Vallombrosa Avenue will be reduce to LOS D to LOD E as a result of the General Plan Update. shopping center complex. Therefore, this impact does not meet the screening criteria listed above and additional CO analysis is needed to determine significance.

CO concentrations were modeled using the California Line Source Dispersion Model (CALINE4) with emission factors from the EMFAC 2007 computer model. Modeling was conducted in accordance with the University of California Davis Transportation Project-Level Carbon Monoxide Protocol (Garza, Granly, and Sperling, 1997). Background (ambient) CO concentrations were obtained from the USEPA (USEPA, 2009b) and were identified as the highest concentrations recorded during the last three years. However, it is expected that background CO concentrations in the year 2030 would be lower than those recorded during 2006, due to continuous improvement in CO emissions control technology over time, making this analysis conservative. According to the USEPA data, the 1-hour and 8-hour background CO concentrations for the proposed General Plan Update build-out conditions were estimated to be 4.3 parts per million (ppm) and 2.7 ppm, respectively. The maximum General Plan Update traffic-generated 1-hour CO concentration was calculated to be 1.8 ppm. Assuming a persistence factor of 0.7, the 8-hour concentration was estimated at 1.3 ppm. Total 1-hour and 8-hour estimated CO concentrations at proposed General Plan Update build-out (2030) conditions would be approximately 6.1 ppm and 4.0 ppm, respectively. Because the proposed General Plan Update would not be anticipated to result in or contribute to local CO concentrations that exceed the state 1-hour or 8-hour ambient air quality standards of 20 ppm or 9 ppm, respectively, this impact is considered to be **less than significant** and no mitigation measures are required.

Exposes Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations (Standard of Significance 4)

Impact 4.6.5 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in projects that would include sources of toxic air contaminants which could affect surrounding land uses. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial pollutant concentrations such as toxic air contaminants. However, Butte County Air Quality Management District and state regulations would address exposure to toxic air contaminants. This is considered a **less than significant** impact.

Subsequent land use activities associated with implementation of the proposed General Plan Update could potentially include short-term construction sources of TACs and long-term operational sources of TACs, including stationary and mobile sources.

Short-Term Construction Sources

Implementation of the proposed General Plan Update would result in the potential construction of a variety of projects. This construction would result in short-term emissions of diesel PM, which was identified as a TAC by CARB in 1998. Construction would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a

function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The calculation of cancer risk associated with exposure to TACs is typically based on a 70-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. For these reasons, diesel PM generated by construction activities, in and of itself, would not be expected to create conditions where the probability of contracting cancer is greater than 10 in 1 million for nearby receptors. Long-term health risks associated with short-term construction activities would therefore be considered **less than significant**. It should also be noted the diesel construction emissions are regulated by BCAQMD Rule 201 (Visible Emissions).

Long-Term Operational Sources

Stationary Sources

The issuance of BCAQMD air quality permits and compliance with all BCAQMD, state, and federal regulations regarding stationary TACs reduce potential stationary sources of TAC emissions such that sensitive receptors would not be exposed to substantial pollutant concentrations. BCAQMD limits public exposure to TACs through a number of programs. BCAQMD reviews the potential for TAC emissions from new and modified stationary sources through the BCAQMD permitting process for stationary sources. TAC emissions from existing stationary sources are limited by:

1. BCAQMD adoption and enforcement of rules aimed at specific types of sources known to emit high levels of TACs;
2. Implementation of the Air Toxics "Hot Spots" (Assembly Bill 2588) Program as described under the Regulatory Framework subsection above; and
3. Implementation of the federal Title III Toxics program (BCAQMD, 2008).

Facilities and equipment that require permits from the BCAQMD are screened from risks from toxic emissions and are required to install Toxic Best Available Control Technology (T-BACT) to reduce the risks to below significant. If a significant impact remains after T-BACT is implemented, an air permit may not be issued unless it meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources (BCAQMD, 2008). T-BACTs are the most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for TACs. Therefore, the proposed General Plan Update's potential stationary TAC impacts are considered **less than significant**.

Mobile Sources

Mobile sources of TAC emissions in the city are primarily associated with traffic associated with State Route 99, operation of school buses and diesel-powered delivery trucks associated with roadways, and commercial, retail, and industrial uses.

Railroad Operations

As noted in **Table 4.6-5**, CARB considers major service and maintenance rail yards as potential sources of TACs. However, operation of rail lines outside of rail yards has not been identified as a potential source of TACs that pose a significant risk to sensitive receptors. The Union Pacific JR Davis Rail Yard in Roseville (over 70 miles to the south of the City of Chico) is the nearest major

rail yard. Therefore, exposure of sensitive receptors to substantial TAC pollutant concentrations from rail operations would be considered **less than significant**.

On-Road Operations

Approximately 60 percent of California's diesel exhaust is emitted on roadways by heavy-duty trucks, buses, and light-duty passenger vehicles. People living and/or working near busy roadways, such as State Route 99, are exposed to higher than average concentrations of diesel exhaust (CARB, 2005).

Emissions from school buses can vary depending on various factors, including bus type, age, and maintenance, and the amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of their higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, CARB adopted an Airborne Toxics Control Measure (ATCM) as part of the Particulate Matter Risk Reduction Plan to specifically deal with diesel emissions from school buses. This measure became effective July 16, 2003. The school bus-idling ATCM includes the following requirements:

a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and shall restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy-duty vehicle (other than a bus) shall be prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.

b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to CARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to TAC emissions and other harmful air pollution emissions at and near schools and protecting children from unhealthy exhaust emissions.

In addition to the school bus-idling ATCM, CARB adopted an idling-restriction ATCM for large commercial diesel-powered vehicles that became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. CARB is currently evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles.

In 2001, CARB adopted new PM and NO_x emission standards to clean up large diesel engines that power big-rig trucks, trash trucks, delivery vans and other large vehicles. The new standard for PM took effect in 2007 and reduces emissions to 0.01 gram of PM per brake horsepower-hour (g/bhp-hr.) This is a 90-percent reduction from the pre-2007 PM standard. New engines will meet

the 0.01 g/bhp-hr PM standard with the aid of diesel particulate filters that trap the PM before exhaust leaves the vehicle.

The proposed General Plan Update contains Action OS-4.1.2, which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. Compliance with BCAQMD rules and regulations regarding stationary sources of TACs would reduce the exposure of sensitive receptors to substantial TAC pollutant concentrations from stationary and mobile sources because an air permit may not be issued unless proposed development meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources (BCAQMD, 2008). Therefore, this impact would be considered to be **less than significant** and no mitigation is necessary.

Creates Objectionable Odors Affecting a Substantial Number of People (Standard of Significance 5)

Impact 4.6.6 Subsequent land use activities associated with implementation of the proposed General Plan Update could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor. However, continued implementation of BCAQMD rules and regulations and proposed General Plan Update policy provisions would address this issue. Thus, this impact is considered to be **less than significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (i.e., residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions.

Future construction activities could result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited.

BCAQMD has adopted a nuisance rule that addresses the exposure of nuisance air contaminant discharges. Rule 200 states that no person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property (BCAQMD, 2009). If public complaints are sufficient to cause the odor source to be considered a public nuisance, then BCAQMD can require the identified source to incorporate mitigation measures to correct the nuisance condition.

The proposed General Plan Update contains policies and actions that include specific, requirements that address impacts resulting from odors. The maintenance of long-term boundaries between urban and agricultural uses and retention of the Greenline as required by Policy LU-1.2 and associated Action LU-1.2.1 will buffer non-agricultural uses from odors related to agricultural activities. Specifically Policy LU-2.6 requires a minimum 100-foot wide physical

separation between agricultural uses and any habitable structure and seeks the incorporation of vegetation in these buffer areas when possible.

Implementation of the proposed General Plan Update policies and actions described above, which primarily address odors resulting from agricultural activities, in combination with BCAQMD's Rule 200, would minimize the creation of objectionable odors affecting a substantial number of people. No mitigation measures are required and this impact is considered **less than significant**

4.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The policies and actions in the proposed General Plan Update would provide direction for growth within the city limits, while the Butte County General Plan policies and actions provide direction for growth outside the city limits within Butte County. Similar relationships between cities and counties occur throughout the SVAB. Thus, the setting for this cumulative analysis consists of the SVAB and associated growth and development anticipated in the SVAB. A considerable amount of the ozone that is monitored in the SVAB results from pollutants that have been transported from the San Francisco Bay Area. Due to the lack of physical barriers and coastal winds blowing inland, air pollution generated in the metropolitan Bay Area is easily spread to the Sacramento Valley.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Result in a Cumulatively Considerable Net Increase in Nonattainment Criteria Pollutant (Standard of Significance 3)

Impact 4.6.7 Implementation of the proposed General Plan Update, in combination with cumulative development in the Sacramento Valley Air Basin, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter. This is considered a **cumulatively considerable** impact.

Table 4.6-10 compares criteria air pollutant emissions between General Plan Update build-out conditions and existing conditions (2008). As illustrated in **Table 4.6-10**, ROG, NO_x, and CO emissions are anticipated to decrease with build-out conditions versus existing conditions (2008) by 1,718, 6,747, and 38,941.77 pounds per day, respectively. This reduction in emissions is due to improvements in vehicle emission technology. However, as described under Impact 4.6.2 and Impact 4.6.3, subsequent construction and development activity under the proposed General Plan Update would result in emissions in excess of BCAQMD thresholds for criteria air pollutants and precursors for which BCAQMD is in nonattainment. As a result, this impact is cumulatively considerable.

TABLE 4.6-10
CRITERIA POLLUTANT EMISSIONS (2008 AND BUILD-OUT)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2008 Existing Conditions						
Area Sources	6,927.94	1,062.92	22,769.44	68.36	3,526.79	3,394.74
Mobile Sources	6,524.38	9,244.11	70,456.71	28.52	4,972.62	1,009.14
Total Unmitigated	13,452.32	10,307.03	93,226.15	96.88	8,499.41	4,403.88
Build-Out Conditions						
Area Sources	9,811.34	1,657.26	36,303.66	111.53	5,676.78	5,464.26
Mobile Sources	1,922.16	1,902.34	17,980.72	35.54	6,238.91	1,186.07
Total Unmitigated	11,733.50	3,559.60	54,284.38	147.07	11,915.69	6,650.33
Net Difference (Build-Out Conditions – 2008 Existing Conditions)						
Net Difference	(1,718.82)	(6,747.43)	(38,941.77)	50.19	3,416.28	2,246.45

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (see Appendix C)

As discussed throughout this section, the General Plan Update contains several policy provisions to address air quality. Proposed General Plan Update Action OS-4.1.2 states that during project and environmental review, applicable mitigations to reduce impacts consistent with BCAQMD requirements shall be incorporated. BCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality. All projects in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to future construction and development operations resulting from implementation of the proposed General Plan Update have been identified throughout this section. In addition, Action OS-4.1.1 seeks collaboration with BCAQMD regarding development by the District of an air quality impact fee as a method to mitigate air quality impacts.

The proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. The proposed General Plan Update and its Land Use Diagram would provide for growth while minimizing outward expansion of the City's boundaries, would reduce increases in vehicle miles traveled within the city and thus reduce air quality impacts. However, while implementation of proposed General Plan Update policies and actions would assist in preventing, reducing, and minimizing the proposed General Plan Update's contribution to cumulative air quality impacts, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact as these actions might not fully offset air pollutant emissions resulting from construction and operational activities and could violate or substantially contribute to a violation in already nonattainment O_3, PM_{10}, and $PM_{2.5}$ federal and state standards. There are no feasible mitigation measures that can further offset air pollutant emissions from subsequent development and growth under the proposed General Plan Update.

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4.7
Noise

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) describes terminology used to discuss noise and discusses and analyzes the ambient noise environment of the proposed City of Chico General Plan Update Planning Area. Construction noise, traffic noise, operational noise, and other noise impacts associated with implementation of the proposed General Plan Update are analyzed.

4.7.1 EXISTING SETTING

TECHNICAL BACKGROUND

ACOUSTIC FUNDAMENTALS

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency. Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB 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 perceptible to the average person.

The frequency of a sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hertz (Hz). One Hz equals one cycle per second. The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower, and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA (USEPA, 1971). Common community noise sources and associated noise levels, in dBA, are depicted in **Figure 4.7-1**.

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, and 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 or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, 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 from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (USEPA, 1971).

NOISE DESCRIPTORS

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors 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. 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. CNEL, the Community Noise Equivalent Level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7:00 p.m. to 10:00 p.m.). Another descriptor that is commonly discussed is the single-event noise exposure level (SENEL), also referred to as the sound exposure level (SEL). The SENEL/SEL describes a receiver's cumulative noise exposure from a single noise event, which is defined as an acoustical event of short duration (0.5 second), such as a backup beeper, the sound of an airplane traveling overhead, or a train whistle, and involves a change in sound pressure above a defined reference value (usually approximately 40 dBA). Noise analyses may also depend on measurements of L_{max}, the maximum instantaneous noise level during a specific period of time, and L_{min}, the minimum instantaneous noise level during a specific period. Common noise level descriptors are summarized in **Table 4.7-1**.

TABLE 4.7-1
COMMON ACOUSTICAL DESCRIPTORS

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Level (DNL or L_{dn})	The 24-hour L_{eq} with a 10 dBA "penalty" for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases sensitivity to noise during these hours.
Community Noise Equivalent Noise Level (CNEL)	The CNEL is similar to the L_{dn} described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7:00 p.m. to 10:00 p.m. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn}.
Single Event Noise Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.
Percent Exceeded Noise Level (L_n)	The level exceeded for *n* percent of the time. For instance, L_{10} is the level exceeded for 10% of the time. The commonly used values of n for the n-percent exceeded level, L_n, are 2, 10, 50, and 90.

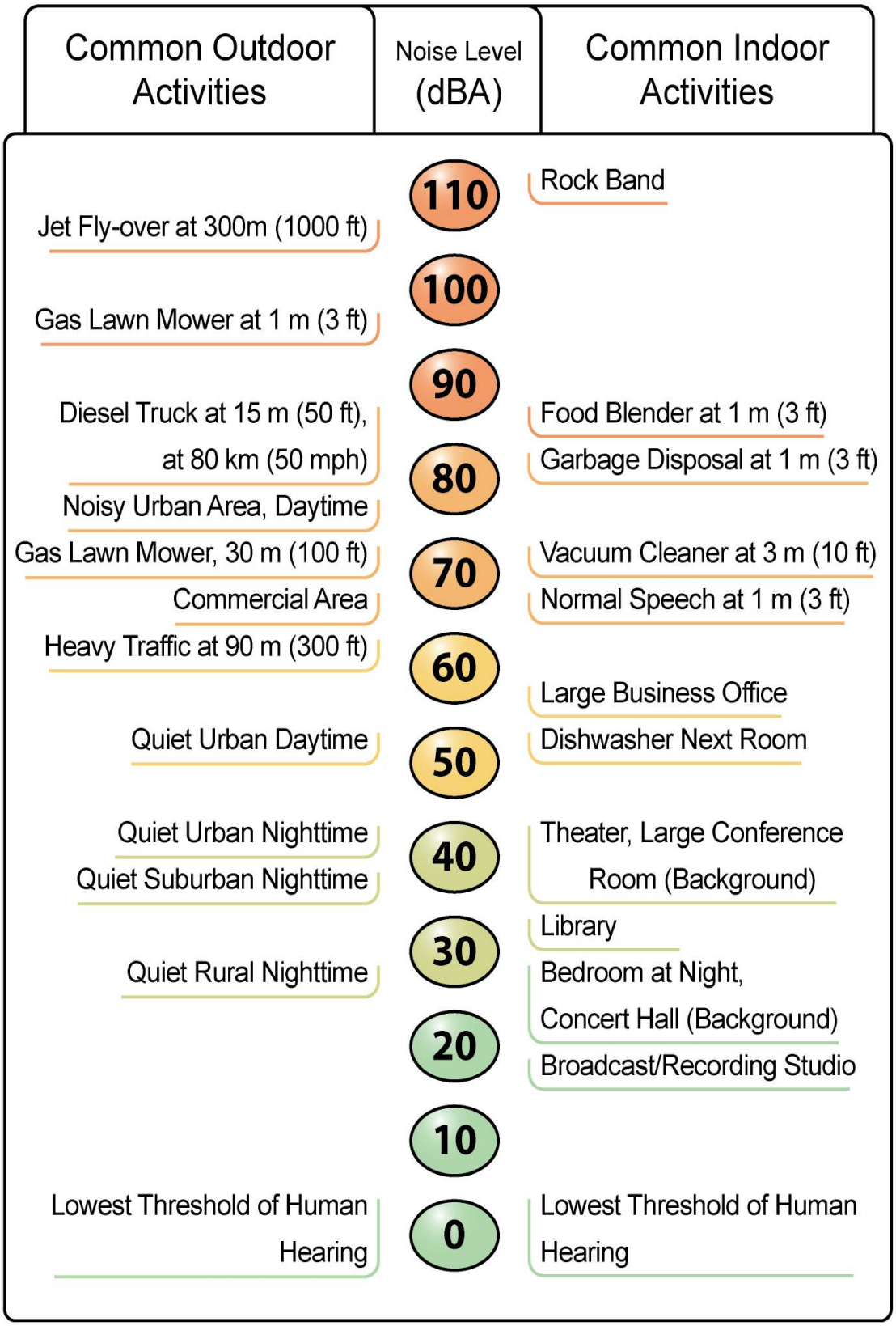

Figure 4.7-1
Common Noise Levels

HUMAN RESPONSE TO NOISE

The human response to environmental noise 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, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted: the so-called "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged. Regarding increases in A-weighted noise levels, knowledge of the following relationships will be helpful in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans;
- Outside of the laboratory, a 3 dB change is considered a just-perceivable difference;
- A change in level of at least 5 dB is required before any noticeable change in community response would be expected. An increase of 5 dB is typically considered substantial;
- A 10 dB change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

When evaluating noise impacts, based on the above relationships, it is generally recognized that an increase of greater than 3 dBA is considered potentially significant. However, increases in ambient noise levels need to also take into account the existing noise environment.

NOISE REDUCTION

Various methods can be employed to reduce noise levels, including enclosures, barriers, and sound-dampening materials. The methods employed are dependent on various factors, including source and receptor characteristics as well as environmental conditions. With regard to typical community noise sources, noise reduction techniques typically focus on the isolation or shielding of the noise source from nearby noise-sensitive receptors. The more common methods include the use of buffers, enclosures, and barriers. In general, these techniques contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers. Changes in design specifications and use of equipment noise control devices (e.g., mufflers and silencers) are also commonly employed to reduce stationary-source (i.e., non-

transportation) noise levels. Additional noise control techniques commonly used for transportation noise sources include traffic control, such as prohibiting heavy-duty trucks and reducing speed limits along primarily affected corridors. However, an approximate 20 mile per hour reduction in speed would typically be required to achieve a noticeable decrease in noise levels. In some instances, the use of noise-reducing pavements, such as rubberized asphalt, has also been used to reduce traffic noise.

EXISTING CONDITIONS

AMBIENT NOISE LEVELS

Several sources of noise that could affect the local community were identified within the City of Chico. These sources include noise generated from stationary activities (e.g., commercial and industrial uses), aircraft operations, and traffic on major roadways and highways. Short-term (10-minute) noise level measurements were conducted on November 6 and 7, 2007, for the purpose of documenting and measuring the existing noise environment in various areas in and around the City of Chico. Measurements were conducted using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface. Ambient noise measurement locations and corresponding measured values (i.e., L_{eq}, L_{min}, and L_{max}) are summarized in **Table 4.7-2**. Noise measurement locations and corresponding hourly-average daytime and nighttime ambient noise levels are depicted in **Figure 4.7-2**. Based on the monitoring conducted, hourly-average daytime noise levels (in L_{eq}) within the city generally range from the low 50s to the low 70s, dependent primarily on distance from area roadways. Ambient noise levels during the quieter nighttime hours are typically 5 to 10 dBA less than daytime noise levels. Average-daily noise levels at measurement locations range from approximately 56 to 77 dBA CNEL.

NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally considered to include those uses that would result in noise exposure that could cause health-related risks to individuals. Places where quiet is essential are also considered noise-sensitive uses. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. School classrooms, places of assembly, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

TABLE 4.7-2
AMBIENT NOISE LEVELS

Location		Monitoring Period	Noise Level (dBA)		
			L_{eq}	L_{max}	Calculated CNEL
1	Boeing Ave., 150′ Cohassett Rd. from near travel lane centerline of Cohasset Rd.	10:40 a.m. – 10:50 a.m.	61.4	72.6	65
		12:05 a.m. – 12:15 a.m.	52.6	71.5	
2	Innsbrook Ave., 50′ from near travel lane centerline of Esplanade	11:05 a.m. – 11:15 a.m.	64.8	74.5	68
		12:30 a.m. – 12:40 a.m.	57.1	68.1	

Location		Monitoring Period	Noise Level (dBA)		
			L_{eq}	L_{max}	Calculated CNEL
3	E. Lassen Ave. and Floral Ave.	10:15 a.m. – 10:25 a.m.	51.2	63.2	56
		11:40 p.m. – 11:50 p.m.	47.9	65.2	
4	Henshaw Avenue, 50′ from near travel lane centerline of Esplanade	11:30 a.m. – 11:40 a.m.	66.4	73.5	70
		12:55 a.m. – 1:05 a.m.	59.2	71.2	
5	Ceres Avenue, 50′ from near travel lane centerline of East Avenue	3:10 p.m. – 3:20 p.m.	59.6	67.6	63
		11:45 p.m. – 11:55 p.m.	52.7	68.2	
6	Marigold Elementary School, 75′ from near travel lane centerline of East Ave.	11:55 a.m. – 12:05 a.m.	59.8	71.2	63
		1:20 a.m. – 1:30 a.m.	51.4	68.1	
7	Hooker Oak Recreation Complex, 75′ from near travel lane centerline of Manzanita Ave.	9:45 a.m. – 9:55 a.m.	56.9	67.0	60
		11:15 p.m. – 11:25 p.m.	48.5	62.8	
8	Jordans Place, 50′ from near travel lane centerline of Nord Avenue	12:35 p.m. – 12:45 p.m.	65.1	74.4	68
		1:45 a.m. – 1:55 a.m.	55.8	69.8	
9	W. 5th Avenue, 35′ from near travel lane centerline of Esplanade	4:10 p.m. – 4:20 p.m.	65.4	74.8	69
		12:15 a.m. - 12:25 a.m.	58.5	72.4	
10	Oak Way Park, 25′ from near travel lane centerline of Oak Way	12:50 p.m. – 1:00 p.m.	59.8	78.2	63
		12:40 a.m. – 12:50 a.m.	50.5	57.8	
11	Gateway Lane, 50′ from near travel lane centerline of W. Sacramento Ave.	1:40 p.m. – 1:50 p.m.	54.6	64.7	58
		1:10 a.m. – 1:20 a.m.	47.7	65.4	
12	Chico High School, 45′ from near travel lane centerline of Esplanade	2:10 p.m. – 2:20 p.m.	64.3	70.5	68
		10:40 p.m. – 10:50 p.m.	57.1	71.3	
13	E. 4th Street, 35′ from Near Travel Lane Centerline of Main Street	2:35 p.m. – 2:45 p.m.	66.1	71.8	70
		11:10 p.m. – 11:20 p.m.	57.9	70.9	
14	W. 5th Street, 50′ from near travel lane centerline of Walnut St.	1:15 p.m. – 1:25 p.m.	64.2	82.3	67
		10:15 p.m. – 10:25 p.m.	53.8	76.5	
15	Silver Dollar Way, 50′ from near travel lane centerline of Martin Luther King Jr. Parkway.	8:20 a.m. – 8:40 a.m.	58.9	67.2	63
		10:05 p.m. – 10:15 p.m.	51.6	68.1	
16	Village Center, 90′ from near travel lane centerline of SR 99	8:45 a.m. – 8:55 a.m.	73.1	78.0	77
		10:30 p.m. – 10:40 p.m.	67.8	76.2	
17	Hartford Dr., 25′ from near travel lane centerline of Forest Ave.	7:50 a.m. – 8:00 a.m.	53.4	73.5	57
		9:40 p.m. – 9:50 p.m.	48.4	72.4	

Location		Monitoring Period	Noise Level (dBA)		
			L_{eq}	L_{max}	Calculated CNEL
18	151 Via Mission Drive, 50' from near travel lane centerline of Bruce Rd.	9:15 a.m. – 9:25 a.m.	59.4	71.2	63
		10:55 p.m. – 11:05 p.m.	53.4	68.4	

Note: Ambient noise monitoring locations correspond with those noted in Figure 4.7-2. Ambient noise measurements were conducted on November 6 and 7, 2007, using a Larson Davis model 820 sound-level meter placed at a height of approximately 4.5 feet above the ground surface. CNEL noise levels were calculated based on measured daytime and nighttime noise levels.

NOISE SOURCES

Noise issues associated with stationary and transportation sources in the Planning Area are discussed below.

Stationary Sources

Stationary noise sources include industrial and commercial land uses. Many industrial processes produce noise, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by federal and state employee health and safety regulations (i.e., regulations of the Occupational Safety and Health Administration of the U.S. Department of Labor [OSHA] and the California Division of Occupational Safety and Health [Cal/OSHA]). Exterior noise levels that affect neighboring parcels are typically subject to local standards. Commercial, recreational, and public facility activities can also produce noise that may affect adjacent noise-sensitive land uses. These noise sources can be continuous or intermittent and may contain tonal components that are annoying to individuals who live nearby. For instance, emergency-use sirens and backup alarms are often considered nuisance noise sources, but may not occur frequently enough to be considered incompatible with noise-sensitive land uses. In addition, noise generation from fixed noise sources may vary based upon climate conditions, time of day, and existing ambient noise levels.

From a land use planning perspective, fixed-source noise control issues focus on two goals: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas; and (2) preventing encroachment of noise-sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise producing uses. The second goal can be met by requiring that new noise-sensitive uses near noise-producing facilities include mitigation measures to ensure compliance with noise performance standards. Each of these goals stresses the importance of avoiding the location of new uses that may be incompatible with adjoining uses.

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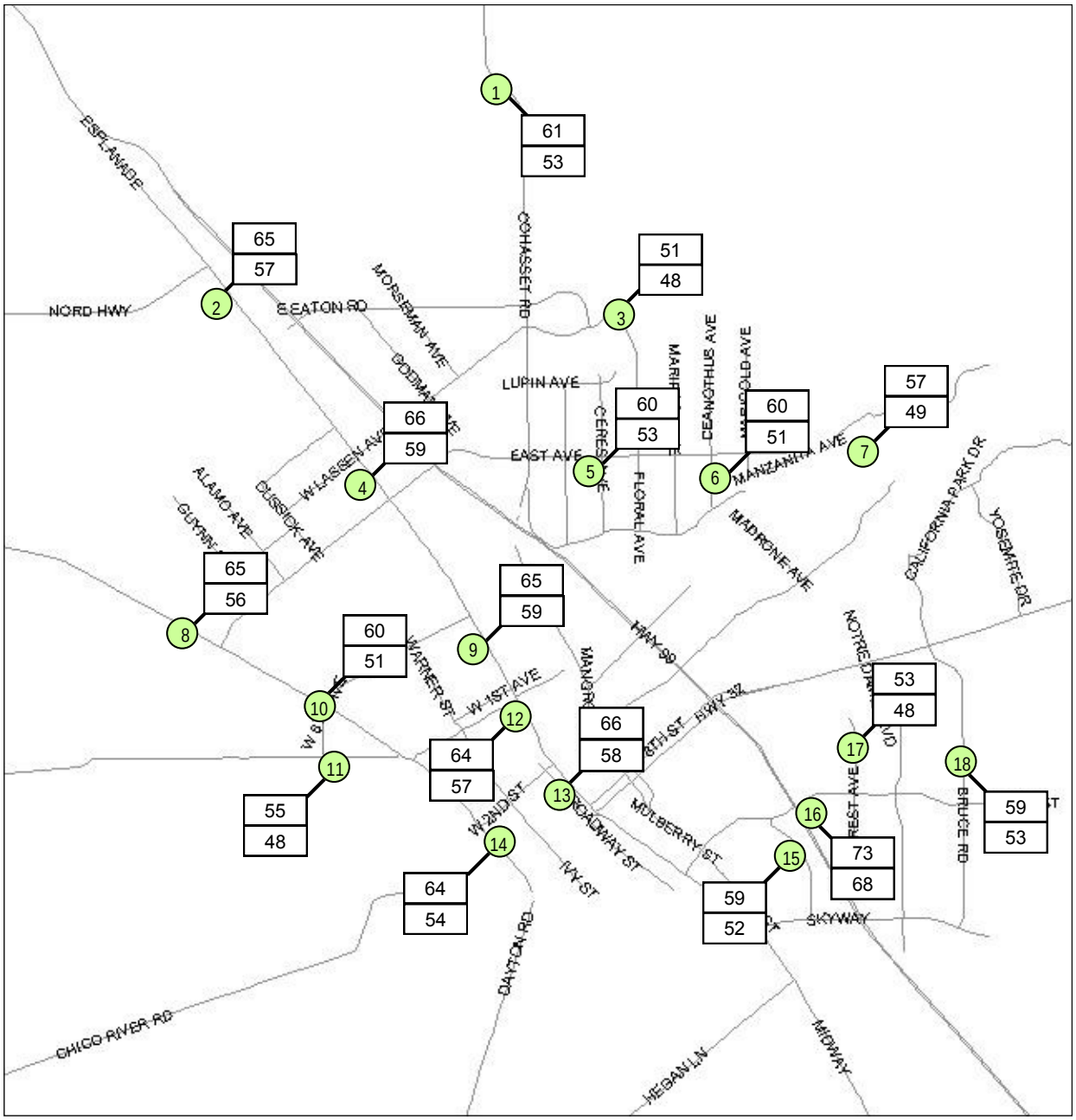

Ambient Noise Monitoring Locations

dBA, L_{eq}	Daytime Average-Hourly Noise Level
dBA, L_{eq}	Nighttime Average-Hourly Noise Level

Source: City of Chico, 2009

Not to scale

N

Figure 4.7-2
Existing Noise Measurement Surveys

PMC

Commercial and Industrial Uses

Noise sources commonly associated with commercial and industrial uses often include the operation of power tools, material handling equipment (e.g., forklifts), and stationary equipment (e.g., compressors, compactors, etc.), as well as noise associated with the loading and unloading of materials from delivery trucks. Noise levels from commercial and industrial uses are dependent on numerous factors and can vary substantially, depending on the specific activities conducted. For instance, noise associated with neighborhood commercial activities may be indiscernible from the ambient noise level, whereas noise levels associated with major industrial activities involving the use of heavy off-road equipment can generate intermittent levels of up to approximately 90 dBA at 50 feet. For this reason, noise generated by commercial and industrial uses and impacts to nearby noise-sensitive land uses should be evaluated on a project-by-project and site-specific basis.

Within the City of Chico, commercial and industrial land uses are located primarily along major roadway corridors. Industrial land uses are largely located within the northern portion of the city along the Esplanade, Cohasset Road, and in the Airport Industrial Park, as well as along 20th Street, and within the southwest portion of the city near Park Avenue and Hegan Lane. Noise sources commonly associated with these land uses include truck traffic, loading dock activities, heavy-equipment operation, banging of metal on metal, and HVAC systems.

Silver Dollar Speedway

The Silver Dollar Speedway is a quarter-mile high-banked clay oval track located at the Silver Dollar Fairgrounds. The track hosts various race divisions include Sprint Cars, Dirt Modifieds, Street Stocks, Pure Stocks, Late Models, Midgets, and Super Stocks. Racing events typically occur Friday through Sunday, during the months of March through October. Racing typically begins at approximately 6:30 p.m. and ends by 11:00 p.m. (Silver Dollar Speedway, 2009).

Noise levels associated with racing events can vary, depending primarily on the race division and site conditions. The speedway was not operating at the time noise surveys were conducted for this project. However, based on measurements conducted for similar facilities, predicted average-hourly noise levels associated with the various race divisions can range from approximately 55 to 65 dBA L_{eq} at 500 feet from the track centerline. At this same distance, maximum intermittent noise levels can reach levels of approximate 80 dBA L_{max}. Based on these noise levels, the predicted 60, 55, and 50 dBA L_{eq} noise contours would extend to distances of approximately 880, 1,300, and 2,375 feet, respectively. Depending on background noise levels, it is not uncommon to detect noise from racing events at distances beyond the projected noise contours

Recreational Events

Recreational events involving large spectator crowds, particularly those involving the use of amplified sound systems, can result in substantial temporary or periodic increases in ambient noise levels. Outdoor events that include the use of an amplified sound system and involve relatively small spectator crowds can generate noise levels of approximately 70 to 80 dBA L_{eq} at 50 feet from the stage area/speaker locations. Based on these noise levels, the predicted 60 dBA L_{eq} noise contour for such uses would extend to a distance of approximately 525 feet. Noise levels generated by such sources are primarily a function of the type of performance being provided and can vary substantially depending on the use.

For stadiums that draw large spectator crowds and are equipped with multi-speaker amplified sound systems, predicted exterior noise levels can range from approximately 57 to 72 dBA L_{eq} at approximately 500 feet during recreational events. Outdoor musical and band performances, such as marching band performances during half-time and pre-game shows, have measured approximately 57 to 76 dBA L_{eq} at 500 feet. Predicted noise levels at stadiums are dependent on various factors including stadium design and orientation, the activities conducted, spectator crowd size, and type of public address (PA) amplification system installed, as well as speaker placement. Depending on such factors, the predicted 60 dBA L_{eq} noise contour for larger stadiums could extend to distances ranging from approximately 370 to 3,100 feet (SAUSD, 2005.)

Automotive Maintenance & Repair

Typical automotive maintenance and repair activities often include the use of pneumatic tools, air compressors, and power generators. Other equipment operations, such as the use of power hand tools (e.g., sanders, drills, grinders), typically generate a lesser degree of noise. The use of air compressors, power generators, and pneumatic tools can generate noise levels of up to approximately 85 dBA at 50 feet. Noise levels generated by the use of handheld tools such as sanders, drills, and grinders typically average between 63 and 87 dBA at 3 feet. Simultaneous use of multiple hand tools, such as grinders being used on metal, can generate levels of 87 to 97 dBA L_{eq} at 3 feet (EPA, 1971). Noise levels associated with these facilities would be dependent on the specific activities performed and source/facility characteristics. Assuming an exterior operational noise level of 97 dBA L_{eq} at 3 feet, the 60 dBA L_{eq} noise contour would extend to a distance of approximately 225 feet.

TRANSPORTATION SOURCES

Chico Municipal Airport

The Chico Municipal Airport is used primarily for business and general aviation, including commercial aviation, general aviation, and air cargo operations and maintenance. Airline service at this time is limited to commuter aircraft, and air cargo service is generally limited generally to small single- and twin-engine aircraft. The California Division of Forestry (Cal-Fire) also operates a firefighting base at the Chico Municipal Airport.

The number of aircraft based at the Chico Municipal Airport has not changed significantly since 1980 and the trend has not shown significant increase. As the population grows, the potential exists for an increase in based aircraft, but that increase within the next 20 years is not forecast to exceed 50 percent of the current based aircraft population, which would increase the total based aircraft to approximately 225. By the year 2020 it is estimated that the total number of operations would range between 80,000 and 100,000 per year. The seasonal activity of Cal-Fire aircraft at this airport varies depending on the location, frequency, intensity, and duration of wildfires (City of Chico, 2002).

Noise concerns typically associated with airports include increased levels of annoyance and interference with personal activities such as sleeping, conversing, relaxing, or watching television. While individual responses to noise can vary, various methods and noise descriptors have been developed in an attempt to correlate aircraft noise levels with land use compatibility and community reaction.

Noise that emanates away from airports and airplane flight paths is typically represented by concentric noise contours around the airport. The contours delineate zones where land use is restricted, protecting the citizens on the ground from the detrimental effects of exposure to

excessive aircraft noise. The contours are constructed using noise samples from around the airport, combined with specific computer noise models which indicate the location of each contour line. These noise contours take into account the flight path and the number, time of day, and frequency of aircraft operations, as well as variations in monthly and seasonal flight schedules. The result is a 24-hour day/night average noise contour, depicted in CNEL. Because the CNEL noise metric is time weighted to take into account noise events that occur during the more noise-sensitive periods of the day, this metric is typically used for the analysis of land use compatibility with aircraft operations.

Projected and projected future (year 2018) noise contours (in CNEL) for Chico Municipal Airport were obtained from the City of Chico Airport Master Plan EA/DEIR (2002) and are depicted in **Figure 4.7-3** and **Figure 4.7-4**, respectively (City of Chico, 2002). Year 2010 contours are not currently available for the airport. However, year 2008 noise contours are anticipated to be generally representative of existing conditions, given that operational activities at the airport would not be expected to have changed substantially over the last two years. Noise contours (in CNEL) for average and maximum day Cal-Fire aircraft operations are depicted in **Figure 4.7-5** and **Figure 4.7-6**, respectively. The predicted noise contours do not take into account shielding or reflection of noise from existing structures. As a result, the noise contours should be considered to represent bands of similar noise exposure, rather than absolute lines of demarcation. Actual noise levels will vary from day to day, dependent on a number of factors, including traffic volumes, shielding from existing structures, variations in attenuation rates due to changes in surface parameters, and meteorological conditions.

Depending on factors such as the proximity of nearby noise-sensitive land uses to aircraft overflight areas and the distribution or types of aircraft operated, use of the CNEL noise descriptor, while considered adequate for general land use planning purposes, may be insufficient for the full assessment of noise impacts on individual land use projects. For the analysis of noise impacts of limited duration, such as aircraft overflights, the Single Event Level (SEL) is typically used. To date, criteria regarding acceptable SEL are typically based on physiological effects, such as speech or sleep interference, rather than land use compatibility. The Federal Aviation Administration (FAA) has suggested that the threshold for speech interference is 60 dBA. However, the FAA has not provided guidance indicating what number or duration of events exceeding this threshold should be considered significant. Similarly, studies prepared on behalf of the Federal Interagency Committee on Aviation Noise have provided estimates of the percentage of people expected to be awakened when exposed to specific single-event noise levels inside a home. However, no determination has been made as to what frequency of disturbance would be considered acceptable. The noise threshold at which sleep disruption occurs is considered higher than for speech interference, with only 10 percent of people awakened at 80 dBA SEL (Caltrans, 2002a).

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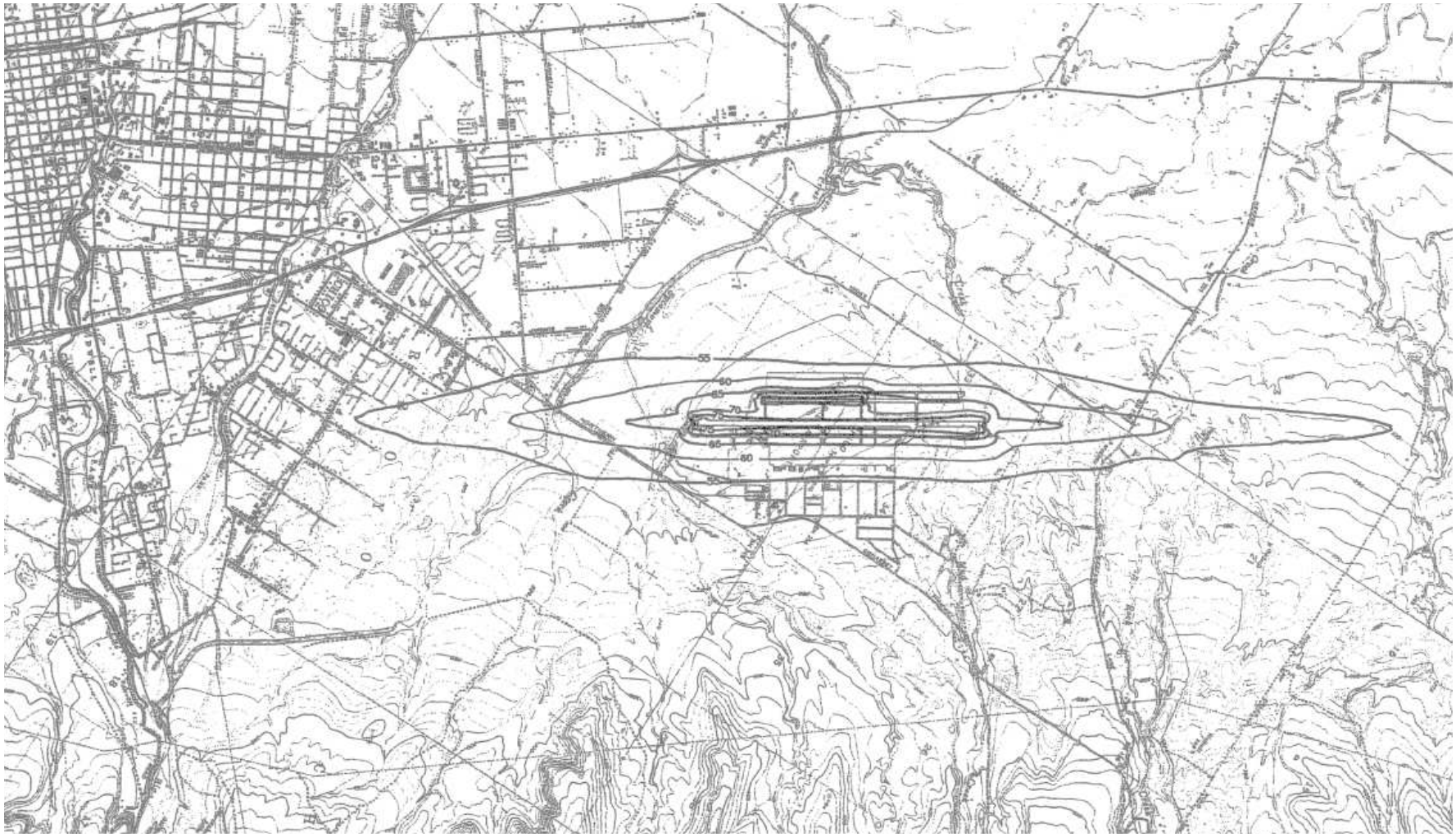

Source: City of Chico, 2002

Figure 4.7-3

Chico Municipal Airport Existing Noise Contours

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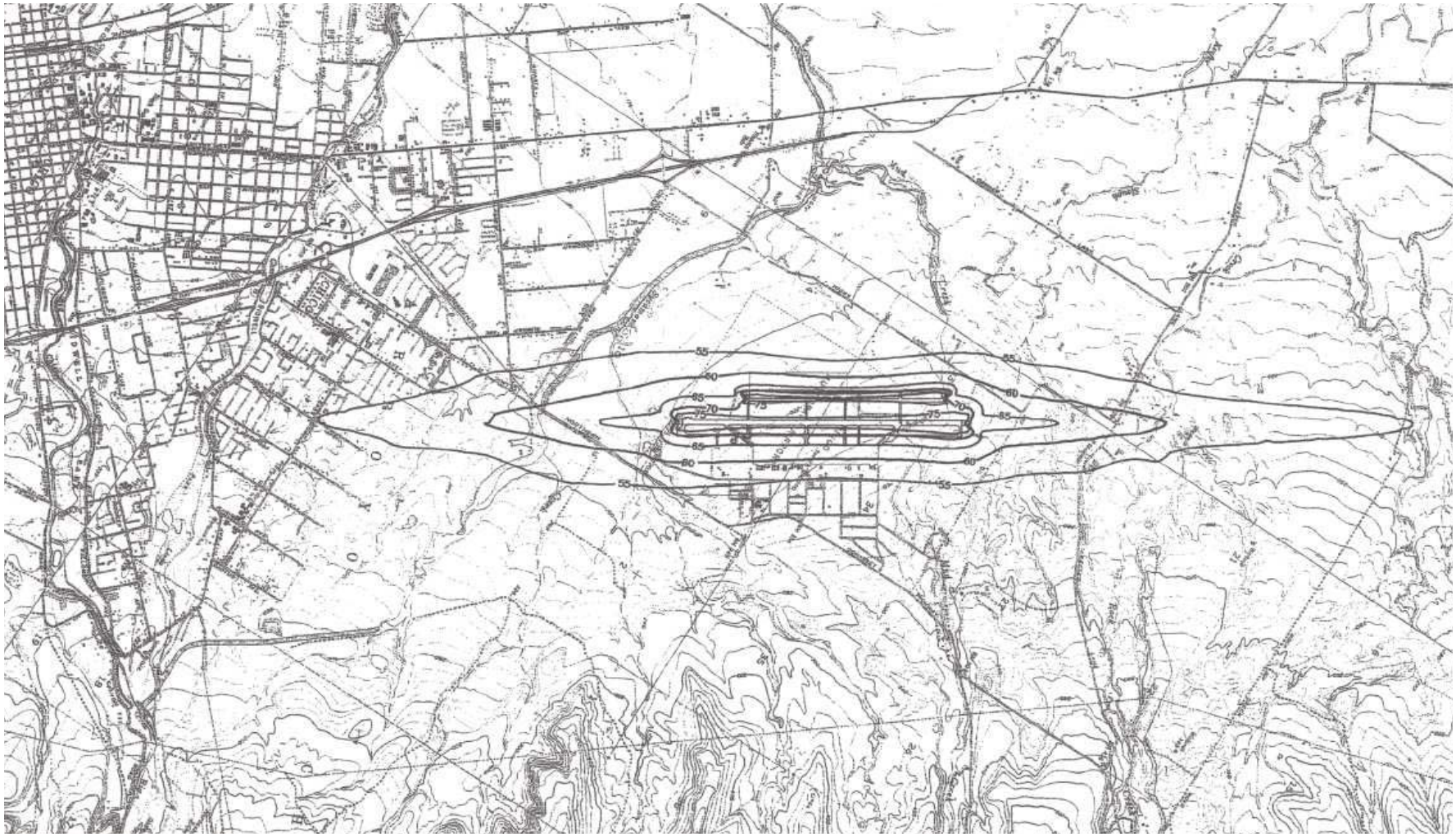

Source: City of Chico, 2002

Figure 4.7-4

Chico Municipal Airport Noise Contours for Year 2018

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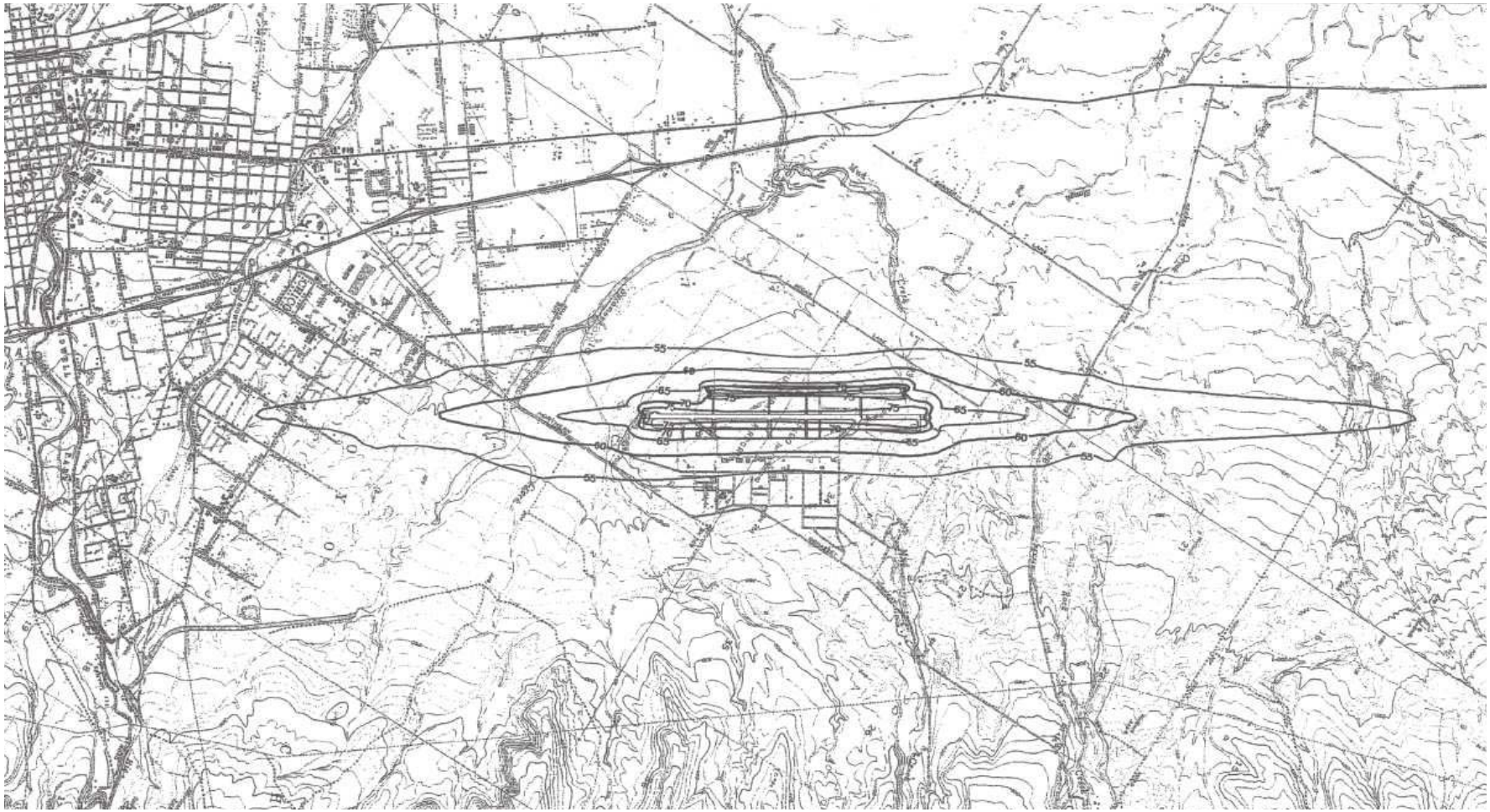

Source: City of Chico, 2002

Figure 4.7-5

Chico Municipal Airport Noise Contours for Cal-Fire Average Day Operations

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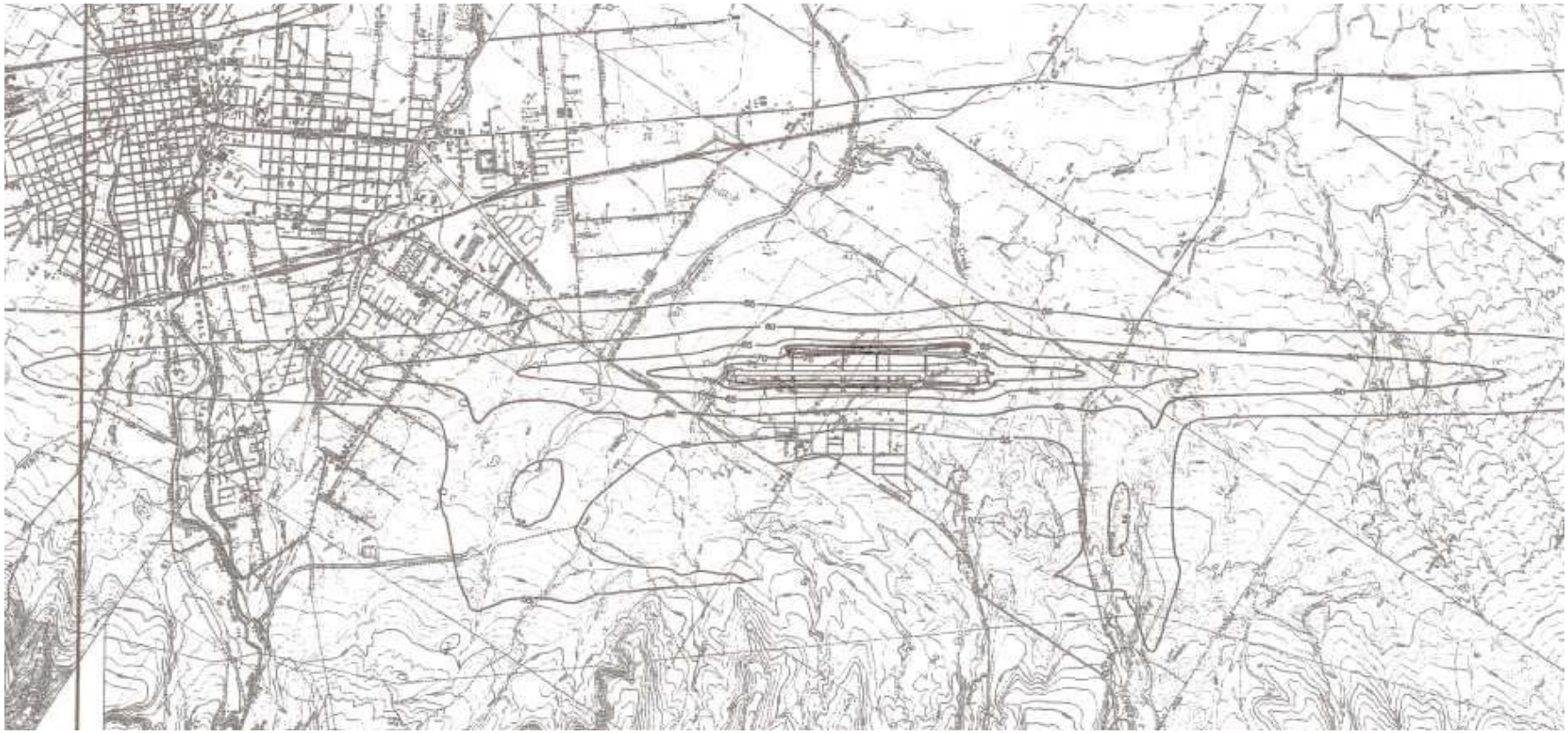

Source: City of Chico, 2002

Figure 4.7-6

Chico Municipal Airport Noise Contours for Cal-Fire Maximum Day Operations

Enloe Medical Center Heliport

Enloe Medical Center has a rooftop helipad for Enloe's Flight Care helicopter which is used primarily for transporting patients. Aircraft typically approach from the north over The Esplanade and turn to the west between Seventh and Sixth avenues. Under normal conditions, helicopters depart to the north, over the Esplanade. However, depending upon wind conditions, the helicopters can arrive and depart from the north or south. To reduce noise impacts to community residents, pilots are asked to maintain an altitude of 700 feet above mean sea level, which is approximately 500 feet above the ground (City of Chico, 2005a).

Predicted noise contours (in CNEL) for a north approach and a south approach to Enloe Medical Center, obtained from the Enloe Medical Center Master Plan DEIR (2005), are depicted in **Figures 4.7-7** and **4.8-8**. Corresponding noise contours depicting predicted single-event noise levels (in SEL) are depicted in **Figure 4.7-9**. The noise contours were calculated assuming an average of 3.5 flights per day. Year 2010 contours are not currently available for the airport. However, based on information obtained from Enloe Medical Center, existing helicopter operations currently average approximately 3 flights per day (Enloe Medical Center, 2010). Year 2005 noise contours presented in **Figures 4.7-7** would, therefore, be generally representative of existing conditions. The predicted noise contours do not take into account shielding or reflection of noise from existing structures. As a result, the noise contours should be considered to represent bands of similar noise exposure, rather than absolute lines of demarcation.

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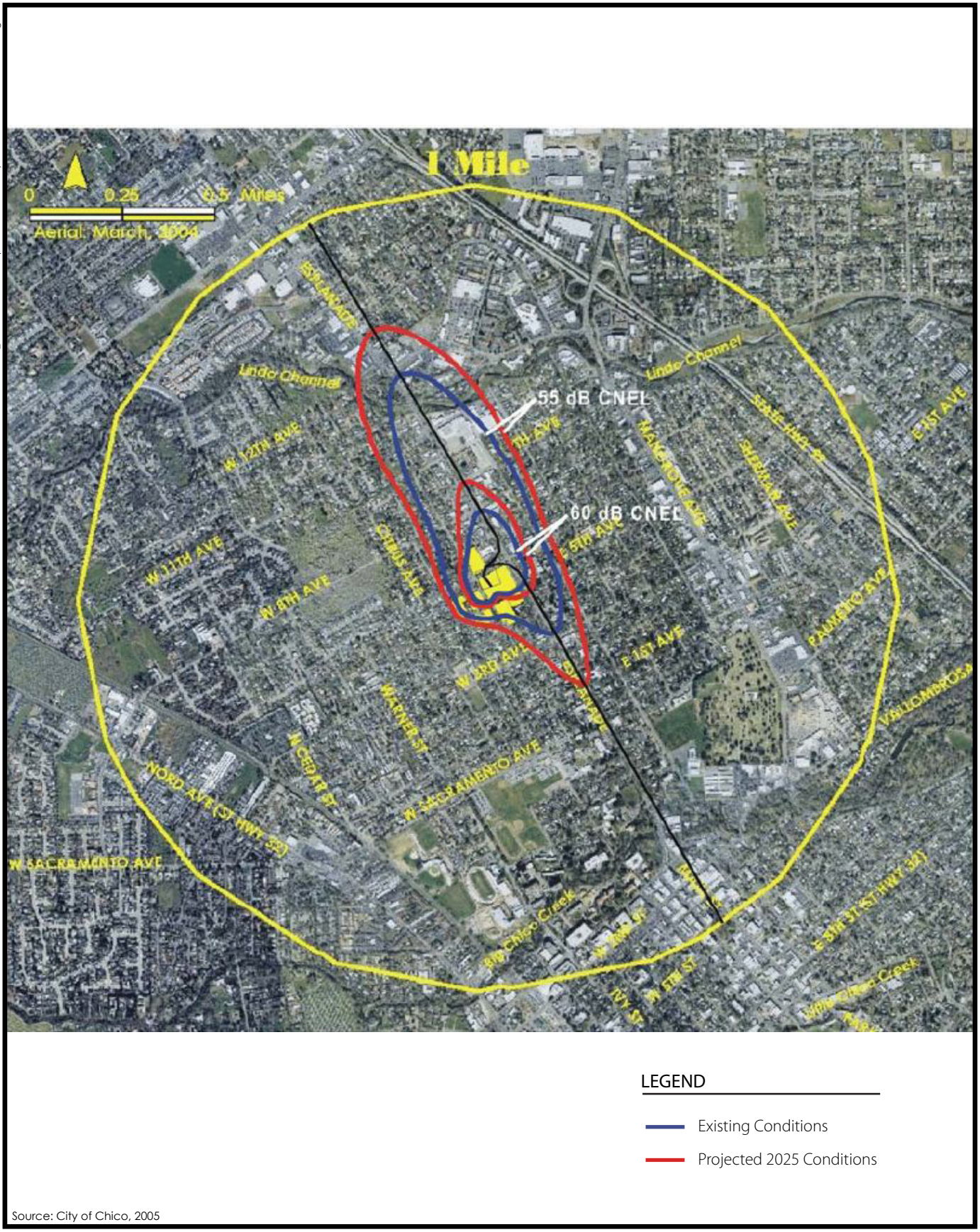

Source: City of Chico, 2005

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Figure 4.7-7
Existing and Future CNEL North Approach

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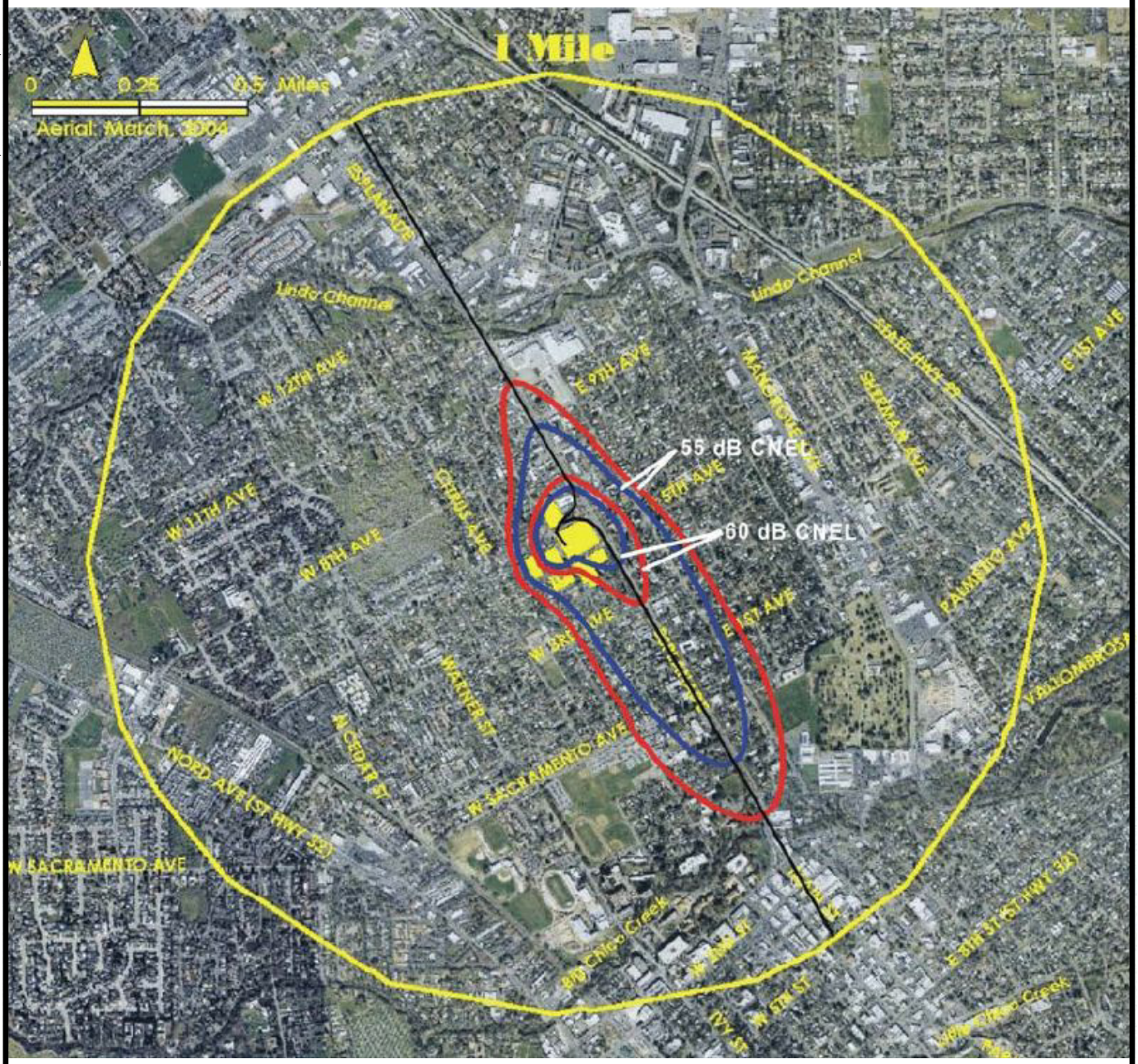

Source: City of Chico, 2005

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Figure 4.7-8
Existing and Future CNEL South Approach

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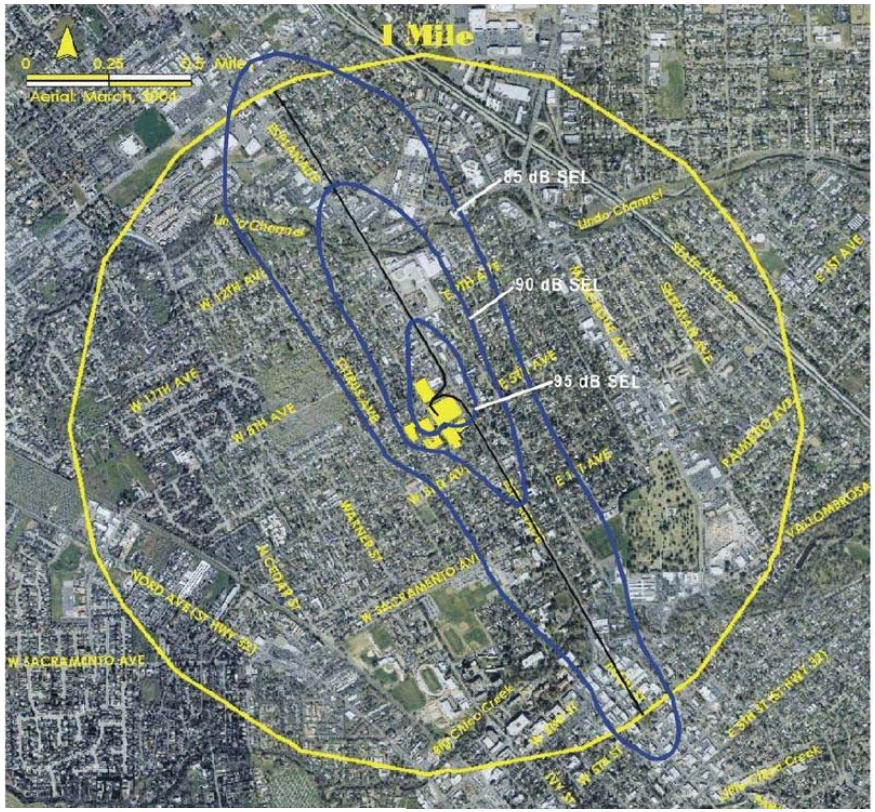
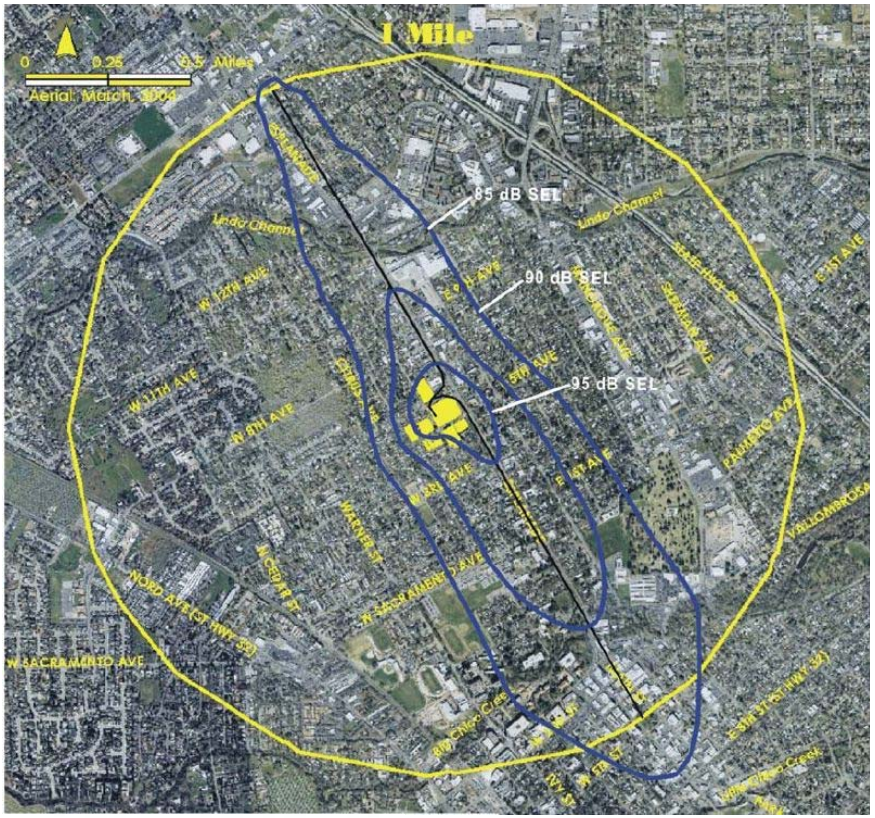
North Approach - South Departure



South Approach - North Departure



Source: City of Chico, 2005

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Figure 4.7-9

Single Event Noise Contours for Enloe Medical Center

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Ranchaero Airport

The Ranchaero Airport is a privately owned airport which is located near the southwestern edge of the City of Chico. This airport serves a combination of recreational, flight training, agricultural, and limited business flights. Existing annual average operations are approximately 14 operations per day. Noise contours are shown in **Figure 4.7-10**.

Union Pacific Railroad

The Union Pacific Railroad (UPRR) tracks are located west of and parallel to State Route 99, bisecting the City of Chico in a general north-south direction. The UPRR is used for both freight transport and Amtrak passenger service. Approximately 18 freight trains and two Amtrak passenger trains travel along this rail line on a daily basis (City of Chico, 1999). The number of freight trains traveling along this segment can vary from day to day, depending on demand, and there are currently no hourly limitations pertaining to freight train travel. Amtrak passenger trains typically run between the nighttime hours of 2:00 a.m. and 4:00 a.m. (Amtrak, 2007).

Noise levels generated by trains can vary depending on numerous factors, including train speed, number of engines used, track conditions (e.g., welded vs. jointed), the condition of train wheels, and shielding provided by intervening terrain. Additional factors, such as the sounding of the train horns as well as the operation of roadside signaling devices, can also contribute to overall noise levels. Depending on such factors, wayside noise levels associated with train passbys can reach levels of up to 110 dBA L_{max} at 50 feet from the track centerline (FTA, 2006).

Noise measurements of train noise levels were conducted on November 6, 2007, near the W. Sacramento Avenue crossing. Based on noise measurements conducted, wayside train noise levels, with roadside warning devices and train horns sounding, ranged from approximately 96 to 104 dBA L_{max} at 50 feet from the track centerline.

The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* (FTA, 2006) was used for the calculation of wayside noise levels generated by trains traveling along the UPRR corridor. Wayside noise levels were calculated based, in part, on average train speeds, train length, and assuming that the number of trains would be distributed equally among daytime and nighttime hours. Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. With the sounding of train horns, the projected 60 and 65 dBA CNEL noise contour at signalized grade crossings would extend to approximately 810 and 375 feet from the track centerline, respectively. At track locations in excess of approximately 660 feet from grade crossings, the projected 60 and 65 dBA CNEL noise contour would extend to approximately 700 and 325 feet from the track centerline, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures, and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

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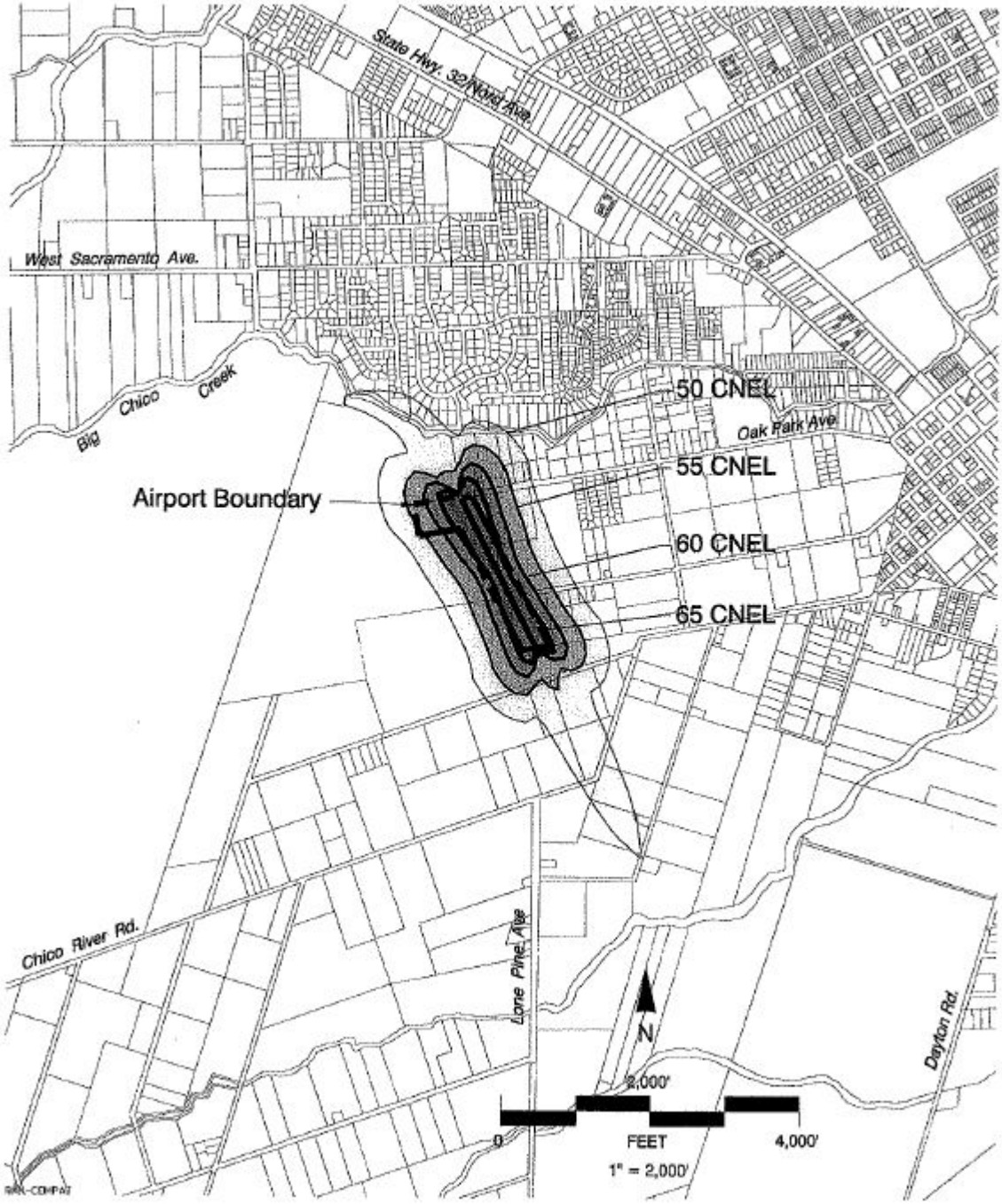

Source: City of Chico, 2005

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Figure 4.7-10
Ranchaero Airport Noise Contours

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Roadway Traffic

Ambient noise levels in many portions of the city are defined primarily by traffic on major roadways. The FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108) was used to predict traffic noise levels along major area roadways. The FHWA model is based on the Calveno noise emission factors for automobiles and medium- and heavy-duty trucks and is generally considered to be accurate to within 1.5 dBA. Input data used in the model included average-daily traffic levels, day/night percentages of automobiles and medium- and heavy-duty trucks, vehicle speeds, ground attenuation factors, roadway widths, and ground elevation data. Vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages obtained from the California Department of Transportation (Caltrans, 2007).

Existing traffic noise levels for roadway segments within the city, including distances to the predicted 60, 65, and 70 dBA L_{dn}/CNEL noise contours, are summarized in **Table 4.7-3**. Predicted noise contours assume no natural or human-made shielding (i.e., intervening terrain, vegetation, berms, walls, buildings) and should be considered to represent bands of similar noise exposure along roadway segments, rather than absolute lines of demarcation. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

TABLE 4.7-3
EXISTING TRAFFIC NOISE LEVELS IN THE PLANNING AREA

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
Bruce Road, Lakeside VLG Commons to Lakewest Drive	12,600	66.38	--	89.8	188.0
Bruce Road, Humbolt Road to Picholine Way	10,500	65.59	--	80.3	166.8
Bruce Road, Remington Drive to E. 20th Street	11,100	65.83	--	83.1	173.0
Bruce Road, E. 20th Street to Raley Boulevard	8,500	66.18	--	67.0	143.8
SR 32, East Avenue to Kennedy Avenue	13,200	68.61	--	106.5	228.2
SR 32 (Nord Avenue), Glenwood Avenue to Glenwood Avenue	16,300	69.52	57.8	122.3	262.5
SR 32 (Nord Avenue), Oak Way to W. 8th Avenue	15,800	66.85	--	81.6	174.3
SR 32 (Nord Avenue), W. Sacramento Avenue to W. Sacramento Avenue	19,300	67.71	--	93.0	199.0
Cohasset Road, Eaton Road to Thorntree Drive	11,000	67.30	--	79.4	170.7
Cohasset Road, Pillsbury Road to East Avenue	25,000	68.09	57.4	114.9	243.3
Cohasset Road, East Avenue to Lorinda Avenue	17,700	65.17	--	75.7	156.6
Deer Creek Highway (SR 32), E. 8th Street/Fir Street Until Road Merges into Undivided Highway	7,000	64.93	--	73.3	151.0
Deer Creek Highway (SR 32), Until Road Merges into Undivided Highway to Forest Avenue	15,900	69.41	56.9	120.3	258.2
Deer Creek Highway (SR 32), Forest Avenue to El Monte Avenue	11,500	68.59	--	96.7	208.1
Deer Creek Highway (SR 32), El Monte Avenue to Bruce Road	10,600	70.32	58.8	126.2	271.5
Deer Creek Highway (SR 32), Bruce Road to Yosemite Drive	6,300	68.07	--	89.3	192.0
E. 20th Street, Bruce Road to Notre Dame Boulevard	8,300	63.30	--	59.0	118.6
E. 20th Street, Forest Avenue to Huntington Drive	11,300	64.64	--	70.4	144.7
E. 20th Street, Business Lane to Forest Avenue	21,600	67.45	--	104.8	221.0
E. 20th Street, Sierra Nevada Court to Dr. Martin Luther King Jr. Parkway	19,200	66.94	--	97.3	204.5
E. 9th Street, Pine Street to Cypress Street	18,400	66.84	--	74.1	159.2
E. Park Avenue/Skyway, Country Drive to Whitman Avenue	24,700	68.04	57.1	114.1	241.4
East Avenue, Connors Avenue to Esplanade	28,500	67.24	--	101.5	213.9
East Avenue, Esplanade to Ilahee Lane	24,500	69.27	67.0	136.9	291.4
East Avenue, Cussick Avenue to Alamo Avenue	19,300	68.24	58.5	117.5	248.8
East Avenue, Guynn Avenue to Streamside Court	16,700	64.92	--	73.1	150.7
East Avenue, Kennedy Avenue to SR 32	16,700	64.92	--	73.1	150.7
East Avenue, Pillsbury Road to Cohasset Road	14,200	63.83	--	68.9	136.8
East Avenue, Cohasset Road to North Avenue	17,200	65.04	--	74.4	153.7

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
East Avenue, Floral Avenue to Coleman Court	18,600	65.38	--	78.0	161.7
Eaton Road, Constitution Drive to SR 99 SB Ramp	14,600	65.84	--	63.6	136.5
Eaton Road, Hicks Lane to Silverbell Road	9,600	64.02	--	--	103.3
Eaton Road, Michael Way to Burnap Avenue	6,900	62.58	--	--	83.0
Esplanade, Eaton Road to Tonea Way	8,400	62.36	--	--	95.9
Esplanade, W. Shasta Avenue to Mandalay Court	15,100	64.48	--	68.9	141.2
Esplanade, Panama Avenue to East Avenue	22,800	66.27	--	88.4	184.7
Esplanade, Connors Avenue to White Avenue	21,900	66.09	--	86.2	179.9
Esplanade, E. 2nd Avenue to E. 1st Avenue	21,400	65.99	--	85.0	177.2
Forest Avenue, Humboldt Road to Wildflower Court	15,000	64.45	--	68.7	140.6
Forest Avenue, E. 20th Street to Parkway Village Drive/Barney Lane	16,100	64.76	--	71.6	147.2
Mangrove Avenue, Cohasset Road to E. Lindo Avenue	21,000	66.34	--	82.5	174.4
Mangrove Avenue, E. 3rd Avenue to E. 1st Avenue	19,600	65.61	--	80.5	167.3
Mangrove Avenue, E. 1st Avenue to Palmetto Avenue	22,100	66.13	--	86.7	181.0
Mangrove Avenue, Vallombrosa Avenue to Woodland Avenue/ E. 3rd Street	18,300	65.31	--	77.3	160.0
Park Avenue, Meyers Street to E. Park Avenue	13,100	65.28	--	76.9	159.2
Park Avenue, E. 16th Street to E. 17th Street	17,500	63.94	--	58.5	121.3
Park Avenue, Humboldt Avenue to W. 11th Street	18,500	64.18	--	60.5	125.8
Skyway, Forest Avenue to Dominic Drive	27,200	69.73	71.3	146.5	312.3
Skyway, Notre Dame Boulevard to Forest Avenue	25,100	69.38	68.0	139.1	296.1
W. Sacramento Avenue, Magnolia Avenue to Esplanade	23,500	66.29	--	68.2	146.4
Walnut Street, W. 4th Street to W. 5th Street	19,200	65.52	--	79.5	165.1
Walnut Street, Bidwell Avenue to W. 1st Street	22,700	66.68	--	86.7	183.6
Walnut Street, W. 8th Street to W. 9th Street	14,700	64.79	--	66.0	138.0
SR 99, Garner Lane to Eaton Road	20,580	72.80	135.0	278.5	594.0
SR 99, Eaton Road to East Avenue	32,190	74.74	177.6	373.1	799.3
SR 99, East Avenue to Cohasset Road	45,600	76.26	221.4	469.4	1007.7
SR 99, Cohasset Road to East 1st Avenue	65,210	77.81	278.9	594.9	1278.6
SR 99, East 1st Avenue to SR 32	77,090	78.54	311.0	664.7	1429.3
SR 99, SR 32 to East 20th Street	74,490	78.39	304.1	649.7	1397.0
SR 99, East 20th Street to Skyway	54,480	77.03	248.2	528.1	1134.3
SR 99, South of Skyway	35,100	76.38	225.5	478.5	1027.2

*Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. Refer to **Appendix D** for modeling output files.*

-- Contours are within 50 feet of roadway centerline/within roadway right-of-way

4.7.2 REGULATORY FRAMEWORK

Federal, state, and local governments have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise. Those regulations most applicable to the community are summarized below.

FEDERAL

Federal Railroad Administration

The federal government, in response to safety concerns at at-grade crossings, enacted the Swift Rail Development Act of 1994. This act mandated that the Secretary of Transportation issue regulations requiring the use of locomotive horns at public grade crossings, but gave the agency the authority to make reasonable exceptions. On January 13, 2000, the Federal Railroad Administration published a Notice of Proposed Rule Making in the Federal Register addressing the use of locomotive horns at public road-rail grade crossings. Accordingly, locomotive horns must be sounded on approach and while entering public grade crossings unless there is no significant risk of increased grade crossing collisions, the use of a locomotive horn is impractical, or where safety measures can be installed to fully compensate for the absence of the warning provided by the horn. The sounding of warning horns can greatly affect predicted noise contours within the community.

Federal Aviation Administration

As a means of implementing the Aviation Safety and Noise Abatement Act of 1979, the Federal Aviation Administration (FAA) adopted regulations that established a voluntary program which airports can utilize to conduct airport noise compatibility planning. These compatibility planning studies are often referred to as "Part 150" studies. Part 150 includes a system for measuring airport noise impacts and presents guidelines for identifying incompatible land uses. Airports which choose to undertake a Part 150 study are eligible for federal funding both for the study itself and for implementation of approved components of the local program.

The noise exposure maps included in Part 150 studies are depicted in terms of average-daily noise contours (i.e., L_{dn} or CNEL) around the airport. For the purposes of federal regulations, all land uses are considered compatible with noise levels of less than DNL 65 dB. At higher noise exposures, selected land uses are also deemed acceptable, depending upon the nature of the use and the degree of structural noise attenuation provided. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses (Caltrans, 2002a).

U.S. Environmental Protection Agency

In 1974, the U.S. Environmental Protection Agency (USEPA) Office of Noise Abatement and Control published a report entitled *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. Although this document does not constitute USEPA regulations or standards, it is useful in identifying noise levels at which increased levels of annoyance would be anticipated. Based on an annual-average day-night noise level (expressed as L_{dn} or DNL), the document states that "undue interference with activity and annoyance" will not occur if outdoor noise levels in residential areas are below 55 dBA L_{dn} and indoor levels are below 45 dBA L_{dn} (USEPA, 1974).

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) guidelines for the acceptability of residential land uses are set forth in the Code of Federal Regulations, Title 24, Part 51, Environmental Criteria and Standards. These guidelines identify an exterior noise exposure of 65 dBA L_{dn} or less as acceptable. Exterior noise levels of 65 to 75 dBA L_{dn} are considered normally acceptable, provided appropriate sound attenuation is provided to reduce interior noise levels to within acceptable levels. Noise levels above 75 dBA L_{dn} are considered unacceptable. The goal of the interior noise levels is 45 dBA L_{dn} for noise-sensitive land uses. These guidelines apply only to new construction supported by HUD grants and are not binding upon local communities (Caltrans, 2002a).

STATE

Government Code

Government Code Section 65302(f) requires that a noise element be included as part of all city general plans. A summary of the required contents of a noise element is presented below:

1) A noise element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

   - Highways and freeways.
   - Primary arterials and major local streets.
   - Passenger and freight railroad operations and ground rapid transit systems.
   - Commercial, general aviation, heliport, helistop, and military airport operations, aircraft over-flights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
   - Local industrial plants, including, but not limited to, railroad classification yards.
   - Other ground stationary sources identified by local agencies as contributing to the community noise environment.

Noise contours shall be shown for the above noise sources based on noise monitoring and accepted noise modeling techniques. The noise contours are to be used as a guide for designating land uses within the land use element that minimizes the exposure of community residents to excessive noise.

California Building Code

Title 24 of the California Code of Regulations contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code, 1998 edition, Volume 1, Appendix Chapter 12, Section 1208A). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences. The standards state that the interior noise level attributable to exterior sources can not exceed 45 dBA in any

habitable room. Proposed residential structures to be located where the annual L_{dn} or CNEL exceeds 60 dBA require an acoustical analysis showing that the proposed building design would achieve the prescribed allowable interior noise standard. The noise metric (measurement period, such as hourly or daily) is either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, are used as the basis for determining compliance with these standards (Caltrans, 2002a).

California Airport Noise Regulations

The airport noise standards promulgated in accordance with the State Aeronautics Act are set forth in Section 5000 et seq. of the California Code of Regulations (Title 21, Division 2.5, Chapter 6). The current version of the regulations became effective in March 1990. In Section 5006, the regulations state:

> *The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a CNEL value of 65 dBA for purposes of these regulations. Noise-sensitive land uses (i.e., residential dwellings, schools, hospitals and convalescent homes, and places of worship) that are located within the 65 dBA CNEL noise contour would be considered incompatible, unless mitigation has been incorporated. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep, and community reaction.*

State of California General Plan Guidelines

The State of California General Plan Guidelines (OPR, 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific L_{dn}/CNEL contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. The City of Chico has adopted noise criteria for determination of land use compatibility that are based on OPR-recommended criteria.

LOCAL

Butte County Airport Land Use Commission

The Butte County Airport Land Use Commission's (ALUC) primary responsibility is formulation and adoption of a comprehensive land use plan that provides for the orderly growth and protection of the public health, safety, and welfare within the planning area of each public use airport within the County of Butte. The ALUC assists local agencies in ensuring compatible land uses in the vicinity of all new and existing airports located within Butte County.

City of Chico Municipal Code

The City of Chico Municipal Code (Chapter 9.38, Noise) regulates excessive, unnecessary, and unreasonable noise from various sources within the city. In accordance with the City's Municipal Code, noise levels associated with residential land uses, measured at any point outside the property line, are limited to a maximum of 70 dBA between the hours of 7 a.m. and 9 p.m. and 60 dBA between the hours of 9 p.m. and 7 a.m. Interior noise levels of multi-family residential

property are limited to a maximum of 60 dBA at 3 feet from any wall, floor, or ceiling inside any dwelling unit, measured within adjacent dwelling units with windows and doors closed. Noise levels on commercial or industrial property are limited to a maximum of 70 dBA, measured at any point outside the property line. Noise generated on public property is limited to a maximum of 60 dBA at 25 feet from the source. For construction-related activities that occur between the hours of 10 a.m. and 6 p.m. on Sundays and holidays, and 7 a.m. and 9 p.m. on weekdays, the following limitations shall apply (City of Chico, 2008):

1) No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source. If the device or equipment is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close as possible to 25 feet from the equipment.

2) The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

4.7.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A noise impact is considered significant if implementation of the proposed General Plan Update would:

1) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.

2) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

3) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

4) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5) Expose people residing or working in the project area to excessive noise levels for a project located within an airport land use plan area or, where such a plan has not been adopted, or within 2 miles of a public airport or a public use airport.

6) Expose people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip.

METHODOLOGY

A combination of existing literature and general application of accepted noise thresholds was used to determine the impact of ambient noise levels resulting from and on development within the proposed General Plan Update Planning Area. Short- and long-term impacts associated with transportation and non-transportation noise sources were qualitatively assessed based on potential increases in ambient noise levels anticipated to occur at noise-sensitive land uses. Traffic noise levels along major area roadways were estimated using the FHWA Highway Traffic

Noise Prediction model (FHWA-RD-77-108.) The FHWA modeling was based upon the Calveno noise-emission factors for automobiles and medium- and heavy-duty trucks. Input data used in the model included average-daily traffic volumes, day/night percentages of automobiles and medium- and heavy-duty trucks, vehicle speeds, ground attenuation factors, and roadway widths. Existing and future traffic volumes were derived from the traffic analysis prepared for this project. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as on heavy-duty truck distribution percentages for major highways obtained from Caltrans.

The following proposed General Plan Update policies and actions address noise-related impacts:

Action LU-7.1.1 *(Airport Compatibility) – Amend the City's Municipal Code and Zoning Map to implement airport overflight zoning district overlays, consistent with the boundaries and general policy direction contained within the Butte County Airport Land Use Compatibility Plan, which address the following:*

- *Airport noise-related compatibility issues and noise-resistant construction techniques.*
- *Height limitations for both structures and landscaping.*
- *Lighting, electrical interference, glare, or other issues which may endanger the landing, takeoff, or maneuvering of aircraft.*
- *Prohibition of incompatible land uses and limitations on the density and/or intensity of land uses.*
- *Infill compatibility criteria consistent with the 2005 agreement between the City and the Butte County Airport Land Use Commission.*

Action LU-7.1.2 *(Aviation Easements) – Continue to require avigation easements and deed notices for new development within the Airport Land Use Compatibility Plan area.*

Policy N-1.1 *(New Development and Transportation Noise) – New development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 [Table 4.7-7 of this section].*

Policy N-1.2 *(New Development and Non-Transportation Noise) – New development of noise-sensitive land uses will not be permitted in areas exposed to existing non-transportation noise sources that exceed the levels specified in Table N-2, unless the project design includes measures to reduce exterior noise levels to the unadjusted levels specified in Table N-2 [Table 4.7-8 of this section].*

Policy N-1.3 *(Acoustical Analysis) – Where proposed projects are likely to expose noise-sensitive land uses to noise levels exceeding the City's standards, require an acoustical analysis as part of environmental review so that noise mitigation measures may be identified and included in the project design. The requirements for the content of an acoustical analysis are outlined in Table N-3 [Table 4.7-9 of this section].*

Policy N-1.5 *(Proposed Projects Near Railroads) – Require site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts to those specified in Table N-1 [Table 4.7-7 of this section].*

TABLE 4.7-4
MAXIMUM ALLOWABLE NOISE LEVELS FROM TRANSPORTATION NOISE SOURCES
[GENERAL PLAN UPDATE TABLE N-1]

Land Use	Outdoor Activity Areas[1] Ldn/CNEL, dB	Interior Spaces	
		Ldn/CNEL, dB	Leq, dB[2]
Residential	65 [3]	45	--
Transient Lodging	--	45	--
Hospitals, Nursing Homes	65 [3]	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65 [3]	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	65 [3]	--	45
Playgrounds, Neighborhood Parks	70	--	--

Notes:

1. *Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at the patios or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area. For noise-sensitive land uses that do not include outdoor activity areas, only the interior noise standard shall apply.*
2. *As determined for a typical worst-case hour during periods of use.*
3. *Where it is not possible to reduce noise in outdoor activity areas to 65 dB L_{dn}/CNEL or less using all feasible noise reduction measures, an exterior noise level of up to 70 dB L_{dn}/CNEL may be allowed provided that interior noise levels are in compliance with this table.*

TABLE 4.7-5
MAXIMUM ALLOWABLE EXTERIOR NOISE LEVELS FROM NON-TRANSPORTATION SOURCES
[GENERAL PLAN UPDATE TABLE N-2]

Noise Level Descriptor (dBA)	Exterior Noise Level (dBA)	
	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Average-Hourly Noise Level (L_{eq})	55	50
Intermittent Noise Level (L_{2} or L_{max})	75	65

Notes:

Noise levels are for planning purposes and may vary from the standards of the City's Noise Ordinance, which are for enforcement purposes.

Noise levels shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Noise level standards do not apply to mixed-use residential units established in conjunction with industrial or commercial uses provided interior noise levels remain below 45 dB Ldn/CNEL.

In areas where the existing ambient noise level exceeds the established daytime or nighttime standard, the existing level shall become the respective noise standard and an increase of 3 dBA or more shall be significant. Noise levels shall be reduced 5 dBA if the existing ambient hourly Leq is at least 10 dBA lower than the standards.

Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at patio or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area.

TABLE 4.7-6
REQUIREMENTS FOR AN ACOUSTICAL ANALYSIS
[GENERAL PLAN UPDATE TABLE N-3]

An acoustical analysis prepared pursuant to the Noise Element shall:
A. Be the financial responsibility of the applicant.
B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
D. Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn}, CNEL and the standards of Table N-1 or Table N-2, as applicable, and compare those levels to the adopted policies of the Noise Element. Where the noise source consists of intermittent single events, address the impact on sleep disturbance.
E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, giving preference to site planning and design over mitigation measures which require the construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses.
F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

Policy N-2.1 *(Well-Designed Noise Mitigation) – Utilize effective noise attenuation measures that complement the Community Design Element's Goals.*

Action N-2.1.1 *(Noise Control Measures) – Limit noise at the source through the use of insulation, berms, building design and orientation, staggered operating hours, and other techniques. Utilize physical barriers such as landscaped sound walls only when*

other solutions are unable to achieve the desired level of mitigation.

Policy N-2.2 *(Partners in Noise Reduction) – Consult with public and private organizations to encourage reduction of the noise levels of activities that impact large portions of the community.*

Action N-2.2.1 *(Railroad Warning Systems) – Consult with Union Pacific Railroad (and Amtrak as applicable) to determine if there are alternative warning systems and safety measures that reduce the use of train horns near residential areas while still meeting public safety objectives.*

Action N-2.2.2 *(Silver Dollar Speedway) – Contact the State and the Silver Dollar Fair Board to express the City's interest in reducing the noise levels associated with events at the Silver Dollar Speedway.*

Action N-2.2.3 *(Noise from State Highways) – Request that Caltrans provide freeway sound walls with aesthetic design features along state highways adjacent to residential areas where existing noise levels exceed 67 dB.*

Policy N-3.1 *(City Noise Control Program) – Maintain a noise enforcement program to identify and resolve problems concerning noise in the community.*

Action N-3.1.1 *(Noise Program Duties) – Enforce the City's Noise Ordinance by processing complaints, conducting on-site testing of noise sources, and sharing information on the effects of noise issues in the community.*

Action N-3.1.2 *(Street Noise Environment) – Periodically assess the noise levels associated with city streets by reviewing traffic count data as an indication of increasing traffic noise.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address noise and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Noise Impacts Associated with Development and Operation of Land Uses of the Proposed General Plan Update (Standards of Significance 1 and 3)

Impact 4.7.1 The proposed General Plan Update could result in exposure of persons to or generation of noise levels in excess of City standards as well as a substantial permanent increase in ambient noise levels in the City. However, the proposed Chico General Plan Update policy provisions would adequately address noise issues. Therefore, noise impacts associated with the

development and operation of land uses of the proposed General Plan Update would be **less than significant**.

Development under the proposed General Plan Update includes the potential for noise conflicts resulting from adjacent land uses and their operational aspects. While generally addressed through the land use designation and zoning identification process, the potential exists for some development allowed under current land use designations and zoning to have operational aspects that could create noise impacts on other adjacent land uses, including increases in ambient noise levels that may be deemed incompatible with existing land uses. The City's proposed noise policies and their associated actions provide expanded protection geared toward eliminating land use conflicts with respect to noise. Policies and actions include specific numeric noise level standards for new projects affected by or including both transportation and non-transportation noise sources, as well as guidance in evaluating noise impacts and for identification of noise mitigation measures. For example, Policy N-1.1 states that new development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 (**Table 4.7-4** of this section). Similarly, Policy N-1.2 mandates that new development of noise-sensitive land uses will not be permitted in areas exposed to existing non-transportation noise sources that exceed the levels specified in Table N-2, unless the project design includes measures to reduce exterior noise levels to the unadjusted levels specified in Table N-2 (**Table 4.7-5** of this section).

Where proposed projects are likely to expose noise-sensitive land uses to noise levels exceeding the City's standards, Policy N-1.3 requires an acoustical analysis as part of environmental review so that noise mitigation measures may be identified and included in the project design. The requirements for the content of an acoustical analysis are outlined in Table N-3 (**Table 4.7-6** of this section). Policy N-1.5 requires site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts to those specified in Table N-1 (**Table 4.7-4** of this section).

The proposed General Plan includes policies by which the compatibility of sensitive land uses that would be exposed to noise sources would be reviewed and appropriate mitigation measures incorporated to achieve acceptable noise levels. Implementation of the applicable policies and standards contained in the City's proposed General Plan Update would ensure that future development meets applicable noise criteria for land use compatibility and/or includes noise attenuation features to meet applicable noise standards. No mitigation measures are necessary. With incorporation of the proposed General Plan policies, this impact would be considered **less than significant**.

Exposure to Surface Transportation Noise (Standards of Significance 1 and 3)

Impact 4.7.2 Traffic conditions under the proposed General Plan Update could result in a substantial permanent increase in ambient noise levels that could adversely affect noise-sensitive land uses. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards. This impact would be considered **significant**.

Surface transportation noise sources within the Planning Area include vehicle traffic on area roadways as well as trains traveling along the UPRR. Noise-related impacts associated with roadway vehicle traffic and the UPRR are discussed in more detail below.

Roadway Vehicle Traffic

Distances to noise contours with projected future noise levels for major roadways in the Planning Area at build-out of the proposed General Plan Update are summarized in **Table 4.7-7**. Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. Refer to **Appendix D** for modeling output files. It is important to note that the predicted noise levels and distance to noise contours do not take into account shielding of noise by intervening structures or terrain. As a result, these noise contours should not be considered as absolute lines of demarcation. Because distances to noise contours will vary depending on site-specific conditions, these contours should be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise. As depicted in **Table 4.7-7**, the highest traffic noise levels in the city are generated by vehicle traffic on SR 99.

Predicted increases in traffic noise levels associated with build-out of the proposed General Plan Update are compared to existing traffic noise levels in **Table 4.7-8**. As noted in **Table 4.7-8**, build-out of the proposed General Plan Update, in comparison to existing conditions, would result in increases in traffic noise levels of up to approximately 5 dBA CNEL along certain area roadways. Of the major roadways analyzed, implementation of the proposed General Plan Update would likely result in noticeable increases in traffic noise levels (i.e., 3 dBA or greater) along 12 of the 61 major roadway segments evaluated. These roadway segments would include portions of Bruce Road, SR 32, and Eaton Road, as well as E. 20th Street, between Bruce Road and Notre Dame Boulevard, and Esplanade, between Eaton Road and Tonea Way. Some of the roadway segments identified in **Table 4.7-8** would exceed the maximum noise exposure of 70 dB L_{dn}/CNEL for noise-sensitive land uses under proposed General Plan Update Policy N-1.5. It is important to note that the increases in traffic noise levels associated with build-out of the proposed General Plan Update would occur gradually over a period of approximately 20 years, or more.

Significant increases in traffic noise levels along some smaller local roadways could also potentially occur, particularly in areas located near proposed future development projects. Development of noise-sensitive land uses could also occur within the projected 60 dBA CNEL noise contours. For these reasons, implementation of the proposed General Plan Update would be considered to result in a substantial permanent increase in ambient noise levels in the Planning Area above levels existing without the project and result in exposure of persons to or generation of noise levels in excess of standards established in the proposed General Plan as a result of increased traffic noise levels. As a result, exposure to vehicular traffic noise on area roadways would be considered a **significant** impact.

TABLE 4.7-7
YEAR 2030 TRAFFIC NOISE LEVELS UNDER PROPOSED GENERAL PLAN UPDATE BUILD-OUT

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
Bruce Road, Lakeside VLG Commons to Lakewest Drive	19,760	68.34	59.3	119.2	252.7
Bruce Road, Humbolt Road to Picholine Way	34,400	70.75	82.1	170.7	364.9
Bruce Road, Remington Drive to E. 20th Street	27,910	69.84	72.4	149.0	317.6
Bruce Road, E. 20th Street to Raley Boulevard	22,810	70.47	60.1	128.9	277.4
SR 32, East Avenue to Kennedy Avenue	14,920	69.14	54.6	115.4	247.5

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
SR 32 (Nord Avenue), Glenwood Avenue to Glenwood Avenue	18,540	70.08	62.7	133.2	286.0
SR 32 (Nord Avenue), Oak Way to W. 8th Avenue	17,790	67.36	--	88.2	188.6
SR 32 (Nord Avenue), W. Sacramento Avenue to W. Sacramento Avenue	21,470	68.18	--	99.8	213.7
Cohasset Road, Eaton Road to Thorntree Drive	20,130	69.92	55.3	118.6	255.3
Cohasset Road, Pillsbury Road to East Avenue	28,400	68.64	61.7	124.7	264.7
Cohasset Road, East Avenue to Lorinda Avenue	21,930	66.10	--	86.3	180.1
Deer Creek Highway (SR 32), E. 8th Street/Fir Street until road merges into Undivided Highway	16,470	68.65	61.7	124.8	264.8
Deer Creek Highway (SR 32), until road merges into undivided highway to Forest Avenue	37,170	73.10	98.6	211.2	454.4
Deer Creek Highway (SR 32), Forest Avenue to El Monte Avenue	31,540	72.97	88.0	189.3	407.5
Deer Creek Highway (SR 32), El Monte Avenue to Bruce Road	29,440	74.76	115.8	249.1	536.4
Deer Creek Highway (SR 32), Bruce Road to Yosemite Drive	13,490	71.37	69.0	148.1	318.9
E. 20th Street, Bruce Road to Notre Dame Boulevard	25,180	68.12	57.7	115.5	244.5
E. 20th Street, Forest Avenue to Huntington Drive	22,260	67.58	--	106.8	225.4
E. 20th Street, Business Lane to Forest Avenue	32,380	69.21	66.5	135.7	288.7
E. 20th Street, Sierra Nevada Court to Dr. Martin Luther King Jr. Parkway	22,480	67.63	--	107.5	226.9
E. 9th Street, Pine Street to Cypress Street	21,310	67.48	--	81.7	175.5
E. Park Avenue/Skyway, Country Drive to Whitman Avenue	36,860	69.78	71.7	147.6	314.6
East Avenue, Connors Avenue to Esplanade	33,930	68.00	56.8	113.4	239.9
East Avenue, Esplanade to Ilahee Lane	27,640	69.80	71.9	148.0	315.6
East Avenue, Cussick Avenue to Alamo Avenue	20,220	68.44	60.1	121.0	256.6
East Avenue, Guynn Avenue to Streamside Court	18,040	65.25	--	76.6	158.5
East Avenue, Kennedy Avenue to SR 32	19,540	65.60	--	80.4	167.0
East Avenue, Pillsbury Road to Cohasset Road	14,210	63.84	--	68.9	136.9
East Avenue, Cohasset Road to North Avenue	17,650	65.16	--	75.6	156.3
East Avenue, Floral Avenue to Coleman Court	18,610	65.39	--	78.0	161.8
Eaton Road, Constitution Drive to SR 99 SB Ramp	27,380	68.57	--	96.4	207.4
Eaton Road, Hicks Lane to Silverbell Road	30,290	69.01	--	103.1	221.8
Eaton Road, Michael Way to Burnap Avenue	14,820	65.90	--	64.2	137.8

Roadway Segment	ADT	CNEL at 50 Feet from Near Travel-lane Centerline	Distance (feet) from Roadway Centerline to CNEL Contour		
			70	65	60
Esplanade, Eaton Road to Tonea Way	18,920	65.89	--	77.3	162.8
Esplanade, W. Shasta Avenue to Mandalay Court	21,580	66.03	--	85.4	178.2
Esplanade, Panama Avenue to East Avenue	27,140	67.03	--	98.5	207.1
Esplanade, Connors Avenue to White Avenue	23,500	66.40	--	90.0	188.4
Esplanade, E. 2nd Avenue to E. 1st Avenue	22,470	66.21	--	87.6	183.0
Forest Avenue, Humboldt Road to Wildflower Court	21,910	66.10	--	86.2	180.0
Forest Avenue, E. 20th Street to Parkway Village Drive/Barney Lane	20,910	65.89	--	83.8	174.5
Mangrove Avenue, Cohasset Road to E. Lindo Avenue	23,980	66.92	--	89.8	190.4
Mangrove Avenue, E. 3rd Avenue to E. 1st Avenue	22,230	66.16	--	87.0	181.7
Mangrove Avenue, E. 1st Avenue to Palmetto Avenue	22,430	66.20	--	87.5	182.8
Mangrove Avenue, Vallombrosa Avenue to Woodland Avenue/E. 3rd Street	20,580	65.82	--	83.0	172.7
Park Avenue, Meyers Street to E. Park Avenue	21,520	67.44	--	104.5	220.5
Park Avenue, E. 16th Street to E. 17th Street	21,830	64.90	--	67.0	140.2
Park Avenue, Humboldt Avenue to W. 11th Street	21,110	64.75	--	65.6	137.2
Skyway, Forest Avenue to Dominic Drive	32,690	70.52	79.6	165.1	352.7
Skyway, Notre Dame Boulevard to Forest Avenue	30,010	70.15	75.6	156.2	333.3
W. Sacramento Avenue, Magnolia Avenue to Esplanade	23,510	66.30	--	68.2	146.4
Walnut Street, W. 4th Street to W. 5th Street	22,050	66.12	--	86.5	180.7
Walnut Street, Bidwell Avenue to W. 1st Street	25,960	67.26	--	94.5	200.6
Walnut Street, W. 8th Street to W. 9th Street	17,630	65.58	--	73.9	155.4
SR 99, Garner Lane to Eaton Road	38,090	75.47	197.4	416.9	894.0
SR 99, Eaton Road to East Avenue	58,170	77.31	259.0	551.5	1184.9
SR 99, East Avenue to Cohasset Road	75,730	78.46	307.4	656.9	1412.5
SR 99, Cohasset Road to East 1st Avenue	96,300	79.50	359.8	770.5	1657.6
SR 99, East 1st Avenue to SR 32	116,030	80.31	406.8	872.2	1876.8
SR 99, SR 32 to East 20th Street	102,430	79.77	374.7	802.8	1727.2
SR 99, East 20th Street to Skyway	74,150	78.37	303.2	647.8	1392.8
SR 99, South of Skyway	45,440	77.50	266.4	567.6	1219.8

Noise levels/contours were calculated using the FHWA roadway noise model based on Calveno vehicle reference noise levels and traffic data obtained from the traffic analysis prepared for this project. Refer to ***Appendix D*** *for modeling output files.*

-- Contours are within 50 feet of roadway centerline/within roadway right-of-way.

TABLE 4.7-8
PREDICTED CHANGES IN TRAFFIC NOISE LEVELS
AT BUILD-OUT OF THE GENERAL PLAN UPDATE AS COMPARED TO EXISTING CONDITIONS

Roadway Segment	CNEL at 50 Feet from Near Travel-lane Centerline		Predicted Change in Noise Level (CNEL)
	Existing	Future with Build-Out of the General Plan Update	
Bruce Road, Lakeside VLG Commons to Lakewest Drive	66.38	68.34	1.96
Bruce Road, Humbolt Road to Picholine Way	65.59	70.75	5.16
Bruce Road, Remington Drive to E. 20th Street	65.83	69.84	4.01
Bruce Road, E. 20th Street to Raley Boulevard	66.18	70.47	4.29
SR 32, East Avenue to Kennedy Avenue	68.61	69.14	0.53
SR 32 (Nord Avenue), Glenwood Avenue to Glenwood Avenue	69.52	70.08	0.56
SR 32 (Nord Avenue), Oak Way to W. 8th Avenue	66.85	67.36	0.51
SR 32 (Nord Avenue), W. Sacramento Avenue to W. Sacramento Avenue	67.71	68.18	0.47
Cohasset Road, Eaton Road to Thorntree Drive	67.30	69.92	2.62
Cohasset Road, Pillsbury Road to East Avenue	68.09	68.64	0.55
Cohasset Road, East Avenue to Lorinda Avenue	65.17	66.10	0.93
Deer Creek Highway (SR 32), E. 8th Street/Fir Street until road merges into undivided highway	64.93	68.65	3.72
Deer Creek Highway (SR 32), until road merges into undivided highway to Forest Avenue	69.41	73.10	3.69
Deer Creek Highway (SR 32), Forest Avenue to El Monte Avenue	68.59	72.97	4.38
Deer Creek Highway (SR 32), El Monte Avenue to Bruce Road	70.32	74.76	4.44
Deer Creek Highway (SR 32), Bruce Road to Yosemite Drive	68.07	71.37	3.30
E. 20th Street, Bruce Road to Notre Dame Boulevard	63.30	68.12	4.82
E. 20th Street, Forest Avenue to Huntington Drive	64.64	67.58	2.94
E. 20th Street, Business Lane to Forest Avenue	67.45	69.21	1.76
E. 20th Street, Sierra Nevada Court to Dr. Martin Luther King Jr. Parkway	66.94	67.63	0.69
E. 9th Street, Pine Street to Cypress Street	66.84	67.48	0.64
E. Park Avenue/Skyway, Country Drive to Whitman Avenue	68.04	69.78	1.74
East Avenue, Connors Avenue to Esplanade	67.24	68.00	0.76
East Avenue, Esplanade to Ilahee Lane	69.27	69.80	0.53
East Avenue, Cussick Avenue to Alamo Avenue	68.24	68.44	0.20
East Avenue, Guynn Avenue to Streamside Court	64.92	65.25	0.33

Roadway Segment	CNEL at 50 Feet from Near Travel-lane Centerline		Predicted Change in Noise Level (CNEL)
	Existing	Future with Build-Out of the General Plan Update	
East Avenue, Kennedy Avenue to SR 32	64.92	65.60	0.68
East Avenue, Pillsbury Road to Cohasset Road	63.83	63.84	0.01
East Avenue, Cohasset Road to North Avenue	65.04	65.16	0.12
East Avenue, Floral Avenue to Coleman Court	65.38	65.39	0.01
Eaton Road, Constitution Drive to SR 99 SB Ramp	65.84	68.57	2.73
Eaton Road, Hicks Lane to Silverbell Road	64.02	69.01	4.99
Eaton Road, Michael Way to Burnap Avenue	62.58	65.90	3.32
Esplanade, Eaton Road to Tonea Way	62.36	65.89	3.53
Esplanade, W. Shasta Avenue to Mandalay Court	64.48	66.03	1.55
Esplanade, Panama Avenue to East Avenue	66.27	67.03	0.76
Esplanade, Connors Avenue to White Avenue	66.09	66.40	0.31
Esplanade, E. 2nd Avenue to E. 1st Avenue	65.99	66.21	0.22
Forest Avenue, Humboldt Road to Wildflower Court	64.45	66.10	1.65
Forest Avenue, E. 20th Street to Parkway Village Drive/Barney Lane	64.76	65.89	1.13
Mangrove Avenue, Cohasset Road to E. Lindo Avenue	66.34	66.92	0.58
Mangrove Avenue, E. 3rd Avenue to E. 1st Avenue	65.61	66.16	0.55
Mangrove Avenue, E. 1st Avenue to Palmetto Avenue	66.13	66.20	0.07
Mangrove Avenue, Vallombrosa Avenue to Woodland Avenue/E. 3rd Street	65.31	65.82	0.51
Park Avenue, Meyers Street to E. Park Avenue	65.28	67.44	2.16
Park Avenue, E. 16th Street to E. 17th Street	63.94	64.90	0.96
Park Avenue, Humboldt Avenue to W. 11th Street	64.18	64.75	0.57
Skyway, Forest Avenue to Dominic Drive	69.73	70.52	0.79
Skyway, Notre Dame Boulevard to Forest Avenue	69.38	70.15	0.77
W. Sacramento Avenue, Magnolia Avenue to Esplanade	66.29	66.30	0.01
Walnut Street, W. 4th Street to W. 5th Street	65.52	66.12	0.60
Walnut Street, Bidwell Avenue to W. 1st Street	66.68	67.26	0.58
Walnut Street, W. 8th Street to W. 9th Street	64.79	65.58	0.79
SR 99, Garner Lane to Eaton Road	72.80	75.47	2.67
SR 99, Eaton Road to East Avenue	74.74	77.31	2.57
SR 99, East Avenue to Cohasset Road	76.26	78.46	2.20

Roadway Segment	CNEL at 50 Feet from Near Travel-lane Centerline		Predicted Change in Noise Level (CNEL)
	Existing	Future with Build-Out of the General Plan Update	
SR 99, Cohasset Road to East 1st Avenue	77.81	79.50	1.69
SR 99, East 1st Avenue to SR 32	78.54	80.31	1.77
SR 99, SR 32 to East 20th Street	78.39	79.77	1.38
SR 99, East 20th Street to Skyway	77.03	78.37	1.34
SR 99, South of Skyway	76.38	77.50	1.12

Notes: Traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction model (FHWA-RD-77-108). Traffic volumes were derived from the traffic analysis prepared for this project and assume that peak-hour volumes constitute approximately 10 percent of average-daily volumes. Roadway data and vehicle distribution percentages were based on traffic data obtained during the site reconnaissance conducted for this project, as well as heavy-duty truck distribution percentages obtained from Caltrans.

UPRR

As previously discussed above, the UPRR tracks are located west of and parallel to SR 99, bisecting the City of Chico in a general north-south direction. The UPRR is used for both freight transport and Amtrak passenger service. Approximately 18 freight trains and two Amtrak passenger trains travel along this rail line on a daily basis (City of Chico, 1999). The number of freight trains traveling along this segment can vary from day to day, depending on demand, and there are currently no hourly limitations pertaining to freight train travel. Amtrak passenger trains typically run between the nighttime hours of 2:00 a.m. and 4:00 a.m. (Amtrak, 2007).

Projected volumes for future years are not currently available. Based on conversations with UPRR staff, future train volumes would not be anticipated to increase substantially in comparison to existing conditions. However, as congestion on area roadways increases, it is conceivable that reliance on freight and Amtrak train service could increase.

Within the City of Chico, railroad noise levels are highly influenced by the sounding of locomotive warning horns. The use of locomotive horns is typically required by law on approach to public at-grade crossings. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Guidelines* (FTA, 2006) were used for the calculation of wayside noise levels generated by the trains traveling along the UPRR corridor. Wayside noise levels were calculated based, in part, on average train speeds, train length, and the number of trains traveling during the daytime and nighttime hours. Predicted noise levels were calculated with and without the sounding of warning devices at grade crossings. With the sounding of train horns, the projected 60 and 65 dBA CNEL noise contour at signalized grade crossings would extend to approximately 810 and 375 feet from the track centerline, respectively. At track locations in excess of approximately 660 feet from grade crossings, the projected 60 and 65 dBA CNEL noise contour would extend to approximately 700 and 325 feet from the track centerline, respectively. It is important to note that these projected noise contours do not include shielding or reflection of noise from intervening terrain or structures, and actual noise levels will vary depending on site-specific conditions. Although these predicted noise contours are not considered site-specific, they are useful for determining potential land use conflicts.

Policy N-1.5 requires site-specific noise studies for noise-sensitive projects which may be affected by railroad noise, and incorporate noise attenuation measures into the project design to reduce any impacts to those specified in Table N-1 (**Table 4.7-4** of this section). Similarly, where proposed projects are likely to expose noise-sensitive land uses to noise levels exceeding the City's standards, Policy N-1.3 requires an acoustical analysis as part of environmental review so that noise mitigation measures may be identified and included in the project design. The requirements for the content of an acoustical analysis are outlined in Table N-3 (**Table 4.7-6** of this section).

Implementation of the proposed General Plan Update noise policies identified above would reduce potential transportation noise impacts. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve the applicable noise standards of the proposed Noise Element. Implementation of these policies and actions will help to reduce impacts associated with proposed development. Noise reduction measures typically implemented to reduce traffic noise include increased insulation, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and safety. The feasibility of these measures would be determined on a project-by-project basis. However, it may not be possible to fully mitigate traffic and/or railroad noise in all areas, particularly in existing developed areas constrained due to age, placement, or other factors which limit the feasibility of mitigation such as residences fronting the right of way that limit the placement of noise barriers. As a result, increases in transportation noise associated with the proposed General Plan Update could result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project and would result in exposure of persons to or generation of noise levels in excess of standards established in the proposed General Plan, which is considered to be a **significant and unavoidable** impact.

Exposure to Stationary Noise (Standards of Significance 1 and 3)

Impact 4.7.3 Subsequent development associated with the proposed General Plan Update could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses. As a result, this impact is considered **significant**.

Implementation of the proposed General Plan Update could result in the future development of land uses that generate substantial noise levels in close proximity to noise-sensitive uses. These may include commercial, industrial, institutional (public schools), and recreational land uses. In addition, new noise-sensitive land uses could be located in areas of existing stationary noise sources. Exposure of noise-sensitive land uses to non-transportation noise levels could result in a permanent increase in ambient noise levels. Policy N-1.2 mandates that new development of noise-sensitive land uses will not be permitted in areas exposed to existing non-transportation noise sources that exceed the levels specified in Table N-2, unless the project design includes measures to reduce exterior noise levels to the unadjusted levels specified in Table N-2 [**Table 4.7-5** of this section]. Where proposed projects are likely to expose noise-sensitive land uses to noise levels exceeding the City's standards, Policy N-1.3 requires an acoustical analysis as part of environmental review so that noise mitigation measures may be identified and included in the project design. The requirements for the content of an acoustical analysis are outlined in Table N-3 [**Table 4.7-6** of this section]. Action N-2.1.1 would limit noise at the source through the use of insulation, berms, building design and orientation, staggered operating hours, and other techniques.

In accordance with the City's Municipal Code (Title 9, Chapter 9.38, Noise), noise levels associated with activities in residentially-designated areas, measured at any point outside the property line, are limited to a maximum of 70 dBA between the hours of 7 a.m. and 9 p.m. and 60 dBA between the hours of 9 p.m. and 7 a.m. Noise levels associated with activities that exceed these standards are addressed through the City's code enforcement efforts. Interior noise levels of multi-family residential property are limited to a maximum of 60 dBA at 3 feet from any wall, floor, or ceiling inside any dwelling unit, measured within adjacent dwelling units with windows and doors closed. Noise levels on commercial or industrial property are limited to a maximum of 70 dBA, measured at any point outside the property line. Noise generated on public property is limited to a maximum of 60 dBA at 25 feet from the source (City of Chico, 2008). General Plan Update Policy N-3.1 would maintain a noise enforcement program to identify and resolve problems concerning noise in the community.

Implementation of the above policies and standards would reduce noise associated with new stationary noise sources and the placement of new noise-sensitive land uses over which the City has jurisdiction (e.g., commercial and industrial sites, residential uses). However, some stationary noise impacts cannot be mitigated to a less than significant level due to limitations on the City to control the exact placement of substantial noise-generating uses, such as projects implemented by other public agencies located in proximity to noise-sensitive land uses (e.g., residential). Accordingly, stationary source noise levels from activities on uses over which the City has limited, or no, control could result in noise levels that exceed the City's maximum allowable noise standards. Thus, this impact is considered **significant and unavoidable**. No additional feasible mitigation has been identified that would further reduce this impact.

Exposure to Groundborne Vibration (Standard of Significance 2)

Impact 4.7.4 Subsequent development under the proposed General Plan Update could result in exposure of persons to or generation of excessive groundborne vibration levels. However, substantial sources of groundborne vibration that would result in significant vibration impacts are not expected in the Planning Area. As a result, this impact is considered **less than significant**.

The effects of ground vibration can vary from no perceptible effects at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. The effects of ground vibration are influenced by the duration of the vibration and the distance from the vibration source.

There are no federal, state, or local regulatory standards for vibration. However, various criteria have been established to assist in the evaluation of vibration impacts. For instance, Caltrans has developed vibration criteria based on human perception and structural damage risks. For most structures, Caltrans considers a peak-particle velocity (ppv) threshold of 0.2 inches per second (in/sec) to be the level at which architectural damage (i.e., minor cracking of plaster walls and ceilings) to normal structures may occur. Below 0.10 in/sec there is "virtually no risk of 'architectural' damage to normal buildings." Damage to historic or ancient buildings, however, could occur at levels of 0.08 in/sec ppv. In terms of human annoyance, continuous vibrations in excess of 0.1 in/sec ppv are identified by Caltrans as the minimum level perceptible level for ground vibration. Short periods of ground vibration in excess of 0.2 in/sec ppv can be expected to result in increased levels of annoyance to people within buildings (Caltrans, 2002b).

Groundborne vibration sources located within the city that could potentially affect future development would be primarily associated with railroad operations. Construction activities could also result in short-term groundborne vibration levels that could affect nearby sensitive land uses. Groundborne vibration levels and associated impacts as a result of trains traveling along the UPRR and short-term construction activities are discussed in more detail below.

UPRR

Groundborne vibration levels associated with railroad operations are dependent on various factors, including track type and condition, train speeds, site conditions, and train characteristics, such as the number of engines, number of cars, weight, and wheel type and condition. Site and geologic conditions can also influence how vibration propagates at increasing distance from the track. Based on Caltrans vibration measurement data, the highest train vibration level measured was 0.36 in/sec at 10 feet. Based on this level, Caltrans prepared a "drop-off curve" used to estimate maximum train vibration levels at distance from the track centerline. The curve represents maximum expected vibration levels from trains and thus is considered by Caltrans to be "very conservative" (Caltrans, 2002b).

Based on the Caltrans drop-off curve for train vibration levels, predicted maximum groundborne vibrations levels along the UPRR corridors would not exceed 0.20 in/sec ppv beyond approximately 7.5 feet from the track centerline, the level above which architectural damage for typical building construction or increased levels of annoyance for individuals in buildings may occur (Caltrans, 2002b). The proposed General Plan Update would not result in the development of new land uses within 7.5 feet of railroad track centerlines, therefore, would not result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Construction Activities

With the exception of pavement breaking, blasting, and pile driving, construction activities and related equipment typically generate groundborne vibration levels of less than 0.20 in/sec, which is the architectural damage risk threshold recommended by Caltrans. Based on Caltrans measurement data, use of off-road tractors, dozers, earthmovers, and haul trucks generates groundborne vibration levels of less than 0.10 in/sec, or one half of the architectural damage risk level, at 10 feet. The highest vibration level associated with a pavement breaker was 2.88 in/sec at 10 feet. During pile driving, vibration levels near the source depend mainly on the soil's penetration resistance as well as the type of pile driver used. Impact pile drivers tend to generate higher vibration levels than vibratory or drilled piles. Groundborne vibration levels of pile drivers can range from approximately 0.17 to 1.5 in/sec ppv. Caltrans indicates that the distance to the 0.2 in/sec ppv criterion for pile driving activities would be approximately 50 feet. However, as with construction-generated noise levels, pile driving can result in a high potential for human annoyance from vibrations, and pile-driving activities are typically considered as potentially significant if these activities are performed within 200 feet of occupied structures (Caltrans, 2002b). Vibration levels associated with blasting are highly variable, site-specific, and dependent on various factors, such as the amount of explosive used, soil conditions between the blast site and the receptor, and the depth where blasting would take place. Blasting that occurs below the surface would typically produce lower vibration levels due to additional attenuation provided by distance to the receptor and transmission through soil and rock.

The City's Municipal Code (Chapter 9.38, Noise) establishes hourly restrictions and noise standards that pertain to construction-related activities that would address vibration impacts as

well. For construction-related activities that occur between the hours of 10 a.m. and 6 p.m. on Sundays and holidays, and 7 a.m. and 9 p.m. on weekdays, the following limitations shall apply:

- No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source. If the device or equipment is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close as possible to 25 feet from the equipment.

- The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

Similar to short-term noise from construction activities, vibrations from construction activities are inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term vibrations at levels that they would not accept for permanent vibration sources. A more severe approach would be impractical and might preclude the kind of construction activities that are inevitable from time to time in urban environments. Most residents of urban areas recognize this reality and expect to experience vibration from construction activities on occasion. Vibration from construction activities is considered to be temporary in the sense that once the construction activities cease, so too would the vibrations from the construction activities. Vibrations from construction activities are also considered to be intermittent due to the type, location, and duration of construction equipment being used.

Due to the short-term nature of construction vibrations, the intermittent frequency of construction vibrations, and the required compliance with the City's Municipal Code hourly restrictions for construction-related activities, construction vibration level increases would typically not result in exposure of persons to or generation of excessive groundborne vibration. By restricting the hours of construction to avoid vibrations during times when it could potentially be more of a nuisance, the impact of new construction vibration is reduced to a **less than significant** level. In addition, individual development projects will be subject to site-specific environmental review, which will necessitate identification of site-specific mitigation in the event that significant impacts are identified.

Mitigation Measures

None required.

Exposure to Construction Noise (Standard of Significance 4)

Impact 4.7.5 Construction activities associated with subsequent activities under the proposed General Plan Update could result in a substantial temporary or periodic increase in ambient noise levels. However, the proposed Chico General Plan Update policy provisions and continued implementation of the City Municipal Code would adequately address construction noise issues. Therefore, construction noise impacts would be **less than significant**.

Construction noise typically occurs intermittently and varies depending upon the nature or phase (e.g., demolition/land clearing, grading and excavation, erection) of construction. Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Temporary increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption. Although noise ranges were found to be similar for all construction phases, the grading phase tends to involve the most equipment and resulted in slightly higher average-hourly noise levels. Typical noise levels for individual pieces of construction equipment and

distances to predicted noise contours are summarized in **Table 4.7-9**. As depicted, individual equipment noise levels typically range from approximately 74 to 88 dBA L_{eq} at 50 feet. Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Intermittent noise levels can range from approximately 77 to 95 dBA L_{max}, the loudest of which include blasting and the use of pile drivers and impact devices (e.g., hoe rams, impact hammers).

TABLE 4.7-9
TYPICAL CONSTRUCTION EQUIPMENT NOISE

Equipment	Typical Noise Level (dBA) 50 feet from Source		Distance (feet) to Noise Contours (dBA L_{eq})		
	L_{max}	L_{eq}	70	65	60
Air Compressor	80	76	105	187	334
Auger/Rock Drill	85	78	133	236	420
Backhoe/Front-End Loader	80	76	105	187	334
Blasting	94	74	83	149	265
Boring Hydraulic Jack/Power Unit	80	77	118	210	374
Compactor (Ground)	80	73	74	133	236
Concrete Batch Plant	83	75	94	167	297
Concrete Mixer Truck	85	81	187	334	594
Concrete Mixer (Vibratory)	80	73	74	133	236
Concrete Pump Truck	82	75	94	167	297
Concrete Saw	90	83	236	420	748
Crane	85	77	118	210	374
Dozer/Grader/Excavator/Scraper	85	81	187	334	594
Drill Rig Truck	84	77	118	210	374
Generator	82	79	149	265	472
Gradall	85	81	187	334	594
Hydraulic Break Ram	90	80	167	297	529
Jack Hammer	85	78	133	236	420
Impact Hammer/Hoe Ram (Mounted)	90	83	236	420	748
Pavement Scarifier/Roller	85	78	133	236	420
Paver	85	82	210	374	667
Pile Driver (Impact/Vibratory)	95	88	420	748	1,330
Pneumatic Tools	85	82	210	374	667
Pumps	77	74	83	149	265
Truck (Dump/Flat Bed)	84	80	167	297	529

Note: Predicted noise contours associated with construction activities may vary depending on the type and number of pieces of equipment used, usage rates Predicted noise contours do not include shielding provided by intervening terrain and structures.

Source: Ambient, 2010

Depending on distances from nearby noise-sensitive land uses, construction activities associated with build-out of the Planning Area may result in temporary and periodic increases in ambient noise levels at nearby receptors. Increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption to occupants of nearby dwellings.

The City's Municipal Code (Chapter 9.38, Noise) establishes hourly restrictions and noise standards that pertain to construction-related activities. For construction-related activities that occur between the hours of 10 a.m. and 6 p.m. on Sundays and holidays, and 7 a.m. and 9 p.m. on weekdays, the following limitations shall apply:

- No individual device or piece of equipment shall produce a noise level exceeding 83 dBA at a distance of 25 feet from the source. If the device or equipment is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close as possible to 25 feet from the equipment.

- The noise level at any point outside the property plane of the project shall not exceed 86 dBA.

Due to the short-term nature of construction noise, the intermittent frequency of construction noise, and the required compliance with the construction noise standards established as part of the City's existing Municipal Code noted above, construction noise level increases will not result in a substantial temporary or periodic increase in ambient noise levels in the Planning Area above existing levels that would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies. The impact of new construction noise will be **less than significant** through compliance with the City's Municipal Code requirements and no mitigation measures are required.

Exposure to Aircraft Noise (Standards of Significance 5 and 6)

Impact 4.7.6 Sensitive land uses constructed near Chico Municipal Airport, Ranchaero Airport, and the Enloe Medical Center could be exposed to aircraft noise in excess of applicable noise standards for land use compatibility. This is considered a **less than significant** impact.

The Butte County Airport Land Use Commission's (ALUC) Airport Land Use Compatibility Plan was established to ensure that there are no direct conflicts with land uses, noise, or other issues that would impact the functionality and safety of airports located within the county, including the Chico Municipal and Ranchaero Airports. ALUCs are required to review city and county general plans and zoning ordinances and to make findings of whether they are consistent with the applicable Airport Environs Land Use Plans, which contain noise contours and define appropriate restrictions for types of construction and building heights in navigable air space, as well as appropriate land use restrictions regarding sensitive uses within close proximity to airports.

Projected future (year 2018) noise contours for the Chico Municipal Airport are depicted in **Figure 4.7-4.** Noise contours for average and maximum Cal-Fire days are depicted in **Figure 4.7-5** and **Figure 4.7-6**, respectively. Projected future (year 2030) noise contours were not available for this airport at the time that this Draft EIR was prepared. However, projected noise contours could expand in future years as demand for airport services increases. Future development in the vicinity of airport may result in exposure of community residents to the noise

from aircraft operations. Future aircraft noise levels and contours would depend on various factors, including:

- Magnitude and duration of the noise from aircraft operations;
- Number of aircraft operations; and
- Time of occurrence (i.e., day, evening, and nighttime hours)

The Chico Municipal Airport is the largest airport in Butte County. According to the Airport Land Use Compatibility Plan, the airport has 70,000 annual takeoffs and landings. There are approximately 130 aircraft based at the airport. The airport runway is equipped with a precision instrument landing system and accommodates a full range of business aircraft. The airport has limited scheduled commuter airline service. The airport also receives major use during the fire season due to the fact that it is a designated "fire attack base." Average annual daily aircraft operations without fire attack aircraft is 182 operations yet during a peak fire season day, an additional 200 aircraft operations may occur.

The Chico Municipal Airport provides a full compliment of cargo service to the north state area. Four carriers operating from the existing airport structures located on the easterly side of the aircraft-parking apron currently handle air cargo at this airport. The cargo aircraft currently used at the Chico Municipal Airport include a Cessna 208, Cessna 402, Piper PA32 and a Beech 99. These cargo aircraft operate from the existing aircraft parking apron (BCAG, 2008). Air cargo service is currently limited to small single and twin-engine aircraft that generally carry the freight to major hubs (BCAG, 2008). The expansion of air cargo operation out of the Chico Municipal Airport is difficult to forecast. The major air cargo operators such as UPS, Federal Express, Airborne, and Emery, will not establish hub operations in an area that does not have major air cargo demands such as San Francisco or Los Angeles (BCAG, 2008).

The number of aircraft based at the Chico Municipal Airport has not changed significantly since 1980 and the trend has not shown significant increase. As the population grows, the potential exists for an increase in based aircraft, but that increase within the next 20 years is not forecast to exceed 50 percent of the current based aircraft population (BCAG, 2008), or 105,000 takeoffs and landings by 2030 (70,000 + 50 percent increase = 105,000).

The Chico Municipal Airport is also the busiest airport in Butte County. The primary runway, Runway 13L-31R is currently 6,722 feet long (BCAG, 2008). The Chico Airport Master Plan states that the runway should be extended to 8,600 feet to be able to adequately service turbo jet aircraft in the future, such as the Boeing 717, and the McDonnell Douglas DC-9 and MD-80 (BCAG, 2008). This extension would accommodate all aircraft operations forecast to use the airport and will further decrease noise impacts (BCAG, 2008). According to the 2008-2035 Regional Transportation Plan adopted by the Butte County Association of Governments with the intent to maintain, manage, and improve the region's transportation system over a 20 year period, it would be prudent to consider the protection and reservation of the needed land to the north to allow for the runway extension in the future. The proposed General Plan Update would designate these lands Public Facilities and Services in order to accommodate existing and future airport operations. Other capacity considerations identified in the Chico Airport Master Plan propose widening and extending Runway 13R-31L to be used by Cal-Fire operations and commercial service when the main runway is closed for maintenance, reconstruction, or due to an accident.

It is not anticipated that future expansion of the Chico Municipal Airport will result in noise-related impacts of future potential development under the proposed General Plan Update. As previously mentioned, the extension of the primary runway from 6,722 feet to 8,600 feet will allow for the use of turbo jet aircraft in the future which would further decrease noise impacts (BCAG, 2008). In addition, Policy N-1.1 of the proposed General Plan Update states that new development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1 of the General Plan Update, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 [Table 4.7-7 of this section].

It is also important to note that the proposed General Plan Update noise standards for transportation noise source are consistent with those identified by federal and state airport regulations. As discussed earlier in this section and in accordance with both federal and state regulations, all land uses are considered compatible within a noise environment of less than 65 dBA L_{dn}/CNEL. This noise criterion level is based upon an average-daily noise level (expressed in L_{dn} or CNEL), which represents the average noise level over a 24-hour period, with adjustment factors applied to account for the lower tolerance of individuals to noise during the more noise-sensitive evening and nighttime hours. This noise criterion level was selected based upon a review of existing evidence obtained from studies of community noise reaction, noise interference with speech and sleep, and noise induced hearing loss. It is considered protective of individuals residing in urban residential areas where houses are of typical construction with windows partially open. Within higher noise environments, the acceptability of some land uses depends on various factors, including the type of land use and degree of structural noise attenuation provided to ensure acceptable interior noise levels. For various reasons, airport proprietors and local governing agencies may impose noise criterion and other limitations that are more restrictive. As such, the proposed General Plan Update noise standards would be considered protective of community residents with regard to potential noise-related impacts, such as community noise reaction, noise interference with speech and sleep, and noise induced hearing loss. Although the proposed General Plan Update would result in inconsistencies with land uses identified in the ALUC's Comprehensive Land Use Plan (CLUP), potential noise-related impacts associated with future development would be considered less than significant. Please refer to Section 4.1 for a discussion of land use impacts with regard to consistency with the ALUC's CLUP.

Future growth associated with the proposed General Plan Update is not expected to be exposed to excessive noise levels from the Ranchaero Airport, given its limited operations and distance from designated noise-sensitive land uses under the proposed General Plan Update (see **Figure 4.7-10**). Ranchaero airport has an average of 14 daily aircraft operations, yet this number is expected to increase to an average of 27 daily aircraft operations during the next 15 years (City of Chico, 2005b). 90 percent of those flights are single engine general aviation flights and ten percent are helicopter operations (City of Chico, 2005b). Less than one percent are multi-engine aircraft, which are significantly louder compared to single engine aircraft. 85 percent of all aircraft landing and departing from Ranchaero Airport make close-in turns to avoid overflight of residential areas north of the airport (City of Chico, 2005b).

The proposed General Plan Update provides that residential development is acceptable at a CNEL level of 65 decibels for the exterior environment and 45 decibels for the interior environment. As shown in **Figure 4.7-10**, the 65 decibel noise contour extends just beyond the edge of the Ranchaero Airport runway. Therefore, potential future development proposed at the nearest available location to the Ranchaero Airport would fall within the 60 decibel noise contour at the loudest.

The Ranchaero Airport is located adjacent to existing residential development to the north. General Plan Update Action N-2.1.1 would limit noise at the source through, among other mechanisms, the use of insulation. Insulation is a proven measure to reduce interior noise to acceptable levels based on the CNEL noise exposure expected. Furthermore, Policy N-1.1 states that new development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1 of the General Plan Update, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 [Table 4.7-7 of this section].

As noted previously, Enloe Medical Center is a source of helicopter flights in the City. The Esplanade is used as the primary approach and departure route for Enloe Medical Center. Predicted and existing CNEL noise contours for Enloe Medical Center are depicted in **Figure 4.7-7** and **Figure 4.7-8**. Implementation of the noise standards below would ensure consistency with city noise standards. It should be noted that significant and unavoidable single-event noise impacts would occur with the implementation of the Enloe Medical Center Master Plan as identified in the Enloe Medical Center Master Plan EIR (State Clearinghouse No. 2004012118). Implementation of the proposed General Plan Update would not include any actions that would worsen this previously identified noise impact.

The proposed General Plan Update contains policies and actions that include specific performance standards addressing transportation/aircraft noise. As previously mentioned, new development of noise-sensitive land uses will not be permitted in areas exposed to existing or planned transportation noise sources that exceed the levels specified in Table N-1, unless the project design includes measures to reduce exterior and interior noise levels to those specified in Table N-1 (**Table 4.7-4** of this section) (Policy N-1.1). The proposed General Plan Update includes policies (i.e., policies N-1.1 and N-1.3) by which the compatibility of noise-sensitive land uses that would be exposed to transportation noise sources would be reviewed and appropriate mitigation measures incorporated to achieve acceptable noise levels. General Plan Update Policy N-2.2 would promote coordination with public and private organizations to ensure consistency with the City's community noise standards and Action LU-7.1.2 requires aviation easements and deed notices for new development within the Airport Land Use Compatibility Plan area. General Plan Action LU-7.1.1 requires that the city amend its Municipal Code to establish airport compatibility overlay zoning districts that conform to the boundaries and policy direction of the ALUCP's overflight zones. The overlay districts would enforce development standards consistent with the standards in the ALUCP, including noise-resistant construction, structure and tree height limitations, density/intensity limitations on the use of land, and establishing infill criteria consistent with the 2005 agreement between the city and the ALUC.

Implementation of the applicable policies and standards contained in the City's proposed General Plan Update would ensure that future development near Chico Municipal Airport, as well as near other facilities involving the use of aircraft, such as Enloe Medical Center, would meet applicable noise criteria for land use compatibility and/or include noise attenuation features to meet applicable noise standards. In addition, proposed future development projects located within air traffic patterns, corridors, and airport influence zones would be reviewed to ensure continued consistency with applicable plans, including the Butte County Airport Land Use Compatibility Plan. With incorporation of the proposed General Plan policies, this impact would be considered **less than significant**.

4.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative noise setting includes 2030 development anticipated within Butte County in addition to build-out of the proposed General Plan Update (see Section 4.0, Introduction to the Environmental Analysis and Assumptions Used). The future (cumulative) ambient noise environment will be affected by build-out of the proposed General Plan Update. Cumulative development would alter the intensity of land uses in the region and increase housing, employment, shopping, and recreational opportunities. Such development would result in new noise generators and noise-sensitive land uses and potentially increase land use conflicts and hazards associated with noise. The primary factor for cumulative noise impact analysis is the consideration of future traffic volumes. Under future cumulative conditions, projected increases in population growth are anticipated to result in increased traffic volumes and associated noise levels on area roadways. This cumulative impact analysis herein focuses on the project's contribution to cumulative traffic noise impacts and whether that contribution is considered significant.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Transportation Noise Impacts (Standard of Significance 1)

Impact 4.7.7 Implementation of the proposed General Plan Update, in combination with other development in nearby unincorporated areas of the county, would increase transportation noise along area roadways. This would be a **cumulatively considerable** impact.

As identified in **Table 4.7-8**, implementation of the proposed General Plan Update, in combination with anticipated growth by the year 2030, would result in noticeable increases in traffic noise. In comparison to existing conditions, increases in traffic noise levels of up to approximately 5 dBA CNEL would occur along certain portions of area roadways. Of the major roadways analyzed, noticeable increases in traffic noise levels (i.e., 3 dBA or greater) would be predicted to occur along 12 of the 61 major roadway segments evaluated, but not all would exceed 70 CNEL. These roadway segments would include portions of Bruce Road, SR 32, and Eaton Road. Increased traffic noise levels would also be experienced in the Planning Area outside of the urban development areas in the unincorporated area of Butte County.

The proposed General Plan Update policies include requirements that contain specific performance standards addressing transportation noise. These policies are listed under Impact 4.7.3. Implementation of the proposed General Plan Update noise policies identified under Impact 4.7.3 would reduce potential transportation noise impacts in the city. Additionally, future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve applicable noise standards. Noise reduction measures typically implemented to reduce transportation noise include increased insulation and building requirements, setbacks, and construction of sound barriers. Some measures, such as construction of sound barriers, may have secondary impacts related to aesthetics and safety. The applicability of these measures would be determined on a project-by-project basis.

However, it is may not be possible to fully mitigate transportation noise in all areas of the city, particularly for existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation, such as residences fronting on the roadway that

limit the placement of noise barrier. In addition, the City does not have jurisdiction to implement noise mitigation outside of its boundaries (or may not be allowed to in Caltrans right-of-ways) to address potential noise impacts to the surrounding, nearby unincorporated areas of Butte County or along Caltrans facilities. It is important to note that the increases in traffic noise levels associated with build-out of the proposed General Plan Update would occur gradually over a period of approximately 20 years, or more. Nonetheless, the proposed General Plan Update's contribution to cumulative traffic noise would be **cumulatively considerable** and a **significant and unavoidable** impact

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4.8
Geology and Soils

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) describes the geology and seismicity of the Planning Area, as well as the types of soils that have been identified and their properties as they relate to the proposed General Plan Update. Potential exposure of people and future improvements to soil-related hazards (e.g., unstable or expansive soils) and erosion are analyzed. In addition, potential geologic and seismic hazards, such as fault rupture, ground shaking, liquefaction, and landslides, are discussed. This section also addresses mineral resources within the Planning Area and discusses the proposed General Plan Update's potential to impact those resources.

4.8.1 EXISTING SETTING

REGIONAL GEOLOGIC SETTING

The Planning Area is located within the Great Valley Geomorphic Province (Great Valley), which includes the area known as the Great Central Valley of California. The Great Valley extends 400 miles north to south and 60 miles east to west and is encompassed by the Coast Ranges (metamorphic), the Klamath Ranges (metamorphic), the Cascade Range (volcanic), and the Sierra Nevada Range (granitic and metamorphic). The Great Valley consists of an elongated structural trough that has been filled with a sequence of sedimentary deposits ranging in age from Jurassic to recent. Geophysical evidence suggests that the Great Valley is underlain at depth with granitic rocks of the Sierra Nevada Province. The majority of rocks and deposits found within the Great Valley Geomorphic Province are sedimentary. The age of these rocks and deposits ranges from Upper Jurassic (between 154 and 135 million years ago) to recent.

LOCAL GEOLOGY AND TOPOGRAPHY

The topography of the Planning Area varies from relatively gentle sloped terrain in the western portion of the Planning Area to increasingly hilly terrain at the eastern edge of the city and into the surrounding unincorporated portions of the Planning Area. Average elevation throughout the city is approximately 230 feet above mean sea level.

Geologic Formations

The Planning Area is underlain by various geologic formations, including the Tuscan Formation, the Chico Formation, the Red Bluff Formation, and the Modesto Formation. Bedrock of the Tuscan Formation underlies eastern portions of the Planning Area (primarily Bidwell Park) along the base of the Cascade foothills. The Tuscan Formation consists of a series of layers deposited by streams and mudflows between two and four million years ago. The mudflows spread out over the area, burying older rock, filling low areas, and gradually building a flat subdued landscape. The Tuscan Formation is characterized by near horizontal layers within the formation and four-million-year-old volcanic ash horizon at the bottom of the formation. The Tuscan Formation is of Pliocene age and comprises volcanic mudflows, tuff, breccia, sandstone, and ash deposits. Groundwater in the Sacramento Valley Groundwater Basin is contained primarily within the pore spaces of the reworked sand and gravel layers of the Tuscan Formation, with much of the groundwater being confined under pressure by layers of impermeable clays, mudflows, or tuff breccia.

The Chico Formation of the Late Cretaceous age was named for its occurrence in both the Big Chico Creek and Little Chico Creek canyons. The Chico Formation also occurs along Butte Creek. The Chico Formation and its fossils were deposited by a warm shallow sea that covered the area 90 million years ago. The Chico Formation is characterized by its yellowish-brown color, fine-grained texture, and the presence of fossilized shells. This formation consists of sandstone,

siltstone, thin layers of limestone, and conglomerate, all of which accumulated along the shore of the Pacific Ocean during the Cretaceous period of the Mesozoic Era (about 90 million years ago).

The Red Bluff Formation is the oldest (and generally highest) Pleistocene alluvial terrace deposit. This formation covers broad areas of the northern Sacramento Valley, including portions of the Planning Area. Because of its age between half a million and a million years old, this formation is highly weathered for considerable depth and exhibits a strong red-orange color. The Red Bluff Formation has been eroded away in most of the area in and around the City of Chico.

In much of the Sacramento Valley, especially east of the Sacramento River, the Modesto Formation overlies the Riverbank, Tehama, and Tuscan formations. The Modesto Formation consists of sand, silt, and clay seams deposited by rivers and ranges in depth from 10 to 200 feet. It was deposited during the Pleistocene Age, from 42,000 to 14,000 years ago. The formation consists of tan and light grey, gravelly sand, silt, and clay. The Modesto Formation is exposed in the central portion of Butte County and underlies significant portions of the Planning Area. The thickness of the Modesto Formation ranges from 200 to 10 feet, depending on location.

SOILS

The United States Department of Agriculture, Natural Resources Conservation Service's (NRCS) *Soil Survey of Butte Area, California*, characterizes the soils throughout Butte County and within the Planning Area. Acreages of specific soil types within the Planning Area are listed in **Table 4.8-1** and depicted in **Figure 4.8-1**. As shown, the most prominent soil types in the Planning Area are Bosquejo clay, Almendro loam, and Doemill-Jokerst complex.

Bosquejo clay consists of clayey alluvium over loamy alluvium that is derived from volcanic rocks. Bosquejo clays are somewhat poorly drained and have a high shrink-swell potential. Almendro loam consists of loamy alluvium that is derived from igneous, metamorphic, and sedimentary rocks. Almendro loam is well drained and has a moderate shrink-swell potential. The Doemill-Jokerst complex consists of loamy residuum weathered from volcanic breccia and is somewhat poorly drained and has a low shrink-swell potential (NRCS, 2006).

TABLE 4.8-1
PLANNING AREA SOIL TYPES BY ACREAGE

Soil Type	Acreage in the Planning Area
BOSQUEJO CLAY, 0 TO 1% SLOPES	8,624.60
ALMENDRA LOAM, 0 TO 1% SLOPES	7,857.50
DOEMILL-JOKERST COMPLEX, 3 TO 8% SLOPES	7,434.10
VINA FINE SANDY LOAM, 0 TO 1% SLOPES	5,982.50
XERORTHENTS, SHALLOW-TYPIC HAPLOXERALFS-ROCK OUTRCROP, CLIFFS COMPLEX, 15 TO 30% SLOPES	5,974.30
REDSLUFF GRAVELLY LOAM, 0 TO 2% SLOPES	5,462.80
CHICO LOAM, 0 TO 1% SLOPES	4,787.80
XERORTHENTS, SHALLOW-TYPIC HAPLOXERALFS-ROCK OUTCROP, CLIFFS COMPLEX, 30 TO 50% SLOPES	4,656.50

Soil Type	Acreage in the Planning Area
REDTOUGH-REDSWALE COMPLEX, 0 TO 2% SLOPES	4,502.30
CONEJO CLAY LOAM, 0 TO 1% SLOPES	3,991.50
JOKERST-DOEMILL-TYPIC HAPLOXERALFS COMPLEX, 8 TO 15% SLOPES	2,909.90
DOEMILL-JOKERST-ULTIC HAPLOXERALFS, THERMIC COMPLEX, 3 TO 8% SLOPES	2,305.00
BUSACCA CLAY LOAM, 0 TO 1% SLOPES	2,165.60
HAPLOXEROLLS CLAY LOAM, 0 TO 2% SLOPES	2,127.90
CHARGER FINE SANDY LOAM, 0 TO 1% SLOPES	1,889.30
DOEMILL-JOKERST-ULTIC HAPLOXERALFS, THERMIC COMPLEX, 8 TO 15% SLOPES	1,801.30
XERORTHENTS, SHALLOW-TYPIC HAPLOXERALFS COMPLEX, 2 TO 15% SLOPES	1,691.80
DOEMILL-JOKERST COMPLEX, 0 TO 3% SLOPES	1,639.00
ULTIC HAPLOXERALFS, MESIC - ROCKSTRIPE COMPLEX, 2 TO 15% SLOPES	1,593.40
PARROTT SILT LOAM, 0 TO 2% SLOPES, OCCASIONALLY FLOODED	1,489.50
ULTIC HAPLOXERALFS-ROCKSTRIPE-ROCKOUTCROP, CLIFFS COMPLEX,30 TO 50% SLOPES	1,403.90
CORIDGE-ROCK OUTCROP COMPLEX, 3 TO 8% SLOPES	1,141.40
XEROFLUVENTS, 0 TO 4% SLOPES FREQUENTLY FLOODED	1,125.50
XERORTHENTS, TAILINGS, 0 TO 50% SLOPES	1,091.30
ESQUON-NEERDOBE COMPLEX, 0 TO 1% SLOPES	986.8
JOKERST-DOEMILL-TYPIC HAPLOXERALFS COMPLEX, 15 TO 30% SLOPES	896.1
GIANELLA FINE SANDY LOAM, 0 TO 1% SLOPES, FREQUENTLY FLOODED	886.9
VINA LOAM, 0 TO 1% SLOPES	884.6
GALT CLAY, 0 TO 1% SLOPES	859.1
IGNORD FINE SANDY LOAM, 0 TO 2% SLOPES	847.6
WAFAP-HAMSLOUGH COMPLEX, 0 TO 2% SLOPES	838
ULTIC HAPLOXERALFS, MESIC - ROCKSTRIPE COMPLEX, 15 TO 30% SLOPES	728.6
KUSALSLOUGH SILTY CLAY LOAM, 0 TO 1% SLOPES, OCCASIONALLY FLOODED	685.1
GIANELLA FINE SANDY LOAM, 0 TO 1% SLOPES, OCCASIONALLY FLOODED	625.2
ROCKSTRIPE-ULTIC HAPLOXERALFS-ROCK OUTCROP, CLIFFS COMPLEX, 70 TO 100% SLOPES	564.7
CLEARHAYES-HAMSLOUGH COMPLEX, 0 TO 2% SLOPES	483
CHINACAMP GRAVELLY LOAM, 15 TO 30% SLOPES	482.3
FARWELL CLAY LOAM, 0 TO 1% SLOPES	455.2
ULTIC HAPLOXERALFS-ROCKSTRIPE-ROCK OUTCROP, CLIFFS COMPLEX, 50 TO 70% SLOPES	453.7
ROCK OUTCROP, CLIFFS-COALCANYON TAXADJUNCT COMPLEX, 15 TO 50% SLOPES	430
HAPLOXEROLLS LOAM, 0 TO 2% SLOPES	374.3
REDTOUGH LOAM, 8 TO 35% SLOPES	336.4
LUCKSEV-BUTTESIDE-CARHART COMPLEX, 2 TO 15% SLOPES	329.2

Soil Type	Acreage in the Planning Area
GALT CLAY LOAM, 0 TO 1% SLOPES, LEVELED	311.2
CARHART TAXADJUNCT, 0 TO 2% SLOPES	293.1
COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 15 TO 30% SLOPES	281
CHINACAMP GRAVELLY LOAM, 3 TO 15% SLOPES	242.1
EDJOBE SILTY CLAY, 0 TO 1% SLOPES	226
WATER	213.3
BOSQUEJO SILT LOAM, 0 TO 1% SLOPES, OVERWASH, OCCASIONALLY FLOODED	212.8
CORIDGE-ROCK OUTCROP COMPLEX, 8 TO 15% SLOPES	209.6
DURIXEROLLS-HAPLOXEROLLS CLAY LOAMS, 0 TO 2% SLOPES	195.7
HAPLOXERALFS, TERRACE, 0 TO 5% SLOPES	187.1
CONEJO FINE SANDY LOAM, 0 TO 1% SLOPES, OVERWASH	184.5
GIANELLA SILT LOAM, 0 TO 1% SLOPES, FREQUENTLY FLOODED	172.5
COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 30 TO 50% SLOPES	168.3
GIANELLA SANDY LOAM, 0 TO 1% SLOPES, FREQUENTLY FLOODED	160.3
BOSQUEJO CLAY LOAM, 0 TO 1% SLOPES	156.1
PARROTT-VERMET COMPLEX, 0 TO 2% SLOPES, FREQUENTLY FLOODED	148
ROCK OUTCROP-THERMALROCKS-CAMPBELLHILLS COMPLEX, 2 TO 15% SLOPES	140.4
RIVERWASH, 0 TO 2% SLOPES FREQUENTLY FLOODED	136
CHINACAMP GRAVELLY LOAM, 30 TO 50% SLOPES	115.2
ANITA-GALT COMPLEX, 0 TO 3% SLOPES	114.7
COLUMBIA TAXADJUNCT VERY FINE SANDY LOAM, 0 TO 1% SLOPES, FREQUENTLY FLOODED	112.5
ANITA, GRAVELLY DURIPAN-TUSCAN TAXADJUNCT COMPLEX, 0 TO 2% SLOPES	107.2
DUMPS, LANDFILL	94.1
TUSCAN-FALLAGER-ANITA, GRAVELLY DURIPAN, COMPLEX, 0 TO 3% SLOPES	83.5
COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 3 TO 15% SLOPES	72.7
DURIXEROLLS-HAPLOXEROLLS LOAMS, 0 TO 2% SLOPES	72.6
TYPIC XEROFLUVENTS COMPLEX, 0 TO 2% SLOPES	67
MUNJAR-TUSCAN TAXADJUNCT-GALT COMPLEX, 0 TO 2% SLOPES	66
PITS, GRAVEL	58.9
SLIDELAND GRAVELLY LOAM, 3 TO 15% SLOPES	30.2
CARHART-ANITA TAXADJUNCT COMPLEX, 0 TO 12% SLOPES	28.6
PARROTT SILT LOAM, 0 TO 2% SLOPES, FREQUENTLY FLOODED	26.3
MODA TAXADJUNCT-ARBUCKLE COMPLEX, 0 TO 2% SLOPES	15.2
COALCANYON TAXADJUNCT VERY GRAVELLY LOAM, 50 TO 70% SLOPES	14.5

Soil Type	Acreage in the Planning Area
DODGELAND SILTY CLAY LOAM, 0 TO 5% SLOPES, OCCASIONALLY FLOODED	12.1
CHEROKEESPRING GRAVELLY SILT LOAM, 2 TO 15% SLOPES	12
ULTIC HAPLOXERALFS, SANDSTONE, 50 TO 70% SLOPES	6.7
FARWELL SILT LOAM, 0 TO 1% SLOPES, OCCASIONALLY FLOODED	6.6
GIANELLA LOAM, 0 TO 1% SLOPES, OCCASIONALLY FLOODED	3.3
CHINACAMP GRAVELLY LOAM, 50 TO 70% SLOPES	0.9
Total	**100,554.5**

Source: NRCS, 2006

Landslides and Slope Instability

Landslides may be triggered by both natural and human-induced changes in the environment resulting in slope instability. The term *landslide* includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on an over-steepened slope is the primary reason for a landslide, there are other contributing factors including:

- Erosion by rivers, glaciers, or ocean waves creating over-steepened slopes;
- Rock and soil slopes being weakened through saturation by snowmelt or heavy rains;
- Earthquakes creating stresses that make weak slopes fail;
- Earthquakes of magnitude 4.0 and greater;
- Volcanic eruptions producing loose ash deposits, heavy rain, and debris flows; and
- Excess weight from accumulation of rain or snow, stockpiling of rock or ore, from waste piles, or from human-made structures stressing weak slopes to failure.

Slope material that becomes saturated with water may develop a debris flow or mud flow. The resulting slurry of rock and mud may pick up trees, houses, and cars, thus blocking bridges and tributaries and causing flooding along its path (USGS, 2009).

Although steep slopes are commonly present where landslides occur, it is not necessary for the slopes to be long. Landslides, rock falls, and debris flows occur continuously on all slopes; some processes act very slowly, while others occur very suddenly. Slope stability is dependent on many factors and their interrelationships, including rock type, slope steepness, and natural or human-made undercutting (Butte County, 2007).

Butte County has a history of landslides, most of which occur in areas that have experienced previous landslides. The areas of highest landslide potential are in the mountainous central area of the county where well-developed soils overlay impervious bedrock on steep slopes which at times undergo heavy rainfall. The slopes around flat uplands, such as Table Mountain, are also highly susceptible to landslides. Most of the rest of Butte County has moderate to low landslide potential. The majority of the Planning Area has no potential to low potential for landslides.

However, the eastern portion of the Planning Area in the foothills has a moderate to high potential for landslides (Butte County, 2007).

Erosion/Accelerated Erosion

The NRCS classifies soils based on the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. Erosion hazard is described as "slight," "moderate," "severe," or "very severe." A rating of slight indicates that erosion is unlikely under ordinary climatic conditions; moderate indicates that some erosion is likely under ordinary climatic conditions and that erosion-control measures may be needed; severe indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and very severe indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical. The erosion rating for many of the soil types found in the western and central portions of the Planning Area is slight. However, soils found in the eastern foothills are much more prone to erosion. Specifically, rock and cliff outcrop type soils generally have an erosion hazard rating of very severe to severe (NRCS, 2006).

Settlement

Surface settlement can occur due to immediate settlement of coarse-grained soils or consolidation of fine-grained soils under increased loading. Settlement can also result from shrinkage of expansive soil or liquefaction (both discussed below). Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs relatively quickly and is typically substantially complete within several hours or days after placement of the final load. Consolidation settlement occurs in saturated or near-saturated fine-grained (clay) soil due to volume change caused by load-induced squeezing out of water from the pore spaces. Consolidation occurs over a relatively long period of time (often years or even decades) and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load from the pore water to the soil grains. Total settlements can vary over an area, referred to as differential settlement, due to variations in loading, soil characteristics, and thickness of compressible layers.

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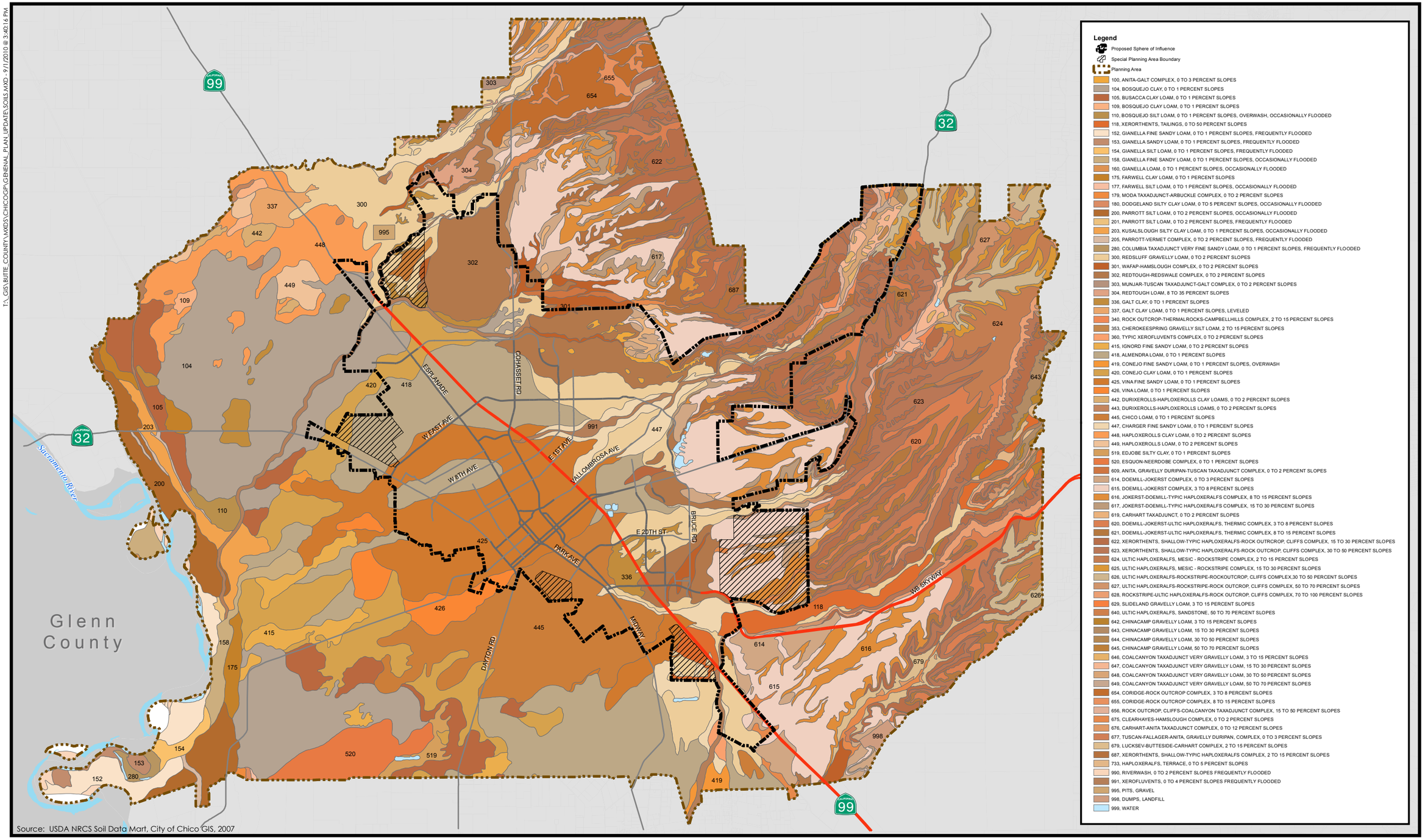

Figure 4.8-1
Soils in the Planning Area

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Expansive Soils

Expansive soils are soils that tend to shrink or swell depending on their moisture content. These swelling soils typically contain clay minerals, as many types of clay minerals are expansive. Expansive clay minerals include smectite, bentonite, montmorillonite, beidellite, vermiculite, attapulgite, nontronite, illite, and chlorite. When a soil contains a large amount of expansive minerals, it has the potential for significant expansion. As expansive soils get wet, the clay minerals absorb water molecules and expand; conversely, as they dry they shrink, leaving large voids in the soil. When structures are located on expansive soils, foundations have the tendency to rise during the wet season and shrink during the dry season. This movement can create new stresses on various sections of the foundation and connected utilities and can lead to structural failure and damage to infrastructure. Cracked foundations, floors, and basement walls are typical types of damage done by swelling soils. Damage to the upper floors of the building can occur when motion in the structure is significant.

The Planning Area is in a region where expansive soils are known to exist. The Central Valley region contains soils with slight to moderate shrink-swell potential (Geology.com, 2009). Within Butte County, soils with no or low expansion potential occur along stream and river valleys and on steep mountain slopes. Soils of high expansion potential generally occur in the level areas of the Sacramento Valley, including around the population centers of Chico, Oroville, Biggs, and Gridley (DC&E, 2007). Furthermore, many of the soils found within the Planning Area have a moderate to high shrink-swell potential. In fact, the most abundant soil in the Planning Area, Bosquejo clay, consists of clayey alluvium with high shrink-swell potential.

Septic Tank Soil Contamination

The discharge from individual septic systems has been cited by the Regional Water Quality Control Board (RWQCB) as a source of soil and groundwater nitrate contamination in the Planning Area. Methemoglobinemia (blue-baby syndrome), possible carcinogenic effects, and other health concerns are among the effects of excessive nitrate exposure, particularly in drinking water (water quality, including nitrate in groundwater, is discussed in Section 4.9, Hydrology and Water Quality, of this Draft EIR). Technical analysis conducted for the County's Nitrate Compliance Plan (discussed under Regulatory Framework below) found that average residential densities of approximately four or more dwelling units per acre in certain parts of the Planning Area exceed the capacity of the soil and receiving waters to assimilate nitrogen. Locations in the Planning Area that currently are the highest priority for sewering (nitrate elimination or nitrate reduction) per the Nitrate Action Plan are shown in **Figure 4.8-2**.

MINERAL RESOURCES

There are no active mines and no known areas with mineral resource deposits within the Planning Area, although historically several areas along Butte Creek were mined for gold, sand, and gravel. The majority of the closest mining operations are located to the southeast, outside of the Planning Area.

FAULTING AND SEISMICITY

An earthquake is the sudden, rapid shaking of the ground caused by the breaking and shifting of rock beneath the earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the earth as the huge plates that form the earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual and at other times the plates are locked together, unable to release the accumulating energy. When the

accumulated energy grows strong enough, the plates break free and cause the ground to shake. Most earthquakes occur at the boundaries where the plates meet; however, some earthquakes occur in the middle of plates (Butte County, 2007).

Earthquakes can cause strong ground shaking that may damage property and infrastructure. The strength of an earthquake is generally expressed in two ways: magnitude and intensity. The magnitude is a measure that depends on the seismic energy radiated by the earthquake as recorded on seismographs. The intensity at a specific location is a measure that depends on the effects of the earthquake on people or buildings and is used to express the severity of ground shaking. Although there is only one magnitude for a specific earthquake, there may be many values of intensity (damage) for that earthquake at different sites.

The most commonly used magnitude scale today is the moment magnitude (Mw) scale. Moment magnitude is related to the physical size of fault rupture and the movement (displacement) across the fault, and it is therefore a more uniform measure of the strength of an earthquake. The seismic moment of an earthquake is determined by the resistance of rocks to faulting multiplied by the area of the fault that ruptures and by the average displacement that occurs across the fault during the earthquake. The seismic moment determines the energy that can be radiated by an earthquake and hence the seismogram recorded by a modern seismograph (CGS, 2002).

The most commonly used scale to measure earthquake intensities (ground shaking and damage) is the Modified Mercalli Intensity (MMI) Scale, which measures the intensity of an earthquake's effects in a given locality and is based on observations of earthquake effects at specific places. On the Modified Mercalli Intensity Scale, values range from I to XII (see **Table 4.8-2**). While an earthquake has only one magnitude, it can have various intensities, which decrease with distance from the epicenter (CGS, 2002).

Table 4.8-2 provides descriptions of the effects of ground shaking intensities along with a general range of moment magnitudes that are often associated with those intensities.

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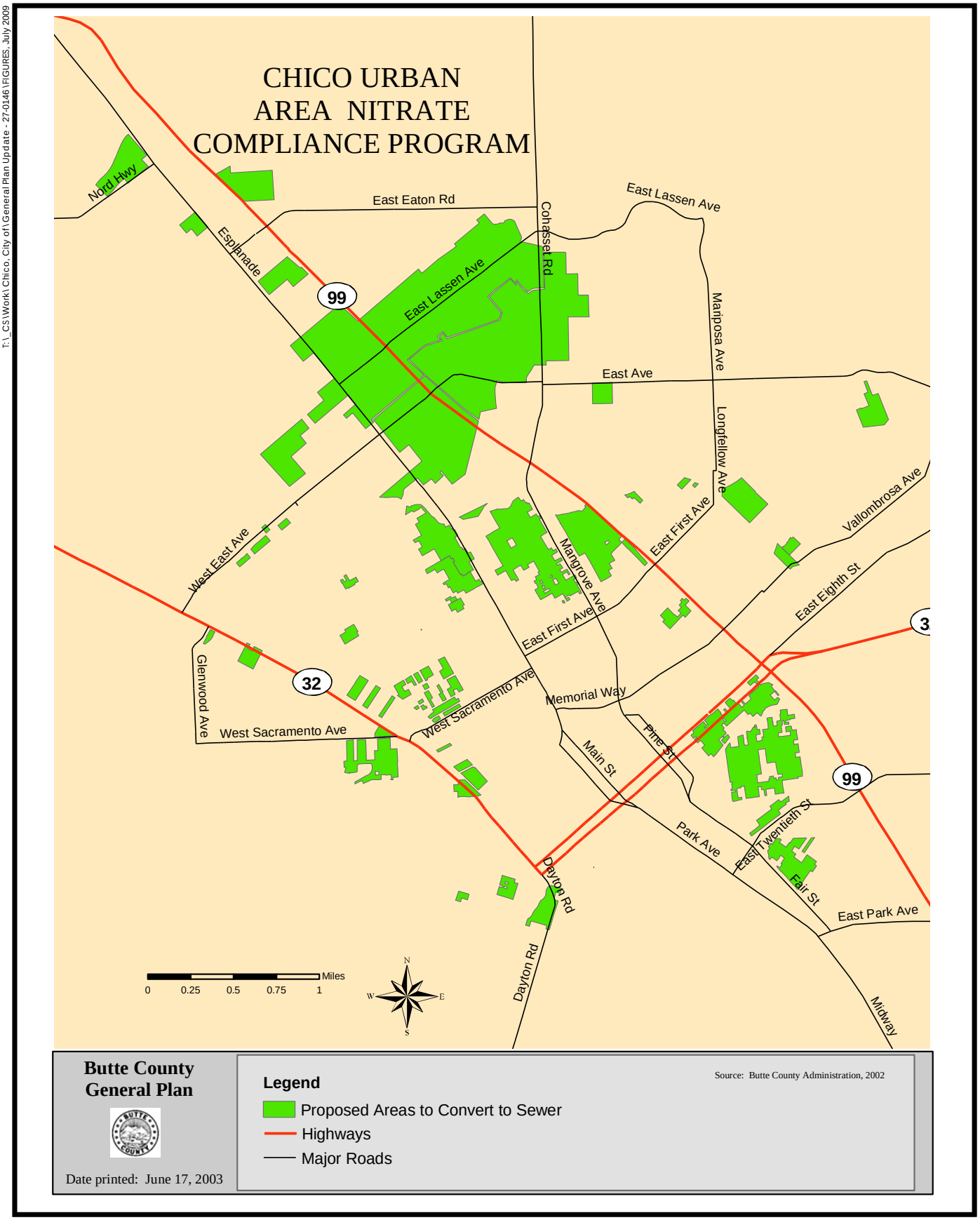

Figure 4.8-2

Chico Urban Area Nitrate Compliance Plan

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TABLE 4.8-2
EFFECTS OF RICHTER MAGNITUDE AND MODIFIED MERCALLI INTENSITY

Mw	Modified Mercalli Scale	Effects of Intensity
1.0 – 3.0	I	I. Not felt except by a very few under especially favorable conditions.
3.0 – 3.9	II – III	II. Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 – 4.9	IV – V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. V. Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
5.0 – 5.9	VI – VII	VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. VII. Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
6.0 – 6.9	VIII – IX	VIII. Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed. IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
7.0 and higher	X or higher	X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks. XI. Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly. XII. Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.

Source: CGS, 2002

The Seismic Hazards Zonation Program of the California Geological Survey (CGS) categorizes Butte County as a seismic hazard zone. Seismic risk in Butte County results from earthquake faults in the county as well as from faults outside the county whose seismic activity would cause potentially damaging ground shaking in Butte County, including in the Planning Area (Butte County, 2007). The following is a description of the active faults in or near Butte County and the potential effect they have on the county in terms of magnitude (Butte County, 2007). Faults in the vicinity of the Planning Area are also shown in **Figure 4.8-3.**

Cleveland Hills Fault. As discussed below, the only identified active fault located in Butte County is the Cleveland Hills fault. The Cleveland Hills fault is responsible for the 1975 Oroville earthquake of Richter magnitude 5.7, an event that produced surface displacement along about 2.2 miles of the fault. Ground motions were experienced at Gridley and Oroville, with significant structural damage occurring to unreinforced masonry buildings in Oroville. Geologic studies indicate that the total length of the Cleveland Hills fault is probably 11 to 15 miles (DC&E, 2007). The Cleveland Hills fault is located approximately 17 miles southeast of the Chico city limits. The maximum credible earthquake on this fault is approximately magnitude 6.5 to 6.7. An event of this magnitude would cause substantially more damage in the Planning Area than the 1975 event caused.

Foothills Shear Zone. The Foothills shear zone extends into southern Butte County and reaches a point approximately 26 miles southeast of Chico. A possible magnitude 7.0 earthquake in this zone would result in intensities as high as MMI IX in the Planning Area.

Chico Monocline Fault. The Chico Monocline fault, which extends northwesterly from Chico, was considered potentially active in an unpublished 1988 report by the CGS. Based on its length of approximately 42 miles, this fault could produce at least a magnitude 7.0 earthquake, which would cause major damage in the Planning Area.

Willows Fault. The 40-mile-long Willows fault is approximately 24 miles west of Chico and could produce a magnitude 7.0 earthquake and yield an MMI as high as VIII in the Planning Area (comparable to the intensity experienced during the 1975 Oroville earthquake).

Coast Ranges Thrust Zone. The Coast Ranges thrust zone is approximately 42 miles west of Chico. This fault zone could potentially produce a magnitude 8.0 earthquake, which could be experienced in the Planning Area as MMI IX or X. An event of this magnitude would cause major damage in the Planning Area.

San Andreas Fault System. The San Andreas fault, along with related faults such as the Hayward and Calaveras, is one of the most active faults in California. Total displacement along this fault has been at least 450 miles and could possibly be as much as 750 miles. This fault system was responsible for the magnitude 8.0 San Francisco earthquake of 1906 as well as numerous other damaging earthquakes, including the 1989 Loma Prieta earthquake. At its nearest point, the San Andreas fault is about 108 miles west of Chico. The 1906 earthquake was strongly felt in Butte County, at approximately MMI V and VI in western Butte County, but there was little damage. Earthquakes along this fault are not anticipated to result in major damage in the Planning Area.

Hayward-Calaveras Fault. The Hayward-Calaveras fault complex is considered to be a branch of the San Andreas fault. An 1868 earthquake is reported to have caused strong fluctuations in the water level in the Sacramento River near Sacramento and in a slough near Stockton. Earthquakes along this fault are not anticipated to result in major damage in the Planning Area.

Midland-Sweitzer Fault. The 80-mile-long Midland-Sweitzer fault lies approximately 62 miles southwest of Chico. Historically, earthquakes of Richter magnitudes between 6.0 and 6.9 have occurred on or near this fault, including two strong earthquakes in 1892. Based on the fault length and the historic activity, this fault is capable of producing a magnitude 7.0 earthquake, which would be experienced in Butte County with MMI as high as VIII or IX.

Eastern Sierra Faults/Russell Valley Fault. The Eastern Sierra contain a number of active faults including the Russell Valley fault, which produced the 1966 Truckee earthquake with a magnitude of approximately 6.0, and several faults in the Last Chance and Honey Lake fault

zones, which have produced several magnitude 5.0 to 5.9 earthquakes. These fault zones are approximately 80 miles east of Chico. Earthquakes on these faults could be experienced in Butte County with MMI as high as VII or VIII.

Last Chance-Honey Lake Fault Zones. The Last Chance-Honey Lake fault zones are approximately 100 miles long and trend north-northwest along the California-Nevada border. These faults are active and have resulted in earthquakes ranging between magnitude 5.0 and 5.9. The Last Chance-Honey Lake fault zones are approximately 90 miles east of Chico, and earthquakes along this fault are not anticipated to result in major damage in the Planning Area.

Other Potentially Active Faults. Other potentially active faults in the vicinity of the Planning Area include the Sutter Buttes faults, Dunnigan fault, Camel's Peak fault, Melones-Dogwood Peak faults, and Hawkins Valley fault. All of these faults should be considered potentially active due to geologic, historic, or seismic data.

An "active" fault, as defined by the 1994 Alquist-Priolo Earthquake Fault Zoning Act, is one that shows displacement within the last 11,000 years and therefore is considered more likely to generate a future earthquake and surface rupture than a fault that shows no sign of recent rupture. The Alquist-Priolo Earthquake Fault Zoning Act requires the California State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps in order to mitigate the hazard of surface faulting to structures for human occupancy. No Alquist-Priolo Earthquake Fault Zones exist within the Planning Area (DOC, 2009). The only known active fault in Butte County is the Cleveland Hills fault south of Oroville, the site of the August 1975 Oroville earthquake. This earthquake was felt in Chico, but there was no recorded damage. The Cleveland Hills fault is within an Earthquake Fault Zone as mapped by the Alquist-Priolo Earthquake Fault Zoning Act.

Although there are no active faults in the Planning Area, the Sierra foothills contain hundreds of mapped faults, dozens of which are located in Butte County. Most of these faults are not considered active. Furthermore, most of these faults are very short and thus are probably not capable of producing severely damaging earthquakes.

Liquefaction

Liquefaction occurs when loose sand and silt that is saturated with water behaves like a liquid when shaken by an earthquake. Earthquake waves cause water pressures to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength and behave like a liquid. The soil can loose its ability to support structures, flow down even very gentle slopes, and erupt to the ground surface to form sand boils. Many of these phenomena are accompanied by settlement of the ground surface, usually in uneven patterns that damage buildings, roads, and pipelines (USGS, 2009).

Three factors are required for liquefaction to occur: (1) loose, granular sediment (typically "made" land and beach and stream deposits that are young enough (late Holocene) to be loose); (2) saturation of the sediment by groundwater (water fills the spaces between sand and silt grains); and (3) strong shaking. Liquefaction causes three types of ground failure: lateral spreads, flow failures, and loss of bearing strength. In addition, liquefaction enhances ground settlement and sometimes generates sand boils (fountains of water and sediment emanating from the pressurized liquefied zone).

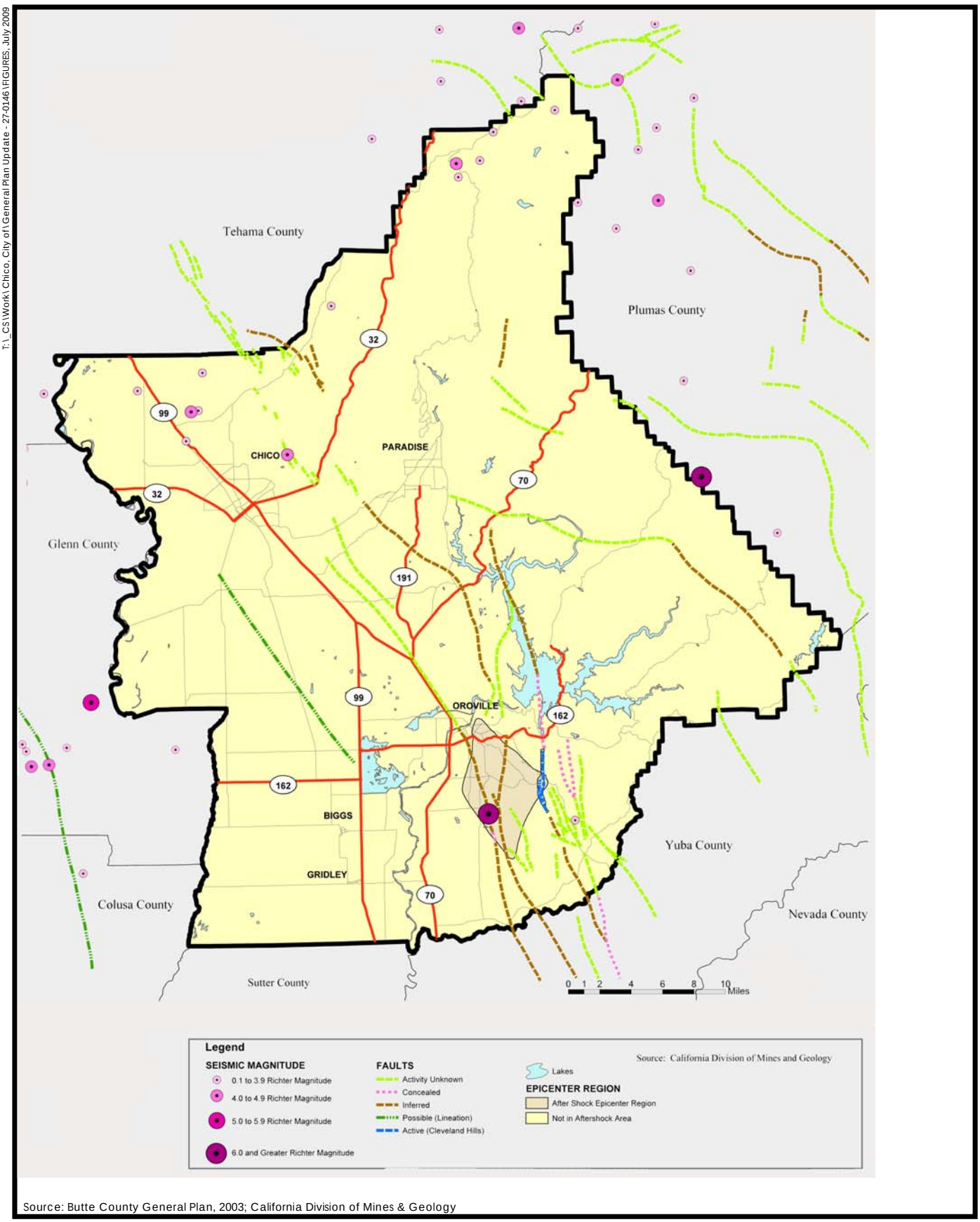
In Butte County, areas paralleling the Sacramento River that contain clean sand layers with low relative densities are estimated to have generally high liquefaction potential. Areas of bedrock,

including most of eastern Butte County, have no liquefaction potential, although localized areas of valley fill alluvium can have moderate to high liquefaction potential (Butte County, 2007). The Planning Area, in general, has a low to moderate risk for liquefaction, with the low potential being in the eastern portion of the Planning Area and the moderate potential being within the Chico city limits and to the west (DC&E, 2007).

Subsidence

Land subsidence results in a slow-to-rapid downward movement of the ground surface as a result of the vertical displacement of the ground surface, usually resulting from groundwater withdrawal. Subsidence is common in the Sacramento Valley and in large areas of the San Joaquin Valley. Subsidence is a greater hazard in areas where the subsurface geology includes compressible layers of silt and clay. The amount of subsidence caused by groundwater withdrawal depends on several factors, including the extent of water level decline, the thickness of the water-bearing strata tapped, the thickness and compressibility of silt-clay layers within the vertical sections where groundwater withdrawal occurs, the duration of maintained groundwater level decline, the number and magnitude of water withdrawals in a given area, and the general geology and geologic structure of the groundwater basin. Subsidence can result in gradient changes in roads, streams, canals, drains, sewers, and dikes that may be significantly damaged by even small elevation changes. Other damaging effects of subsidence include damage to water wells resulting from sediment compaction and increased likelihood of flooding of low-lying areas. No land subsidence has been recorded in Butte County. However, land subsidence is considered to be a potential hazard for the portions of Butte County located within the Sacramento Valley, including areas of heavy groundwater withdrawal extending 2 miles north and south of Chico. Groundwater supplies and groundwater withdrawal are discussed further in Section 4.12, Public Services and Utilities, of this Draft EIR.

T:_CS\Work\Chico, City of\General Plan Update - 27-0146\FIGURES, July 2009



Source: Butte County General Plan, 2003; California Division of Mines & Geology

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Figure 4.8-3
Known Faults in the Planning Area

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Lateral Spreading

Lateral spreading occurs when the ground slides down very gentle slopes or toward stream banks riding on a buried liquefied layer. In soils this movement is generally due to failure along a weak plane and is associated with liquefaction. Within the Planning Area, lateral spreading is possible along the banks of California Park Lake in southeast Chico as well as along the numerous creeks flowing through the city. These waterways include Big Chico, Little Chico, Sycamore, Comanche, and Butte creeks as well as the Lindo Channel.

Earthquake-Induced Settlement and Landslides

Past experience has shown that several types of landslides take place in conjunction with earthquakes. The most abundant types of earthquake-induced landslides are rock falls and slides of rock fragments that form on steep slopes. Shallow debris slides forming on steep slopes and soil, and rock slumps and block slides forming on moderate to steep slopes also take place, but they are less abundant. Reactivation of dormant slumps or block slides by earthquakes is rare (USGS, 2009).

Large earthquake-induced rock avalanches, soil avalanches, and underwater landslides can be very destructive. Rock avalanches originate on over-steepened slopes in weak rocks. Soil avalanches occur in some weakly cemented fine-grained materials, such as loess, that form steep stable slopes under non-seismic conditions. The size of the area affected by earthquake-induced landslides depends on the magnitude of the earthquake, its focal depth, the topography and geologic conditions near the causative fault, and the amplitude, frequency, composition, and duration of ground shaking. In past earthquakes, landslides have been abundant in some areas having intensities of ground shaking as low as VI on the Modified Mercalli Intensity Scale.

Within the Planning Area, the rocks that comprise the foothills along the eastern portion of the Planning Area have undergone extensive deformation and deep weathering and are susceptible to earthquake-induced landslides.

Seiches

Seismic seiches are periodic oscillations, or standing waves, on rivers, reservoirs, ponds, and lakes that occur when seismic waves from an earthquake pass through the area. The period of the oscillation varies depending on the size of the body of water and may be several minutes to several hours. Depending on the magnitude of the oscillations, seiches can cause considerable damage to dams, levees, and shoreline facilities. Seiches have not been recorded in any of the reservoirs in Butte County that are within the jurisdiction of the California Division of Dam Safety. However, the potential for seiches does exist in Butte County (DC&E, 2007). The Planning Area could also be at risk for seiches; however, this risk is considered very low since the only water bodies in the Planning Area that could be affected are California Park Lake, swimming pools, and water tanks.

4.8.2 REGULATORY FRAMEWORK

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. A direct result of the 1971 San Fernando earthquake and the extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures, the Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface of active faults. The act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act (discussed below) addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. The law requires that before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet) (DOC, 2009).

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Sections 2690–2699.6), passed by the legislature following the 1989 Loma Prieta earthquake, directs the Department of Conservation, California Geological Survey to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the act is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards.

Staff geologists in the Seismic Hazard Zonation Program gather existing geological, geophysical, and geotechnical data from numerous sources to produce the Seismic Hazard Zone Maps. They integrate and interpret these data regionally in order to evaluate the severity of the seismic hazards and designate as Zones of Required Investigation those areas prone to liquefaction and earthquake-induced landslides. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted within the Zones of Required Investigation to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy (DOC, 2009).

California Building Code

The California Building Code (CBC) is another name for the body of regulations found in the California Code of Regulations (CCR), Title 24, Part 2, which is a portion of the California Building Code. The purpose of the CBC is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of

materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The provisions of the CBC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout the State of California (CBSC, 2008).

Published by the International Conference of Building Officials, the International Building Code is a widely adopted model building code in the United States. The CBC incorporates by reference the International Building Code with necessary California amendments. These amendments include significant building design criteria that have been tailored for California earthquake conditions. Design criteria for seismic loading and other geologic hazards are included in the design standards in the CBC. The CBC provides design criteria for geologically induced loading that govern sizing of structural members and provides calculation methods to assist in the design process. The City of Chico adopted the California Building Code in Chapter 16R.02 of the City of Chico Municipal Code.

LOCAL

City of Chico Municipal Code/Grading Ordinance

Chapter 16R.22 of the City of Chico Municipal Code contains the City's grading standards. The standards specify that the maximum permanent rate of sediment loss after completion of a project should not exceed the natural erosion rate which occurred prior to the grading project. In addition, if excessive erosion occurs from the project, erosion and sediment control measures are required to be immediately implemented to reduce erosion to allowable levels. The standards also require revegetation and slope stabilization to prevent erosion of slopes.

The City's Grading Ordinance can be found in Chapter 16 of the Municipal Code. The ordinance requires that when grading is performed as part of a project for which an environmental impact report, mitigated negative declaration, or other environmental document was prepared, the grading must comply with all applicable mitigation measures identified in that document and imposed on the project as conditions of approval. The Grading Ordinance requires a valid grading permit for any grading work within the city and provides for inspection and enforcement to ensure compliance with grading regulations.

Nitrate Compliance Plan

In the 1980s, the RWQCB recognized that on-site sewage disposal systems were contributing to elevated nitrate levels in groundwater in the Chico area and initially issued a Prohibition Order requiring all existing septic systems in the Chico Urban Area to convert to a community sewer system. In response, Butte County, the City of Chico, and the RWQCB developed strict standards limiting any new systems, the creation of a Joint Powers Authority, and a plan to finance the conversion of existing septic systems to the City sewer system. In 2001 the Butte County Board of Supervisors adopted the Nitrate Compliance Plan, which superseded the previous Nitrate Action Plan. The Nitrate Compliance Plan enacts strict standards for density requirements for new septic systems. The standards allow for conventional septic systems only in narrowly defined circumstances, call for the elimination of existing systems in most of the Chico Urban Area, and identify a financing mechanism to do this. The plan also provides for case-by-case evaluation of nonresidential septic systems and recognizes that sewer connection may not be practical or feasible in all cases (DC&E, 2007).

Butte County Environmental Health Division

In Butte County, septic systems are regulated by the Environmental Health Division. The County is currently preparing an environmental impact report (EIR) for the Butte County Individual On-Site Wastewater Ordinance. The ordinance would apply to unincorporated portions of Butte County not served by municipal wastewater treatment and disposal facilities. The ordinance would update and replace existing County regulations in order to be consistent with applicable requirements of the Central Valley RWQCB Basin Plan and to incorporate other changes based on the current state of knowledge and advances in practices and technologies for on-site wastewater treatment and disposal. Notably, the ordinance would (a) implement more standardized procedures for soil and site evaluations; (b) incorporate new requirements pertaining to the vertical separation between the bottom of dispersal systems and groundwater or restrictive layers; (c) provide a broader range of treatment and dispersal designs; and (d) institute a program to assure ongoing maintenance of certain types of systems (Butte County, 2009).

4.8.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

This analysis evaluates the project's impacts on geology and soils and mineral resources based on the standards identified in the California Environmental Quality Act (CEQA) Guidelines Appendix G. The City has determined that a geology and soils impact is considered significant if implementation of the project would:

1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence or other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

    ii) Strong seismic ground shaking.

    iii) Seismic-related ground failure, including liquefaction.

    iv) Landslides.

2) Result in substantial soil erosion or the loss of topsoil.

3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

4) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

5) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

As discussed under the Existing Setting subsection above, the Planning Area is not within an Alquist-Priolo Earthquake Fault Zone and therefore would not be subject to hazards associated with fault rupture. In addition, the Planning Area has a very low risk for seiche hazards, since the only water bodies in the Planning Area that could be affected are California Park Lake, swimming pools, and water tanks. Therefore, these seismic hazard issues are not discussed further in this Draft EIR.

As there are no active mines and no known areas with mineral resource deposits within the Planning Area, implementation of the proposed General Plan Update would not result in the loss of availability of a known mineral resource, and this issue is not discussed further in this Draft EIR.

METHODOLOGY

The geology and soils analysis is based on a review of published information, surveys, and reports regarding regional geology and soils. Information was obtained from private and governmental agencies and Internet websites, including the USDA Natural Resources Conservation Service, the California Geological Survey (formerly the California Department of Mines and Geology), and the United States Geological Survey. This material was then compared to the proposed General Plan Update's specific geology and soil-related impacts.

The analysis takes into account the density and type of existing and proposed land uses within the Planning Area, as well as proposed and anticipated development in the City of Chico and surrounding areas. The reader is referred to Section 4.0 of this DEIR for a discussion of assumed land uses and development conditions in the area.

The following proposed General Plan Update policies and actions address geology and soils:

Policy S-3.1 *(Potential Structural Damage) – To the greatest extent feasible, prevent damage to new structures caused by seismic, geologic, or soil conditions.*

Action S-3.1.1 *(California Building Code) – Require all new buildings in the City to be built under the seismic requirements of the California Building Code.*

Action S-3.1.2 *(Potential Soil Hazards) – In areas with highly expansive soils, require appropriate studies and structural precautions as part of project review.*

Action OS-3.1.1 *(Comply with State Standards) – Comply with the California Regional Water Quality Control Board's regulations and standards to maintain and protect water quality.*

Action OS-3.2.2 *(Nitrate Compliance Plan) – Implement the Nitrate Compliance Plan and provide regular updates to the City Council.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address geologic conditions and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Seismic Hazards (Standard of Significance 1)

Impact 4.8.1 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in the exposure of more people, structures, and infrastructure to seismic hazards. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that people, structures, and infrastructure are not adversely impacted by seismic hazards. This is considered a **less than significant** impact.

As previously discussed, Butte County is located in a seismic hazard zone and could experience strong seismic ground shaking and seismic-related ground failure (i.e., liquefaction, settlement, and landslides) from earthquakes on faults both within and outside of the county. The increase in population and development under the proposed General Plan Update could expose more people, structures, and infrastructure to seismic hazards as a result of seismic activity.

However, the City of Chico adopted the California Building Code (CBC) in Chapter 16R.02 of the City of Chico Municipal Code. All new development and redevelopment would be required to comply with the CBC, which includes design criteria for seismic loading and other geologic hazards, including design criteria for geologically induced loading that govern sizing of structural members and provide calculation methods to assist in the design process. Thus, while shaking impacts would be potentially damaging, they would also tend to be reduced in their structural effects due to CBC criteria that recognize this potential. The CBC includes provisions for buildings to structurally survive an earthquake without collapsing and includes measures such as anchoring to the foundation and structural frame design. The proposed General Plan Update (Policy S-3.1 and Action S-3.1.1) specifically requires that all new buildings in the City be built under the seismic requirements of the CBC and that damage to new structures from seismic conditions be prevented to the maximum extent feasible.

In addition, the Seismic Hazards Mapping Act requires that cities use the Seismic Hazard Zone Maps in their land use planning and building permit processes and that site-specific geotechnical investigations be conducted within the Zones of Required Investigation in order to identify and evaluate seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy.

These requirements, along with continued implementation of the City's Municipal Code, would ensure this impact would be **less than significant** and no further mitigation is required.

Potential Increase of Erosion and Loss of Topsoil (Standard of Significance 2)

Impact 4.8.2 Implementation of the proposed General Plan Update could result in construction and grading activities that could expose topsoil and increase soil erosion. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that there are no adverse impacts from erosion and loss of topsoil. This impact is considered to be **less than significant.**

Implementation of the proposed General Plan Update would result in the potential construction of new roadways and of substantial infrastructure (water and sanitary sewer facilities), improvements to existing roadways, and the potential for additional commercial, residential,

and industrial development within the city, the Sphere of Influence (SOI), and the five Special Planning Areas (SPAs) included in the proposed General Plan Update. The grading and site preparation activities associated with such development would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities may involve the use of water, which may further erode the topsoil as the water moves across the ground.

Any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres, or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to National Pollutant Discharge Elimination System (NPDES) State General Permit (Order No. 2009-0009-DWQ) provisions. Any development of this size within the Planning Area would be required to prepare and comply with an approved stormwater pollution prevention plan (SWPPP) that provides a schedule for the implementation and maintenance of erosion control measures and a description of the erosion control practices, including appropriate design details and a time schedule. The SWPPP would consider the full range of erosion control best management practices, including any additional site-specific and seasonal conditions. The State General Permit also requires that those implementing SWPPPs meet prerequisite qualifications that would demonstrate the skills, knowledge and experience necessary to implement SWPPPs. NPDES requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development.

In addition, the City's grading standards (Chapter 16R.22 of the City of Chico Municipal Code) specify that the maximum permanent rate of sediment loss after completion of the project should not exceed the natural erosion rate which occurred prior to the grading project. In addition, if excessive erosion occurs from the project, erosion and sediment control measures are required to be immediately implemented to reduce erosion to allowable levels. The standards also require revegetation and slope stabilization to prevent erosion of slopes. The City's Grading Ordinance requires a valid grading permit for any grading work in the city and provides for inspection and enforcement to ensure compliance with grading regulations. The City's grading regulations would further ensure that all public and private development projects would include the necessary control measures for erosion and sediment control as well as permanent features to minimize stormwater pollution from development projects. The City's current development review process also ensures that construction projects have the necessary permits and that on-site regional control measures are considered for new development projects.

In addition, subsequent development projects under the proposed General Plan Update would be required to use best management practices to control runoff from all new development and thus limit erosion (Action OS-3.1.1).

Since erosion impacts are often dependent on the type of development, intensity of development, and amount of lot coverage of a particular project site, impacts can vary. However, compliance with adopted City grading regulations and NPDES and SWPPP requirements, as well as implementation of the proposed General Plan Update action listed above, would ensure that soil erosion and related impacts would be **less than significant**, and no further mitigation is required.

Potential Development on Unstable Soils (Standard of Significance 3)

Impact 4.8.3 Implementation of the proposed General Plan Update could allow for development on a geologic unit or soil that is unstable, thus creating

substantial risks to life and property. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that potential development is not adversely impacted by unstable soils. This is considered a **less than significant** impact.

Many of the soils found within areas identified for development under the proposed General Plan Update, including opportunity sites within the city and SOI as well as the five SPAs, have a moderate to high shrink-swell potential, which could result in development constraints. Structures or improvements constructed on expansive soils can suffer damage as the expansive soils shrink and swell. A soil's potential to shrink and swell depends on the amount and types of clay in the soil, since certain clays expand when wet and disproportionately shrink when dry. Future structures and improvements associated with the proposed General Plan Update could experience stresses on various sections of foundations and connected utilities, as well as structural failure and damage to infrastructure if located on expansive or unstable soils.

The City of Chico Municipal Code, the CBC, and other related construction standards apply seismic requirements and address certain grading activities. The CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. Compliance with CBC regulations would ensure the adequate design and construction of building foundations to resist soil movement.

Proposed General Plan Update Action S-3.1.2 would require new development to conduct a geotechnical soils report in areas that have highly expansive soils. Such a report is a tool used by public agencies and developers to identify specific site conditions and to develop design and construction recommendations for infrastructure improvements and commercial and residential development projects. Geotechnical reports generally contain a summary of all subsurface exploration data including a subsurface soil profile, exploration logs, laboratory or on-site test results, and groundwater information. The reports also interpret and analyze the subsurface data, recommend specific engineering design elements, provide a discussion of conditions for the solution of anticipated problems, and recommend geotechnical special provisions. These provisions would address any site-specific expansive soil hazards for future development under the proposed General Plan Update.

The proposed General Plan Update policy and actions listed above, as well as adherence to the CBC, would reduce the effects resulting from developing on unstable soils to a minimum. This impact is therefore considered to be **less than significant**, and no further mitigation is required.

Soils Incapable of Supporting Septic Tanks (Standard of Significance 4)

Impact 4.8.4 Subsequent land use activities associated with implementation of the proposed General Plan Update may allow for development in areas where sewers are not available for the disposal of wastewater and where soils are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. However, policy provisions in the proposed General Plan Update would ensure no adverse impacts from soils incapable of supporting septic tanks. This is considered a **less than significant** impact.

The discharge from individual septic systems has been cited by the Central Valley RWQCB as a source of soil and groundwater nitrate contamination in the Planning Area. Technical analysis conducted for the County's Nitrate Compliance Plan found that average residential densities of approximately four or more dwelling units per acre in certain parts of the Planning Area would exceed the capacity of the soil and receiving waters to assimilate nitrogen. If development or

redevelopment utilizing septic tanks were to occur in these or other areas where soils are incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems, the existing groundwater contamination could worsen.

The City's adoption of the County's Nitrate Compliance Plan seeks to remedy the existing water contamination and prevent further contamination as a result of new development by enacting strict standards for density requirements for new septic systems. The standards allow for conventional septic systems only in narrowly defined circumstances, call for the elimination of existing systems in most of the Chico Urban Area, and identify a financing mechanism to do this. The plan also provides for case-by-case evaluation of nonresidential septic systems and recognizes that sewer connection may not be practical or feasible in all cases.

Although the Central Valley RWQCB gives jurisdiction of individual wastewater treatment and disposal systems to local environmental health departments, the RWQCB has adopted the Disposal for Land Development Guidelines which contain criteria for the siting of septic tanks, sewer lines, leach fields, and seepage pits to protect water quality. The Butte County Environmental Health Division regulates septic tanks in the county and is currently in the process of preparing the Butte County Individual On-Site Wastewater Ordinance. The ordinance would apply to unincorporated portions of Butte County not served by municipal wastewater treatment and disposal facilities. The ordinance would update and replace existing County regulations in order to be consistent with applicable requirements of the Central Valley RWQCB Basin Plan and to incorporate other changes based on the current state of knowledge and advances in practices and technologies for on-site wastewater treatment and disposal.

Proposed General Plan Update Action OS-3.2.2 implements the Nitrate Compliance Plan, which enacts strict standards for density requirements for new septic systems. The standards allow for conventional septic systems only in narrowly defined circumstances and actually entitle for the elimination of most existing systems in the Planning Area. Compliance with the Butte County Environmental Health Services Division's septic tank requirements, as well as the Nitrate Compliance Plan, would ensure that impacts related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems would be mitigated to a **less than significant** level, and no further mitigation is required.

Mitigation Measure

None required.

4.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

Site-specific topography, soil conditions, and surrounding development determine geological and soil-related impacts, which generally are not considered cumulative in nature. However, erosion and sediment deposition can be cumulative in nature, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably foreseeable land use conditions in the region (see Section 4.0 for a description of the cumulative setting). However, construction constraints are primarily based on specific sites within a proposed development and on the soil characteristics and topography of each site. As discussed throughout this section, all new development within the proposed General Plan Update Planning Area would be required to comply with the California Building Code.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Geologic and Soil Hazards

Impact 4.8.5 Subsequent land use activities associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, and reasonably foreseeable development in the region, may result in cumulative geologic and soil hazards. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that potential development is not adversely impacted by cumulative geologic and soil hazards. This is considered a **less than cumulatively considerable** impact.

All new development, including development in areas outside of the City of Chico, would have to comply with the CBC, which requires stringent earthquake-resistant design parameters and common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. Furthermore, any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres, or any project involving less than 1 acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to NPDES CGP provisions. NPDES CGP requirements would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development by requiring an approved SWPPP that provides a schedule for the implementation and maintenance of erosion control measures and a description of erosion control practices, including appropriate design details and a time schedule. The proposed General Plan Update also requires that damage to new structures from seismic, geologic, or soil conditions be prevented to the maximum extent feasible.

Implementation of NPDES requirements and CBC standards as discussed under Impacts 4.8.1 through 4.8.3 above would reduce cumulative impacts associated with geology and soils throughout the region. Furthermore, site-specific review, including geotechnical reports, required by the City of Chico would reduce the proposed General Plan Update's contribution to cumulative impacts to **less than cumulatively considerable**, and no further mitigation is required.

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4.9
HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) identifies the hydrological resources, the existing drainage conditions, and the surface water and groundwater quality in Chico and the surrounding area. This section also evaluates the potential impacts of the proposed General Plan Update with respect to flooding, drainage, erosion, and water quality, and identifies the appropriate General Plan policies and actions that would lessen the identified impacts. The reader is referred to Section 4.12, Public Services and Utilities, regarding further analysis of groundwater/water supply impacts of the proposed General Plan Update.

4.9.1 EXISTING SETTING

REGIONAL HYDROLOGY

The City of Chico is located in the Sacramento River Valley and is approximately 10 miles east of the Sacramento River itself. The Sacramento River flows in a south/southeasterly direction through the Sacramento River Valley.

According to the 2005 California Department of Water Resources California Water Plan Update, the state has been subdivided into ten hydrologic regions. The City of Chico is located in the north-central portion of the Sacramento River Hydrologic Region, which covers approximately 17.4 million acres (27,200 square miles) (DWR, 2005) and includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Geographically, the Sacramento River Hydrologic Region extends south from the Modoc Plateau near the Oregon border to the Sacramento-San Joaquin River Delta. The northernmost area, mainly high desert plateau, is characterized by hot, dry summers and cold, snowy winters with only moderate rainfall. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. Another significant feature is the Sacramento River, which is the longest river system in the State of California with major tributaries the Pit, Feather, Yuba, Bear, and American rivers. Overall, annual precipitation in the Sacramento River Hydrologic Region generally increases as one moves from south to north and west to east. The heavy snow and rain that falls in this region contributes to the overall water supply for the entire state.

The Sacramento River Hydrologic Region is the main water supply for much of California's urban and agricultural areas. Annual runoff in the Sacramento River Hydrologic Region averages about 22.4 million acre-feet, which is nearly one-third of the state's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. Shasta Lake is one of the two largest surface water projects in the region. In total, the region has 43 reservoirs with a combined capacity of almost 16 million acre-feet (DWR, 2005). Major reservoirs in the region not only provide water supply but are also the source of recreation, power generation, and other environmental and flood control benefits. In addition, the region has a network of creeks and rivers that convey water for use throughout the region and provide nesting and rearing ground for major fish and wildlife species. Approximately eight million acre-feet of water go to municipal, industrial, and agricultural uses, while approximately 2.5 million acre-feet are stored as groundwater. Much of the remainder of the runoff goes to dedicated natural flows, which support various environmental requirements, including in-stream fishery flows and flushing flows in the Sacramento River Delta.

SURFACE WATER

Distinctive geographic features in the Planning Area include the perennial waterways of Big Chico Creek, Mud Creek, and Butte Creek. Other significant streams in the city include Little Chico Creek, Dead Horse Slough, Sycamore Creek, Comanche Creek, and Lindo Channel. These stream systems provide drainage to the Planning Area. A drainage basin is an extent of land where water from rain or snow melt drains downhill into a body of water, such as a river, lake, reservoir, estuary, wetland, sea, or ocean. The drainage basin includes the streams and rivers that convey the water as well as the land surfaces from which water drains into those channels. Several ephemeral streams exist within the City of Chico during the rainy season, and seasonal wetlands occur within grassland habitats.

The City of Chico is made up of the Big Chico Creek watershed and the Little Chico Creek/Butte Creek watershed.[1]

Big Chico Creek Watershed

The Big Chico Creek watershed originates from a series of springs, at an elevation of about 5,400 feet, northeast of the City of Chico on the southwest flanks of Colby Mountain, to form a main channel at Chico Meadows. From Chico Meadows, below the human-made lake at Camp Lassen at about 4,400 feet elevation, Big Chico Creek is a free-flowing stream down to Five-Mile Dam in Bidwell Park. After leaving Chico Meadows, the creek turns and flows in a westerly direction for a short stretch before its confluence with Cascade Creek, the first main tributary, at Soda Springs Campground. From here the creek turns to the southwest and begins to follow the valley to the north of State Route 32.

The creek continues to flow freely before reaching Bear Lake, a large plunge pool formed by a waterfall. In this area, Musty Buck Ridge becomes the watershed divide to the northwest, splitting flows between Big Chico Creek and Mud Creek. About a third of a mile above the Ponderosa Way bridge, the creek has another significant waterfall which forms Higgins Hole, the generally agreed-upon uppermost barrier to anadromous fish migration. The creek continues toward the valley, passing just north of Forest Ranch in a deep, wide-topped canyon before reaching Upper Bidwell Park. As Big Chico Creek enters Upper Bidwell Park, it assumes a pool and drop morphology, due to a steeper gradient. This area, referred to as Iron Canyon, is characterized by classic wildland swimming holes, such as Browns Hole, Salmon Hole, Bear Hole, and other unnamed holes. These holes may also serve as over-summering grounds for adult spring-run Chinook salmon, especially during drought years. The Iron Canyon fish ladder sits just below Browns Hole, above Salmon Hole. The ladder was built in the 1950s to assist the salmon over a significant barrier on their journey upstream (BCCWA, 2000). The only other fish ladder on the creek is located at One-Mile Dam to assist the fish in passing over the dam.

At the Five-Mile Dam, Big Chico Creek's flow is partially diverted into Lindo Channel, or Sandy Gulch as it was historically known. Big Chico Creek enters the City of Chico flowing through Upper and Lower Bidwell Park and reaching One-Mile Dam just east of the Vallombrosa and Mangrove/Pine intersection. One-Mile Dam creates the Sycamore Swimming Pool, a public recreational area commonly referred to as One-Mile Pool. The creek then flows directly through

[1] Little Chico Creek watershed and Butte Creek watershed represent two distinct watersheds, yet are connected by the Little Chico Creek-Butte Creek Diversion Channel and therefore are referred to as the Little Chico Creek/Butte Creek watershed for the purposes of this document.

the California State University, Chico, campus, providing a living laboratory for research at the university. The banks of the creek as it runs through the City of Chico remain in a relatively natural state with few cemented or rocked sections. After leaving Chico, the creek continues to the west, passing through agricultural lands on its way toward the Sacramento River. Big Chico Creek flows a distance of 45 miles from its origin, crossing portions of Butte and Tehama counties, to its confluence with the Sacramento River, at an elevation of 120 feet, west of the City of Chico (BCCWA, 2000).

The Big Chico Creek watershed also encompasses three smaller drainages to the north: Mud, Rock, and Sycamore creeks. Closest to Big Chico Creek is Sycamore Creek, which originates at around 1,600 feet in elevation and is a tributary to Mud Creek. Mud and Rock creeks, farther north, originate between 3,600 and 3,800 feet in elevation. Mud Creek drains off Cohasset Ridge to the south, flowing 26 miles to its confluence with Big Chico Creek. Rock Creek drains the north side of Cohasset Ridge and flows 28.5 miles before it joins Mud Creek.

Mud Creek

Mud Creek is a spring-fed stream originating around 3,600 feet in elevation, draining off the south side of Cohasset Ridge and confined to the south by Musty Buck Ridge. The creek is perennial in most years down to where it meets Cohasset Highway. Mud Creek has two main tributaries, Maple and Cave creeks, which originate at about 2,400 and 2,000 feet in elevation, respectively, and both join Mud Creek near Richardson Springs. There are also many other springs in the area, some perennial and others intermittent, that contribute water to Mud Creek (BCCWA, 2000).

Moving downstream from its headwaters, Mud Creek has a series of small waterfalls located about 1 mile upstream of Richardson Springs. At Richardson Springs, at an elevation of about 600 feet, there is a 69-foot waterfall, which is the uppermost barrier to any fish migration. In the vicinity of Richardson Springs is a group of mineral springs, which have a combined flow of approximately 15 gallons per minute (City of Chico, 2008b). These springs are what brought development to Mud Creek Canyon in the late 1800s. The springs are saline springs, and since the time the Indians occupied the area they have been known for their healing qualities. Above Richardson Springs is a small diversion dam, which was used to divert water for domestic use as well as generate electricity. The diversion is no longer in use but the dam is still in place, holding back water in a small reservoir (BCCWA, 2000).

Rock Creek

Rock Creek flows off the north side of Cohasset Ridge, originating around 3,800 feet in elevation. The creek flows just north of Cohasset Ridge for about 6 miles to where Keefer Ridge spurs off Cohasset and forms the headwaters of the Anderson Fork to the east, at around 2,400 feet in elevation, and drains the bottom portion of Cohasset Ridge.

Anderson Fork, the main tributary, flows along Cohasset Road down to the edge of the foothills and joins Rock Creek at approximately 425 feet elevation. Rock Creek forms the Tehama/Butte county line from near its headwaters downstream approximately 6 to 7 miles. There is one small diversion dam in the valley section of the creek, just upstream of the Anderson Fork confluence, which is in use from April to November. The lower valley section of the creek is heavily channelized to protect urban and agricultural lands (BCCWA, 2000). Recent development in the Rock Creek floodplain has led to significant flooding problems. These problems are currently under investigation by the U.S. Army Corps of Engineers (USACE) and Butte County.

Rock Creek formerly flowed out onto the valley floor and into a large marsh, somewhere near Nord, which most likely drained into Pine Creek (BCCWA, 2000). Presently Rock Creek drains into the human-made Kusal Slough, which delivers the water to Mud Creek, about 1 mile upstream of the confluence with Big Chico Creek. Currently there is no stream flow gauging station located on Rock Creek (BCCWA, 2000).

Sycamore Creek

Sycamore Creek flows just to the south of the airport and joins Mud Creek approximately one-fifth of a mile before it passes under State Route (SR) 99. Sycamore Creek is also restricted by levees from the confluence with Mud Creek upstream to just above Cohasset Highway. The Sycamore Creek diversion channel, which receives water from Big Chico Creek, has eroded away a great deal of material within its channel. This material has been transported down the system and formed depositional areas near Cohasset Highway and Meridian Road (BCCWA, 2000).

Lindo Channel (Sandy Gulch)

Big Chico Creek is a free-flowing stream down to Five-Mile Dam in Bidwell Park. At Five-Mile Dam, Big Chico Creek's flow is partially diverted into Lindo Channel (historically known as Sandy Gulch). Lindo Channel is an ephemeral stream that formed as a natural channel on the Chico alluvial fan, but was historically modified for flood control purposes in the early 1960s. Lindo Channel runs parallel to Big Chico Creek for almost 8 miles before rejoining the creek about 2.5 miles from Big Chico Creek's confluence with the Sacramento River. Lindo Channel is still used today as a diversion channel to relieve flood flows in Big Chico Creek. In addition to flood control, Lindo Channel is important for groundwater recharge as well as aquatic and riparian habitat.

Another flood control channel, the Sycamore Diversion, was constructed off of Lindo Channel. It can be seen running to the northwest at the entrance to Upper Bidwell Park, diverting flood flows from Lindo Channel to Sycamore Creek, which drains into Mud Creek. These channels divert potentially damaging flood flows around the City of Chico (BCCWA, 2000).

Little Chico Creek/Butte Creek Watershed

Little Chico Creek

Little Chico Creek originates in the foothills of the northern Sierra Nevada (Platte Mountain is located at the northern terminus of the watershed) and travels nearly 16 miles in a southwesterly direction through steep canyons before flattening out along the floor of the Sacramento Valley. The topography of Little Chico Creek is diverse, including the relatively flat valley floor, the low-angle slope of the creek's alluvial fan, lower canyons, and steep-sloped headwaters. Before Little Chico Creek enters the City of Chico urban area, it passes a diversion structure constructed in the 1960s, which is intended to divert high flow from Little Chico Creek into Butte Creek. The creek flows another 9 miles, west through the City of Chico and then southwest, before intermingling with the numerous braided channels that make up the eastern floodplain of the Sacramento River (Butte County, 2006).

Butte Creek

Butte Creek originates in the Lassen National Forest at over 7,000 feet. Butte Creek travels through canyons through the northwestern region of Butte County and through the valley,

entering the floor near Chico. The northern Sierra Nevada and southern Cascade mountain ranges generally divide the valley section from the mountainous section of the Butte Creek watershed in Butte County. Once Butte Creek enters the valley section of the watershed near Chico, it travels approximately 45 miles before it enters the Sacramento River (BCWC, 1998). Levees were constructed along Butte Creek in the 1950s by the USACE. These levees extend for over 14 miles along the Butte Creek channel.

Comanche Creek

Comanche Creek parallels Little Chico Creek to the south and extends approximately 6 miles upstream into the Sierra Nevada foothills. The creek flows year-round due to the diversion of waters from Butte Creek (approximately 4 miles east of the Skyway) into the creek for conveyance to agricultural users to the west of the city. Comanche Creek, which is also known as Edgar Slough and Crouch Ditch, flows along the southern fringe of the City of Chico before intersecting Little Chico Creek on the Sacramento River floodplain (Butte County, 2006).

GROUNDWATER

The City of Chico lies above the Sacramento Valley Groundwater Basin and the West Butte and Vina subbasins (DWR, 2004a, 2004b). The West Butte Subbasin is bounded on the west and south by the Sacramento River, on the north by Big Chico Creek, on the northeast by the Chico Monocline, and on the east by Butte Creek (DWR, 2004a) (**Figure 4.9-1**). Big Chico and Butte creeks serve as subbasin boundaries in the near surface. The West Butte Subbasin is hydrologically contiguous with the Vina Subbasin at depth (DWR, 2004a). The Vina Subbasin is bounded on the west by the Sacramento River, on the north by Deer Creek, on the east by the Chico Monocline, and on the south by Big Chico Creek (DWR, 2004b) (**Figure 4.9-1**). The aquifer system underlying Chico comprises continental deposits of Tertiary to late Quaternary age. The Quaternary deposits include the Holocene stream channel deposits and basin deposits and the Pleistocene Modesto Formation, Riverbank Formation, and Sutter Buttes alluvium (DWR, 2004a, 2004b). The Tertiary deposits consist of the Pliocene Tehama Formation and the Tuscan Formation (DWR, 2004a, 2004b).

The aquifer system underlying Chico supplies the municipal and agricultural water demands of the city. Approximately 60 percent of the groundwater pumped for the city and most of the stormwater runoff from impervious development returns to either the groundwater system as recharge or the surface water system as discharge. Another 16 percent returns through septic systems (Butte LAFCo, 2006). The portion of water that does not return to the aquifer is consumed by landscape plants, lost through evapotranspiration, or discharged as treated wastewater to the Sacramento River. In addition, the groundwater system is largely sustained by recharge in the foothills located east of Chico, streamflow infiltration from Big Chico and Little Chico creeks and Lindo Channel, and to a lesser degree by direct infiltration of precipitation. The Lower Tuscan Formation is the primary groundwater-producing aquifer in the region. Most of the recharge areas of the Tuscan Formation are located along the base of the Sierra Nevada foothills in Butte County. Groundwater quality is generally good, but there are some areas of concern (see below).

The Chico region's geology plays a major role in the water resources, as some geological formations (aquifers) can transport and hold considerable amounts of water, while others do not. Also, some geological formations are permeable, allowing rapid infiltration of surface water, while other are relatively impermeable and greatly restrict recharge of groundwater. The Tuscan Formation extends from just west of the Sacramento River into the Sierra Nevada. It averages 1,700 feet in depth in the eastern portions of this swath to approximately 300 feet near the

Sacramento River. The formation is of Pliocene age and comprises volcanic mudflows, tuff, breccia, sandstone, and ash deposits. Groundwater in the Sacramento Valley Groundwater Basin Region, which underlies Chico, is contained primarily within the pore spaces of the reworked sand and gravel layers of this formation. Much of the groundwater is confined under pressure by layers of impermeable clays, mudflows, or tuff breccia. Volcanic sands of this formation can yield high amounts of water to wells in many areas in the eastern portions of the Sacramento Valley.

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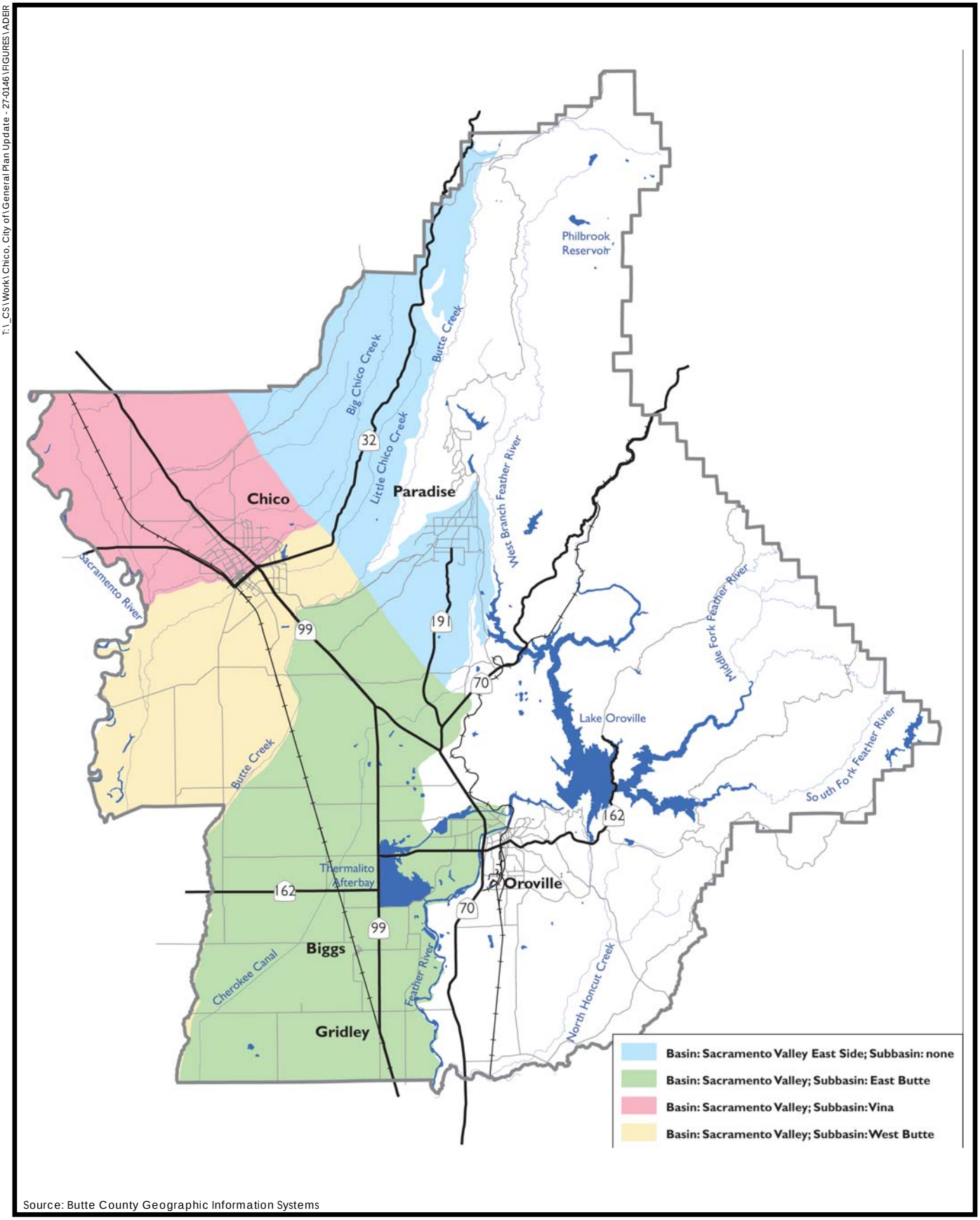

Source: Butte County Geographic Information Systems

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Figure 4.9-1
Groundwater Basins

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Groundwater-Bearing Zones

The general groundwater geology of the Chico area comprises the primary water-bearing Tuscan Formation of the Plio-Pleistocene Age. Beneath the Sacramento Valley floor, it is in part underlain by marine tertiary formations and the Miocene basalt overlying the Cretaceous and crystalline basement rock. The Tuscan Formation is overlain westerly by the Older Alluvium, which dips gently westward. Recent Alluvium also occurs along Big Chico Creek as channel fill and recent terraces.

Three water-bearing zones occur beneath the Chico area: shallow, intermediate, and deep. Groundwater is available in the Chico area from these water-bearing zones.

The shallow zone, consisting of Recent Alluvium, occurs between sea level and approximately 150 feet above sea level. This zone consists of recent alluvial material deposited by Big Chico and Little Chico creeks. Most of the material is coarse sand and gravel with extremely variable permeability, generally producing 100 or less gallons per minute per well (City of Chico, 2008a). The shallow zone is 30 feet thick and consists of silt from 0 to 22 feet and coarse sand and gravel to 30 feet. Groundwater in this zone is unconfined. Very little groundwater is pumped from this zone in the eastern portion of Chico due to its limited storage capabilities. This zone receives its recharge directly from infiltration of precipitation, stream flow, domestic wastewater from leach fields, and urban runoff from drainage wells.

The intermediate zone, consisting of Older Alluvium, occurs from sea level to approximately 300 to 400 feet below sea level and lies above the top of the Tuscan Formation. It ranges in depth from 1,500 feet thick in the foothills east of Chico to 6,400 feet thick west of Chico (City of Chico, 2008a). This zone is composed of mainly thick, clayey layers and cemented sand and gravel, generally producing 100 to 1,000 gallons per minute per well (depending on the well location). Groundwater occurs mainly in thin uncemented sand and gravel aquifers under semi-confined conditions. This aquifer is the source for most of the individual wells in the Chico area (City of Chico, 2008a). This zone receives recharge from faults and streams incised in the Older Alluvium through vertical leakage from the overlying saturated alluvium, and possibly subsurface inflow from the Tuscan Formation. The older alluvium appears to have limited vertical permeability due to cementation of the rock matrix.

The deep zone occurs below the Tuscan Formation, generally producing from 1,500 to 2,000 gallons per minute per well. The deep zone aquifers are thick beds of black sand and/or coarse-grained gravel of the Tuscan Formation confined by less permeable clay, tuff, and mudflow layers. The highly permeable volcanic sediments yield large amounts of water to deep irrigation and municipal wells. This zone is recharged mainly by faults and streams that drain the foothill area east of Chico, including Big Chico Creek, and is the source for the California Water Service Company wells, which serve incorporated and urbanized unincorporated areas within the City of Chico. This zone lies approximately 3,400 feet below ground surface east of Chico and gradually deepens to about 6,000 feet below ground surface west of the city.

Groundwater Supply

In 2001, available water supplies during normal and drought years were estimated, and regional impacts on groundwater were estimated by comparing groundwater extraction estimates with groundwater hydrology data (Butte County Department of Water and Resource Conservation, 2001). Groundwater conditions and supply as concluded by the subsequent report, the Butte County Water Inventory and Analysis, March 2001, are summarized below (Butte County Department of Water and Resource Conservation, 2001).

- The portion of the Sacramento Valley aquifer system under Butte County has recovered from the 1988–1994 drought. Long-term trends in groundwater storage indicate the basin groundwater aquifer is not in a state of decline. During normal to wet years, the aquifer system recharges to its maximum storage capacity by the following spring.

- Butte County, which includes the city, has been divided into water inventory units and sub-units; Big Chico Creek flows through the Foothill and West Butte Inventory Units. Within the Foothill Inventory Unit and Mountain Inventory Unit, overall groundwater supply is limited because the groundwater occurs primarily in fractures and joints of volcanic bedrock. Shallow, domestic wells could be susceptible to dewatering during periods of drought.

- Under the normal hydrologic conditions evaluated in the Butte County Water Inventory and Analysis, Butte County has an adequate surface water and groundwater supply to meet current demands.

- Under drought conditions evaluated in the Butte County Water Inventory and Analysis, current demand can generally be met through increased groundwater extraction provided groundwater extractions are increased to offset reduced surface supplies.

- Under the drought conditions evaluated, additional groundwater wells and conveyance and distribution systems may be required to fully utilize the groundwater resource.

- Under the drought conditions evaluated, the Foothill Inventory Unit experiences water shortages.

- Future increases in demand will be associated with population growth and environmental regulatory requirements, both within and outside of Butte County.

- A significant amount of water supplied to meet demand remains available for use through deep percolation to groundwater and outflow to other areas.

- Environmental water use (uses including artificial lakes intended to create wildlife habitat, fish ladders around dams, and water releases from reservoirs timed to help fish spawn) constitutes a substantial amount of water demand in Butte County, extending water demand past the typical irrigation season. The trend in environmental water use has increased in the recent past due to regulatory requirements.

- Water quality is generally adequate to meet current demands; however groundwater nitrate contamination could threaten supply in areas with a high density of septic systems. Regulation of non-point source agricultural return water may become an issue in the near future.

The reader is referred to Section 4.12, Public Services and Utilities, regarding further analysis of groundwater/water supply impacts of the proposed General Plan Update.

WATER QUALITY

The Sacramento River Hydrologic Region is part of the California Regional Water Quality Control Board's Central Valley Region (CVRWQCB).

Surface Water Quality

Water quality for all surface and ground waters for the Sacramento Valley is regulated under the jurisdiction of the CVRWQCB. Water quality standards for all waters in the region are discussed in the region's Basin Plan, which covers the entire area included in the Sacramento and San Joaquin river drainage basins. As stated above, the Sacramento River drainage basin covers approximately 27,000 square miles and includes the entire area drained by the Sacramento River including the Planning Area.

Section 303(d) of the federal Clean Water Act (CWA) requires states to identify the waters of the state that do not meet the CWA's national goal of "fishable, swimmable" and to develop total maximum daily loads (TMDLs) for such waters, with oversight of the United States Environmental Protection Agency (USEPA). These waters are commonly referred to as "impaired." A TMDL is a quantifiable assessment of potential water quality issues, contributing sources, and load reductions or control actions needed to restore or protect bodies of water. Streams within the Planning Area, which include the Big Chico Creek watershed, Little Chico Creek, Comanche Creek (Edgar Slough), Lindo Channel (Sandy Gulch), and Butte Creek, are not listed on the 303(d) list (RWQCB, 2006). Waters within the Planning Area generally flow to the Sacramento River, which is on the 303(d) list.

Groundwater Quality

Groundwater in the Planning Area is considered most vulnerable to the following activities associated with contaminants detected in the water supply: sewer collection systems, septic systems, parks, RV parks, agricultural drainage, fertilizer and pesticide application, automobile body and repair shops, utility stations (maintenance areas), railroad yards (maintenance/fueling areas), electrical/electronic manufacturing, chemical/petroleum processing/storage, machine shops, grazing, lumber processing/manufacturing, wood preserving/treating, fleet/truck/bus terminals, known contaminant plumes, and drinking water treatment plants (California Water Service Company, 2008). The low foothill area east of the city is the primary aquifer recharge area for Chico's domestic groundwater (Butte LAFCo, 2006). The groundwater in this area is vulnerable to contamination from urban activity in this area, including construction, grading, use of equipment and automobiles, sewer leakage, and other potential contaminants. Special precautions may be necessary to prevent groundwater contamination resulting from development in the foothills.

Water delivered to Chico customers is treated to meet all federal and state drinking water regulations. However, as described below, there are issues that affect the quality of the water supply. These include plumes of contaminated groundwater, areas with high nitrate concentration levels, and locations with high arsenic levels.

Contaminated Groundwater Plumes

Eight areas of contaminated groundwater (plumes) have been identified in the City of Chico. There are six areas of known groundwater contamination associated with volatile organic compounds (VOCs). Four of these areas are associated with perchloroethylene (PCE) contamination from dry-cleaning establishments. Dry-cleaning operations often disposed of PCE by pouring it down the drain. Being highly soluble and heavier than water, leaky sewer pipes allowed the PCE to contaminate the shallow, unconfined groundwater aquifer (Butte LAFCo, 2006). A fifth plume is a result of trichloroethylene (TCE) contamination from a former metal tube can manufacturer. Wells in these areas that have been tested and were shown to exceed the maximum contaminant level (MCL) for TCE and PCE have either been taken out of service or

had treatment facilities installed to remove the contaminant. However, the California Water Service Company (Cal Water) is concerned with the future availability of other wells not currently impacted. Contaminant migration of these solvents with groundwater movement could force the closure or treatment of other wells. There is also a large TCE/petroleum plume for which a responsible party has not yet been identified. The contaminants in each of the identified plumes are shown in **Table 4.9-1.**

TABLE 4.9-1
CONTAMINATED PLUMES IN CHICO

Plume Name	General Location	Contaminant
Central Plume	Area south of Chico State University roughly spanning from Mangrove Avenue to State Route 32	Tetrachloroethylene/ Perchloroethylene (PCE)
Chico Municipal Airport/Victor Industries	Area south of the Chico Municipal Airport and north of Eaton Road	Trichloroethylene (TCE)
Louisiana Pacific Plume	South Chico spanning from Park Avenue to Dayton Road	Pentachlorophenol (PCP)
North Central Plume	Area just south of the Lindo Channel spanning between Mangrove Avenue and State Route 99	Perchloroethylene (PCE) and 1,2-DCE (a breakdown product of PCE)
North Valley Plaza Cleaners Plume	Area bounded by East Avenue, State Route 99, and Cohasset Road	Perchloroethylene (PCE) and 1,2-DCE
Skyway Homes Subdivision Plume	Area spanning Hegan Lane from Midway to Dayton Road in south Chico	Trichloroethylene (TCE) and Perchloroethylene (PCE)
Southwest Plume	Area in south Chico roughly spanning from State Route 32 to Lone Pine Road	Perchloroethylene (PCE)
Victor 20th Street Plume	Stretches 1.5 miles from Mulberry Street in a southwesterly direction to the intersection of Berrington Road and Dayton Road	Trichloroethylene (TCE)

Source: DTSC, 2004

The California Department of Toxic Substances Control (DTSC) oversees investigation and remediation of each of these plumes. Remediation measures can consist of extraction and treatment of contaminated water, soil excavation, soil vapor extraction, and bottled water dispensing programs.

DTSC has installed a two-well pump and treatment system as an interim remedial measure to provide source control within the aquifer immediately down gradient from Flair Custom Cleaners. The system continues to remove a significant amount of PCE from the aquifer and appears to have been a significant factor in stabilizing the plume. DTSC also installed a carbon unit for cleaning water on one Cal Water well. During this time, DTSC also developed a draft Remedial Action Plan, completed in late 1995. The plan was not finalized, as the "possible responsible parties" named in that plan wished to develop their own remediation plan. These parties cited the high expense of proposed remediation activities (14 million dollars for treatment of the entire plume) as a main reason for developing their own plan. In 2005, DTSC approved the proposed Remedial Action Plan, which includes continued remediation of the plumes with

installation and maintenance of a well monitoring program, remediation system design and construction, system testing and startup, final remedial system reporting, system operations and maintenance, and system decommissioning.

Arsenic

The arsenic levels in some of the wells have also recently become an issue for Cal Water. Based on the MCL that went into effect on January 23, 2006 [10 parts per billion (ppb)], four of the existing wells could be taken out of service.

Groundwater Nitrate Concerns

Use of septic tanks have contributed to the creation of areas of high nitrate concentrations found throughout the aquifer underlying the city. Groundwater nitrate concentrations within the city range from 0.7 milligrams per liter (mgl) to 168 mgl (Butte LAFCo, 2006). Some locations exceed the state's MCL for nitrate (45 mgl).

Elevated nitrate concentrations are found throughout the aquifer underlying Chico. In 1979, the California Department of Water Resources (DWR) found elevated nitrate levels in 21 of the 69 private wells it tested in the community. Additional studies in 1983 identified four nitrate plumes, each having concentrations over 60 mgl, 15 mgl over USEPA and state regulatory levels. Nitrate contamination was attributed to on-site septic systems for wastewater disposal.

Eventual transition of residences from septic systems to sewer service and limitation on issuance of new septic system permits may gradually assist in the elimination of nitrates. Conversion of septic systems may have an impact on groundwater supply and recharge, as 16 percent of the groundwater recharge returns through septic systems. The bulk of on-site septic systems are located in three areas: neighborhoods in north Chico (the Lassen Avenue corridor), central Chico (the Avenues), and south Chico (Chapman-Mulberry area). These three zones represent areas with large amounts of unincorporated parcels or parcels just recently incorporated into the city and include numerous single-family dwellings, apartment complexes, and mobile home parks relying on on-site septic rather than the City sanitary sewer system. The City of Chico and Butte County have entered into an agreement to speed up the process of connecting existing developed properties to the sanitary sewer and that process is currently underway.

Nitrate concentrations in predominantly agricultural areas range from 50.3 to 80.5 mgl as a result of livestock feedlots, agricultural fertilizers, and natural soil nitrogen. These concentrations suggest that nitrate concentrations in groundwater may not be solely due to on-site disposal of domestic wastewater with septic tanks, but also may be attributed to agricultural uses and collection of urban stormwater runoff in drainages and drywells. A Nitrate Action Plan was adopted by the City of Chico and Butte County in 1985, and further studies are under way to confirm and update technical data on sources and locations of nitrate contamination.

Butte County prepared the Nitrate Action Plan in 1985 to address the nitrate problem in response to Prohibition Orders issued by the CVRWBCB (Resolution 84-074). Yet significant portions of the shallow aquifer under the city were being contaminated and continued to be contaminated. In 1990, the CVRWQCB issued a Prohibition Order (Order No. 90-126) establishing a prohibition on individual disposal systems in the city. This order prohibited the installation of new individual disposal systems in the Chico area and mandated the elimination of existing systems on lots of less than 1 acre. Currently, both the County and City are working together to implement the improvements.

In addition, the Chico Urban Area Nitrate Compliance Plan has been prepared to update the Nitrate Action Plan, which was adopted by the Board of Supervisors on September 25, 2001. The Chico Urban Area Nitrate Compliance Plan (Plan) provides for case-by-case evaluation of non-residential septic systems and recognizes that sewer connection may not be practical or feasible in all cases. According to the Plan, Approximately 65 percent of the estimated systems are to be sewered. The Plan addresses potential nitrate-reducing technologies that can be retrofitted to existing septic systems, the sewering of non-residential (commercial) systems, and introduces an on-site program for monitoring those parcels that are not required to be sewered and would retain their onsite septic systems. It is determined in the Plan that nitrate-reducing technologies retrofitted to existing septic systems do not represent a viable solution due to low reliability, high maintenance requirements, and cost. The sewering of non-residential (commercial) systems are extremely varied in their type and volume of discharge and the most viable method for dealing with commercial systems will be performed on a case-by-case basis and review of each nitrate loading situation. According to the Plan, the on-site monitoring program solution will protect groundwater quality and is consistent with the State Water Code and other adopted State and Regional Board policies for meeting the nitrate maximum contaminant level of 45 mg/l.

CLIMATE AND PRECIPITATION

The climate in the Planning Area is considered Mediterranean, which is characterized by hot, dry summers and cool, wet winters. In the Chico area, temperatures range from an average January low of approximately 36° Fahrenheit (F) to an average July high of approximately 96°F. Between mid-April and mid-October, significant precipitation is unlikely and high temperatures often peak at over 100° Fahrenheit with lows in the high 50s and low 60s. Winters are fairly mild, with the most rainfall coming in January. Rainfall in the Planning Area averages approximately 26 inches annually and occurs predominantly from October to May. During the winter, highs are typically in the 60s with lows in the 30s. "Tule fog" (thick ground fog) is often present during the autumn and winter months. The typical seasonal pattern is for North Pacific cyclonic storms to periodically sweep into the area from October through April and for high pressure to dominate over the area and to deflect storms from May to October.

FLOODING

High Sacramento River flood stage creates a backwater in the creeks and tributaries which pass through the Planning Area and may delay runoff from entering the river. The Flood Insurance Rate Map (FIRM) for unincorporated Butte County shows Sacramento River overflow inundating an area about 2 miles east of the river boundaries (**Figure 4.9-2**).

Capacities of channels in the western portion of the Planning Area are also limited, and potential flood flows are believed to be higher than recorded historical occurrences. The FIRM shows floodwater flowing out of the Big Chico Creek Channel near the western edge of the Planning Area. Inadequate channel capacity exacerbates the flooding potential near the Sacramento River. Flood control projects on Little Chico Creek, Big Chico Creek, and Lindo Channel have helped reduce the amount of runoff that flows through the city, reducing potential flooding problems. Identified flood concerns within the city are discussed below. Further discussion of local flood issues are described below.

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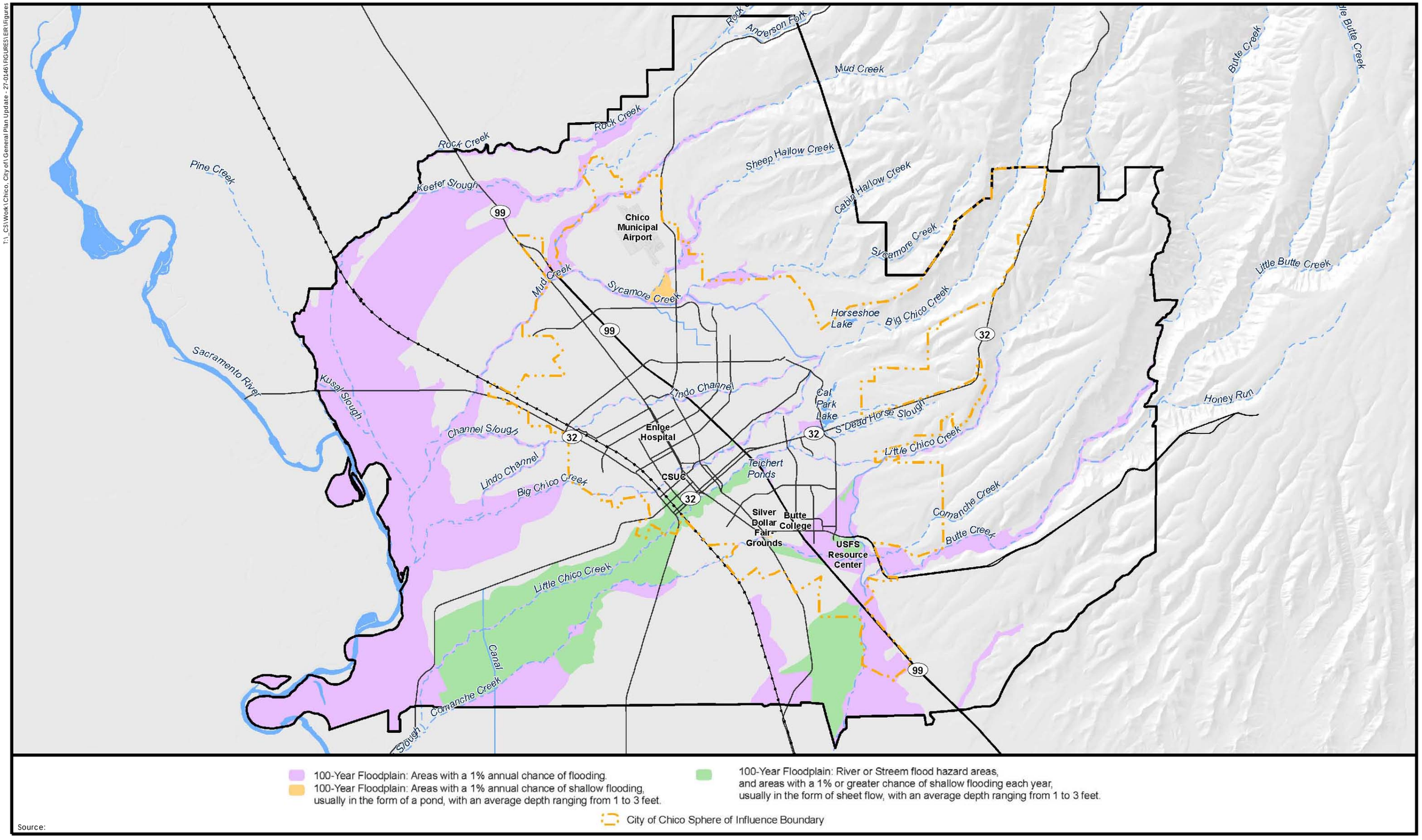

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Figure 4.9-2
FEMA Flood Zones

PMC

Big Chico Creek Watershed

Flooding hazards within the Big Chico Creek watershed are attributed to potential high flows from Lindo Channel, Sycamore Creek, Rock Creek, Keefer Slough, and Big Chico Creek. The flooding hazards in the Big Chico Creek watershed are summarized from the Butte County Flood Mitigation Plan (Butte County, 2006) as well as the Big Chico Creek Watershed Alliance's Existing Conditions Report (BCCWA, 2000).

Big Chico Creek

Flood control of Big Chico Creek for the City of Chico is provided by a flood control structure at the Five-Mile Recreation Area. The structure was installed by the U.S. Army Corps of Engineers in the mid-1960s and is designed for a maximum allowable flow down Big Chico Creek above the Big Chico Culvert of 14,500 cubic feet per second (cfs) (BCCWA, 2000). The primary purpose of the structure is to divert potentially damaging peak flows around the central portion of the City of Chico. The flood control structure is maintained by Butte County in conjunction with the California Department of Water Resources (DWR).

The Five-Mile flood control system is designed to create a pool in the stilling basin, thereby allowing controlled flows through Big Chico Creek, the Lindo Channel flow control structures, and the Sycamore Bypass Channel. The Sycamore Bypass Channel, or Sycamore Diversion, was constructed off of Lindo Channel. It can be seen running to the northwest at the entrance to Upper Bidwell Park. This diversion brings flood flows off of Lindo Channel to Sycamore Creek, which drains into Mud Creek. Where Lindo Channel splits off at Five-Mile, the flow capacity is 14,500 (cfs) until the Sycamore Diversion split, which is capable of receiving 8,500 cfs, leaving the rest of Lindo Channel with the design capacity of 6,000 cfs (BCCWA, 2000). These channels divert potentially damaging flood flows around the City of Chico.

During high flow periods, Big Chico Creek exits the narrow foothill canyon at very high velocities, carrying a large bedload, larger particles that are carried along the bottom of a stream, until it encounters the Five-Mile Area stilling basin. At this location, velocity and bedload mobilizing capacity is significantly reduced, allowing for the larger, entrained sediment to quickly fall out of the water column, depositing the large gravel just upstream of the Five-Mile Area Flow Control Structures. During the following high flow period, the previously deposited gravels flow in the direction of least resistance, sometimes bypassing Big Chico Creek proper and flowing down Lindo Channel or Sycamore Bypass instead.

Sycamore Creek

At the Sycamore Creek diversion near Marigold Avenue, the channel and its banks show signs of severe erosion, which provides the sediment source for deposition in the downstream reaches that have milder slopes and slower velocities, such as the Cohasset Road Bridge. In addition to sediment deposits, large woody debris that plugs the bridge and the levees in this area has resulted in overtopping during very high flow events.

Lindo Channel Diversion

At the Lindo Channel diversion located at the Five-Mile Recreation Area levee, erosion, lack of freeboard (distance from the waterline to the top of the banks), and the accumulation of large, woody debris has historically resulted in flooding in the area during high flow events.

Confluence of Big Chico Creek and Lindo Channel

At the confluence of Big Chico Creek and Lindo Channel, a private levee near Meridian Road and Grape Way broke during a recent high flow event, leaving the residents vulnerable to flooding.

Little Chico Creek/Butte Creek Watershed

Chico Planning Area flooding hazards within the Little Chico Creek/Butte Creek watersheds are attributed to potential high flows from Butte Creek, Comanche Creek, Little Chico Creek, and Dead Horse Slough. The flooding hazards in the Little Chico Creek/Butte Creek watershed are summarized from the Butte Creek Watershed Floodplain Management Plan (Butte Creek Watershed Conservancy/Butte County, 2005).

Little Chico Creek

Heavy vegetation in the Little Chico Creek channel in the reach that flows through the City of Chico urban area has reduced channel capacity, increasing the probability of flooding during a storm event. According to the Federal Emergency Management Agency (FEMA), the 100-year flow in Little Chico Creek was estimated at 3,300 cfs upstream of Dead Horse Slough and 3,700 cfs downstream of Dead Horse Slough (Dead Horse Slough meets Little Chico Creek in the vicinity of Forest Avenue and Humboldt Road). A hydraulic analysis for the Little Chico Creek channel showed that its existing capacity is as low as 1,800 cfs due to heavy vegetation. In the lower reaches of Little Chico Creek, the Little Chico Creek crossing at Alberton Avenue and at Taffee Avenue have experienced levee overtopping, sheet flow flooding, and levee seepage.

Little Chico Creek-Butte Creek Diversion Channel

Northwest of the Little Chico Creek-Butte Creek diversion channel crossing at Warfield Lane, residential development such as the Doe Mill Lane subdivision has occurred in the FEMA-designated 100-year floodplain. The development is approximately 300 feet west of the Little Chico Creek-Butte Creek diversion channel west bank, and the area is at risk of flooding. Additional development in the floodplain is planned for the near future.

Dead Horse Slough

The Dead Horse Slough crossing at El Monte Avenue experiences periodic inundation. Nearby structures have been inundated as recently as 1997.

Comanche Creek

The FEMA 100-year floodplain near Comanche Creek downstream of Skyway Road contains some industrial buildings and a golf park. According to FEMA Flood Insurance Rating Maps, flooding is likely to occur in this area. The floodplain was determined by FEMA to be caused by a levee failure at the west side of the Little Chico Creek-Butte Creek diversion channel. Flooding at the golf park would cause minimal damage; however the industrial buildings could be at risk (FEMA is referenced in the Butte Creek Watershed Floodplain Management Plan).

Butte Creek

The levees along both banks of Butte Creek near Midway Road and extending west are just south of Chico city limits yet within the Planning Area. These levees were constructed in the 1950s

by the USACE and lack adequate freeboard for a 100-year event as determined by FEMA. Although a recent 500-year event did not overtop the levees, the levee system still does not meet the FEMA requirements for freeboard in many locations and is not certified.

Similarly, the levees along both banks of Butte Creek between Midway Road and SR 99, which were also constructed in the 1950s by the USACE, lack adequate freeboard for a 100-year event as determined by FEMA. Although a recent 500-year event did not overtop the levees, they also do not meet the FEMA requirements for freeboard in many locations and are not certified.

Local Drainage Flooding

Several issues cause drainage problems that lead to flooding in the watershed. Ditches and storm sewers are needed to convey stormwater away from developed areas; however in some areas the topography prevents surface water from draining quickly to a ditch, stream, or storm drain. Typically, storm drainage systems are designed to handle storm runoff for events smaller than the 100-year event, such as a 10-year event (Butte Creek Watershed Conservancy/Butte County, 2005). Runoff increases as a watershed is developed; as a result older storm sewers designed to convey a 10-year storm or less may become inadequate as additional development takes place. Storm sewers, ditches, and other waterways can be blocked by debris, resulting in the ponding of stormwater prior to the sewer clearing. Ponding is defined as a pool of artificially created still water. Many roads not in the FEMA-designated floodplain have undergone damage in the past due to flooding caused by such blockages (Butte Creek Watershed Conservancy/Butte County, 2005).

Chico Flood Control Projects

In the 1960s the City of Chico, the County of Butte, the State of California, and the federal government collaborated on a series of flood control projects in the city. The two projects that are most important are:

- The Little Chico Creek to Butte Creek Diversion
    - Designed for a 2 percent chance event (commonly called a 50-year event)
    - Conveys high water flows from the mouth of Stillson Canyon, south past the Skyway, and into Butte Creek
- The Big Chico Creek, Lindo Channel, Sycamore Creek, and Mud Creek Diversion
    - Designed for a 1 percent chance event (commonly called a 100-year event)
    - Conveys high water flows from the mouth of Big Chico Creek Canyon (at Five-Mile) to Lindo Channel, and at higher flows to Sycamore and Mud creeks

In the 1970s FEMA began to produce Flood Insurance Rate Maps (FIRM) for the country in order to determine flood risks (and insurance rates) for individual communities. Because of the flood control projects completed in the 1960s, the City of Chico was exempt from the FEMA mapping requirements.

In the 1990s FEMA revised the FIRMs, resulting in a reversal of protocol regarding the City of Chico's exemption from FEMA mapping requirements. During the FEMA mapping that ensued, the potential for flooding was analyzed based on the existence of the levee system. Due to the

fact that the system levees of Little Chico Creek were not designed to FEMA standards, portions of the city along Little Chico Creek were determined to be in a floodplain and homeowners were required to purchase flood insurance. It was determined that the Big Chico Creek system's levees were designed to FEMA standards and that they would protect the northern portions of the city.

Currently, FEMA is revising the FIRMs again. For the purposes of this round of FIRM revisions, if levees are to be considered as providing flood protection, the levees are required to be certified. Certification involves demonstrating that the levees were built and are maintained to FEMA standards. If levees are not certified, FEMA will produce maps that assume the levees do not exist. This would mean that a significant number of parcels in Chico would be determined to be in a flood zone and homeowners with federally insured loans in the flood zone will be required to purchase flood insurance.

In November 2008, FEMA sent letters to communities, like Chico, affected by this round of FIRM revisions and its requirement that the owners of levees certify the levees. These letters offered to allow the owners of levees to enter into Provisionally Accredited Levee (PAL) agreements, which allow the signing party two years to certify levees before FEMA produces maps that assume that the levees do not exist.

Although the City is not the owner of the levees in the Big Chico Creek system, FEMA allowed the City of Chico to enter into a PAL agreement for the certification of those levees and that process is now underway. The certification process will not apply to the Little Chico or Butte Creek systems as they were not originally designed to FEMA standards and areas they serve are already identified as floodplain.

DAM FAILURE

Flooding of the area below a dam may occur as a result of structural failure of the dam, overtopping, or a seiche (earthquake-generated waves that can overtop the dam). The collapse and structural failure of a dam may be caused by a severe storm, earthquakes, or internal erosion of piping caused by embankment and foundation leakage. Larger dams that would inundate significant portions of Chico, or watersheds within the Chico area, include the Shasta Dam (in Shasta County), Oroville Dam on the Feather River, and Black Butte Dam on Stony Creek (Butte County, 2006, Appendix D).

Paradise and Magalia reservoirs, owned and operated by the Paradise Irrigation District (PID), are located on Butte Creek, above Paradise. Paradise Dam is an earth-filled structure, and Magalia Dam is a hydraulic fill structure. Failure of Paradise Dam would overtop Magalia Dam and result in temporary flooding in the Planning Area along Butte Creek. According to the Butte Creek Watershed Floodplain Management Plan (Butte Creek Watershed Conservancy/Butte County, 2005), the Magalia Reservoir has restricted water surface levels to ensure safety following a seismic event as a precaution to the higher liquefaction potential at this location. No earthquake measures are performed at Paradise Reservoir; the system integrity is considered adequate for an earthquake of significant magnitude.

Oroville Dam is a large earthen dam located on the Feather River, near the City of Oroville. The dam was constructed as a major component of the State Water Project to provide water for the growing population of California, irrigation in central and southern California, flood control, and hydroelectricity. The dam is over 700 feet high and is almost 7,000 feet long at the top. The inundation area projected for failure of Oroville Dam is located south of the Planning Area and does not include the City of Chico or the Planning Area.

Black Butte Dam was constructed on Stony Creek by the USACE and is operated by the U.S. Bureau of Reclamation (USBR). Black Butte Dam is an earth-filled structure located approximately 24 miles west of the Sacramento River. The dam is located below the Stony Creek, Stony Gorge, and East Park reservoirs. The combined storage capacities of these reservoirs are estimated to be 160,000 acre-feet. Should the dams upstream of Black Butte fail, Black Butte Dam could not withstand the volume of water and would also fail and flood the area approximately 8 miles east of the Sacramento River into the City of Chico (Butte County, 2006, Appendix D).

Whiskeytown Dam was constructed as a feature of the federal Central Valley Project and is operated by the USBR. It is located along Clear Creek approximately 65 miles northwest of the City of Chico. In the event of a dam failure, flow would travel along Clear Creek and into the Sacramento River, inundating almost 20 miles east of the Sacramento River into the Planning Area (Butte County, 2006, Appendix D).

Shasta Dam was constructed as a feature of the federal Central Valley Project and is operated by the USBR. It is located approximately 70 miles north of the City of Chico, with an estimated capacity of 4.5 million acre-feet. In the event of a failure, water would flow into the Sacramento River and inundate roughly 30 miles east of the Sacramento River into the City of Chico (Butte County, 2006, Appendix D).

4.9.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands and perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);

- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this Section: subparagraph (r); and
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

Section 303(d) of the federal Clean Water Act requires that all states in the U.S. identify waterbodies that do not meet specified water quality standards and that do not support intended beneficial uses. Identified waters are placed on the Section 303(d) List of Impaired Waterbodies. Once placed on this list, states are required to develop a water quality control plan — called a Total Maximum Daily Load (TMDL) — for each waterbody and each associated pollutant/stressor. TMDLs are discussed in more detail below.

National Pollutant Discharge Elimination System

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. It is the responsibility of the water boards, such as the Central Valley RWQCB, to preserve and enhance the quality of the state's waters through the development of water quality control plans and the issuance of waste discharge requirements (WDRs). WDRs for discharges to surface waters also serve as NPDES permits.

Under Phase I, which started in 1990, the Regional Water Quality Control Boards have adopted NPDES stormwater permits for medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. The State Water Resources Control Board (SWRCB) adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including nontraditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes. The MS4 permits require the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the Clean Water Act. The management programs specify what best management practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations.

Under Phase II requirements, dischargers in any location whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the statewide General Permit for Discharges of Storm Water Associated with Construction Activity. Construction activity subject to this permit generally include clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit (CGP) requires the development and implementation of a stormwater pollution prevention plan (SWPPP). The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways,

stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list best management practices the discharger will use to protect stormwater runoff and the placement of those BMPs. On September 2, 2009, the SWRCB adopted a new CGP (Order No. 2009-0009DWQ) that will supersede the existing CGP on July 1, 2010. A summary of the differences between the existing CGP and the new CGP follows (SWRCB, 2009):

> ***Rainfall Erosivity Waiver:*** *This General Permit includes the option allowing a small construction site (>1 and <5 acres) to self-certify if the rainfall erosivity value (R value) for their site's given location and time frame compute to be less than or equal to 5.*
>
> ***Technology-Based Numeric Action Levels:*** *This General Permit includes NALs [numeric action levels] for pH and turbidity.*
>
> ***Technology-Based Numeric Effluent Limitations:*** *This General Permit contains daily average NELs [numeric effluent limitations] for pH during any construction phase where there is a high risk of pH discharge and daily average NELs turbidity for all discharges in Risk Level 3. The daily average NEL for turbidity is set at 500 NTU [turbidity] to represent the minimum technology that sites need to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.*
>
> ***Risk-Based Permitting Approach:*** *This General Permit establishes three levels of risk possible for a construction site. Risk is calculated in two parts: (1) Project Sediment Risk, and (2) Receiving Water Risk.*
>
> ***Minimum Requirements Specified:*** *This General Permit imposes more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.*
>
> ***Project Site Soil Characteristics Monitoring and Reporting:*** *This General Permit provides the option for dischargers to monitor and report the soil characteristics at their project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.*
>
> ***Effluent Monitoring and Reporting:*** *This General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to determine compliance with the NELs and evaluate whether NALs included in this General Permit are exceeded.*
>
> ***Receiving Water Monitoring and Reporting:*** *This General Permit requires some Risk Level 3 dischargers to monitor receiving waters and conduct bioassessments.*
>
> ***Post-Construction Storm Water Performance Standards:*** *This General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize and/or mitigate post-construction storm water runoff impacts.*

Rain Event Action Plan: *This General Permit requires certain sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.*

Annual Reporting: *This General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information.*

Certification/Training Requirements for Key Project Personnel: *This General Permit requires that key personnel (e.g., SWPPP preparers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with General Permit requirements.*

Linear Underground/Overhead Projects: *This General Permit includes requirements for all Linear Underground/Overhead Projects (LUPs).*

Certain actions during construction may also need to conform to a General Permit (Water Quality Order No. 5-00-175) that requires that a permit be acquired for dewatering and other low threat discharges to surface waters, provided that they do not contain significant quantities of pollutants and either (1) are four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day (mgd). Examples of activities that may require the acquisition of such a permit include well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, water supply system discharges, and other miscellaneous dewatering/low threat discharges. However, the actions applicable to site development may already be covered under the CGP, and therefore a separate permit may not be required.

Total Maximum Daily Loads

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act of 1969, the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the total maximum daily load process to assist in guiding the application of state water quality standards, requiring the states to identify waters whose water quality is impaired (affected by the presence of pollutants or contaminants) and to establish a TMDL or the maximum quantity of a particular contaminant that a waterbody can assimilate without experiencing adverse effects on the beneficial use identified. TMDLs serve as a regulatory mechanism to identify and implement additional controls on both point and non-point source discharges in waterbodies that are impaired from one or more pollutants and are not expected to be restored through normal point source controls. Within California, the Regional Water Quality Control Boards generally prepare TMDLs for the impaired waterbodies under their jurisdiction. Implementation of the TMDL is accomplished through amendments to the RWQCB Basin Plans, which are reviewed and if necessary, modified or amended triennially.

Federal Emergency Management Agency

National Flood Insurance Program

The City of Chico is a participant in the National Flood Insurance Program (NFIP), a federal program administered by the Federal Emergency Management Agency. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted, as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years although such a flood may occur in any given year. The City of Chico is occasionally audited by the Department of Water Resources to ensure the proper implementation of FEMA floodplain management regulations.

Executive Order 11988

Executive Order 11988 (Floodplain Management) is an order given by President Carter in 1977 to avoid the adverse impacts associated with the occupancy and modification of floodplains. The order addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to:

- Avoid incompatible floodplain development;
- Be consistent with the standards and criteria of the NFIP; and
- Restore and preserve natural and beneficial floodplain values.

STATE

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act governs the coordination and control of water quality in the state and includes provisions relating to non-point source pollution. The California Coastal Commission, pursuant to the Coastal Act, specifies duties regarding the federally approved California Coastal Management Program. This law requires that the State Water Resources Control Board, along with the California Coastal Commission, regional boards, and other appropriate state agencies and advisory groups, prepare a detailed program to implement the state's non-point source management plan on or before February 1, 2001. The law also requires that the state board, in consultation with the California Coastal Commission and other agencies, submit copies of prescribed state and regional board reports containing information related to non-point source pollution, on or before August 1 of each year.

Senate Bill 5

Senate Bill (SB) 5 was signed into law in October 2007 and requires the State to develop a plan for flood protection by 2012. Once this state plan takes effect, the bill will prohibit counties and cities located in the Sacramento-San Joaquin Valley watershed from entering into development agreements or approving permits, entitlements, or subdivision maps in a flood zone unless there is an appropriate level of flood protection or the local flood management agency has determined that adequate progress toward that flood protection has been made. Also once the plan takes effect, the bill will require 200-year flood protection for proposed projects in urban

and urbanizing areas (defined as 10,000 residents or more). The bill also authorizes cities and counties to develop and adopt local plans of flood protection that include a strategy to meet the 200-year level of flood protection, an emergency response plan, and a long-term funding strategy for improvement, maintenance, and operation of flood protection facilities.

In order to implement this bill, the Department of Water Resources was required to provide cities and counties within the Central Valley watershed with preliminary 100- and 200-year floodplain maps by July 1, 2008. DWR has prepared only preliminary 100- and 200-year flood maps for 32 counties and 91 cities within the watershed, including the City of Chico. These maps are based on the best information currently available. DWR has initiated several projects that will provide updated information about flood hazards in the watershed over the next two to four years (DWR, 2008). Based on review of this mapping, there are land areas in the western portion of the Planning Area outside of the Chico Sphere of Influence within the 200-year floodplain.

Assembly Bill 162

Assembly Bill (AB) 162 was signed into law in October 2007 and requires cities and counties in California to incorporate flood hazards in their general plans in order to minimize risk in flood-prone areas. The bill further requires that each city and county submit their draft safety element, or draft amendment to the safety element of its general plan, to the Central Valley Flood Protection Board (formerly the State Reclamation Board) for review and comment at least 90 days prior to adoption.

Department of Water Resources

The Department of Water Resources' major responsibilities include preparing and updating the California Water Plan to guide development and management of the state's water resources, planning, designing, constructing, operating, and maintaining the State Water Resources Development System, protecting and restoring the Sacramento-San Joaquin Delta, regulating dams, providing flood protection, assisting in emergency management to safeguard life and property, educating the public, and serving local water needs by providing technical assistance. In addition, DWR cooperates with local agencies on water resources investigations, supports watershed and river restoration programs, encourages water conservation, explores conjunctive use of groundwater and surface water, facilitates voluntary water transfers, and, when needed, operates a state drought water bank.

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) is composed of nine Regional Water Quality Control Boards that are responsible for preserving California's water quality. The Regional Water Quality Control Boards (RWQCB) issue waste discharge permits, take enforcement action against violators, and monitor water quality. SWRCB and the Regional Water Quality Control Boards jointly administer most of the federal clean water laws. However, SWRCB retains oversight responsibility and, like the USEPA, may intervene if it determines the proposed project is not in compliance with SWRCB regulations.

On December 8, 1999, the USEPA promulgated the Phase II Regulations covering small MS4s. The State Water Resources Control Board administers the Phase II Regulations issued by the USEPA within California. The federal regulations allow two permitting options for stormwater discharge: individual permits and general permits. SWRCB has elected to adopt a statewide General Permit for small MS4s. This option allows the small MS4 to sign onto the General Permit in lieu of

developing a fully individualized program and allows the State to efficiently regulate numerous stormwater dischargers under a single permit.

The City of Chico has opted to comply with the NPDES Phase II Regulations through coverage under the State's General Permit and has prepared the City of Chico Storm Water Management Program, which is described further below.

Central Valley Regional Water Quality Control Board

The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the Chico area, CVRWQCB is responsible for protecting surface and ground waters from both point and non-point sources of pollution.

The Central Valley Regional Water Quality Control Plan (Basin Plan) covers all the drainage basin areas for the Sacramento and San Joaquin rivers. This plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved.

LOCAL

Chico Storm Water Management Program (2004)

The Chico Storm Water Management Program is a comprehensive program developed and administered by the Engineering Division as a requirement of Phase II of the National Pollutant Discharge Elimination System (NPDES) Program. The program comprises various elements and activities designed to reduce stormwater pollution to the maximum extent practicable (MEP) and eliminate prohibited non-stormwater discharges in accordance with federal and state laws and regulations.

Chico Storm Drainage Master Plan (2000)

The Chico Storm Drainage Master Plan provides a conceptual blueprint for development of the City's storm runoff management infrastructure as Chico grows and expands and areas within the Sphere of Influence become more urbanized. The document includes storm drain facility design standards and descriptions of mitigation measures to convey runoff, attenuate peak flows, and stabilize stream channels, as well as best management practices for water quality enhancement at construction sites and new developments.

Chico Municipal Code

The Chico Municipal Code prohibits discharges of storm runoff to sanitary sewers (Title 15: Water and Sewers), regulates development in floodplains and alteration of watercourses (Title 16: Buildings and Construction), provides for preservation and enhancement of riparian habitat (Title 18: Subdivisions), and establishes design criteria and improvement standards for storm drain management and facilities (Title 18R: Design Criteria and Improvements Standards), development standards in floodplains (Title 16R.37: Floodplain Standards), and development and use standards for creek-side areas (Title 19: Land Use and Development).

It should also be noted that there are approved development projects in the city that have adopted mitigation measures that provide mitigation for soil erosion, flooding, and water quality impacts (preparation of a SWPPP and provision of erosion control features). These projects

include large-scale developments in the city such as the Meriam Park project and the Northwest Chico Specific Plan.

4.9.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Pursuant to State CEQA Guidelines Appendix G, a hydrologic or water quality impact of the proposed General Plan Update would be considered significant if it would result in any of the following actions:

1) Violate any water quality standards or waste discharge requirements.

2) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.

3) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

4) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

5) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

6) Otherwise substantially degrade water quality.

7) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

8) Place within a 100-year flood hazard area structures that would impede or redirect flood flows.

9) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam.

10) Inundation by seiche, tsunami, or mudflow.

Based on the analysis provided in the Notice of Preparation, the Planning Area is not located in an area that would be affected by a seiche, tsunami, or mudflow. Therefore, the project would result in no impact regarding inundation and will not be discussed further in this Draft EIR. The reader is referred to Section 4.12, Public Services and Utilities, regarding analysis of potential groundwater/water supply impacts (depletion of groundwater resources, recharge impacts and interference with groundwater) of the proposed General Plan Update.

METHODOLOGY

The hydrology and flood potential analysis is based on a review of published information, reports, and plans regarding regional hydrology, climate, geology, water quality, and regulations. Relevant documents include the Chico Stormwater Master Plan, FEMA FIRM Maps, Big Chico Creek Watershed Alliance Existing Conditions Report (BCCWA, 2000), Butte County Flood Mitigation Plan (Butte County, 2006), the Butte Creek Watershed Project Existing Conditions Report (BCWC, 1998), and the California Water Plan Update (DWR, 2009). Numerous other technical studies and reports were reviewed to aid in the analysis of the hydrology and water quality setting and impacts as a result of the proposed General Plan Update. A list of these documents is located under the References heading of this section.

The following proposed General Plan Update policies and actions address impacts to hydrology and water quality related issues:

Policy PPFS-6.1 *(Storm Drainage Master Plan) – Address current and future storm drainage needs in a Storm Drainage Master Plan.*

Action PPFS-6.1.1 *(Update the Storm Drainage Master Plan) – Update, adopt and implement an updated Storm Drainage Master Plan that identifies areas with infrastructure deficiencies and establishes a program to address the deficiencies. Address drainage issues on a basin or sub-basin scale. Identify opportunities to increase infiltration, based on such factors as existing infrastructure, geology, the hydrology and hydraulics of the receiving waters, and planned land uses.*

Action PPFS-6.1.2 *(Development Fees) – Update the development fee program as needed to ensure that storm water drainage development fees are equitable and adequate to pay for the storm water drainage infrastructure needed for future development.*

Action PPFS-6.2.1 *(Storm Water Drainage Standards) – Regularly update storm water drainage standards to include all current best management practices and water quality and quantity standards governing the discharge of storm water drainage to downstream receiving water to conform with State and Federal regulations.*

Action PPFS-6.2.2 *(Expand Storm Water Drainage Infrastructure) – As funding allows, continue installation of storm water drainage infrastructure in areas not served.*

Policy PPFS-6.4 *(Water Runoff) – Protect the quality and quantity of water runoff that enters surface waters and recharges the aquifer.*

Policy PPFS-6.5 *(Flood Control) – Manage the operation of the City's flood control and storm drainage facilities and consult with local and state agencies that have facilities providing flood protection for the City.*

Action PPFS-6.5.1 (Flood Management) – Consult with Butte County and other flood control agencies to ensure that all possible actions are taken to prevent floodwaters from entering the City.

Action PPFS-6.5.2 (Natural Watercourses) – Utilize the natural watercourses and existing developed flood control channels as the City's primary flood control channels when and where feasible.

Action PPFS-6.5.3 (Flood Impacts) – Require that new development not increase flood impacts on adjacent properties in either the upstream or downstream direction.

Action PPFS-6.5.4 (Flood Zones) – Require new development to fully comply with State and Federal regulations regarding development in flood zones.

Policy OS-3.1 (Surface Water Resources) – Protect and improve the quality of surface water.

Action OS-3.1.1 (Comply with State Standards) – Comply with the California Regional Water Quality Control Board's regulations and standards to maintain and protect water quality.

Action OS-3.1.2 (Runoff from New Development) – Require the use of pollution management practices and National Pollutant Discharge Elimination System permits to control and treat runoff from development.

Action OS-3.1.3 (Clean Creeks Project) – Continue implementation of the Chico USA Clean Creeks Project which provides community-wide education regarding storm water runoff, pollution management practices, and the importance of clean creeks.

Policy OS-3.2 (Protect Groundwater Recharge Areas) – Protect aquifer recharge areas to maintain groundwater supply and quality.

Action OS-3.2.1 (Protect Recharge Areas) – Avoid impacts to groundwater recharge areas through stream setbacks and clustering development.

Action OS-3.2.2 (Nitrate Compliance Plan) – Continue to implement the Nitrate Compliance Plan and provide regular updates to the City Council.

Action OS-3.2.3 (Monitor Contaminated Sites) – Maintain an inventory of known sources of groundwater and soil contamination within the Planning Area and support the California Department of Toxic Substances Control and the Regional Water Quality Control Board in their efforts to monitor and remediate sites.

Policy S-2.1 (Potential Flood Hazards) – When considering areas for development analyze potential impacts of flooding.

Action S-2.1.1 *(Flood Hazard Analysis) – As part of project review, analyze potential impacts from flooding and require compliance with appropriate building standards and codes for structures subject to 200-year flood hazards.*

Action S-2.1.2 *(FEMA Flood Hazard Designations) – Continue efforts to work with the Federal Emergency Management Agency and state and local agencies to evaluate the potential for flooding, identify areas susceptible to flooding, accredit the flood control levees in the City, and require appropriate measures to mitigate flood related hazards.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address hydrology and water quality and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Surface Water Quality Impacts (Standards of Significance 1, 3, 5, and 6)

Impact 4.9.1 Implementation of the proposed General Plan Update could result in a violation of water quality standards; substantial alteration of the existing drainage pattern, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, and/or environmental harm; polluted stormwater runoff; or otherwise degrade water quality. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that water quality impacts are addressed. This impact is considered **less than significant**.

Direct and indirect surface water quality impacts could occur from general land use activities resulting from urban development:

- **Construction:** Grading and vegetation removal activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). During precipitation events, soil erosion can impact the surface runoff by increasing the amount of silt and debris carried by runoff. In addition, refueling and parking of construction equipment and other vehicles on-site during construction may result in spills of oil, grease, or related pollutants that may discharge into city drainages. Improper handling, storage, or disposal of fuels and hazardous materials or improper cleaning of machinery close to area waterways could cause water quality degradation.

- **Urban Development:** Urban development often involves the conventional maintenance of yards, for example, using fertilizers, herbicides, pesticides, fungicides, and other chemicals in and around the home that can enter stormwater runoff. In addition, motor vehicle operation and maintenance introduces oil, antifreeze, and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants from cleaners and waxes into residential runoff. Pet and animal waste from yards, trails, and stream corridors can enter stormwater runoff or flow directly into stream channels.

- **Recreation:** Parks and golf courses often practice conventional landscaping methods and maintain recreation areas using fertilizers, herbicides, pesticides, and algaecides, which can enter stormwater runoff or flow directly into stream channels.

Construction Surface Water Quality Impacts

Construction associated with subsequent development under the proposed General Plan Update would consist of grading and vegetation removal activities that could increase soil erosion rates on the areas proposed for development. Construction activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). In rainy periods during the summer season, grading operations may impact the surface runoff by increasing the amount of silt and debris carried by runoff. Areas with uncontrolled concentrated flow would experience loss of material within the graded areas and could potentially impact downstream water quality.

Refueling and parking of construction equipment and other vehicles on-site during construction may result in spills of oil, grease, or related pollutants that may discharge into Planning Area drainages. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery close to area waterways could cause water quality degradation.

The State Water Resources Control Board is responsible for implementing elements of the Clean Water Act and has issued a statewide General Permit (Water Quality Order 99-08-DWQ) for construction activities within the state. The State General Construction Activity Storm Water Permit is implemented and enforced by Regional Water Quality Control Boards and applies to construction activities that disturb 1 acre or more. This permit also requires the preparation and implementation of a stormwater pollution prevention plan that identifies best management practices (BMPs) to minimize pollutants from discharging from construction sites to the maximum extent practicable. BMPs are effective, practical, structural or nonstructural methods which prevent or reduce the movement of sediment, nutrients, pesticides, and other pollutants from the land to surface water or groundwater, or which otherwise protect water quality from potential adverse effects of development activities. The adoption and use of BMPs provide the mechanism for reducing the volume of surface runoff originating from an area of development disturbance and running directly into surface water. Standard BMPs are available in the California Stormwater Quality Association handbooks (California Stormwater Quality Association, 2003).

The Chico Municipal Code prohibits discharges of storm runoff to sanitary sewers (Title 15: Water and Sewers) and establishes design criteria and improvement standards for storm drain management and facilities (Title 18R: Design Criteria and Improvements Standards) and development and use standards for creek-side areas (Title 19: Land Use and Development). Sections 16.22 through 16.32 of the Municipal Code, Grading Regulations and General Provisions, was enacted by the City for the purpose of regulating grading on all property within the city to avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated or caused by surface runoff on or across the permit area. Sections 16.22 through 16.32 of the City Municipal Code set forth rules and regulations to control grading and erosion control activities, including fills and embankments. These ordinances also establish the administrative procedure for issuance of permits and provide for approval of plans and inspection of grading construction and erosion control plans for all graded sites.

Operational Surface Water Quality Impacts

Runoff from urban land use typically contains oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients from fertilizers and animal waste, sediment, pesticides, herbicides, and other pollutants. Also, sizable quantities of animal waste from pets contribute bacterial pollutants into surface and source waters. Precipitation during the early portion of the wet season displaces these pollutants into the stormwater runoff, resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons would occur during the first inches of seasonal rainfall.

The amount and type of runoff generated by land uses within the city may be greater than that under existing conditions due to increases in impervious surfaces. There would likely be a corresponding increase in urban runoff pollutants and first flush roadway contaminants such as heavy metals, oil, grease, nutrients (i.e., nitrates and phosphates), pesticides, and herbicides from landscaped areas. These constituents may result in water quality impacts to on- and off-site drainage flows and to downstream area waterways, including the waterways of the Big Chico Creek watershed and the Little Chico Creek/Butte Creek watershed.

As identified above, as part of the City's coverage under the General Permit for the NPDES Phase II Regulations, the City has developed and is implementing its Storm Water Management Program to protect water quality. BMPs under this program include public participation and involvement, public education and outreach, construction site runoff control, illicit discharge detection and elimination, pollution prevention and good housekeeping, and post-construction runoff control.

An example of City BMPs implemented to minimize water quality impact throughout the city includes storm drainage inlet stenciling. Storm drain stenciling is important practice, as many people are not aware that storm drains flow directly to creeks. Storm drain stenciling is appropriate in that it helps educate Chico's population on the final destination of storm drain flow. Chico's storm drain system has been mapped on its Geographic Information System (GIS). The mapping shows storm drain inlets and manholes. An estimated 4,000 inlets are located throughout the city (City of Chico, 2007). As inlets are marked and maintenance activities take place, manholes and inlets are distinguished from one another on the maps. In August 2002, the City (in conjunction with the California Conservation Corps) installed 1,058 markers, which equates to roughly 26 percent inlets being marked. In the second year, 2004–05, the City worked with the Chico High School Rotary Club and a local group called Kids and Creeks to install storm drain markers. These two groups were only able to place 147 markers. The City has also contracted with a local environmental group, Big Chico Creek Watershed Alliance. In 2005–2006, Big Chico Creek Watershed Alliance marked 1,226 inlets with help from citizens, Chico State student groups, and private citizen groups.

The City of Chico 2006–2007 General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems Annual Report presents the accomplishments of the first, second, third, and fourth years of a five-year program for the implementation of the City's BMPs. The purpose of this annual report is to keep the California Regional Water Quality Control Board, City officials, and the public up to date on the City's progress, failures, and proposed modifications to the BMPs. The BMP requirements implemented in years one, two, three, and four have been and will continue to be implemented through year five.

The City also works to identify priority areas of illicit discharge by visually inspecting and pH testing all priority outfalls for illicit discharges and conducting further investigation and enforcement as necessary. Further investigations could involve reviewing storm drain maps and identifying specific industrial and manufacturing facilities within the tributary area of the outfall with illicit discharges. Manufacturing and industrial sites have a higher likelihood of having illicit discharges. The City has identified those outfalls having manufacturing and industrial uses within their tributary areas as being priority outfalls.

The proposed General Plan Update contains policies and actions with restrictions and corresponding performance standards that address surface water quality impacts. For instance, Action OS-3.1.1 requires compliance with the California Regional Water Quality Control Board's regulations and standards to maintain and protect water quality, which includes the State General Construction Activity Storm Water Permit implemented and enforced by Regional Water Quality Control Boards as described above. Action OS-3.1.2 requires the use of pollution management practices and National Pollutant Discharge Elimination System permits to control and treat runoff from development. Action OS-3.1.3 aims to provide community-wide education regarding storm water runoff, pollution management practices, and the importance of clean creeks.

Compliance with the proposed General Plan policy and actions described above, the State General Construction Activity Storm Water Permit requirements (where applicable), the City's Grading Regulations and General Provisions (Sections 16.22 through 16.32 of the Municipal Code), and the City's Storm Water Management Program would reduce surface water quality impacts associated with implementation of the proposed General Plan Update to a **less than significant** level and no mitigation measures are required. This impact is avoided through the use of effective construction-phase, source control, and treatment control BMPs that include site preparation, runoff control, sediment retention, and other similar features. The effectiveness of BMPs has been recognized in the California Stormwater Quality Association, Stormwater Best Management Practice Handbooks.

Groundwater Quality Impacts (Standard of Significance 1 and 6)

Impact 4.9.2 Implementation of the proposed General Plan Update could result in the degradation of groundwater quality and may violate water quality standards and/or degrade water quality resulting from future land uses. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that groundwater quality is protected. This impact is considered **less than significant**.

As discussed above in Impact 4.9.1, development of the Planning Area under the proposed General Plan Update could generate runoff containing oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), household pollutants, nutrients (i.e., fertilizers), and other chemicals from landscaped areas. Groundwater in the Planning Area is considered most vulnerable to the following activities associated with contaminants detected in the water supply: sewer collection systems, septic systems, improperly abandoned wells, parks, RV parks, agricultural drainage, fertilizer and pesticide application, automobile body and repair shops, utility stations (maintenance areas), railroad yards (maintenance/fueling areas), electrical/electronic manufacturing, chemical/petroleum processing/storage, machine shops, grazing, lumber processing/manufacturing, wood preserving/treating, fleet/truck/bus terminals, known contaminant plumes, and drinking water treatment plants (Cal Water, 2008). The low foothill area east of the city is the primary aquifer recharge area for Chico's domestic groundwater (Butte LAFCo, 2006) within City jurisdiction. The groundwater in this area is

vulnerable to contamination from urban activity in this area, including construction, grading, use of equipment and automobiles, sewer leakage, and other potential contaminants. These pollutants could potentially contaminate groundwater conditions (if not properly treated with water quality controls). However, as mentioned above under Regulatory Framework, the National Pollutant Discharge Elimination System Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. In addition, Action OS-3.2.1 seeks to avoid impacts to groundwater through stream setbacks and clustering development away from groundwater recharge areas. Actions OS-3.2.2 and OS-3.2.3 seek to address current impacts to groundwater resources by continuing to implement the Nitrate Compliance Plan described above and by maintaining an inventory of known sources of groundwater and soil contamination within the Planning Area in order to support the California Department of Toxic Substances Control and the Regional Water Quality Control Board in their efforts to monitor and remediate sites.

As part of the NPDES, the State Water Resources Control Board has adopted a General Permit for the Discharge of Storm Water from Small MS4s to provide permit coverage for smaller municipalities, with which the City complies through implementation of its Storm Water Management Program, described under Impact 4.9.1 above, that provides water quality protections for surface water and groundwater. In addition, Chico Municipal Code Section 18R.08.050 states that development shall provide storm drainage facilities that will convey stormwater runoff to an existing drainage channel or drainage system. Adequate access for maintenance of the system is to be provided and the capacity of an existing drainage system must be large enough to accommodate the additional runoff generated by the development. The California Stormwater Quality Association has prepared technical studies regarding water quality control feature impacts on groundwater in the Stormwater Best Management Practice Handbooks. These studies have identified that water quality control features (when inspected and monitored properly) such as infiltration basins have been successful in controlling water quality and avoiding groundwater quality impacts. (Metals and organic compounds associated with stormwater are typically captured or trapped within the first few feet of the soil of the basins).

Compliance with the proposed General Plan update policies and actions described above, as well as compliance with Section 18R.08.050 of the Chico Municipal Code and the City's Storm Water Management Program, would reduce groundwater quality impacts to a **less than significant** level.

Drainage Impacts (Standard of Significance 4)

Impact 4.9.3 Implementation of the proposed General Plan Update could result in a substantial alteration of an existing drainage pattern, including through the alteration of the course of a stream or river, which may substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site or could result in the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage system. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that drainage is adequately addressed. This impact is considered **less than significant**.

Stormwater runoff has, at times, created localized flooding problems in the City of Chico and the agricultural area west of the city. High Sacramento River flood stage creates a backwater in the creeks and tributaries which pass through the Planning Area and may delay runoff in the

lower parts of the planning area from entering the river. The Flood Insurance Rate Map (FIRM) for unincorporated Butte County shows Sacramento River overflow inundating an area about 2 miles east of the river boundaries (**Figure 4.9-2**). The volume of water within this 2-mile backwater area may increase over time with additional urban runoff associated with growth under the proposed General Plan Update.

Capacities of channels in the western portion of the Planning Area are also limited, and potential flood flows are believed to be higher than recorded historical occurrences. The FIRM shows floodwater flowing out of the Big Chico Creek Channel near the western edge of the Planning Area. Inadequate channel capacity exacerbates the flooding potential near the Sacramento River. Flood control projects on Little Chico Creek, Big Chico Creek, and Lindo Channel have helped reduce the amount of runoff that flows through the city, reducing potential flooding problems. General Plan Update Action PPFS-6.2.2 states that as funding allows, the City shall continue installation of storm water drainage infrastructure in areas not served. In addition, Action PPFS-6.5.2 seeks to utilize the natural watercourses and existing developed flood control channels as the City's primary flood control channels when and where feasible.

The City of Chico adopted a Storm Drainage Master Plan (SDMP) in September 2000 that identifies the public storm drain improvements necessary to serve a major portion of the city at build-out under the 1994 General Plan. The projected build--out under the proposed General Plan Update is similar to the current 1994 General Plan build-out and therefore the recommendations of the 2000 SDMP are still relevant. The specific objectives of the SDMP are to:

- Develop a consistent set of planning criteria;
- Update and modify existing storm drainage studies;
- Prepare a preliminary storm drain master plan for all pipes larger than 18 inches in diameter;
- Develop planning level cost estimates for required improvements;
- Identify topographic or other data requirements needed for future drainage planning;
- Collect more precise definition of appropriate design high water elevations in the creeks;
- Implement a computer model of the system;
- Provide peak flow attenuation in Comanche and Little Chico creeks; and
- Provide channel stabilization in all waterways in the urban area.

The SDMP identifies specific projects to improve existing storm drainage and to provide drainage facilities for future development. The drainage facilities would include replacement of existing pipes, placement of new pipes, installation of pump stations, construction of peak flow attenuation facilities (detention basins), bank stabilization facilities, stormwater quality facilities, and design and data collection programs. In particular, peak attenuation facilities would be constructed in the Comanche Creek and Little Chico Creek urban drainage basins. Policy PPFS-6.1 aims to address current and future storm drainage needs in the SDMP. The specific size and design of individual facilities would vary. Each project would adhere to standards, performance criteria, and design criteria consistent with the SDMP and the General Plan, as adopted by the

City Council and as amended to reflect advances in policy, technology, or engineering practice.

The City's maintenance crew maintains Chico's storm drain system. Throughout 2007, City crews cleaned 108 stormwater hydrodynamic separators, 123 manholes/catch basins/drywells, 350 drop inlets, and 18,281 lineal feet of storm drain line, and removed 395.75 cubic yards of debris (City of Chico, 2007). Such activities assist to maintain channel storm drainage capacity, thus reducing flooding potential.

In addition, the City has adopted Section 18R.08.050, Design Criteria and Improvements Standards: Storm Drainage, into the Municipal Code which establishes design criteria and improvement standards for storm drain management and facilities. While Action PPFS-6.5.3 requires that new development not increase flood impacts on adjacent properties in either the upstream or downstream direction, which may require the employment of storm water drainage infrastructure, Action PPFS-6.1.2 will update the development fee program as needed to ensure that storm water drainage development fees are equitable and adequate to pay for the storm water drainage infrastructure needed for future development.

Implementation of proposed General Plan Update policies and actions as well as continued adherence to the objectives of the Storm Drainage Master Plan and Section 18R.08.050 of the Chico Municipal Code would reduce this impact to **less than significant** by ensuring that adequate drainage facilities are provided and no mitigation measures are necessary. Actions PPFS-6.5.3 and PPFS-6.1.2 require new development to address impacts to drainage facilities while Section 18R.08.050 of the Municipal Code establishes the design criteria for new drainage facilities, which new development much adhere. The adopted SDMP identifies public storm drain improvements necessary to serve a major portion of the city. Action PPFS-6.1.1 mandates the update, adoption and implementation of an updated Storm Drainage Master Plan that identifies areas with infrastructure deficiencies and establishes a program to address the deficiencies. The updated Storm Drainage Master Plan will identify opportunities to increase infiltration, based on such factors as existing infrastructure, geology, the hydrology and hydraulics of the receiving waters, and planned land uses.

Flooding Impacts (Standards of Significance 7, 8, and 9)

Impact 4.9.4 Implementation of the proposed General Plan Update may result in the placement of housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map; and as a result impede or redirect flood flows exposing people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure that flooding is adequately addressed. This impact is considered **less than significant**.

Major floods affecting the Chico region have typically resulted from extended periods of winter rainfall produced by winter storms. Generally, these storms affect the region from early November until the end of April. In general, the waterway which is the most susceptible to flooding in the City of Chico is Little Chico Creek. This perennial stream can overflow during storm events, but flooding is typically of a local nature. Because the City of Chico participates in the National Flood Insurance Program administered by the Federal Emergency Management Agency, FEMA has mapped known floodplains in Chico and surrounding areas. The identified floodplains appear on Flood Insurance Rate Maps (FIRMs) numbered 06007C0310D,

06007C0320D, 06007C0340C, 06007C0345C, 06007C0505C, and 06007C0510D. According to FEMA maps, most of the proposed Planning Area is located in Zone X, which designates areas subject to flooding during a 500-year storm event or areas that are protected by levees from flooding during a 100-year storm event. The maps show 100-year and 500-year floodplains and floodways located along the channels of the creeks of the Planning Area, including Rock, Mud, Sycamore, Big Chico, Little Chico, Comanche, and Butte creeks. A 100-year floodplain is an area that experiences a 1-in-100 chance of flooding each year; a 500-year floodplain experiences a 1-in-500 chance of flooding each year. Refer to **Figure 4.9-2** for 100-year floodplain areas within the City of Chico.

As previously mentioned, in the 1970s FEMA began to produce Flood Insurance Rate Maps (FIRM) for the country in order to determine flood risks (and insurance rates) for individual communities. Because of the flood control projects completed in the 1960s, the City of Chico was exempt from the FEMA mapping requirements. In the 1990s FEMA revised the FIRMs, resulting in a reversal of protocol regarding the City of Chico's exemption from FEMA mapping requirements. During the FEMA mapping that ensued, the potential for flooding was analyzed based on the existence of the levee system. Due to the fact that the system levees of Little Chico Creek were not designed to FEMA standards, portions of the city along Little Chico Creek were determined to be in a floodplain and homeowners were required to purchase flood insurance. It was determined that the Big Chico Creek system's levees were designed to FEMA standards and that they would protect the northern portions of the city.

Currently, FEMA is revising the FIRMs again. For the purposes of this round of FIRM revisions, if levees are to be considered as providing flood protection, the levees are required to be certified. Certification involves demonstrating that the levees were built and are maintained to FEMA standards. If levees are not certified, FEMA will produce maps that assume the levees do not exist. This would mean that a significant number of parcels in Chico would be determined to be in a flood zone and homeowners with federally insured loans in the flood zone will be required to purchase flood insurance. In November 2008, FEMA sent letters to communities, like Chico, affected by this round of FIRM revisions and its requirement that the owners of levees certify the levees. These letters offered to allow the owners of levees to enter into Provisionally Accredited Levee (PAL) agreements, which allow the signing party two years to certify levees before FEMA produces maps that assume that the levees do not exist. Although the City is not the owner of the levees in the Big Chico Creek system, FEMA allowed the City of Chico to enter into a PAL agreement for the certification of those levees and that process is now underway. The certification process will not apply to the Little Chico or Butte Creek systems as they were not originally designed to FEMA standards and areas they serve are already identified as floodplain.

Chapter 16R.37 of the City Municipal Code constitutes the floodplain standards of the City to apply to all development occurring within floodplains in Chico. The floodplain standards set forth in Chapter 16R.37 are necessary in order to ensure that development is properly elevated, flood-proofed, and otherwise protected from flood damage and in order to prevent such development from creating obstructions which cause or contribute to an increase in flood heights and velocities.

Dam failure, another potential flooding risk, is the collapse or failure of an impoundment that causes significant downstream flooding. Large dams that could inundate significant portions of Chico, or watersheds in the Chico area, include Shasta Dam (in Shasta County), Oroville Dam on the Feather River, and Black Butte Dam on Stony Creek (Butte County, 2006, Appendix D). Prior to the terrorist attacks of September 11, 2001, public information was available that provided structural ratings for dams throughout the country. Since that time, this information has been classified and is not readily available. Dams are regulated by the Division of Safety of Dams of

the California Department of Water Resources and are routinely inspected during their impoundment life, which includes monitoring for compliance with seismic stability standards. Thus, dam failure is not is considered a reasonably foreseeable event.

The proposed General Plan Update contains policies and actions that include requirements and performance standards that address flood-related impacts. Action PPFS-6.5.3 requires that new development not increase flood impacts on adjacent properties in either the upstream or downstream direction while Action PPFS-6.5.4 requires new development to fully comply with State and Federal regulations regarding development in flood zones. Similarly, Action S-2.1.1 states that as part of project review, an analysis of potential impacts from flooding is required along with compliance with appropriate building standards and codes for structures subject to 200-year flood hazards. Implementation of the General Plan policies and actions described above as well as Chapter 16R.37 of the Chico Municipal Code would reduce this impact to **less than significant**.

4.9.2 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting consists of the Big Chico Creek watershed, the Little Chico Creek/Butte Creek watershed, and the Sacramento River. Additionally, the cumulative setting includes anticipated development described in **Table 4.0-4** that could contribute to cumulative water resource impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Quality Impacts (Standards of Significance 1, 3, 5, and 6)

Impact 4.9.5 Land uses and growth under the proposed General Plan Update, in combination with current land uses in the surrounding region, could introduce substantial grading, site preparation, and an increase in urbanized development. Increased development would contribute to cumulative water quality impacts that are considered **less than cumulatively considerable**.

As described under Impacts 4.9.1 and 4.9.2, development under the proposed General Plan Update could contribute to water quality degradation from construction, operation, and alteration of drainage patterns. This could add to other potential development activities in the region.

As part of NPDES, the State Water Resources Control Board has adopted a General Permit for the Discharge of Storm Water from Small MS4s to provide permit coverage for smaller municipalities, with which the City complies through implementation of its Storm Water Management Program described above that provides water quality protections for surface water and groundwater.

Sections 16.22 through 16.32 of the Municipal Code, Grading Regulations and General Provisions, was enacted by the City for the purpose of regulation grading on all property in Chico to avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated or caused by surface runoff on or across the permit area. Sections 16.22 through 16.32 of the City Municipal Code set forth rules and regulations to control grading and erosion control activities, including fills and embankments. These ordinances also establish the

administrative procedure for issuance of permits and provides for approval of plans and inspection of grading construction and erosion control plans for all graded sites.

In addition, Chico Municipal Code Section 18R.08.050 states that development shall provide storm drainage facilities that will convey stormwater runoff to an existing drainage channel or drainage system. Adequate access for maintenance of the system shall be provided and the capacity of an existing drainage system must be large enough to accommodate the additional runoff generated by the development. The California Stormwater Quality Association has prepared technical studies regarding water quality control feature impacts on groundwater. These studies have identified that water quality control features (when inspected and monitored properly), such as infiltration basins, have been successful in controlling water quality and avoiding groundwater quality impacts.

The proposed General Plan Update includes several policies and actions that address water quality. These policies and actions are described under Impacts 4.9.1 and 4.9.2.

Implementation of the proposed General Plan Update policies and actions, as well as compliance with provisions of the City's Municipal Code and Storm Water Management Program, would ensure that the proposed General Plan's contribution to cumulative water quality impacts would be mitigated. Thus this impact would be **less than cumulatively considerable**.

Cumulative Drainage and Flood Hazards (Standards of Significance 4, 7, 8, and 9)

Impact 4.9.6 Implementation of the proposed General Plan Update could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions downstream. This is considered a **less than cumulatively considerable** impact.

As described under Impacts 4.9.4 and 4.9.5, urban development under the proposed General Plan Update would result in an increase in impervious surfaces in the Planning Area that would contribute (in combination with cumulative development in the watershed) to increases in flood conditions for area waterways. Additionally, development associated with the proposed General Plan Update, in combination with future development in the region, could expose future residences and structures to flood hazards. However, the proposed General Plan Update contains policies and actions that adequately address drainage and flooding issues at the Planning Area level.

The City of Chico adopted a Storm Drainage Master Plan in September 2000 that identifies the public storm drain improvements necessary to serve a major portion of the city. The Storm Drainage Master Plan identifies specific projects to improve existing storm drainage and to provide drainage facilities for future development. Proposed Parks, Public Facilities, and Services Element Action PPFS-6.1.1 ensures periodic updates of the Storm Drainage Master Plan in order to identify areas with infrastructure deficiencies and to establish a program to install, upgrade, and enhance stormwater management infrastructure necessary to meet City standards. In addition, the City has adopted Section 18R.08.050, Design Criteria and Improvements Standards: Storm Drainage, into the Municipal Code which establishes design criteria and improvement standards for storm drain management and facilities.

Chapter 16R.37 of the City Municipal Code constitutes the floodplain standards of the City to apply to all development occurring within floodplains in Chico. The floodplain standards set forth in Chapter 16R.37 are necessary in order to ensure that development is properly elevated, flood-

proofed, and otherwise protected from flood damage and in order to prevent such development from creating obstructions which cause or contribute to an increase in flood heights and velocities.

The proposed General Plan Update includes several policies and actions that address flooding. The policies and actions are described under Impacts 4.9.3 and 4.9.4.

The proposed General Plan's contribution to the cumulative condition of drainage and flood-related impacts in the area, as well as its potential incremental contribution to cumulative impacts, would be reduced to **less than cumulatively considerable**.

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4.10
Biological Resources

This section describes the existing biological resources including the special-status species and sensitive habitats known to occur or that potentially occur in the Planning Area, the regulations and programs which provide for their protection, and an assessment of the potential impacts of implementing the proposed General Plan Update. This section also includes a discussion of mitigation measures necessary to reduce impacts to a less than significant level, where feasible.

4.10.1 EXISTING SETTING

For planning and mapping purposes, twelve biological communities have been identified within the Planning Area and are depicted on **Figure 4.10-1**. Dominant biological communities within the Planning Area include agriculture, annual grassland, blue oak savanna, blue oak woodland, chaparral, cottonwood-willow riparian, disturbed, dredger tailings, herbaceous riparian river bar, interior live oak woodland, mixed oak woodland, open water/riverine, ranchettes – open, ranchettes – wooded, urban, valley oak riparian, wetlands (including emergent wetland and vernal pool), and willow scrub. Each of the biological communities within the Planning Area, including common plant and wildlife species, is described further below. **Table 4.10-1** below outlines the acreages of each biological community found within the Planning Area. This information is derived from final land cover types (SAIC, 2008b) generated as part of the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) process currently under way.

The biological communities depicted in **Figure 4.10-1** are being mapped as part of the Butte Regional HCP/NCCP process (SAIC, 2007, 2008a). Although discussed here as distinct entities, the biological communities are not functionally discrete; there are frequently large areas of transition, or ecotones. The distribution of general biological community types in the Planning Area is closely associated with varying topography and hydrology. Some biological communities may have a degree of shared vegetation. Animals also range between different communities and habitat types, and their movement patterns may vary daily or seasonally.

According to the Draft Ecological Baseline Report for the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan, all mapping was based on 2005 color orthorectified aerial photography with one-meter resolution (flown in summer or fall) (SAIC, 2007). Additional aerial photography was used to assist in the mapping effort, including February 2002 (two-meter resolution) and November 2006 (two-meter resolution). Reconnaissance-level visits, the Soil Survey of Butte County Area (NRCS, 2005), and the CDFG California Natural Diversity Database were used to support the land cover mapping, to establish mapping criteria, and to develop land cover type definitions. Classification systems predominantly incorporated and adapted for mapping communities included *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), *A Manual of California Vegetation* (Sawyer and Keeler-Wolfe, 1995), and the Fire and Resource Assessment Program (FRAP)/California Wildlife Habitat Relationships System (CWHR). FRAP is used by the California Department of Forestry and Fire Protection (Cal-Fire) as a tool to assess California's forest and rangeland resources. CWHR is an extensive compilation of community-level information describing existing vegetation types important to wildlife.

TABLE 4.10-1
ACREAGE OF BIOLOGICAL COMMUNITIES WITHIN THE PLANNING AREA

Biological Communities	Acres
Within City Limits	
Agriculture	631.20
Annual Grassland	3,993.72
Blue Oak Savanna	614.77
Blue Oak Woodland	923.26
Chaparral	1,023.64
Cottonwood/Willow Riparian Forest	332.68
Disturbed	33.32
Dredger Tailings	18.60
Interior Live Oak Woodland	87.17
Mixed Oak Woodland	699.06
Open Water/Riverine	59.13
Ranchettes – Open	43.85
Ranchettes – Wooded	21.16
Urban	11,995.29
Valley Oak Riparian Forest	357.57
Wetlands	60.24
Willow Scrub	81.40
Total	**20,976.04**
Within the Sphere of Influence	
Agriculture	254.94
Annual Grassland	262.27
Blue Oak Savanna	129.36
Blue Oak Woodland	195.53
Chaparral	11.86
Cottonwood/Willow Riparian Forest	32.39
Disturbed	68.07
Dredger Tailings	50.41
Interior Live Oak Woodland	2.32
Mixed Oak Woodland	55.69
Open Water/Riverine	12.95
Ranchettes – Open	116.85
Ranchettes – Wooded	0.04

Biological Communities	Acres
Urban	2,582.11
Valley Oak Riparian Forest	77.37
Wetlands	22.64
Willow Scrub	16.28
Total	**3,891.10**
Within the Proposed Special Planning Areas	
Agriculture	542.31
Annual Grassland	1,043.29
Blue Oak Savanna	367.42
Blue Oak Woodland	251.81
Chaparral	27.62
Cottonwood/Willow Riparian Forest	118.46
Disturbed	93.64
Dredger Tailings	1.32
Interior Live Oak Woodland	39.79
Mixed Oak Woodland	145.94
Open Water/Riverine	0.01
Ranchettes – Open	80.73
Ranchettes – Wooded	0.14
Urban	145.70
Valley Oak Riparian Forest	4.89
Wetlands	1.73
Willow Scrub	0.22
Total	2,865.02
Within the Planning Area (outside City Limits, SOI, and SPA)	
Agriculture	31,229.63
Annual Grassland	7,574.28
Blue Oak Savanna	2,133.64
Blue Oak Woodland	9,331.79
Chaparral	912.04
Cottonwood/Willow Riparian Forest	2,043.68
Disturbed	255.97
Dredger Tailings	615.22
Herbaceous Riparian River Bar	151.71
Interior Live Oak Woodland	783.10
Mixed Oak Woodland	6,255.38

Biological Communities	Acres
Open Water/Riverine	424.05
Ranchettes – Open	452.02
Ranchettes – Wooded	837.59
Urban	2,299.42
Valley Oak Riparian Forest	736.79
Wetlands	105.11
Willow Scrub	266.23
Total	**66,407.67**
GRAND TOTAL	**94,139.83***

Source: SAIC, 2008b
* Approximately 6,638 acres are not included in the total Planning Area acreage of 100,778.80 acres due to data that is not available (see Figure 4.10-1). Any minor discrepancies ($\pm$ 1 acre) with total acreages are attributable to rounding errors.

While the mapping and acreages are derived from the Butte Regional HCP/NCCP process (SAIC, 2007, 2008a/b), the biological community descriptions below are derived from the following documents:

- City of Chico General Plan Master Environmental Assessment (City of Chico, 1999);
- City of Chico General Plan Update Existing Conditions Report (City of Chico, 2008); and
- Draft Ecological Baseline Report for the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (SAIC, 2007).

Biological information regarding wildlife associations was also derived from the CWHR System (2002). This information is available online at http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx and is provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988). Additional references are provided where necessary. Discussions on wildlife associations are not necessarily provided for each biological community, but are grouped by biological community type, such as oak woodlands/savanna and riparian communities.

Agricultural

The majority of agricultural land within the Planning Area consists of orchards, with irrigated croplands, irrigated pastures, seasonal range lands, and rice fields being the other uses. Most of these agricultural lands have associated irrigation and drainage ditches that connect via culverts and pipes to the area creeks. Agricultural lands cover approximately 32,658 acres within the Planning Area. Almonds, walnuts, and prunes are the major tree crops harvested in Butte County, while pears, apricots, oranges, peaches, olives, pistachio, and apples are also found (Butte County, 2008). Seven main field crops are found in Butte County including barley, oats, rice, wheat, alfalfa, corn, and irrigated pasture. Row crops include sugar beets, dry beans, and melons. Truck crops in Butte County include lettuce, cabbage, spinach, cauliflower, onions, and sweet corn (Butte County, 2008).

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Glenn County

Source: City of Chico GIS, 2007

Legend

- Proposed Sphere of Influence
- Special Planning Area
- Planning Area
- Agriculture
- Annual Grassland
- Blue Oak Savanna
- Blue Oak Woodland
- Chaparral
- Cottonwood Willow Riparian Forest
- Disturbed Ground
- Dredger Tailings
- Herbaceous Riparian River Bar
- Interior Live Oak Woodland
- Mixed Oak Woodland
- Open Water/Riverine
- Ranchettes Open
- Ranchettes Wooded
- Urban
- Valley Oak Riparian Forest
- Wetlands
- Willow Scrub
- No Data

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Figure 4.10-1
Biological Communities

PMC®

Wildlife Associated with Agricultural Communities

Generally, orchards and agricultural habitats provide foraging and shelter for various wildlife species including amphibians, reptiles, small mammals, and various songbird species. Orchard habitats provide potential nesting opportunities for raptors, resident birds, and migratory bird species including loggerhead shrike (*Lanius ludovicianus*) and white-tailed kite (*Elanus leucurus*). Field and row crops typically provide little breeding habitat for wildlife due to the high level and frequency of disturbance; however, hay, grain, and row crops support abundant rodent populations and provide foraging habitat for Swainson's hawks (*Buteo swainsoni*). Agricultural lands that provide riparian habitats have the potential to support a few special-status wildlife species, such as the northern harrier (*Circus cyaneus*) and giant garter snake (*Thamnophis gigas*), which may use adjacent irrigation canals and freshwater marsh vegetation for foraging or breeding. Field edges, woodlots, and watercourses that support riparian habitat also provide breeding sites and refuge for prey species and other wildlife. Common wildlife species associated with agricultural lands include mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), yellow-billed magpie (*Pica nuttalli*), Brewer's blackbird (*Euphagus cyanocephalus*), greater sandhill crane (*Grus canadensis tabida*), egrets (*Egretta* or *Ardea* spp.), and various raptor species, including red-tailed hawk (*Buteo jamaicensis)*.

Annual Grasslands

The Planning Area contains approximately 12,874 acres of non-native grassland where non-native grasses and other annuals dominate this community. As stated in the Draft Ecological Baseline Report for the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (SAIC, 2007a), some grassland communities contain vernal pools and vernal swales. Furthermore, some non-native grassland communities may contain small pockets of native annual grasses and forbs. Within Butte County, the majority of upland grasslands are valley grasslands, which are typically dominated by low-growing non-native annual grasses interspersed with diverse, patchily distributed native perennial grasses, non-native forbs, and native forbs. The vernal pools and vernal swales found within grasslands contain a unique and diverse vegetation assemblage and are discussed in a separate section below. Common plant species found in non-native annual grasslands include foxtail barley (*Hordeum leporinum*), soft chess (*Bromus hordeaceus*), wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), red-stemmed filaree (*Erodium circutarium*), and yellow star thistle (*Centaurea solstitialis*). Common native species include California knotweed (*Polygonum californicum*), naked stemmed buckwheat (*Eriogonum nudum*), marigold navarretia (*Navarretia intertexta*), brodiaea (*Brodiaea* spp.) mariposa lily (*Calochortus* spp.), purple needlegrass (*Stipa pulchra*), pine bluegrass (*Poa scabrella*), and onion grass (*Melica imperfecta*).

Wildlife Associated with Annual Grasslands

Annual grasslands provide essential foraging and breeding habitat for many wildlife species. Certain habitat features within annual grassland, such as cliffs, caves, ponds, or woody plants, are important for some of these species; these habitat features are used for breeding, resting, or as escape cover. Common wildlife species found in the annual grassland community include western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer)*, common garter snake (*Thamnophis sirtalis*), western rattlesnake (*Crotalus viridis*), California vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae)*, burrowing owl (*Athene cunicularia)*, savannah sparrow (*Passerculus sandwichensis)*, western meadowlark (*Sturnella neglecta)*, ring-necked pheasant

(*Phasianus colchicus)*, Swainson's hawk, turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), northern harrier, red-tailed hawk, and white-tailed kite.

Blue Oak Savanna

Approximately 3,245 acres of blue oak savanna occurs in association with the blue oak woodlands within the eastern foothill portions of the Planning Area. Blue oak savanna intergrades with both the blue oak woodland and annual grassland communities. Within this community, blue oaks (*Quercus douglasii*) are scattered throughout the savanna with canopy cover ranging from 10 to 40 percent. Canopies do not generally overlap, as blue oaks in the savanna are well spaced. Blue oak is the dominant tree with the occasional foothill pine (*Pinus sabiniana*) and interior live oak (*Quercus wislizenii*). Shrub cover is usually minimal and includes poison oak (*Toxicodendron diversilobum*), buck brush (*Ceanothus cuneatus*), redberry (*Rhamnus crocea*), and manzanita (*Arctostaphylos* spp.). The understory consists of annual grasses and forbs including wild oats, ripgut brome, hedgehog dogtail grass (*Cynosurus echinatus*), soft chess, and rattail fescue (*Vulpia myruros*).

Blue Oak Woodland

Blue oak woodlands cover approximately 10,702 acres within the Planning Area. Blue oak woodland occurs in the foothills and intergrades with blue oak savanna and annual grasslands. The blue oak woodlands within the Planning Area are characterized by a mature canopy dominated by blue oak with occasional interior live oak, valley oak (*Quercus lobata*), and foothill pine as associates. Tree canopy within the Planning Area ranges from approximately 40 to 100 percent. Dominant shrub species include manzanita, ceanothus (*Ceanothus* spp.), redberry, California coffeeberry (*Rhamnus californica*), poison oak, and California buckeye (*Aesculus californica*). The herbaceous understory consists of annual grasses and forbs including ripgut brome, soft chess, wild oats, hedgehog dogtail grass, rose clover (*Trifolium hirtum*), popcorn flower (*Plagiobothrys nothofulvus*), and brodiaea.

Mixed Oak Woodland

Approximately 7,156 acres of mixed oak woodlands occur at high and low elevations throughout the Planning Area on level to steep topography, with tree canopies exceeding 40 percent cover. At low elevations, species include valley oak, interior live oak, and blue oak. At higher elevations, mixed oak woodland includes blue oak, interior live oak, black oak (*Quercus kelloggii*), and canyon live oak (*Quercus chrysolepis*). Trees found in association with this community include foothill pine and Fremont's cottonwood (*Populus fremontii*). At lower elevations, trees can reach 50 feet or more in height. Shrub cover includes poison oak, buck brush, and blue elderberry (*Sambucus mexicana*). Herbaceous cover consists of annual grasses and forbs including ripgut brome, soft chess, wild oat, and vetch (*Vicia* spp.)

At higher elevations, trees within mixed oak woodlands average 25 to 30 feet in height and canopy cover can reach 100 percent. The shrub layer is typically dense to impenetrable and includes toyon (*Heteromeles arbutifolia*), California bay (*Umbrellularia californica*), manzanita, coffeeberry, buck brush, redbud (*Cercis occidentalis*), poison oak, squaw bush (*Rhus trilobata*), and California buckeye. The herbaceous layer is generally sparse and includes soft chess, ripgut brome, wild oat, red brome (*Bromus madritensis* ssp. *rubens*), brodiaea, various alliums (*Allium* spp.), various clovers (*Trifolium* spp.), goldback fern (*Pityrogramma triangularis*), and yellow star thistle. The mixed oak woodland community intergrades with blue oak woodland and annual grassland communities.

Interior Live Oak Woodland

Interior live oak woodlands cover approximately 912 acres within the Planning Area and occur at the upper elevations in association with the eastern foothills and canyons. The woodland canopy generally exceeds 40 percent cover and consists primarily of live oak and is associated with blue oak and foothill pine. The understory comprises shrub species including redberry, toyon, manzanita, coffeeberry, poison oak, and redbud. Herbaceous species include Italian rye grass (*Lolium multiflorum*), hedgehog dogtail grass, Dutchman's pipe (*Aristolochia californica*), bedstraw (*Galium aparine*), and field hedge parsely (*Torilis arvensis*).

Wildlife Associated with Oak Woodlands and Savanna

In California, oak woodland and savanna is one of the most biologically diverse communities, providing habitat for approximately 2,019 plant, 5,000 insect, 80 amphibian and reptile, 160 bird, and 80 mammal species (Merenlender and Crawford, 1998). Oak woodlands are considered important habitats because of their high value to wildlife in the form of nesting sites, cover, and food (Ritter, 1988). Both oak woodlands and savannas provide abundant nesting, roosting, and cover opportunities for wildlife species in association with grassland foraging habitats. These communities also support decadent trees that provide abundant cavities that provide nesting sites for birds and foraging opportunities for insect-eating birds. Oak trees are particularly valuable because of the production of acorns, which are an abundant high-quality food for many birds and mammals. Downed wood from oak trees also provides food and cover for a variety of arthropods, fungi, and wildlife species (Standiford, McCreary, and Purcell, 2002).

Common wildlife associated with oak woodland and savanna communities within the Planning Area include western fence lizard, common kingsnake (*Lampropeltis getulus*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), western gray squirrel (*Sciurus griseus*), big brown bat (*Eptesicus fuscus*), pallid bat (*Antrozous pallidus*), cottontail (*Sylvilagus audubonii*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), Pacific slope flycatcher (*Empidonax difficilis*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), wild turkey (*Meleagris gallopavo*), California quail (*Lophortyx californicus*), western scrub jay (*Aphelocoma californica)*, yellow-billed magpie (*Pica nuttalli*), tree swallow (*Tachycineta bicolor*), oak titmouse (*Baeolophus inornatus*), house wren (*Troglodytes aedon*), western bluebird (*Sialia mexicana*), and many other reptile, mammal, and bird species. Special-status wildlife species that may occur in these community types include valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western spadefoot toad (*Spea hammondii*), Cooper's hawk (*Accipiter cooperii*), golden eagle (*Aquila chrysaetos*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

Chaparral

Various forms of chaparral are present at the upper limit of the occurrence of oak-dominated communities. Although chaparral is not a covered natural community in the HCP/NCCP (SAIC, 2007), because oak-dominated communities form a mosaic with chaparral, it is necessary to include chaparral as a land cover type. The Planning Area includes approximately 1,975 acres of chaparral. Described herein is mixed chaparral, which is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves.

Generally, mixed chaparral occurs on steep slopes and ridges with relatively thin, well-drained soils. At maturity, cismontane mixed chaparral typically is a dense, nearly impenetrable thicket with greater than 80 percent absolute shrub cover (England, 1988). Considerable leaf litter and standing dead material may accumulate in stands that have not burned for several decades

(England, 1988). Common wildlife species include spotted towhee (*Pipilo maculatus*), California quail, western scrub jay, western fence lizard, and western rattlesnake (England, 1988).

Cottonwood-Willow Riparian

Cottonwood-willow riparian woodland occurs at several locations throughout the Planning Area and covers approximately 2,527 acres including the Teichert Ponds adjacent to State Route 99, Lindo Channel, and the floodplain of Butte Creek. Where this community occurs, annual inundation and a high water table support Fremont's cottonwood, which is the dominant tree. Associate species include sandbar willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and arroyo willow (*Salix lasiolepis*). Common herbaceous plant species include California mugwort (*Artemisia douglasiana*), barnyard grass (*Echinochloa crusgalli*), deer grass (*Muhlenbergia rigens*), ripgut brome, dallis grass (*Paspalum dilatatum*), prickly lettuce (*Lactuca serriola*), and bedstraw. Some non-native species found in this community include Chinese pistache (*Pistacia chinensis*), tree-of-heaven (*Ailanthus altissima*), firethorn (*Pyracantha angustifolia*), silk tree (*Albizia julibrissin*), and catalpa (*Catalpa speciosa*). The cottonwood-willow riparian community intergrades with other floodplain habitats including willow scrub and emergent wetland.

Valley Oak Riparian

The valley oak riparian community covers approximately 1,177 acres of the Planning Area and occurs in conjunction with several seasonal and perennial creeks and streams. This community is dominated by mature stands of valley oak with other associate trees including Fremont's cottonwood, California black walnut (*Juglans hindsii*), and western sycamore (*Plantanus racemosa*). The understory is dense and multilayered and includes Oregon ash (*Fraxinus latifolia*), Goodding's willow, sandbar willow, arroyo willow, and wild grape (*Vitus californica*). Other riparian species include Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), Dutchman's pipe, button willow (*Cephalanthus occidentalis*), blue elderberry, white alder (*Alnus rhombifolia*), and box elder (*Acer negundo*). Valley oak riparian integrades with cottonwood riparian, willow scrub, and mixed riparian communities. Where this community occurs near urban areas, non-native species are common and include tree-of-heaven, Chinese pistache, periwinkle (*Vinca major*), Algerian ivy (*Hederia canariensis*), silk tree, and silver maple (*Acer saccharinum*).

Dredger Tailings

Dredger tailings are characterized by excessively uneven ground, typically in a regular pattern of long mounds and depressions with numerous ponds, clumps of riparian vegetation, and unvegetated ground. Approximately 686 acres of dredger tailings occur within the Planning Area. They typically occur along drainages, and riparian cover categories predominate upstream and downstream.

Herbaceous Riparian River Bar

Herbaceous riparian and river bar occurs along major streams and rivers. The Planning Area contains approximately 152 acres of this community. Generally, these are areas that have been scoured recently, resulting in low cover of vegetation; however, they are sufficiently elevated to be above the low flow water level.

Willow Scrub

There are approximately 364 acres of willow scrub within the Planning Area. Willow scrub occurs within the floodplains of many creeks and streams flowing through the Planning Area where Goodding's willow, arroyo willow, and sandbar willow occur as dense stands approaching 100 percent coverage and up to 20 feet in height. Associate tree species include box elder, valley oak, Fremont's cottonwood, English walnut (*Juglans regia*), and California black walnut. The understory is nonexistent to sparse and consists of field hedge parsley, bedstraw, creeping wild rye (*Leymus triticoides*), Himalayan blackberry, California blackberry, and California mugwort. The willow scrub community intergrades with freshwater emergent wetland, other riparian communities, and on drier sites, with annual grassland communities.

Wildlife Associated with Riparian Communities

The diverse and complex vegetation and vegetative structure present in riparian communities provides habitat for over 225 birds, mammals, and reptiles in California (Riparian Habitat Joint Venture, 2004). Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover for many wildlife species. The multistratified vegetative structure present in woody riparian communities plays a major role in the high species diversity found in these communities. Riparian systems function as important wildlife movement corridors, providing habitat connectively along major drainages within the Planning Area. Significant riparian resources in the Planning Area occur along Butte Creek, Big Chico Creek, and several other smaller drainages. Common species found within riparian communities in the Planning Area include great egret (*Andrea alba*), great blue heron (*Ardea herodias)*, Nuttall's woodpecker, scrub jay, oak titmouse, California towhee (*Pipilo crissalis*), Anna's hummingbird (*Calypte anna*), wrentit (*Chamaea fasciata*), western gray squirrel, and many other species. Riparian communities also support numerous special-status species such as valley elderberry longhorn beetle, Swainson's hawk, Cooper's hawk, western yellow-billed cuckoo *(Coccyzus americanus occidentalis),* yellow-breasted chat (*Icteria virens)*, yellow warbler (*Dendroica petechia)*, and ringtail (*Bassariscus astutus)*.

Open Water/Riverine

The approximately 496 acres of open water habitats within the Planning Area include man-made ponds and lakes. Vegetation in this community is highly variable and includes cattail (*Typha latiofolia*), pond weed (*Potamogeton* spp.), elodea (*Elodea* spp.), duckweed (*Lemna* spp.), azolla (*Azolla* spp.), and parrot's feather (*Myriophyllum aquaticum*). Open water habitats intergrade with emergent wetlands and some riparian communities.

Riverine habitats described herein include perennial and intermittent riverine habitats. Perennial riverine habitats are described as lower and upper depending on position within the Planning Area. Lower perennial riverine habitat occurs along Butte Creek, Comanche Creek, Little Chico Creek, and Big Chico Creek (downstream from Manzanita Avenue). These drainages have low water velocities, well-developed floodplains, and perennial flows. Common plant species include cattail, California tule (*Scirpus californicus*), cut-grass (*Leersia oryzoides*), water primrose (*Ludwigia palustris*), northern willow herb (*Epilobium ciliatum*), and waterwort (*Elatine californica*). Riparian communities are common along lower perennial riverine habitats.

Upper perennial riverine habitats are found along the upstream portions of Butte Creek, Little Chico Creek, and Big Chico Creek and are associated with steep gradients, high water velocities, narrow floodplains, and perennial flows. These habitats are associated with willow scrub, emergent wetland, and occasionally riparian communities.

Intermittent riverine habitats include minor and major drainages throughout the Planning Area and convey seasonal flows, usually only during the wet season. Vegetation is highly variable in these habitats. Drainages mapped as intermittent riverine in the Planning Area include Lindo Channel, Rock Creek, Keefer Slough, Mud Creek, Sycamore Creek and the Sycamore Creek Diversion, and Little Chico Creek-Butte Creek Diversion.

Common vegetation found along the larger drainages include western sycamore, Fremont's cottonwood, valley oak, mulefat (*Baccharis salicifolia*), willows, Mormon tea (*Ephedra* spp.), California brickellbush (*Brickellia californica*), redbud, and blue elderberry. Seasonal vegetation includes Italian rye grass, triple awn (*Aristidia* spp.), dense flowered spike-primrose (*Epilobium densiflora*), deer grass, glandular hareleaf (*Lagophylla glandulosa*), and spurge (*Euphorbia* spp.). Woody vegetation is largely absent from minor drainages. Seasonal vegetation found in the smaller drainages include coyote thistle (*Eryngium vaseyi*), loostrife hedge hyssop (*Lythrum hyssopifolia*), mullugo (*Mollugo verticillata*), cocklebur (*Xanthium strumarium*), vinegar weed (*Trichostema lanceolatum*), monkey flower (*Mimilus pilosa*), spike rush (*Eleocharis macrostachya*), pepperwort (*Marsilea vestita*), curly dock (*Rumex crispus*), and Mediterranean barley (*Hordeum marinum* ssp. *gussonianum*).

Wildlife Associated with Open Water and Riverine Communities

Open water and riverine communities are valuable to wildlife due to the diversity of habitat elements such as pool and riffle complexes, exposed banks, and variable stream structure. A variety of native and non-native fish inhabit the open water and riverine communities within the Planning Area. The Big Chico drainage basin within the Planning Area supports native Chinook salmon (*Oncorhynchus tshawytscha*) (Central Valley spring-run and fall-/late fall-run), steelhead and rainbow trout (*Oncorhynchus mykiss*), Sacramento pikeminnow (*Ptychocheilus grandis*), California roach (*Lavinia symmetricus*), Sacramento sucker (*Catostomus occidentalis*), hardhead (*Mylopharodon conocephalus*), riffle sculpin (*Cottus gulosus*), and Pacific lamprey (*Lampetra tridentata*), and non-native species including smallmouth bass (*Micropterus dolomieu*), green sunfish (*Lepomis cyanellus*), and brown trout (*Salmo trutta*) (Big Chico Creek Watershed Alliance, 2007).

While some species are primarily aquatic, adjacent uplands are also used for a portion of their life history, such as western pond turtle (*Emys marmorata*), giant garter snake, and Pacific treefrog (*Hyla regilla)*. Other species dependent on aquatic habitats, but generally found only where these habitats occur in association with certain upland habitat types, such as riparian woodlands, include belted kingfisher (*Cerle alcyon*), wood duck (*Aix sponsa*), great blue heron, green-backed heron (*Butorides striatus*), mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*).

Disturbed

Disturbed ground consisted of areas that have been recently graded, including mining sites and landfills. They occur in various locations throughout the Planning Area and total approximately 451 acres. Areas that were clearly graded for new residential, commercial, or industrial development were mapped as urban.

Ranchettes – Open

Non-wooded ranchettes generally occur in the valley bottom in predominantly agricultural areas or between agricultural areas and urban areas. The Planning Area includes approximately

694 acres of open ranchettes. They are characterized by housing and small farms. Development comprises more than 20 percent of the cover in this land cover type. Small (less than 10 acres) inclusions of irrigated agriculture and orchards are common.

Ranchettes – Wooded

Approximately 859 acres of wooded ranchettes occur in areas otherwise mapped as oak woodlands. Generally they consist of development and sometimes landscaping surrounding houses that are scattered within the woodland. Development comprises greater than 20 percent of the cover in this land cover type. In cases with widely separated ranchettes, minimal landscaping, or other mechanical disturbance of the understory, the ranchettes are mapped in the greater oak woodland category.

Urban

Approximately 17,023 acres have been designated as urban within the Planning Area, including areas designated as park. Urban communities are characterized by residential and commercial developments that generally include structures, roadways and other hardscape, remnant mature native trees, and ornamental landscaping. Park communities are integrated into the urban community and include designated open space areas that are predominantly landscaped. Typical landscape species in the urban community are generally non-natives such as junipers (*Juniperus* spp.), roses (*Rosa* spp.), Bradford pear (*Pyrus callereyana* 'Bradford'), crepe myrtle (*Lagerstroemia indica*), weeping willow (*Salix babylonica*), oleander (*Nerium oleander*), and English ivy (*Hedera helix*). Common urban street trees within the Planning Area include California black walnut, Chinese pistache, liquidamber (*Liquidamber styraciflua*), eucalyptus (*Eucalyptus* spp.), London plane (*Plantanus acerifolia*), olive (*Olea europaea*), and tulip tree (*Liriodendron tulipifera*). Mature native valley oaks are scattered throughout the Planning Area, including on urbanized lands. Ruderal habitats within vacant lots are generally dominated by species such as yellow star thistle, prickly lettuce, flax-leaved flea bane (*Conyza bonariensis*), and non-native grasses including soft chess, ripgut brome, and foxtail barley. Vegetation within park communities largely consists of turf with occasional non-native tree species similar to those found in urban habitats. Park areas include portions of Bidwell Park vegetated with native species such as Valley oak, California black walnut, Oregon ash, and western sycamore. Parks can include golf courses, playing fields, and baseball and softball diamonds.

Wildlife Associated with Urban (Disturbed) Communities

Many common wildlife species have become adapted to utilize urban and park areas for foraging, shelter, and breeding habitat. These species readily adapt to tolerate human disturbance and to non-native vegetation. Species associated with urban and park areas within the Planning Area include mockingbird (*Mimus polyglottos*), scrub jay, house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), lesser goldfinch (*Carduelis psaltria*), house sparrow (*Passer domesticus*), western gray squirrel, California ground squirrel, rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), American crow, Brewer's blackbird (*Euphagus cyanocephalus*), sandhill crane (*Grus canadensis*), various raptor species, egrets, and many species of rodents. A few other species that may be found, particularly in park areas, include raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), Pacific treefrog, and western toad (*Bufo boreas*).

Wetlands

Approximately 190 acres of wetlands occur as natural features on the landscape as vernal pools and other seasonal wetlands and as emergent wetlands along the edges of open water habitats or freshwater marshes, or as managed features on the landscape in association with the agricultural landscape or specifically developed for wildlife management purposes. For a more detailed discussion, wetlands have been broken down into two categories, vernal pools and emergent wetlands, as described below.

Vernal Pools

Vernal pools are shallow, seasonally inundated depressional wetlands that form in soils with a subsurface layer that restricts the downward flow of water. These layers include hardpans, claypans, or thick clay layers. Vernal pools are typically identified as depressions within the topography with a hydrologic regime dominated by inundation and capable of supporting hydrophytic plant species and hydric soils. Plant species found within vernal pools are those that require extended periods of inundation and, as such, are commonly associated with these seasonal wetland features. Typically, dominant plant species (at least temporally) within vernal pools are perennial plant species that have adapted to withstand such extended conditions. For short periods throughout the year, these features are dominated by a succession of short-lived vegetation communities composed of annual plant species.

There are approximately 49 acres of vernal pool habitat, including altered vernal pools, within the Planning Area, with most vernal pools occurring in the eastern portion. Known vernal pool habitats are found in the vicinity of Stilson Canyon Road; north and south of Sycamore Creek; Bruce Road (Schmidbauer property); Humboldt Road (east of Hank Marsh Jr. High School); Foothill Park; Bidwell Ranch; and east, west, and south of the Chico Municipal Airport. These pools range in size from small, isolated basins to large vernal pool complexes covering several acres.

Vernal pools and swales contain a unique assemblage of native herbaceous forbs and grasses. Species found within the Planning Area include Fremont's goldfield (*Lasthenia fremontii*), valley goldfield (*Lasthenia californica*), tidy tips (*Layia fremontii*), white navarretia (*Navarretia leucocephalus*), pogogyny (*Pogogyny ziziphoroides*), yellow carpet (*Blennosperma nanum*), mannagrass (*Glyceria* spp.), coyote thistle, spike rush, hedge-hyssop, annual hairgrass (*Deschampsia danthonioides*), woolly marbles (*Psilocarphus brevissimus*), vernal pool foxtail (*Alopecurus saccatus*), vinegar weed, dove weed (*Croton setigerus*), dense-flowered willow-herb (*Epilobium densiflorum*), and toad rush (*Juncus bufonius*).

Vernal pools and swales may also support a number of special-status plant species including, but not limited to, Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*), Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), Hoover's spurge (*Chamaesyce hooveri*), hairy Orcutt grass (*Orcuttia pilosa*), Greene's tuctoria (*Tuctoria greenei*), and slender Orcutt grass (*Orcuttia tenuis*). Habitat for Butte County meadowfoam includes areas with suitable soil type within naturally and man-altered vernal pool habitats and grassland with vernal swale complexes (SAIC, 2007, 2008a).

Emergent Wetland

Approximately 140 acres of emergent wetland occur in association with marshes, ponds, and drainages within the Planning Area. This habitat includes both seasonal and perennial wetlands and is typically associated with agricultural irrigation water or naturally occurring creeks, sloughs,

and rivers. Vegetation varies in height, cover, and species composition depending on the water depth and frequency of inundation. Common vegetation in this habitat includes cattails and tule (*Scirpus robustus*) along with Baltic rush (*Juncus balticus*), barnyard grass, tall nutsesge (*Cyperus eragrostis*), and dallis grass. Other hydrophytic species found in this habitat include water smartweed (*Polygonum amphibium*), ditchgrass (*Paspalum distichum*), salt grass (*Distichlis spicata*), floating boxseed (*Ludwigia repens*), and South American vervain (*Verbena bonariensis*).

In habitat with only seasonal inundation, typical vegetation is shorter and includes many annual species. Common plant species found in seasonal wetlands include Italian ryegrass, curly dock, spikerush, swamp grass (*Crypsis schoenoides*), alkali grass (*Puccinellia* spp.), coyote thistle, loosestrife hedge hyssop, and cocklebur.

Wildlife Associated with Wetland Communities

Vernal pools and swales in the Planning Area are important habitat for a variety of wildlife species including terrestrial and aquatic invertebrates, mammals, amphibians, reptiles, and birds. Some species depend entirely on these habitats throughout their lifecycle, others for only a portion of their lifecycle (e.g., breeding habitat or food source). Vernal pools and vernal swales provide important habitat for several species of threatened and endangered crustaceans including vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and conservancy fairy shrimp (*Branchinecta conservatio*).

Both natural and managed wetlands in the Planning Area provide valuable nesting, foraging, cover, and breeding habitat for many bird, amphibian, and mammal species. Common wildlife species include western pond turtle, bullfrog (*Rana catesbeiana*), Pacific treefrog, black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra Americana*), great blue heron, raccoon, striped skunk (*Mephitis mephitis*), and muskrat.

SENSITIVE HABITATS AND CRITICAL HABITATS

Sensitive habitats as defined in this EIR include (a) areas of special concern to resource agencies; (b) areas protected under the California Environmental Quality Act (CEQA); (c) areas designated as sensitive natural communities by the California Department of Fish and Game (CDFG); (d) areas outlined in Section 1600 of the California Fish and Game Code; (e) areas regulated under Section 404 of the federal Clean Water Act (CWA); (f) areas protected under Section 402 of the CWA; and (g) areas protected under local regulations and policies. Some of the biological communities found in the Planning Area are sensitive habitats protected by various agencies. The riverine, riparian, and wetland habitats within the Planning Area are sensitive habitats. Vernal pools, emergent wetlands, and other wetland areas provide potential habitat for special-status species. Oak woodland communities (interior live oak woodland, blue oak woodland, blue oak woodland, and mixed oak woodland) are also considered sensitive habitats.

The U.S. Fish and Wildlife Service (USFWS) defines critical habitat as a specific area that is essential for the conservation of a federally listed species and which may require special management considerations or protection. Critical habitat for vernal pool fairy shrimp has been designated primarily within the eastern portions of the Planning Area, whereas critical habitat for tadpole shrimp has been designated within the southern tip of the Planning Area (USFWS, 2006, 2009b). Critical habitat has been designated for Butte County meadowfoam, all of which is located within the Butte Regional HCP/NCCP planning area; a total of 16,636 acres (6,732 hectares) has been designated as critical habitat in four separate areas (Units 1, 2, 3, and 4), all

of which are in Butte County (USFWS, 2006). There are a number of Butte County meadowfoam occurrences within the Planning Area (CDFG, 2009; SAIC, 2007) primarily within the eastern and northern portions of the identified habitat (USFWS, 2006, 2009b). Critical habitat has also been designated for Chinook salmon (Central Valley spring-run) within the major creeks of the Planning Area including Mud Creek, Lindo Channel, Big Chico Creek, and Butte Creek (National Marine Fisheries Service, National Oceanic and Atmospheric Administration [NMFS, NOAA] 2005; USFWS, 2009b). **Figure 4.10-2** shows the critical habitat within and directly surrounding the Planning Area.

WILDLIFE CORRIDORS

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to sustain species with specific foraging requirements, preserve a species' distribution potential, and retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource. The waterways and any surrounding riparian corridor within the Planning Area serve as aquatic and terrestrial wildlife migration corridors. In particular, riparian habitat is present along reaches of Big Chico Creek within Bidwell Park and the upper reaches of Mud Creek (see **Figure 4.10-1**). In addition, agricultural and open space lands within the Planning Area may also be used as wildlife corridors by a variety of wildlife species. Migratory and resident deer that use the Planning Area are primarily associated with oak woodland and savanna and riparian communities (SAIC, 2007). The majority of migratory deer habitat in Butte County is winter range, which is considerably less abundant than summer range and is considered the limiting portion of deer habitat (SAIC, 2007). The Eastern Tehama deer herd is the largest migratory deer herd in the county and occupies a range considered to be the most extensive in the state (SAIC, 2007). The deer herd's winter range within Butte County extends from the valley floor to nearly 4,000 feet in elevation; critical winter range generally extends from 1,000 to 3,000 feet in elevation, which includes the eastern portion of the Planning Area (see Figure 13-4 of the Butte County General Plan 2030 Setting and Trends Report) (SAIC, 2007; Butte County, 2007).

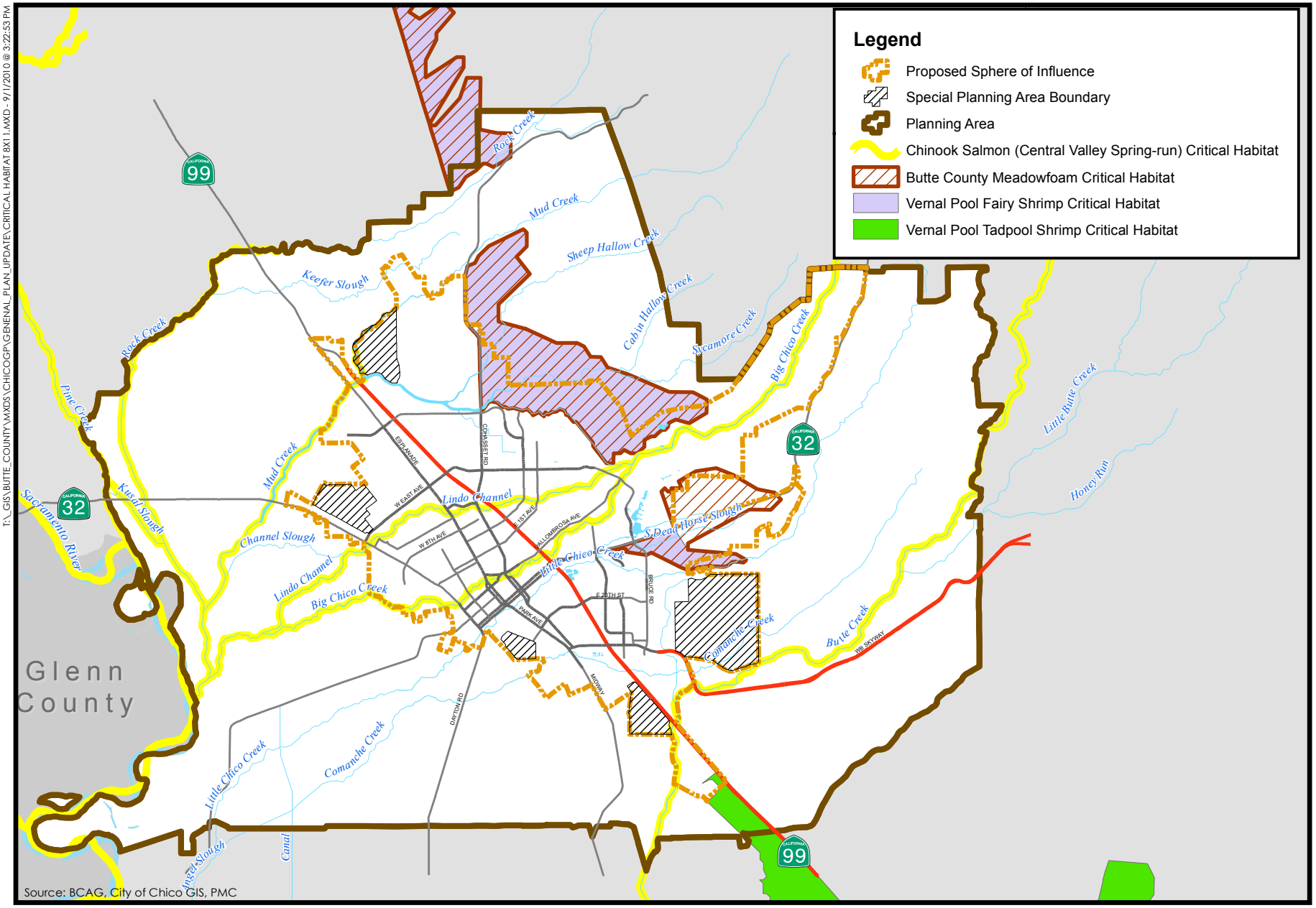

Figure 4.10-2

Critical Habitat within and surrounding the Planning Area

SPECIAL-STATUS SPECIES

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of relatively limited distribution and generally require specialized habitat conditions.

Special-status plant species are defined as:

- Listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA) (50 Code of Federal Regulations (50 CFR 17-12 [listed plants] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under the FESA.
- Listed or candidates for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 CCR 670.5).
- Listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
- Considered by California Native Plant Society (CNPS) to be rare, threatened, or endangered in California (CNPS Lists 1B and 2).

Special-status wildlife are animals that meet the definition of "endangered, rare, or threatened" under CEQA (State CEQA Guidelines Section 15380). For the purposes of this document, this includes all species that meet any of the following criteria:

- Listed or proposed for listing as threatened or endangered under FESA (50 CFR 17-11 [listed animals] and various notices in the Federal Register [proposed species]).
- Candidates for possible future listing as threatened or endangered under FESA.
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5).
- Otherwise protected under state or federal law.

The potential for special-status species to occur within the Planning Area was evaluated by querying the California Natural Diversity Database (CDFG, 2009), the USFWS (2009a), and the CNPS (2009) for previously recorded occurrences of special-status species within the Chico, California USGS 7.5-minute quadrangle (USGS, 1948) and eight surrounding quadrangles (Nord, Richardson Springs, Hamlin Canyon, Shippee, Paradise West, Ord Ferry, Llano Seco, and Nelson) (**Appendix E**).

CDFG maintains records for the distribution and known occurrences of sensitive species and habitats in the California Natural Diversity Database (CNDDB), which is organized into map areas based on 7.5-minute topographic maps produced by USGS. The CNDDB is based on actual recorded occurrences, but does not constitute an exhaustive inventory of every resource. The absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from that area, but that no data has been entered into the CNDDB inventory. Detailed field surveys are generally required to provide a conclusive determination on

presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

Tables 4.10-2 and **4.10-3** identify the special-status species plant and animal species, respectively, which have potential to be affected by projects occurring within the Planning Area. The habitat preferences for each special-status species were carefully reviewed and considered in the context of the Planning Area and surrounding areas. Species having no potential for occurrence are not expected to occur based on the known elevation or distribution range of the species or the lack of suitable habitat. Species that do have potential for occurrence are described in more detail below. **Tables 4.10-2** and **4.10-3** include the common name and scientific name for each species, regulatory status, habitat descriptions, and potential for occurrence within the Planning Area.

Species proposed as covered species under the Butte Regional HCP/NCCP (SAIC, 2007) are also included in **Tables 4.10-2** and **4.10-3** below. The list of proposed covered species presented in the Draft Ecological Baseline Report for the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (SAIC, 2007) is considered a working list of species.

TABLE 4.10-2
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING WITHIN THE PLANNING AREA

Scientific Name **Common Name**	**Status**			**Habitat Description[4]**	**Considered in Impact Analysis**	**Rationale**
	Federal[1]	State[2]	CNPS[3]			
Plants						
Astragalus tener var. *ferrisiae* Ferris's milk-vetch	~	~	1B	Meadows and seeps (vernally mesic), valley and foothill grassland (sub-alkaline flats). Known only from six extant occurrences. Blooming period: April – May Elevation: 5 – 75 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
California macrophylla Round-leaved filaree	~	~	1B	Annual herb found in cismontane woodlands and valley and foothill grasslands on clay soils. Blooming period: March – May Elevation: 15 – 1,200 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 10 miles of Planning Area.
Calystegia atriplicifolia ssp. *buttensis* Butte County morning-glory	~	~	1B	Dry, mostly open slopes in lower montane coniferous forest and chaparral habitats. Blooming period: May – July Elevation: 600 – 1,524 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 1 mile of the Planning Area.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Campylopodiella stenocarpa Flagella-like atractylocarpus	~	~	2	Cismontane woodland. Blooming period: N/A Elevation: 100 – 500 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Carex vulpinoidea Fox sedge	~	~	2	Perennial herb found in wet places including marshes, swamps, and riparian woodlands. Blooming period: May – June Elevation: 30 – 1,200 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Castilleja rubicundula ssp. *rubicundula* Pink creamsacs	~	~	1B	Annual herb found in chaparral (openings), cismontane woodlands, meadows and seeps, and valley and foothill grasslands on serpentine soils. Blooming period: April – June Elevation: 20 – 900 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Chamaesyce hooveri Hoover's spurge	FT Critical Habitat	~	1B	Found in vernal pools on volcanic mudflow or clay substrate. Blooming period: July – Sept. Elevation: 25 – 250 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 5 miles of Planning Area.
Clarkia gracilis ssp. *albicaulis* White-stemmed clarkia	~	~	1B	Chaparral, cismontane woodland, often on road cuts, openings, dry brushy slopes, and sometime in serpentine soils. Blooming period: May – July Elevation: 245 – 1,085 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 1 mile of the Planning Area, and two occurrences within the Planning Area.
Delphinium recurvatum Recurved larkspur	~	~	1B	Perennial herb. Chenopod scrub, cismontane woodland, valley and foothill grassland in alkaline soils. Blooming period: March – June Elevation: 3 – 750 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 10 miles of Planning Area.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Didymodon norrisii Norris' beard moss	~	~	2	Cismontane woodland, lower montane coniferous forest/intermittently mesic, rock. Blooming period: N/A Elevation: 600 – 1,973 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 1 mile of the Planning Area, and one occurrence within the Planning Area.
Fritillaria pluriflora Adobe lily	~	~	1B	Bulbiferous herb found in chaparral, cismontane woodland, valley and foothill grasslands, often on adobe soils, and in mesic areas and vernal pools. Blooming period: February – April Elevation: 60 - 705 meters	Yes	Suitable habitat is present within the Planning Area. Five recorded occurrences within the Planning Area.
Hibiscus lasiocarpus Rose-mallow	~	~	2	Marshes, swamps, seeps and sloughs. Freshwater mesic areas, including on stream banks, and in irrigation ditches. Blooming period: June – Sept. Elevation: 0 – 120 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.
Imperata brevifolia California satintail	~	~	2	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps/ often alkali, and riparian scrub/mesic. Blooming period: Sept. – May Elevation: 0 – 500 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 1 mile of the Planning Area, and one occurrence within the Planning Area.
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	~	~	1B	Annual herb found on vernally mesic sites within chaparral, valley and foothill grassland, cismontane woodlands. Sometimes on edges of vernal pools. Blooming period: March – May Elevation: 30 – 100 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 5 miles of the Planning Area.

Scientific Name **Common Name**	**Status**			**Habitat Description[4]**	**Considered in Impact Analysis**	**Rationale**
	Federal[1]	State[2]	CNPS[3]			
Limnanthes floccosa ssp. *californica* Butte County meadowfoam	FE Critical Habitat	SE	1B	Valley and foothill grassland/ vernal pools; mesic areas, sometimes on bottom of vernally moist drainages and pools. Blooming period: March – May Elevation: 46 – 930 meters	Yes	Suitable habitat is present within the Planning Area. Nine recorded occurrences within the Planning Area.
Monardella douglasii ssp. *venosa* Veiny monardella	~	~	1B	Cismontane woodland; valley and foothill grasslands. Heavy clay soils. Blooming period: May – July Elevation: 60 – 410 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Orcuttia pilosa Hairy Orcutt grass	FE Critical Habitat	SE	1B	Endemic to vernal pools of the Sacramento Valley. Blooming period: May – Sept. Elevation: 46 – 200 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 5 miles of the Planning Area.
Paronychia ahartii Ahart's paronychia	~	~	1B	Annual herb found on stony, nearly barren clay of swales and higher ground around vernal pools within valley and foothill grassland and cismontane woodland. Blooming period: May – June Elevation: 30 – 510 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Potamogeton filiformis Slender-leaved pondweed	~	~	2	Marshes and swamps (assorted shallow freshwater). Blooming period: May – July Elevation: 300 – 2,150 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Rhynchospora californica California beaked-rush	~	~	1B	Bogs, fens, lower montane coniferous forest, meadows, seeps, and freshwater marshes and swamps; sometimes on Tuscan volcanic soils. Blooming period: May – July Elevation: 45 – 1,010 meters	Yes	Suitable habitat is present within the Planning Area. Four recorded occurrences within the Planning Area.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Rhynchospora capitellata Brownish beaked-rush	~	~	2	Mesic sites in lower montane coniferous forest and upper montane coniferous forest habitats. Blooming period: July – August Elevation: 455 – 2,000 meters	No	No suitable habitat present within the Planning Area. One recorded occurrence within 5 miles of the Planning Area.
Sidalcea robusta Butte county checkerbloom	~	~	1B	Chaparral, cismontane woodland. Rocky and brush-covered slopes on Tuscan Formation mud flow. Blooming period: April – June Elevation: 90 – 1,600 meters	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 1 mile of the Planning Area, and 13 occurrences within the Planning Area.
Trifolium jokerstii Butte county golden clover	~	~	1B	Valley and foothill grassland, vernal pools on mesic soils. Blooming period: March – May Elevation: 50 – 385 meters	Yes	Suitable habitat is present within the Planning Area. Six recorded occurrences within 10 miles of the Planning Area.
Tuctoria greenei Greene's tuctoria	FE Critical Habitat	CR	1B	Vernal pools. Blooming period: May – July Elevation: 30 – 1,070 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Wolffia brasiliensis Brazilian watermeal	~	~	2	Perennial herb/aquatic found in marshes and swamps (assorted shallow freshwater habitats). Blooming period: April – Dec. Elevation: 30 – 100 meters	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.

CODE DESIGNATIONS

[1] Federal status: 2009 USFWS Listing	[2] State status: 2009 CDFG Listing	[3] CNPS: 2009 CNPS Listing
FE = Listed as endangered under the Endangered Species Act	**SE** = Listed as endangered under the California Endangered Species Act	**1B** = Plant species that are rare, threatened, or endangered in California and elsewhere
FT = Listed as threatened under the Endangered Species Act	**CR** = Species identified as rare by CDFG	**List 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere
4 Habitat description: Habitat description adapted from CNDDB (CDFG, 2009) and CNPS online inventory (CNPS, 2009)		

TABLE 4.10-3
SPECIAL-STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING WITHIN THE PLANNING AREA

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Invertebrates					
Conservancy fairy shrimp *Branchinecta conservatio*	FE	~	Inhabits rather large, cool-water vernal pools with moderately turbid water.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within 5 miles of the Planning Area.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	~	Occurs in association with elderberry shrubs (*Sambucus* spp.).	Yes	Suitable habitat is present within the Planning Area. Seven recorded occurrences within the Planning Area.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT Critical Habitat	~	Occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre, most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE Critical Habitat	~	Occurs in vernal pools and other seasonal freshwater habitats.	Yes	Suitable habitat is present within the Planning Area. Eight recorded occurrences within the Planning Area.
Fish					
Chinook salmon Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT Critical Habitat	ST	Few wild spawning populations remain in the Sacramento River system, California; extirpated in San Joaquin River drainage. This ESU includes chinook salmon entering the Sacramento River from March to July and spawning from late August through early October.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Chinook salmon Sacramento River winter-run ESU *Oncorhynchus tshawytscha*	FE Critical Habitat	SE	Spawns primarily in the mainstem of the Sacramento River immediately downstream of Keswick Dam and below the historic spawning grounds downstream from Shasta Reservoir; most suitable spawning areas are between the Red Bluff Diversion Dam and Keswick Dam. Migrates through the Sacramento River, Delta, and San Pablo and San Francisco bays to nonbreeding habitat in the Pacific Ocean. Some juveniles rear non-natally for brief periods in lower reaches of tributaries.	No	Planning Area is located outside known distribution range of this species.
Delta smelt *Hypomesus transpacificus*	FT	ST	Located exclusively in the Sacramento-San Joaquin Delta. They have been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River. They extend downstream as far as San Pablo Bay. Delta smelt are found in brackish water. They usually inhabit salinity ranges of less than 2 parts per thousand (ppt) and are rarely found at salinities greater than 14 ppt.	No	Planning Area is located outside known distribution range of this species.
Green sturgeon *Acipenser medirostris*	FT	~	Widely distributed, ocean-oriented sturgeon found in nearshore marine waters from Baja Mexico to Canada. Green sturgeons are anadromous, spawning in the Sacramento, Klamath, and Rogue rivers in the spring.	No	Planning Area is located outside known distribution range of this species.
Steelhead Central Valley ESU *Oncorhynchus mykiss irideus*	FT Critical Habitat	~	Spawns in the Sacramento and San Joaquin rivers and their tributaries; now extirpated from most of historical range; the majority of native, natural production occurs in upper Sacramento River tributaries below Red Bluff Diversion Dam.	Yes	Suitable habitat is present within the Planning Area. No recorded occurrences within the Planning Area; however, CalFish (2009) denotes observations.

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Amphibians					
California red-legged frog *Rana aurora draytonii*	FT	CSC	Lowlands and foothill streams, pool, and marshes in or near permanent or late season sources of deep water with dense, shrubby, riparian, or emergent vegetation (e.g., ponds, perennial drainages, well-developed riparian) below 3,936 feet in elevation. Breeds late December to early April.	No	Although suitable habitat is present within the Planning Area, there are no recorded occurrences within 10 miles, and the Planning Area is located outside the known current distribution range for this species.
Western spadefoot toad Spea hammondii	~	CSC	Occurs primarily in grassland habitats with associated seasonal wetlands for breeding.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.
Reptiles					
California (coast) horned lizard *Phrynosoma coronatum frontale*	~	CSC	Occurs in valley-foothill hardwood, conifer and clearings in riparian habitats, as well as in pine-cypress, juniper, and annual grassland habitats.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 1 mile of the Planning Area.
Giant garter snake *Thamnophis gigas*	FT	ST	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November – mid March).	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Northwestern pond turtle *Actinemys marmorata marmorata*	~	CSC	Occurs in permanent or nearly permanent water in a wide variety of habitat types.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Birds					
American peregrine falcon *Falco peregrinus anatum*	FD; MNBMC	SE	Seasonal migrant in Bay Area; open country near water where shorebirds feed. May nest in high cliffs near rivers, wetlands, lakes, and human-made structures.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Bald eagle *Haliaeetus leucocephalus*	FD; MNBMC	SE; CFP	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties. Build stick nests within large tall trees and typically within 1 mile of permanent water. Breeds February to July.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.
Bank swallow *Riparia riparia*	MNBMC	ST	Nests within riparian areas with vertical cliffs, sides of man-made excavations near rivers and riverbanks with fine or sandy soils, up to 7,000 feet above mean sea level. Will also nest in areas void of vegetation.	Yes	Suitable habitat is present within the Planning Area. Five recorded occurrences within the Planning Area.
Burrowing owl *Athene cunicularia*	MNBMC	CSC	Open grasslands and shrublands up to 5,300 feet with low perches and small mammal burrows. Resident year-round. Breeds March through August.	Yes	Suitable habitat is present within the Planning Area. Four recorded occurrences within the Planning Area.
Greater sandhill crane *Grus canadensis tabida*	MNBMC	ST; CFP	(Rookery) This species establishes nesting territories in wet meadows, often interspersed with marsh land habitat. They nest on the ground in dense emergent marsh vegetation. In California, pairs generally nest in open habitats.	No	No suitable nesting habitat within the Planning Area.
Loggerhead shrike *Lanius ludovicianus*	MNBMC	CSC	Inhabits open areas with sparse shrubs, trees, and other perches.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 10 miles of the Planning Area.
Northern harrier *Circus cyaneus*	MNBMC	CSC	Meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands. Nests on ground, usually at marsh edge. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water. Breeds April to September.	Yes	Suitable habitat is present within the Planning Area. No recorded occurrences within 10 miles of the Planning Area.

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Swainson's hawk *Buteo swainsoni*	MNBMC	ST	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	Yes	Suitable habitat is present within the Planning Area. Seven recorded occurrences within the Planning Area.
Tricolored blackbird *Agelaius tricolor*	MNBMC	CSC	Nests in dense blackberry, cattails, tules, willows, or wild rose within emergent wetlands throughout the Central Valley and the foothills surrounding the valley.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FC; MNBMC	SE	Riparian forest, along the broad, lower flood-bottoms of large river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Yes	Suitable habitat is present within the Planning Area. Five recorded occurrences within the Planning Area.
Yellow warbler *Dendroica petechia brewsteri*	MNBMC	CSC	Breeds in riparian woodlands from coastal and desert lowlands up to 8,000 feet in Sierra Nevada. Also breeds in montane chaparral and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 10 miles of the Planning Area.
Mammals					
American badger *Taxidea taxus*	~	CSC	Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid to late summer and give birth between March and April.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within 10 miles of the Planning Area.
Pallid bat *Antrozous pallidus*	~	CSC	Pallid bats roost in rock crevices, tree hollows, mines, caves, and a variety of anthropogenic structures, including vacant and occupied buildings, mines, and natural caves which are utilized as roosts. Occurrence is primarily in arid habitats. Colonies are usually small and may contain 12–100 bats.	Yes	Suitable habitat is present within the Planning Area. One recorded occurrence within the Planning Area.

Common Name *Scientific Name*	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Western mastiff bat *Eumops perotis californicus*	~	CSC	Primarily a cliff-dwelling species, generally under exfoliating rock slabs (e.g., granite, sandstone, or columnar basalt). It has also been found in similar crevices in large boulders and buildings. Foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	Yes	Suitable habitat is present within the Planning Area. Three recorded occurrences within the Planning Area.
Western red bat *Lasiurus blossevillii*	~	CSC	Strongly associated with riparian habitats, particularly mature stands of cottonwood/sycamore. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Yes	Suitable habitat is present within the Planning Area. Two recorded occurrences within the Planning Area.

CODE DESIGNATIONS

[1] Federal status: 2009 USFWS Listing	[2] State status: 2009 CDFG Listing
ESU = Evolutionary Significant Unit (a distinctive population)	**SE** = Listed as endangered under the California Endangered Species Act (CESA)
FE = Listed as endangered under the Federal Endangered Species Act (FESA)	**ST** = Listed as threatened under the CESA
FT = Listed as threatened under the FESA	**CSC** = Species of Concern as identified by the CDFG
MNBMC = Migratory Nongame Bird of Management Concern, protected under the Migratory Bird Treaty Act	**CFP** = Listed as fully protected under CDFG code
[3] Habitat description: Habitat description information adapted from CNDDB (CDFG, 2009).	

4.10.2 REGULATORY FRAMEWORK

This section lists specific environmental review and consultation requirements and identifies permits and approvals that must be obtained from local, state, and federal agencies before implementation of the proposed project.

FEDERAL

Endangered Species Act

Provisions of the federal Endangered Species Act (FESA), as amended (16 USC 1531), protect federally listed threatened and endangered species and their habitats from unlawful take. "Take" under the FESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS regulations define harm to include some types of "significant habitat modification or degradation." In the case of *Babbitt, Secretary Of Interior, et al., Petitioners v. Sweet Home Chapter Of Communities For A Great Oregon, et al.* (No. 94-859) (U.S. Supreme Court, 1995), the United States Supreme

Court ruled on June 29, 1995, that "harm" may include habitat modification "where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."

For projects with a federal nexus, Section 7 of the FESA requires that federal agencies, in consultation with the USFWS or National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries), use their authorities to further the purpose of the FESA and to ensure that their actions are not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. Section 10(a)(1)(B) allows non-federal entities to obtain permits for incidental taking of threatened or endangered species through consultation with USFWS or NOAA Fisheries. In general, NOAA Fisheries is responsible for protection of federally listed marine species and anadromous fish while other listed species come under USFWS jurisdiction. Key provisions of the FESA are summarized below under the section that implements them.

Section 10

Section 10 of the FESA provides a means for nonfederal entities (states, local agencies, and private parties) that are not permitted or funded by a federal agency to receive authorization to disturb, displace, or kill (i.e., take) threatened and endangered species. It allows USFWS and/or NOAA Fisheries to issue an incidental take permit authorizing take resulting from otherwise legal activities, as long as the take would not jeopardize the continued existence of the species. Section 10 requires the applicant to prepare a Habitat Conservation Plan (HCP) addressing project impacts and proposing mitigation measures to compensate for those impacts. The HCP is subject to USFWS and/or NOAA Fisheries review and must be approved by the reviewing agency or agencies before the proposed project can be initiated. Because the issuance of the incidental take permit is a federal action, USFWS and/or NOAA Fisheries must also comply with the requirements of the FESA Section 7 and the National Environmental Policy Act (NEPA).

Section 7

Section 7 of the FESA applies to the management of federal lands as well as other federal actions, such as federal approval of private activities through the issuance of federal permits, licenses, funding, or other actions that may affect listed species. Section 7 directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Critical habitat is defined as specific areas that are essential to the conservation of federally listed species.

Clean Water Act, Section 404

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of fill material into waters of the U.S., including wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the federal Clean Water Act (33 USC 1251–1376). USACE regulations implementing Section 404 define waters of the U.S. to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3).

The jurisdictional boundaries for other waters of the U.S. are identified based on the presence of an ordinary high water mark (OHWM) as defined in 33 CFR 328.3(e). The placement of structures in "navigable waters of the U.S." is also regulated by the USACE under Section 10 of the federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are permitted under either individual or general (e.g., nationwide) permits. Specific applicability of permit type is determined by the USACE on a case-by-case basis.

In 1987, the USACE published a manual that standardized the manner in which wetlands were to be delineated nationwide. To determine whether areas that appear to be wetlands are subject to USACE jurisdiction (jurisdictional wetlands), a wetlands delineation must be performed. Under normal circumstances, positive indicators from three parameters, (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils, must be present to classify a feature as a jurisdictional wetland. More recently, the USACE developed the Arid West Regional Supplement (USACE, 2006) for identifying wetlands and distinguishing them from aquatic habitats and other nonwetlands. The supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. For any wetland delineations submitted after June 5, 2007, the USACE is requiring that the site be surveyed according to both the 1987 manual and the supplement guidelines. In addition to verifying wetlands for potential jurisdiction, the USACE is responsible for the issuance of permits for projects that propose filling of wetlands. Any permanent loss of a jurisdictional wetland as a result of project construction activities is considered a significant impact.

A "no net loss" wetlands policy is an overall policy goal for wetland protection first adopted by the George Bush Administration (1989-1993), and endorsed and updated by the Clinton Administration (1993-2001).

Clean Water Act, Section 401

Section 401 of the CWA requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate Regional Water Quality Control Board regulates Section 401 requirements (see under State).

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treat Act (MBTA) of 1918 (16 USC 703–711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The vast majority of birds found in the Planning Area are protected under the MBTA.

Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 USC 668–668c). It is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead, or any part, nest or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the CDFG has the responsibility for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). CDFG maintains a list of "candidate species," which are species that CDFG formally notices as being under review for addition to the list of endangered or threatened species. CDFG also maintains lists of "species of special concern," which serve as species "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under California Fish and Game Code Section 206.591. Authorization from the CDFG would be in the form of an Incidental Take Permit.

Porter-Cologne Water Quality Control Act

Water quality in California is governed by the Porter-Cologne Water Quality Control Act. This law assigns overall responsibility for water rights and water quality protection to the State Water Resource Control Board (SWRCB) and directs the nine statewide Regional Water Quality Control Boards (RWQCBs) to develop and enforce water quality standards within their boundaries.

California Wetlands Conservation Policy

In August 1993, the Governor announced the "California Wetlands Conservation Policy." The goals of the policy are to establish a framework and strategy that will:

- Ensure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.

- Reduce procedural complexity in the administration of State and federal wetlands conservation programs.

- Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetlands conservation and restoration.

The Governor also signed Executive Order W-59-93, which incorporates the goals and objectives contained in the new policy and directs the Resources Agency to establish an Interagency Task Force to direct and coordinate administration and implementation of the policy.

California Regional Water Quality Control Board

Clean Water Act, Section 401 Water Quality Certification

Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate Regional Water Quality Control Board (in California) regulates Section 401 requirements. The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for enforcing water quality criteria and protecting water resources within the Planning Area. The CVRWQCB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements (WDR) or commonly by issuing conditional waivers to WDRs. The CVRWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for Section 404 permits granted by the USACE.

Delegated Permit Authority

California has been delegated permit authority for the National Pollutant Discharge Elimination System (NPDES) permit program including stormwater permits for all areas except Indian lands. Issuing CWA Section 404 dredge and fill permits remains the responsibility of the USACE, but the State actively uses its CWA Section 401 certification authority to ensure 404 permits protect State water quality standards.

State Definition of Covered Waters

Under California state law, "waters of the state" means "any surface water or groundwater, including saline waters, within the boundaries of the state." Therefore, water quality laws apply to both surface and groundwater. After the U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County* v. *Army COE of Engineers* (*SWANCC v. USCOE*), the Office of Chief Counsel of the SWRCB released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other waters of the state are subject to state regulation, and this includes isolated wetlands. In general, the RWQCBs regulate discharges to isolated waters in much the same way as they do for federal-jurisdictional waters, using Porter-Cologne rather than CWA authority.

California Fish and Game Code

Fully Protected Species

Certain species are considered fully protected, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

It is possible for a species to be protected under the California Fish and Game Code, but not fully protected. For instance, mountain lion (*Puma concolor*) is protected under Section 4800 et seq., but is not a fully protected species.

Protection of Birds and Their Nests

Eggs and nests of all birds are protected under Section 3503 of the California Fish and Game Code, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, and birds of prey under Section 3503.5. Migratory non-game birds are protected under Section 3800 and other specified birds under Section 3505.

Stream and Lake Protection

CDFG has jurisdictional authority over streams and lakes and the wetland resources associated with these aquatic systems under California Fish and Game Code Sections 1600 et seq. through administration of lake or streambed alteration agreements. Such agreements are not a permit, but rather a mutual accord between CDFG and the project proponent. California Fish and Game Code Section 1600 et seq. was repealed and replaced in October of 2003 with the new Section 1600–1616 that took effect on January 1, 2004 (Senate Bill 418, Sher). Under the new code, CDFG has the authority to regulate work that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river lake or stream." CDFG enters into a streambed alteration agreement with the project proponent and can impose conditions in the agreement to minimize and mitigate impacts to fish and wildlife resources. Because CDFG includes under its jurisdiction streamside habitats that may not qualify as wetlands under the federal CWA definition, CDFG jurisdiction may be broader than USACE jurisdiction.

A project proponent must submit a notification of streambed alteration to CDFG before construction. The notification requires an application fee for streambed alteration agreements, with a specific fee schedule to be determined by CDFG. CDFG can enter into programmatic agreements that cover recurring operation and maintenance activities and regional plans. These agreements are sometimes referred to as Master Streambed Alteration Agreements (MSAAs).

LOCAL

Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP)

The Butte Regional HCP/NCCP is being coordinated by the Butte County Association of Governments (BCAG) on behalf of the cities of Biggs, Chico, Gridley, Oroville, and the County of Butte. The HCP/NCCP is a voluntary plan that will provide comprehensive species, wetlands, and ecosystem conservation and contribute to the recovery of endangered species within the plan area while also providing a more streamlined process for environmental permitting.

It is anticipated that the public draft HCP/NCCP document which will be released for formal public review in 2010 and will be approved and permitted in 2012. As stated on the Butte Regional HCP/NCCP website (BCAG, 2009), habitat suitability models were developed for many of the 41 preliminary covered species as comprehensive survey coverage was not feasible for most species. These models were developed based on known habitat requirements for the covered species and peer-reviewed literature and are still being reviewed and refined by the steering and stakeholder committees, resources agencies, and various local and regional experts in particular species and habitat associations.

Chico Municipal Code

City of Chico Tree Preservation Regulations

Chico Municipal Code (CMC) Chapter 16.66, Tree Preservation Regulations, controls the removal and preservation of trees on (a) all undeveloped private property within the city which is 10,000 square feet or greater in size and (b) all property that requires discretionary approval of a land use entitlement. Under these regulations, trees afforded protection include "any live woody plant having a single perennial stem of 18 inches or more in diameter, or multistemmed perennial plant greater than 15 feet in height having an aggregate circumference of 40 inches or more, measured at four feet six inches above adjacent ground, and a species specific list at 12 inches (All Oaks, Sycamores, Oregon ash, Big leaf maple) and 6 inches trees (Blue oak, Canyon live oak, Interior live oak, California Buckeye, Madrone, Toyon, Redbud, California bay, Pacific dogwood) with the exception of the following tree species: Ailanthus, Chinese Tallow, Freemont Cottonwood or Poplar, Privet, Box Elder, Silver Wattle, Black Acacia, English Hawthorn, Russian Olive, Olive, Red Gum, Tasmanian Blue Gum, Edible Fig, English Holly, Cherry Plum, Black Locust, Peruvian Peppertree, Brazilian Peppertree, Western Catalpa, Chinese Elm or Winged Elm; or the following fruit and nut trees: Almonds, Apples, Apricots, Avocados, Cherries, Chestnuts, Mandarins, Nectarines, Olives, Oranges, Peaches, Pears, Pecans, Persimmons, Pistachios, Plums or English Walnuts

When Chapter 16.66 applies, a tree removal permit application, including a map showing the precise location, size, species, and drip-line of all existing trees on or adjacent to the property, must be submitted and approved prior to tree removal.

According to CMC section 16.66.085 (Tree Replacement), if a tree removal permit is granted, then it shall include a condition that the removed trees be replaced as follows:

A. On-site. For every six inches in DBH removed, a new 15 gallon tree shall be planted on-site. Replacement trees shall be of similar species, unless otherwise approved by the urban forest manager, and shall be placed in areas dedicated for tree plantings. New plantings' survival shall be ensured for three years after the date of planting and shall be verified by the applicant upon request by the director. If any replacement trees die or fail within the first three years of their planting, then the applicant shall pay an in-lieu fee as established by a fee schedule adopted by the City Council.

B. Off-site. If it is not feasible or desirable to plant replacement trees on-site, payment of an in-lieu fee as established by a fee schedule adopted by the City Council shall be required.

Replacement trees do not receive credit as satisfying shade or street tree requirements otherwise mandated by this code.

4.10.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

A biological resource impact is considered significant if implementation of the proposed General Plan Update would:

1) Have a substantial adverse effect, either directly or indirectly through habitat modifications, on any special-status plant or animal species identified, tracked or listed in local or regional plans, policies, or regulations, or by CDFG, USFWS, or NOAA Fisheries.

2) Have a substantial adverse effect on any wetlands, riparian, or other sensitive or critical habitat identified in local or regional plans, policies, or regulations, or by CDFG or USFWS.

3) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

4) Conflict with any adopted Habitat Conservation Plan (HCP), recovery plan, natural community conservation plan, local ordinance or other approved local, regional, or state plans, policies, intended to protect biological resources.

5) Reduce the number or restrict the range of an endangered, rare, or threatened plant or animal species or biotic community, thereby causing the species or community to drop below self-sustaining levels.

METHODOLOGY

The impact assessment was based on information available from various existing planning documents and database searches, as well as on the standards of significance described above. The assessment discusses potential impacts that could occur upon implementation of the proposed General Plan Update. Impacts were determined by comparing existing habitat baseline data and sensitive species associations to the proposed General Plan Land Use Diagram (**Figure 3.0-3**) and by determining effects that could occur through future development.

Habitat Assessment: All mapping was based on 2005 color orthorectified aerial photography with one-meter resolution (flown in summer or fall); additional aerial photography was used to assist in the mapping effort including February 2002 (two-meter resolution) and November 2006 (two-meter resolution) (SAIC, 2007). Reconnaissance-level visits, the Soil Survey of Butte County Area (NRCS, 2005), and the CDFG California Natural Diversity Database were used to support the land cover mapping, to establish mapping criteria, and to develop land cover type definitions (SAIC, 2007). Classification systems predominantly incorporated and adapted for mapping communities included *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), *A Manual of California Vegetation* (Sawyer and Keeler-Wolfe, 1995), and the FRAP/CWHR. FRAP is used by Cal-Fire as a tool to assess California's forest and rangeland resources. CWHR is an extensive compilation of community-level information describing existing vegetation types important to wildlife. A biological communities figure was created using ArcView by layering the collected data (SAIC, 2007, 2008a/b) (**Figure 4.10-1**).

Special-Status Species Assessment: Special-status species, identified from the literature and database searches, were determined to have potential to occur in the Planning Area if their documented geographic range from the literature and database search includes the project vicinity and if suitable habitat for the species was identified within or near the Planning Area.

The CNDDB was queried for a list of special-status wildlife, plant, and fisheries resources that are known to occur within the Planning Area or vicinity (CDFG, 2009). A database search was performed for special-status species within the Chico, California USGS 7.5-minute quadrangle (USGS, 1948) and eight surrounding quadrangles (Nord, Richardson Springs, Hamlin Canyon, Shippee, Paradise West, Ord Ferry, Llano Seco, and Nelson).

The CNPS electronic online inventory was also searched for rare or endangered plants that may occur within the Planning Area (CNPS, 2009). This query was performed for CNPS List 1B and List 2

special-status plants occurring in the USGS 7.5-minute quadrangles listed above. List 1A species are presumed extinct in California. List 1B species are considered rare or endangered in California and elsewhere. List 2 species are considered rare or endangered in California, but are more common elsewhere.

In addition, the online USFWS list for the USGS 7.5-minute quadrangles listed above was queried and reviewed for federally listed or candidate plant and animal species that could potentially be affected by the proposed General Plan Update (USFWS, 2009a).

When the USFWS lists a species as threatened or endangered under FESA, areas of habitat considered essential to its conservation and survival may be designated as critical habitat. These areas may require special consideration and/or protection due to their ecological importance. In June 2009, potential critical habitat designations within the general vicinity of the Planning Area were checked using the USFWS Critical Habitat Portal (USFWS, 2009b). Critical habitat has been designated for vernal pool fairy shrimp, vernal pool tadpole shrimp, Butte County meadowfoam, and Chinook salmon (Central Valley spring-run) within and/or surrounding the Planning Area (**Figure 4.10-2**).

Appendix E presents the results of the CNDDB, CNPS, and USFWS queries for special-status species that have the potential to occur within the Planning Area and surrounding vicinities. This generalized list of species was reviewed, analyzed, and refined to provide inclusive lists of species that could occur specifically in the Planning Area (**Tables 4.10-2** and **4.10-3**). Range and habitat information of special-status plant and wildlife species was obtained from the California Wildlife Habitat Relationships (CWHR) program version 8 (CDFG, 2002) as well as other sources. No species-specific or protocol-level surveys for special-status species were conducted specifically to support this analysis.

This impact analysis is organized by the significance criteria noted above: special-status plant and wildlife species; sensitive vegetation communities including wetlands; wildlife movement; and compliance with existing Habitat Conservation Plans (HCP) or other plans and policies. Each impact category includes a description of the specific potential impacts, as well as avoidance and mitigation measures that can potentially reduce and mitigate potentially significant impacts.

The reader is referred to Section 3.0, Project Description, for specific features of the proposed General Plan Update.

ASSUMPTIONS

Since the exact nature, location, extent, and intensity of development on parcels associated with the proposed General Plan Update is not known at this time, it is likely that some level of natural resources would be retained within each project parcel. Several areas within the Planning Area are not expected to be developed under the proposed General Plan Update, including the 93-acre Butte Creek Ecological Preserve along the middle section of Butte Creek and the 3,950-acre Big Chico Creek Ecological Reserve which includes 4.5 miles of Big Chico Creek. Primary areas of ground disturbance associated with the General Plan Update will occur within the proposed SOI, particularly in the Special Planning Areas that are not currently developed.

The following general potential impacts were considered in the analysis of impacts included below. Where applicable, the analysis of impacts includes a discussion of state and/or federal regulations, including permitting requirements, which could mitigate impacts.

- Vegetation removal, grading, and construction of new residential, industrial, and commercial uses could result in the direct loss of special-status species and their habitats and loss of sensitive and/or critical habitats.

- Construction in or adjacent to creeks and adjacent riparian habitats could result in direct loss of special-status species and their habitat and loss and/or degradation of aquatic and riparian habitat and wetlands.

- Discharge of construction and other potential sources of polluted stormwater, and increased urban stormwater runoff could result in indirect impacts to special-status species and sensitive and/or critical habitats. Water quality impacts are discussed in more detail in Section 4.9, Hydrology and Water Quality.

- Loss of natural ground cover and increase in impervious areas could result in hydrologic changes that could affect special-status species and riparian habitat through alteration of surface and sub-surface flows, timing, and velocities. Hydrology impacts are discussed in more detail in Section 4.9, Hydrology and Water Quality.

- Increased urban development, particularly on the edge of existing development, could result in further fragmentation of wildlife habitats and disruption of movement corridors.

- Roadway improvements and extensions could result in fragmentation of habitats and disruption of movement corridors.

RESOURCE CONSTRAINT OVERLAY SITES

The Resource Constraint Overlay (RCO) designation acknowledges a reduced development potential in areas with known significant environmental constraints compared to allowable development potential based upon the underlying land use designation. . The designation is applied to three key areas (see **Figure 3.0-3**):

A. West of the Airport

B. Bruce Road

C. Stilson Canyon

The boundaries of the three constraint sites are specified on the Land Use Diagram of the proposed General Plan Update, along with aerial images showing general site conditions. The most significant environmental constraints at these locations are vernal pools, populations of Butte County meadowfoam (BCM), and habitat for BCM.

Vernal pools are a unique ephemeral wetland feature that provide habitat for an array of unique plant and animal species, many of which are protected by state and federal agencies. One of the most sensitive vernal pool species is BCM, a state and federally listed endangered plant species found only in limited areas within Butte County. Loss of habitat has been identified as the primary threat to BCM, and the U.S. Fish and Wildlife Service Recovery Plan for BCM calls for protecting 100 percent of known and newly discovered occurrences as well as protecting 95 percent of the suitable habitat in the Chico region.

Butte County Association of Governments' (BCAG) research in developing the Butte Regional Habitat Conservation Plan was used in setting the location of the three constraint sites. Draft

mapping prepared by BCAG of known occurrences and potential habitat for BCM populations within and surrounding the Planning Area are depicted on **Figure 4.10-3**.

The RCO is applied in conjunction with an underlying land use designation. For purposes of calculating overall densities and intensities of the General Plan build-out, development potential is assumed to be 15 percent of the average development assumed for the underlying land use designation. Land owners of RCO parcels may conduct more detailed studies, including environmental review, and coordinate with resource agencies to determine actual development potential. Such potential may be more or less than the assumed 15 percent, but not more than the maximum allowed development potential allowed by the underlying land use designation.

PROPOSED GENERAL PLAN UPDATE POLICIES THAT ADDRESS BIOLOGICAL RESOURCES

The following proposed General Plan Update policies and actions address biological resources:

Policy LU-2.5 *(Open Space and Resource Conservation) – Protect open space areas with known sensitive resources.*

Action LU-2.5.1 *(Resource Constraint Overlay) – For properties with the Resource Constraint Overlay, which highlights known sensitive resource areas, allow land owners to conduct more detailed environmental studies and coordinate with resource agencies to determine actual development potential. Development proposals for a density or intensity of use above that assumed for the purposes of General Plan projections and the General Plan Update EIR will require additional environmental review.*

NOTE – The Draft EIR assumes that development under this overlay development potential is 15 percent of the average development for the underlying land use.

Policy OS-1.1 *(Sensitive Habitats and Species) – Preserve native species and habitats through land use planning, cooperation, and collaboration.*

Action OS-1.1.1 *(Development-Preservation Balance) – Direct development to appropriate locations consistent with the Land Use Diagram, and protect and preserve areas designated Open Space.*

Action OS-1.1.2 *(Regional Conservation Planning) – Actively participate in regional conservation planning efforts, in particular the Butte County Habitat Conservation Plan process, which seeks the preservation of habitat areas needed for the ongoing viability of native species, sponsored by the Butte County Association of Governments.*

Policy OS-1.2 *(Regulatory Compliance) – Protect special-status plant and animal species, including their habitats, in compliance with all applicable state, federal and other laws and regulations.*

Action OS-1.2.1 *(State and Federal Guidelines) – Ensure that project-related biological impacts are considered and mitigated consistent with local, state and federal regulations.*

Policy OS-2.1 *(Planning and Managing Open Space) – Continue acquisition and management of open space to protect habitat and promote public access.*

Action OS-2.1.1 *(Open Space Plan) – Develop an Open Space and Greenways Master Plan that catalogues the City's open space land holdings, ensures that management and maintenance programs are in place, identifies long-term funding, coordinates with other open space holdings, and prioritizes additional open space acquisitions to enhance connectivity, protect resources, and facilitate public access and circulation.*

Policy OS-2.2 *(Creek Corridors and Greenways) – Expand creekside greenway areas for open space and additional pedestrian/bicycle routes.*

Action OS-2.2.1 *(Creekside Greenway Program) – Continue collecting fees for creekside greenway acquisition, and purchase properties as opportunities arise.*

Policy OS-2.5 *(Creeks and Riparian Corridors) – Preserve and enhance Chico's creeks and riparian corridors as open space for their aesthetic, drainage, and habitat, flood control, and water quality values.*

Action OS-2.5.1 *(Setbacks from Creeks) – Require a minimum 25-foot setback from the top of creek banks for development and associated above ground infrastructure. Analyze the adequacy of a 25-foot setback as a part of project and environmental review and require a larger setback where necessary to mitigate project impacts.*

Policy OS-2.6 *(Oak Woodlands) – Protect oak woodlands as open space for sensitive species and habitat.*

Policy OS-3.1 *(Surface Water Resources) – Protect and improve the quality of surface water.*

Action OS-3.1.1 *(Comply with State Standards) – Comply with the California Regional Water Quality Control Board's regulations and standards to maintain and protect water quality.*

Action OS-3.1.2 *(Runoff from New Development) – Require the use of pollution management practices and National Pollutant Discharge Elimination System permits to control and treat runoff from development.*

Action OS-3.1.3 *(Clean Creeks Project) – Continue implementation of the Chico USA Clean Creeks Project which provides community-wide education regarding storm water runoff, pollution management practices, and the importance of clean creeks.*

Action OS-3.1.5 *(Teichert Ponds Restoration) – Seek funding to implement the Teichert Ponds Restoration Habitat Development Plan, which will enhance storm water quality, wildlife habitat, public access and education at the Teichert Ponds stormwater facility.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address biological resources and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Special-Status Species and Sensitive and Critical Habitats (Standard of Significance 1 and 2)

Impact 4.10.1 Land uses and development consistent with the proposed General Plan Update could result in adverse effects, either directly or indirectly on special-status plant and animal species and sensitive and critical habitats in the Planning Area. However, implementation of General Plan Update policy provision would address this impact. Thus, this impact would be considered **less than significant**.

Land use and development consistent with the proposed General Plan Update could result in adverse impacts on special-status species or essential habitat for special-status species in the Planning Area. As indicated in **Tables 4.10-2** and **4.10-3,** numerous special-status species occurrences are known to occur within or near the Planning Area. Any development within areas that are currently undeveloped, such as the SPAs identified for new growth under the General Plan Update, could result in impacts to special-status species. Where there are direct impacts to special-status species, indirect impacts would occur as well. Indirect impacts may include habitat modification, increased human/wildlife interactions, habitat fragmentation, encroachment by exotic weeds, and area-wide changes in surface water flows and general hydrology due to development of previously undeveloped areas.

Habitat Modification

Implementation of the proposed General Plan Update could result in disturbance, degradation, and removal of riparian, wetland, and oak woodland habitats, which are defined as critical and/or sensitive habitat. **Table 4.10-4** identifies the extent of biological communities that include riparian, wetland, and oak woodland habitats that could be converted or disturbed from development, though the Primary Open Space land use designation would provide preservation and protection of some sensitive and critical habitat. Riparian habitats and waters of the U.S., including wetlands, are considered to be sensitive natural communities by CDFG. In addition, the USACE and CDFG have a "no net loss" policy for jurisdictional features.

Development of previously undeveloped land for residential and nonresidential uses could directly modify the habitat of special-status species through construction activities such as

grading and tree removal, as well as development effects such as increased impervious surfaces. Habitat modification could also include increased human presence and fragmentation, as discussed below.

Increased Human/Wildlife Interactions

Development of residential and nonresidential uses would result in increased human presence in areas formerly uninhabited by humans. Additionally, development of previously undeveloped land for residential uses can expose species to impacts from feral and unconfined pets.

Habitat Fragmentation and Edge Effects

Much of the habitat within the Planning Area that may support or is occupied by special-status species is currently interconnected with areas of open space and rural and agricultural uses that generally have limited impacts on plant and wildlife species in the Planning Area. Development within these areas could fragment available habitat. Development of the Planning Area consistent with the proposed General Plan Update could result in small pockets of conserved habitat that are no longer connected by streams and open space, resulting in indirect impacts to species diversity and movement within the Planning Area.

Encroachment by Exotic Weeds

Generally, landscaping installed as part of development in the region has relied heavily on exotic, non-native plant species (ornamentals) for decoration. However, some of these species can spread to natural areas, causing native plant life to be replaced by exotic species. Construction activities, grading, and other ground or vegetation-clearing disturbances can eliminate the native plant population and allow invasive non-native species to become established. As native plants are replaced by exotic species, indirect impacts to the habitat of listed species would occur such as modification or degradation of habitat.

Changes in Hydrologic Conditions

As development occurs, surface water flows and overall hydrology in creeks and other waterways are altered due to an increase in impermeable surfaces through, for example, the placement of building materials and paving over permeable surfaces. In addition, surface water flows are modified due to changes in surface flow by point source stormwater infrastructure installed as well as from the introduction of drainage flows during seasons when waterways and wetland features are typically dry (commonly referred to as "summer nuisance flows"). Some biological communities that contain habitat for special-status species can be indirectly impacted by such changes. For example, seasonal wetlands survive along a rigid set of soil, water, and climatic conditions. Alteration of current inundation and desiccation regimes due to altered hydrology could substantially alter the characteristics of seasonal wetland habitat, resulting in loss or degradation of habitat in developed and undeveloped areas of the Planning Area.

Table 4.10-4 lists the acres of biological communities within the proposed SOI that are designated for some level of development. For the purposes of calculating the acreages shown in **Table 4.10-4**, any acreage with an RCO designation was assumed to be 15 percent of the actual acreage. These biological communities provide potential habitat for, or are known to support, special-status species. Please refer to **Tables 4.10-2** and **4.10-3** for special-status species associated with the Planning Area. It is important to note that the exact nature and degree of development on individual parcels is unknown at this time. The actual acreage ultimately

impacted is expected to be far less than that shown in **Table 4.10-4**, as future development design proposals on a project-by-project basis will be subject to state and federal regulations that protect habitat and species, and the application of proposed General Plan Update policies and actions that address protection of biological resources as discussed further below. It should be noted that impacts to special-status species have been previously addressed in the Northwestern Chico Specific Plan Environmental Impact Report (EIR) (State Clearinghouse No. 2004082087) and the Meriam Park EIR (State Clearinghouse No. 2005072045).

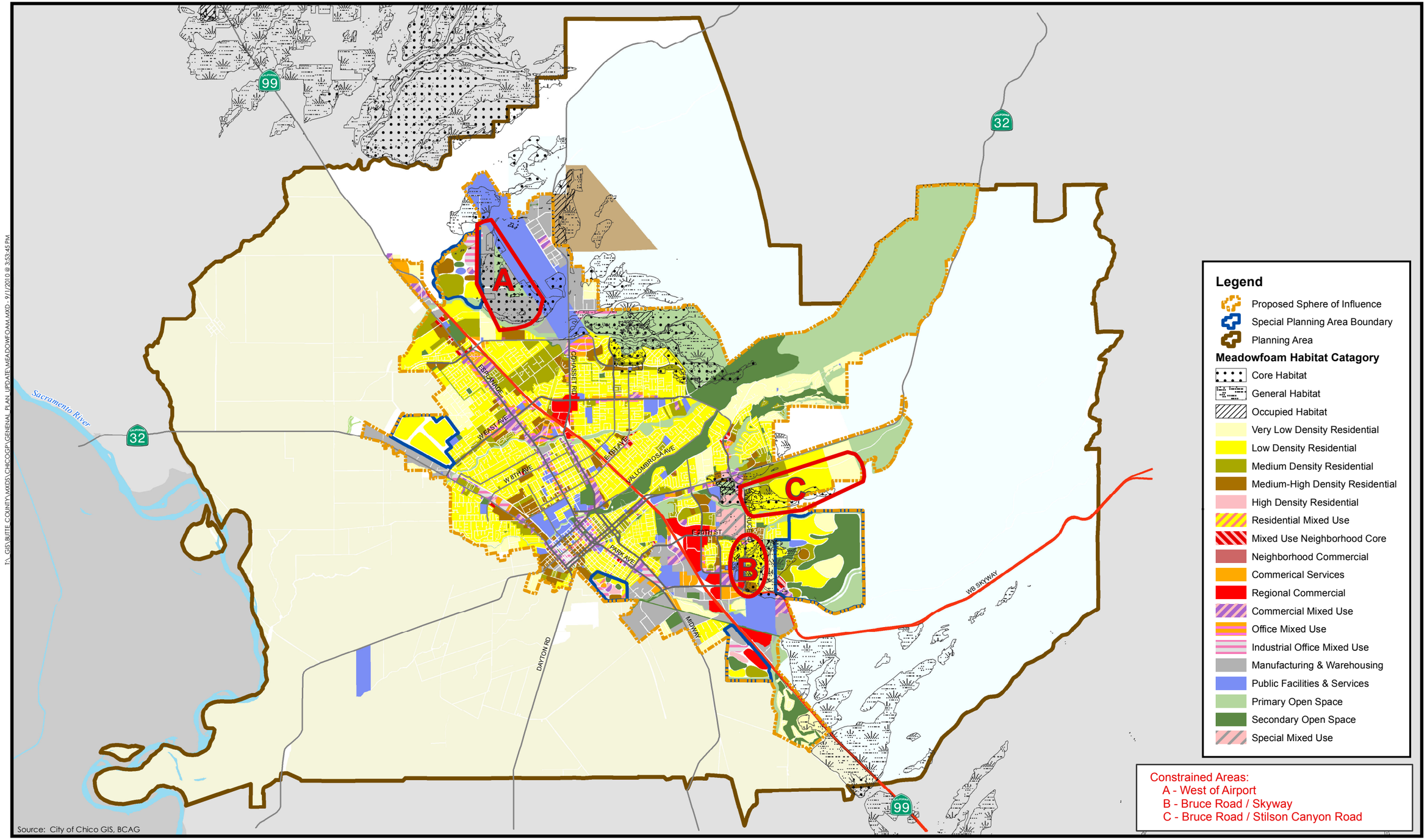

Figure 4.10-3

Butte County Meadowfoam Habitat within and surrounding the Planning Area

PMC®

TABLE 4.10-4
BIOLOGICAL COMMUNITY ACRES IN THE PROPOSED SOI DESIGNATED FOR URBAN USES[1]

Agriculture	**722.1**
Commercial Mixed Use	6.7
Commercial Services	0.2
Industrial Office Mixed Use	15.8
Low Density Residential	239.2
Medium Density Residential	51.0
Medium High Density Residential	100.1
Mixed Use Neighborhood Core	12.1
Manufacturing and Warehouse	81.6
Neighborhood Commercial	2.1
Public Facilities and Services	203.9
Regional Commercial	2.5
Roadways	2.5
Very Low Density Residential	4.4
Annual Grassland	**1,572.3**
Commercial Mixed Use	35.6
Commercial Services	0.0
High Density Residential	4.9
Industrial Office Mixed Use	44.4
Low Density Residential	188.6
Medium Density Residential	150.6
Medium High Density Residential	66.0
Mixed Use Neighborhood Core	2.9
Manufacturing and Warehouse	137.7
Office Mixed Use	6.5
Public Facilities and Services	637.7
Regional Commercial	0.7
Residential Mixed Use	1.9
Special Mixed Use	186.8
Roadways	2.5
Very Low Density Residential	105.4
Blue Oak Savanna	**123.8**
Low Density Residential	41.6
Medium Density Residential	30.1
Manufacturing and Warehouse	0.037
Very Low Density Residential	52.1
Blue Oak Woodland	**209.3**
Low Density Residential	40.8
Manufacturing and Warehouse	1.6

Public Facilities and Services	29.9
Very Low Density Residential	137.1
Chaparral	**11.2**
Very Low Density Residential	11.2
Cottonwood Willow Riparian Forest	**19.2**
Commercial Mixed Use	1.1
Industrial Office Mixed Use	0.7
Low Density Residential	13.5
Medium Density Residential	1.0
Medium High Density Residential	0.026
Mixed Use Neighborhood Core	0.6
Manufacturing and Warehouse	1.8
Office Mixed Use	0.023
Public Facilities and Services	0.1
Very Low Density Residential	0.4
Disturbed Ground	**94.1**
Commercial Mixed Use	0.020
Manufacturing and Warehouse	54.7
Public Facilities and Services	2.4
Regional Commercial	33.1
Roadways	3.9
Dredger Tailings	**23.4**
Manufacturing and Warehouse	4.1
Regional Commercial	18.6
Very Low Density Residential	0.7
Interior Live Oak Woodland	**24.8**
Very Low Density Residential	24.8
Mixed Oak Woodland	**57.3**
Low Density Residential	8.7
Medium Density Residential	4.0
Very Low Density Residential	44.6
Open Water/Riverine	**3.8**
Commercial Mixed Use	0.3
Low Density Residential	0.1
Medium Density Residential	0.009
Manufacturing and Warehouse	3.4
Office Mixed Use	0.001
Ranchettes Open	**184.9**
Low Density Residential	30.2
Manufacturing and Warehouse	81.1
Very Low Density Residential	73.7

Ranchettes Wooded	**20.4**
Low Density Residential	0.009
Public Facilities and Services	2.0
Very Low Density Residential	18.3
Roadways	0.03
Valley Oak Riparian Forest	**107.5**
Commercial Mixed Use	6.4
Commercial Services	1.3
Low Density Residential	26.6
Medium Density Residential	0.013
Medium High Density Residential	0.034
Mixed Use Neighborhood Core	0.104
Manufacturing and Warehouse	18.0
Neighborhood Commercial	0.005
Public Facilities and Services	30.0
Regional Commercial	1.2
Very Low Density Residential	23.8
Wetlands	**44.6**
Commercial Mixed Use	0.2
High Density Residential	0.012
Low Density Residential	4.3
Medium Density Residential	1.2
Medium High Density Residential	0.8
Manufacturing and Warehouse	3.8
Office Mixed Use	0.1
Public Facilities and Services	9.7
Residential Mixed Use	0.2
Special Mixed Use	0.8
Very Low Density Residential	23.7
Willow Scrub	**12.6**
Low Density Residential	6.2
Medium Density Residential	1.9
Office Mixed Use	0.004
Public Facilities and Services	4.5
Resource Conservation Overlay[2]	
Agriculture	**4.6**
MW/POS	4.6
Annual Grassland	**160.7**
Low Density Residential/POS	70.8
Medium Density Residential/POS	6.2
MW/POS	65.8

Very Low Density Residential/POS	17.9
Blue Oak Savanna	**10.1**
Low Density Residential/POS	8.5
Very Low Density Residential/POS	1.6
Blue Oak Woodland	**9.3**
Low Density Residential/POS	1.5
Very Low Density Residential/POS	7.8
Mixed Oak Woodland	**1.4**
Low Density Residential/POS	0.01
Very Low Density Residential/POS	1.4
Ranchettes Wooded	**0.1**
Low Density Residential/POS	0.1
Valley Oak Riparian Forest	**2.0**
Low Density Residential/POS	1.9
Medium Density Residential/POS	0.1
Wetlands	**1.1**
Low Density Residential/POS	0.7
Medium Density Residential/POS	0.028
MW/POS	0.4
Very Low Density Residential/POS	0.017
Bell Muir	**383.3**
Agriculture	**302.6**
Infrastructure	111.4
Low Density Residential	191.2
Ranchettes Open	**80.8**
Infrastructure	23.7
Low Density Residential	57.0
Diamond Match	**104.3**
Agriculture	**21.1**
Infrastructure	4.2
Industrial Office Mixed Use	0.0
Low Density Residential	11.0
Medium High Density Residential	0.5
Residential Mixed Use	5.3
Disturbed Ground	**83.2**
Commercial Mixed Use	7.6
High Density Residential	17.2
Infrastructure	16.1
Industrial Office Mixed Use	14.7
Low Density Residential	3.1
Medium Density Residential	0.9

Medium High Density Residential	10.3
Office Mixed Use	4.6
Residential Mixed Use	8.7
Doe Mill/Honey Run	**681.7**
Annual Grassland	**390.5**
Commercial Mixed Use	12.8
Infrastructure	58.9
Low Density Residential	153.4
Medium Density Residential	33.0
Medium High Density Residential	8.8
Mixed Use Neighborhood Core	8.9
Public Facilities and Services	6.7
Very Low Density Residential	107.9
Blue Oak Savanna	**141.3**
Commercial Mixed Use	1.7
Infrastructure	49.6
Low Density Residential	40.5
Medium Density Residential	20.8
Mixed Use Neighborhood Core	1.4
Public Facilities and Services	9.6
Very Low Density Residential	17.8
Blue Oak Woodland	**60.8**
Infrastructure	18.6
Low Density Residential	27.3
Medium Density Residential	9.5
Medium High Density Residential	1.3
Very Low Density Residential	4.1
Chaparral	**11.9**
Infrastructure	11.9
Interior Live Oak Woodland	**16.3**
Infrastructure	3.5
Low Density Residential	9.0
Public Facilities and Services	1.7
Very Low Density Residential	2.0
Mixed Oak Woodland	**60.9**
Infrastructure	12.7
Low Density Residential	4.9
Medium Density Residential	27.8
Medium High Density Residential	6.9
Mixed Use Neighborhood Core	8.7
Ranchettes Wooded	**0.001**

Infrastructure	0.001
Wetlands	**0.014**
Infrastructure	0.014
North Chico SPA	**377.8**
Agriculture	**203.8**
Commercial Mixed Use	9.0
Infrastructure	50.8
Industrial Office Mixed Use	33.0
Low Density Residential	1.1
Medium Density Residential	52.9
Medium High Density Residential	47.2
Public Facilities and Services	10.0
Annual Grassland	**169.0**
Infrastructure	43.0
Industrial Office Mixed Use	46.2
Low Density Residential	5.8
Medium Density Residential	70.0
Medium High Density Residential	3.9
Valley Oak Riparian Forest	**3.6**
Infrastructure	2.4
Medium High Density Residential	1.2
Wetlands	**1.4**
Infrastructure	0.020
Industrial Office Mixed Use	0.4
Low Density Residential	0.2
Medium Density Residential	0.8
South Entler SPA	**194.0**
Agriculture	**0.4**
Infrastructure	0.4
Annual Grassland	**102.9**
High Density Residential	9.6
Infrastructure	25.0
Industrial Office Mixed Use	16.6
Low Density Residential	18.2
Medium Density Residential	30.3
Manufacturing and Warehouse	2.5
Regional Commercial	0.7
Cottonwood Willow Riparian Forest	**90.6**
High Density Residential	7.9
Infrastructure	27.5
Industrial Office Mixed Use	4.3

Low Density Residential	2.9
Medium Density Residential	6.3
Regional Commercial	41.7
Wetlands	**0.1**
High Density Residential	0.049
Medium Density Residential	0.028
Willow Scrub	**0.036**
Infrastructure	0.036

Source: SAIC, 2008b

[1] Any minor discrepancies (±1 acre) with total acreages are attributable to rounding errors.

[2] Any acreage with an RCO designation was assumed to be 15 percent of the actual acreage.

NOTE: Table does not include acreage designated as Open Space.

The proposed General Plan Update could result in direct and indirect impacts to special-status plant and animal species. A key goal of the General Plan Update is to produce a compact urban form through balanced growth that relies on infill, redevelopment, and several mixed-use new growth areas. This strategy is intended to reduce the amount of undeveloped land needed to meet the City's future housing and jobs needs when compared to a more "business as usual" sprawling growth pattern. In addition, the proposed General Plan Update policy provisions and Land Use Diagram direct the City to maintain clear urban boundaries, and do not identify areas for significant growth outside of the City's existing Sphere of Influence (SOI). For example, the General Plan Land Use Diagram retains the current Greenline along the western boundary of the City. Ultimately, the Doe Mill/Honey Run SPA is the only new growth area that is outside of the City's existing SOI, or in an area that has not seen significant urban development (e.g., Bell Muir SPA), or in an area that has been previously slated by the City and Butte County for urban development (e.g., the North Chico SPA). Growth accommodated under the proposed General Plan Update seeks to avoid the growth effects of sprawl development patterns, such as the loss of biological resources. Furthermore, the federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), and the California Fish and Game Code protect special-status species through regulatory permitting procedures that include mitigation and compensation requirements.

The Butte County Association of Governments' research in developing biologically sensitive habitat in the BCHCP was used in setting the location of the three Resource Constraint Overlay (RCO) sites on the General Plan Land Use Diagram. The RCO designations acknowledge reduced development potential pending detailed studies, including environmental review, and coordination with resource agencies. As such, the RCO designations will further protect the most sensitive biological resources through detailed environmental review that would determine development potential in the context of the environmental sensitivity of each site. The BCHCP research was also used to designate future growth areas (SPAs) at locations with limited occurrences of special-status species or sensitive habitat.

Although the Butte County Habitat Conservation Plan (BCHCP) (discussed under Regulatory Framework) is currently under development and has not been adopted, the General Plan Update directs the City's active participation in the BCHCP process. Once adopted and implemented, the BCHCP will include a Conservation Strategy that provides a regional approach for the long term conservation of covered species and natural communities while allowing for compatible future land development. BCHCP conservation planning and

implementation at a regional scale allows for creation of a comprehensive natural preserve system that is more efficient in providing for the needs of covered species than the existing project-by-project process. The BCHCP will be particularly effectual in addressing habitat fragmentation and range restriction in that it will provide for the protection of species, natural communities, and ecosystems on a landscape (larger-scale) level, rather than through small pockets of conserved habitat. When the BCHCP is in place, it will include a range of conservation measures for aquatic and terrestrial species and habitats, avoidance and minimization measures, and monitoring and adaptive management plans intended to ensure compliance with, and the effectiveness of, the conservation system.

In addition, Policy OS-1.2 ensures that special-status plant and animal species, including their habitats are protected consistent with all applicable state, federal and other laws and regulations, and the associated Action OS-1.2.1 ensures that project-related biological impacts are considered and mitigated consistent with local, state and federal regulations, which includes compliance with "no net loss" of acreage and values policies of the state and federal agencies (see Regulatory Framework in 4.10.2 above). Individual projects associated with the implementation of the proposed General Plan Update would be required to address and mitigate special-status species and habitat impacts. Thus, this impact would be **less than significant**.

Wildlife Corridors (Standards of Significance 3 and 5)

Impact 4.10.2 Land uses and development consistent with the proposed General Plan Update could interfere with the movement of native resident or migratory fish or wildlife species as well as use of native wildlife nursery sites. These land uses could also restrict the range of special-status species in the Planning Area. This would be considered a **less than significant** impact.

Wildlife movement corridors are routes frequently utilized by wildlife that provide shelter and sufficient food supplies to support wildlife species during migration. Movement corridors generally consist of riparian, woodland, or forested habitats that span contiguous acres of undisturbed habitat. Migratory birds may use the rivers, creeks, and other natural habitats within the Planning Area during migration and breeding. Furthermore, open space provides an opportunity for dispersal and migration of wildlife species. The primary travel corridors available in the Planning Area include the streams and associated riparian habitats which provide adequate cover and vegetation to be used as a migratory corridor for common and special-status fish and wildlife species. Corridors provided by these streams and riparian habitats provide important routes for species moving through the area as well as for local species that use these corridors to spread to new habitat, to mate, and to disperse genetic material. New and intensified development resulting from implementation of the proposed General Plan Update could result in disturbance, degradation, and removal of these important corridors for the movement of common and special-status wildlife species.

The proposed General Plan Update Land Use Diagram and policy provisions include protection for the habitat value of Chico's creeks and riparian corridors. Existing creek corridors are identified on the Land Use Diagram as Primary Open Space, which affords them the City's highest protection. In addition, the General Plan provides for the expansion of creekside greenway areas through the collection of fees for creekside greenway acquisition. The proposed General Plan Action OS-2.5.1 requires a minimum 25-foot setback from the top of creek banks for development and associated above-ground infrastructure. Furthermore, the Action requires that future discretionary and environmental review analyze the adequacy of the 25-foot setback and require a larger setback where necessary to mitigate project impacts. This

policy would assist in reducing impacts associated with the movement and range of wildlife in that it would ensure that stream and riparian corridors were adequately buffered from new or intensified development.

In addition, the conceptual land use plans for the Special Planning Areas, which is where the majority of new development associated with the General Plan Update will occur, identify open space corridors along creeks and ephemeral streams in recognition that site planning, the General Plan policy framework, and the environmental review process will ensure appropriate stream buffers. This is particularly true in the Doe Mill/Honey Run SPA, where Comanche Creek and multiple seasonal streams are located. The Doe Mill/Honey Run SPA conceptual land use plan identifies areas surrounding the creeks as primary and secondary open space and General Plan policy indicates that future planning efforts for the SPA will give special consideration to protect and preserve sensitive habitats, including ephemeral streams and the wetland areas on the western edge of the SPA. The North Chico SPA is located south of Mud Creek and north of Sycamore Creek, which both have flooding considerations. The conceptual land use plan for the SPA identifies primary open space adjacent to both creeks and the General Plan Update states that both creeks will remain primarily unaltered. The South Entler SPA identifies primary open space adjacent to Butte Creek, which is located to the south of the SPA. While the exact extent of impacts to stream corridors in the SPAs is not currently known, the policy framework of the General Plan directs their protection and preservation not only for biological resource purposes, but to protect groundwater recharge and to accommodate flooding.

Open space, including agricultural lands, chaparral, woodlands, and annual grasslands, also provide an opportunity for dispersal and migration of wildlife species. New development in currently undeveloped open space areas resulting from implementation of the proposed General Plan Update could interfere with wildlife migration, and thus restrict the range of special-status species. As previously discussed, the General Plan Update directs significant future growth towards currently urbanized areas via infill and redevelopment, thereby reducing the amount of currently undeveloped land needed for housing, commercial uses, and infrastructure. Ground disturbance and new development associated with the General Plan Update will occur within the City's proposed SOI, particularly in the SPAs that are not currently developed. Development in the SPAs could isolate open space areas from one another and adversely impact these areas and movement corridors. Additionally, construction of roadways and improvement of existing roadways as identified in the proposed Circulation Element could negatively impact drainages and jurisdictional waters of the U.S. Channelization of existing streams, culvert additions, and otherwise engineered or manipulated drainages have been shown to reduce opportunities for some species' movement. The proposed General Plan Update could result in habitat degradation due to additional traffic, increased human presence, and degradation of water quality.

The proposed General Plan Update provides for a compact urban form in the Planning Area and identifies biologically constrained areas (RCOs) within the proposed SOI to protect biological resources through detailed environmental review that would determine development potential in the context of the environmental sensitivity of each site. As growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and not spread out into the Planning Area, and would avoid the growth effects of sprawl development patterns (as well as growth in known areas of sensitive and critical habitat), the loss of open lands used for wildlife movement and range would be minimized. As shown in the conceptual SPA land use plans and discussed above, the proposed General Plan Update would preserve large areas of open space, including open space adjacent to creeks that would continue to provide movement corridors in the areas of new growth as well as through the Planning Area along creek corridors. If adopted and implemented, the BCHCP will also address

habitat fragmentation and range restriction in the Planning Area in that it will provide for the protection of species, natural communities, and ecosystems on a landscape (larger-scale) level, rather than through small pockets of conserved habitat.

No significant impacts to the Eastern Tehama deer herd movement are expected from implementation of the proposed General Plan Update given the limited extent of outward expansion of development in the eastern portion of the Planning Area in relation to the extent of the Eastern Tehama deer herd migration area (see Figure 13-4 of the Butte County General Plan 2030 Setting and Trends Report).

The compact urban form and conservation provisions included in the General Plan Update would minimize movement and range impacts as discussed above and this impact is considered **less than significant**.

Conflict with Habitat Conservation Plans or Local Ordinances (Standard of Significance 4)

Impact 4.10.3 No Habitat Conservation Plan (HCP), recovery plan, or natural community conservation plan has been adopted encompassing all or portions of the City of Chico. The General Plan Update would not conflict with Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) that regulates the removal and preservation of trees on undeveloped parcels within the city. Therefore, **no impact** would occur.

Land uses and development consistent with the proposed General Plan Update would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. Currently, no such conservation plans have been adopted encompassing all or portions of the City of Chico; however, the General Plan Update Planning Area is located within the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) planning area. This plan is currently under preparation by various local agencies. The geographic area that will be addressed in the Butte Regional HCP/NCCP covers approximately 560,000 acres of the lowland portion of Butte County up to and including the foothill oak woodlands. The proposed General Plan Update includes Action OS-1.1.2 that calls for active participation in the HCP/NCCP. In addition, the proposed General Plan Update would not conflict with the Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) as the proposed General Plan Update Action OS-6.1.1 specifically requires the city to implement the Municipal Code's tree protection regulation. Thus, **no impact** would occur.

4.10.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The City of Chico and the surrounding area of Butte County as a whole must be considered for the purpose of evaluating land use conversion issues associated with biological resources on a cumulative level. In particular, this cumulative setting condition includes proposed and approved projects, existing land use conditions, and planned development under the proposed General Plan Update, existing land use conditions, and planned and proposed land uses in the region.

Continued development in the city and in the region could directly and indirectly affect biological resources. The development of natural areas could cause loss of wildlife habitats or plant communities. The implementation of the proposed General Plan Update would contribute incrementally to the cumulative loss of native plant communities, wildlife habitat values, special-

status species and their potential habitat, and wetland resources in the county as well as Central Valley region. Growth and urbanization of the City of Chico and other unincorporated county areas in the Chico vicinity cumulatively contribute to the loss of these resources. As demonstrated in the Existing Setting section, the proposed project supports rich and diverse flora and fauna.

The cumulative impact analysis below focuses on the proposed General Plan Update's contribution to the loss of special-status species, sensitive and critical habitat.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Biological Resource Impacts (Standard of Significance 1, 2, 3 and 5)

Impact 4.10.4 The proposed General Plan Update, in combination with other reasonably foreseeable projects, would result in direct and indirect mortality and loss of habitat for special-status species, sensitive and/or critical habitat. This would be a **cumulatively considerable** impact.

Many biological communities within the Planning Area and region are critically important for the protection of several sensitive species. Implementation of the proposed General Plan Update may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, would result in significant cumulative impacts. Future development within the City of Chico and the surrounding vicinity would contribute to cumulative impact on special-status species and sensitive and critical habitats. Furthermore, increased development and disturbance created by human activities (e.g., fires, increased nighttime lighting, reduced access to habitat and movement corridors) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered **cumulatively considerable**.

Implementation of the proposed General Plan Update policies and actions described under Impacts 4.10.1 through 4.10.3 would reduce the proposed General Plan Update's impacts to these resources. However, the extent of loss of sensitive and/or critical habitats that the proposed General Plan Update would contribute to the regional loss of these resources is considered considerable. It is anticipated that the eventual implementation of the proposed Butte County Habitat Conservation Plan would address and mitigate regional biological resource impacts. However, this plan has yet to be adopted. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable**.

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4.11
CULTURAL RESOURCES

This section of the Draft EIR considers and evaluates the potential impacts of the proposed City of Chico General Plan Update on historical, cultural, and paleontological resources. Cultural resources are defined as prehistoric and historic sites, structures, and districts or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, or religious reasons. Paleontological resources include fossil remains, as well as fossil localities and formations which have produced fossil material.

For analysis purposes, cultural resources may be categorized into four groups: archaeological resources (prehistoric and historical); historic properties, buildings, and districts; areas of importance to Native Americans; and paleontological resources (fossilized remains of plants and animals). Cultural resource impacts include those to existing historic resources (i.e., historic districts, landmarks, etc.) and to archaeological and paleontological resources.

CONCEPTS AND TERMINOLOGY FOR EVALUATION OF CULTURAL RESOURCES

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

Cultural resources is the term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.

Historic properties is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property.

Historical resource as described in the California Environmental Quality Act (CEQA) includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the California Register of Historical Resources (CRHR) or a local register of historical resources. The CRHR includes resources listed in, or formally determined eligible for listing in, the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Paleontological resource is defined as including fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils. A unique paleontological site would include a known area of fossil-bearing rock strata.

4.11.1 EXISTING SETTING

The existing conditions discussion for cultural and historic resources in the Planning Area addresses the prehistory and ethnography of the region, discusses the history of the City of Chico, and identifies known cultural and historic resources in the Planning Area. Information in this section is based on a records search at the Northeast Information Center, California State University, Chico, archival research (e.g., Meriam Library Special Collections, California State University Chico), review of cultural resources information presented in the current 1994 City of Chico General Plan, the City of Chico's Historic Resources Inventory, National Register Criteria, California State Register Criteria, State Landmark Criteria, and the California Office of Historic Preservation Historic Directory of Properties for the City of Chico. By utilizing the provisions of the CEQA Guidelines (see Sections 15148 [Citation] and 15150 [Incorporation by Reference]), the

city, in preparing this DEIR, has been able to make maximum feasible and appropriate use of this technical information.

PREHISTORY

The archaeology of the Central Valley and the area encompassing the City of Chico is complex and also related to surrounding areas such as the central Sierra Nevada and the Great Basin. The City of Chico, however, is located in an area primarily associated with the Mesilla, Bidwell, Sweetwater, and Oroville complexes.

While there have been relatively few extensive archaeological investigations in the Planning Area, large-scale archaeological investigations were undertaken in the neighboring Lake Oroville area during the 1960s through the 1970s for the construction of Oroville Dam and Lake Oroville. Archaeological research undertaken in the Lake Oroville area may be used to characterize the prehistory of the Planning Area. Ritter (1970) summarized the archaeological investigations in the area, which identified four prehistoric cultural complexes: Mesilla, 1,000 B.C.–A.D. 1; Bidwell, A.D. 1–A.D. 800; Sweetwater A.D. 800–A.D. 1500; and Oroville A.D. 1500–A.D. 1850 (PMC, 2008).

The Mesilla Complex represents hunter-gatherer occupation of the foothills of the Sierra Nevada and is characterized by large and heavy (usually weighing over 3.5 grams) leaf-shaped, stemmed, or side-notched points made of local "non-glassy" material; boatstones; milling stones and manos; *haliotis* and *olivella* shell beads and ornaments; and flexed burials. The Mesilla Complex points show considerable similarity with points from Martis Complex sites from the north-central Sierra Nevada, such as CA-Nev-15 which is only 35 miles from the Oroville area. Shell beads, shell ornaments, and flexed burials, however, also suggest a relationship of the Mesilla Complex to the Middle Horizon of the Central Valley (PMC, 2008).

Archaeologists have recognized the similarity of the Mesilla Complex to both the Martis Complex and the Middle Horizon of the Central Valley, but they believed that the Mesilla Complex had unique elements and its "intermediate" geographic position in the foothills between the other two cultures warranted its designation as a distinct complex. Similarities of the Mesilla Complex to the Martis Complex, the Middle Horizon of Central California, and other cultural complexes further to the north of Butte County in Tehama and Shasta counties have been identified by researchers. Similarities across the entire area, particularly regarding point types, shell beads, the presence of manos and milling stones, and type of burial have been identified (PMC, 2008).

The Bidwell Complex represents a continuation and elaboration of the Mesilla Complex, with an increase in the number of traits adopted from the Central Valley and an intensification and diversification of subsistence activities. The Bidwell Complex is characterized by large corner- and side-notched, wide-stemmed, leaf-shaped, small corner-notched, and stemmed projectile points primarily made of basalt; large basalt drills; net weights; steatite vessels; wooden mortar and pestles; and bone awls (PMC, 2008).

The Sweetwater Complex represents a period of population growth and intensification of acorn use during the Late Period. The Sweetwater Complex is characterized by large leaf-shaped and small corner-notched projectile points; cobble and slab mortars and pestles; bone fish gorges; shell beads; and clam shell spoons. It is believed by some that the Sweetwater Complex is associated with the arrival of Maiduan peoples in the region (PMC, 2008).

The Oroville Complex represents a continuation of the Sweetwater Complex, particularly in terms of population growth, further intensification of acorn use, and the proliferation of certain artifacts

such as beads. The Oroville Complex is characterized by small side-notched, corner-notched, and triangular projectile points; manos and metates; mortars and pestles; bone fish gorges; bone awls; clam shell disk beads; and *haliotis* ornaments. The Oroville Complex probably culminates in the culture of the ethnographic Konkow (PMC, 2008).

ETHNOGRAPHY

Prior to the arrival of Euroamericans in the region, California was inhabited by groups of Native Americans speaking more than 100 different languages and occupying a variety of ecological settings. Kroeber (1925) subdivided California into four subculture areas: Northwestern, Northeastern, Southern, and Central. The City of Chico is located in the Central area within the boundaries of Konkow or Northwestern Maidu territory. The City of Chico is still home to a vibrant Native American community as exemplified by the Mechoopda Tribe of the Chico Rancheria.

Konkow or Northwestern Maidu occupied a territory both along the Sacramento River and east into the foothills of the Sierra Nevada in the vicinity of Willows, Chico, and Oroville. Konkow are members of the Maiduan Language Family of Penutian Stock. Their population was divided into several "village communities" which were recognized as autonomous political units (Kroeber, 1925). Subsistence activities included hunting, fishing, and the collecting of a variety of plant resources including acorns, which were a staple food source for the Konkow. Konkow made a variety of bone, wood, and stone tools and basketry (PMC, 2008).

HISTORIC CONTEXT

The Spanish period in California lasted from about 1769 to 1821. Euroamerican contact with Native American groups living in the Central Valley of California began during the last half of the eighteenth century. At this time, the attention of Spanish missionaries shifted away from the coast and its dwindling Native American population to the conversion and missionization of interior populations. Luis Argüello led an early expedition into the area in 1820. The expedition left San Francisco and followed a northerly course to the Sacramento River, intersecting the river a short distance north of Grimes. The group then followed the river north to Cottonwood Creek, passing through Konkow territory. Regardless, the area remained relatively unoccupied by Euroamericans until the Gold Rush. The latter half of the nineteenth century witnessed an ongoing and growing immigration of Euroamericans into the area, which was also accompanied by regional cultural and economic changes. These changes are highlighted by the development of towns and businesses associated with either gold mining or agriculture and a dramatic decline of Native American culture and people.

The Mexican Period (ca. 1821–1848) in California is an outgrowth of the Mexican Revolution, and its accompanying social and political views affected the mission system. The end of the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo in 1848 marked the beginning of the American period (ca. 1848–Present) in California history.

The first non-Native American to enter current Butte County was probably Gabriel Moraga, a Spanish soldier, who led an expedition into Alta California, crossing the Feather River in 1808 near Oroville. Following Moraga, Captain Luis Argüello explored Butte County in 1820 and named the Feather River (Rio de la Plumas). In 1825, Jedediah Strong Smith entered California from the south and, by 1827, had made his way to the Feather River. Hudson's Bay Company trappers also extensively explored the area in the 1820s and 1830s looking for furs. Then, in the 1830s and 1840s Joseph R. Walker and Joseph B. Chiles explored parts of Butte County, traveling along the Sacramento River and the South Fork of the Feather River, either looking for travel routes in the area or bringing settlers to the area (PMC, 2008).

The search for gold drew thousands of miners to what is today Plumas County. By 1880, the largest ethnic percentage of these miners was Chinese. In 1880, neighboring Butte County had the second largest Chinese population in the nation. Swiss-Italian immigrants traveled to the county during the 1860s. The Swiss-Italians produced dairy products and hay for nearby gold mining operations, and some of their descendants raise cattle today.

John Bidwell led one of the first immigrant parties from the eastern United States to California in 1841. Subsequently, he worked at Sutter's Fort until gold was discovered at Sutter's Mill in Coloma. John Bidwell became interested in gold mining, and in June 1848 he discovered gold on the Feather River near Hamilton. Subsequently, Bidwell purchased Rancho del Arroyo Chico in 1849 from William Dickey and Edward A. Farwell, and he settled in what would become Butte County. Bidwell began planting wheat, barley, and fruit-bearing trees (e.g., apple, pear, peach, walnut, almond, fig, cherry, and olive) on his property and established a very successful agricultural business. Bidwell's success in the area facilitated the development of other agricultural enterprises, and by 1861 there were 34,500 acres in cultivation in Butte County. By 1875 there were 190,200 acres under cultivation in the county, and in 1877 Bidwell built a facility for drying fruit. Today, agriculture remains one of the primary industries in Butte County (PMC, 2008).

Butte County was one of California's first counties, formed in 1850 at the time of statehood. Part of the county's territory was transferred to Plumas County in 1854 and to Tehama County in 1856. The county seat is Oroville. The major surface water sources in Butte County are the Feather and the Sacramento Rivers. Butte Creek and Big Chico Creek are additional perennial streams, both tributary to the Sacramento River. Butte County is the site of Feather Falls, which is the sixth largest waterfall in the United States. The county's name is derived from the Marysville or Sutter Buttes, which were located within the boundaries when it was created (Wikipedia, 2009; Butte County Historical Society, 2009).

The City of Chico was founded by John Bidwell, who had amassed a fortune through his various business enterprises on Rancho del Arroyo Chico property. In 1860, Bidwell laid out the town of Chico south of Big Chico Creek on portions of the Farwell and Hensley grants that he had acquired. John Bidwell died in 1900, and his widow, Annie Bidwell, donated 2,200 acres of their estate along Big Chico Creek to the City of Chico. This property became Bidwell Park. Other significant individuals in the history of the City of Chico include Edward Farwell and Thomas Fallon, who obtained a 22,193-acre land grant from the Mexican government along the Sacramento River south of Chico Creek in 1844, and John Potter, who obtained 220 acres of the Farwell Grant and built a home in what would become downtown Chico (PMC, 2008; edits by Magliari, 2010).

Chico was incorporated as a city in 1872 and with its emergence as an economic center, there was a need to provide access to and from the city and surrounding area including Oroville, Marysville, and Sacramento. The construction of the California Northern Railroad from Marysville to Oroville was completed in 1864, with Chico receiving its first rail service from the California and Oregon Railroad in 1870. Both lines greatly expanded regional and local transportation in the area, with wagon traffic and related commerce beginning in 1866 from the Chico-Humboldt Road which served the Humboldt Silver mines in Idaho. Chico soon became an important and convenient locale for the growth of industry, including lumber milling. In 1875 the Sierra Flume and Lumber Company began operations, which were followed by operations of the Sierra Lumber Company (1878–1907). At this time agriculture was also expanding, particularly the production of crops such as almonds, peaches, wheat and flour milling (PMC, 2008).

The City of Chico prospered at the end of the nineteenth century and into the twentieth century because of the abundant agricultural production of the region and the local economic success and contributions of individuals like Bidwell. Local orchards and other agricultural industries continued to expand during this period. Fruit drying, packing, and canning became important industries in Chico, especially with the arrival of Calpak/Del Monte (1916–1950), and the emergence of the local rice industry after 1910 added to Chico's importance as an agricultural center. Large lumber companies, such as the Diamond Match Company (1903–1975), soon became a fixture in the City of Chico. The city continued to grow, as did transportation networks including the arrival of the Northern Electric/Sacramento Northern Railroad in 1905, the construction of paved roads (e.g., State Route 32), and the opening of the Chico Municipal Airport, a single graded runway, in 1935. The current configuration of the airport is the result of its expansion in 1942 by the U.S. Army Corps of Engineers for use as a training facility for World War II pilots.

As the city grew, a need for access to higher education also grew; consequently Chico State Normal School was founded. The construction of the original campus began in 1887, with the first classes beginning two years later. The first graduating class was announced in 1891. From 1921 to 1935, the institution was known as the Chico State Teachers' College. The original Normal School campus building was destroyed by fire and replaced by the historic core of the modern California State University, Chico, campus including Kendall Hall, Laxson Auditorium, and Trinity Hall (1929–1933). In 1935 the college became known as Chico State College. During the years of 1949–1959, there was a major boom in campus construction to accommodate an increasing student population. Construction related to ongoing expansion of the student population has continued to the present. In 1972 Chico State College was incorporated into the California State University system, and currently it is one of the largest employers in the City of Chico and surrounding area (PMC, 2008).

Chinese immigrants came to California in the 1850s and 1860s and formed a community in Chico. The old Chinatown was founded about 1865 on Flume Street between 5th and 6th Streets, destroyed by fire in 1880, and rebuilt in the 1890s. The Chinese were responsible for many individual and community gardens in Chico and also contributed to the growth of the railroad industry (Moon, 2003). There was much anti-Chinese sentiment, which grew in the late 1800s, reported to be due to discontent over the hiring of Chinese workers in difficult economic times. Bidwell hired both Native Americans and Chinese Americans on his ranch and was said to protect their rights even while threatened by members of the community. He joined the "Committee of One Hundred," which was counteracting the efforts of a local anti-Chinese group.

KNOWN CULTURAL RESOURCES IN THE PLANNING AREA

A records search was conducted at the Northeast Information Center of the California Historical Resources Information System at California State University, Chico, for the City of Chico in October 2007, during the preparation of the 2008 City of Chico Existing Conditions Report. There are 244 known archaeological sites and isolated features/artifacts, including prehistoric and historic sites, within the Planning Area. There are 177 prehistoric sites, 53 historic sites, and 11 sites that contain both prehistoric and historic elements. The majority of the prehistoric sites are bedrock milling stations and lithic scatters (e.g., areas representing the manufacture of stone tools) that are located along creeks and streams such as Mud Creek and Big Chico Creek. These are areas of high archaeological sensitivity. Many Mechoopda villages were located along these drainages as recently as the late nineteenth century. For example, the Mud Creek Canyon Archaeological District is listed in the National Register of Historic Places (NRHP). In the NRHP nomination form of 1970, it is described as a "virtually untouched and highly diversified

archaeological resource." Numerous prehistoric sites are located in the district, such as the village site at Patrick Rancheria, which was the site of nineteenth century Ghost Dance ceremonies (Butte County, 2005).

Historic sites in the City of Chico primarily consist of residential and commercial buildings, but several trails and other linear features (e.g., the Southern Pacific Railroad alignment, historic roads, and wagon wheel ruts) are located throughout the Planning Area.

A new archaeological sensitivity map has been completed by the City and the Mechoopda Indian Tribe of the Chico Rancheria identifying areas of high archaeological sensitivity (see **Figure 4.11-1**). This map is very similar to the map found in the 1994 General Plan and the map found in the Existing Conditions Report. The new map expands the high sensitivity areas, which generally follow the creek corridors. Sacred lands, as identified by tribal representatives, are reflected in the sensitivity map as areas that would likely be sensitive for Native American cultural resources. The map reflects the location of known archaeological sites and areas in which archaeological sites would likely be identified.

One historic district and 497 properties in the City of Chico are listed in the current Office of Historic Preservation Directory of Properties, and an additional 17 properties are listed in the vicinity of Chico. The directory identifies 122 properties listed in the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR), 80 properties that are eligible for inclusion in the NRHP, 121 properties that appear eligible for listing in a local historic register, and 168 properties that are not eligible for inclusion in the NRHP. Over 250 resources are listed on the City of Chico Historic Resources Inventory.

The Stansbury House, which is listed in the NRHP, is owned by the city. The South of Campus Neighborhood, which is bounded by West Second Street, Salem Street, West Ninth Street, and the western city limits, is a historic district listed in the NRHP. This area was the first residential area established in the city and currently is one of Chico's most densely populated areas.

The Bidwell Mansion is a California State Historic Park and was placed on the NRHP in 1972. It is a large, three-story, 26-room Victorian House Museum that stands as a memorial to John and Annie Bidwell. It was constructed in the style of an Italian villa and includes extensive grounds. It is considered to be the most elaborate house of its time in northern California. Upon arrival in Chico, the Bidwells used the mansion extensively while entertaining friends. Some of the guests that visited Bidwell Mansion were President Rutherford B. Hayes, General William T. Sherman, Susan B. Anthony, Frances Willard, Governor Stanford, John Muir, and Asa Gray (National Park Service, 2009; California State Parks, 2009).

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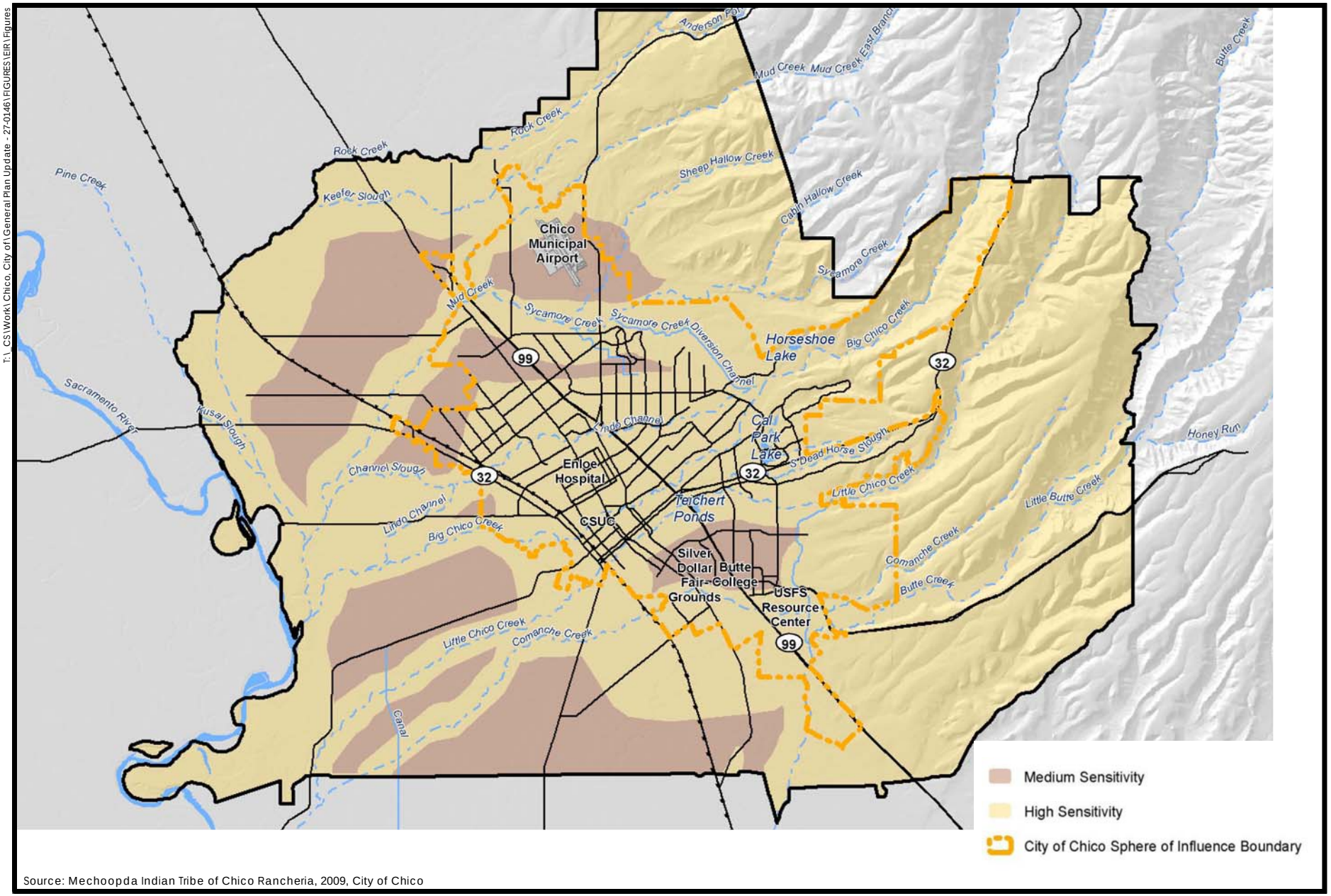

Source: Mechoopda Indian Tribe of Chico Rancheria, 2009, City of Chico

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Figure 4.11-1
Archaeological Sensitivity Map

PMC®

The city includes three California Historical Landmarks:

- **No. 313 Hooker Oak.** In 1887 Annie E. K. Bidwell named this huge oak after English botanist Sir Joseph Hooker. When it fell during a windstorm in 1977, the tree was estimated to be over a thousand years old; it was nearly 100 feet tall and 29 feet in circumference 8 feet from the ground. The largest branch measured 111 feet from trunk to tip; circumference of outside branches was nearly 500 feet. Location: Bidwell Park, Hooker Oak Recreation Area, Manzanita Avenue between Vallombrosa and Hooker Oak Avenue, Chico

- **No. 329 Rancho Chico and Bidwell Adobe.** The 26,000-acre Rancho Chico was purchased in 1845–1850 by John Bidwell. In 1865 he began construction of the mansion, which in time became the social and cultural center of the upper Sacramento Valley. It was through his advancement of agriculture, however, that Bidwell made his greatest contribution. Plants from all over the world were introduced to Rancho Chico to open the door to California's present agricultural treasure house. Location: Bidwell Mansion State Historic Park, 525 Esplanade, Chico

- **No. 840-2 Chico Forestry Station and Nursery.** In 1888, the State Board of Forestry established an experimental forestry station and nursery. It and the Santa Monica station established in 1887 were the first such stations in the nation. Exotic and native trees were tested and produced for scientific and conservation purposes. The station was operated by the Board of Forestry until 1903. Location: Bidwell Nature Center, Cedar Grove Picnic Area, Cedar Grove and E. 8th, Bidwell Park, Chico

- **No. 792 Chico African Methodist Episcopal Church South.** Twice moved, this small church was built in 1867 on Main Street to provide the town of Chico with one of its first organized church edifices. The church held the congregation of the Methodist Episcopal Church South at this location until growth brought a demand for a larger building. In 1907 the church building was given to the Black community and was moved to 6th and Flume streets on land deeded to the St. Andrew's African Methodist Episcopal Church by John Bidwell in 1871. The church building was once again moved in 1957 to its present location at 9th and Linden Streets when Trinity Methodist Church purchased the property to expand their church facilitates located on the same block. The church holds the distinction of being Chico's oldest continuously used church. Location: Northeast corner of E. 9th and Linden Streets, 821 Linden Street, Chico.

Demolition and fires have destroyed numerous historic buildings and structures in the City of Chico. Historic buildings/structures that have been lost include the Sperry Flour Mills (1900) demolished in 1963, the Chico Rotunda and Bath House (1908) demolished in 1965, Chico High School (1922) demolished in 1967, the Hotel Oaks (1919) demolished around 1969, the Morse-Dresbach-Curtiss warehouse (1874) demolished in 1969, the M. Volpato and Co. Building (1925) and Colusa Hall (1919–1921) in 2000, the Diamond Garden/Diamond Match warehouse (1910) in 2001, the Stiles warehouse (1953) and Reynolds warehouse (1921) in 2006, and the conversion of the Bank of America building (1931) in 1997–1998 into a restaurant. Fires destroyed the Northern Star Flour Mills (1890s) in 1986, the Diamond Match Mill Works Main Office complex and warehouse in 1991, the Calpak/Cannery North warehouse (1905) by arson in 1997, the original Enloe Hospital building in 2003, and the Diamond Match Apiary and lumber warehouses by arson in 2004 (PMC, 2008).

Several historic buildings were restored in the City of Chico during the 1990s. These projects include restoration work on St. Augustine's Episcopal Church (1905) in 1995, the ground floor of

the Bidwell Mansion in 1997, the 3rd Street Language Houses in 1998, the Senator Theatre (1927–1928) from 1999 to 2005, the Julia Morgan House-Chico State President's Mansion (1923) in 2000, the Northgraves-Compton-Patrick Ranch House (1877) in 2001, and the Hotel Diamond (1904) in 2005. The historically significant Thomas Wright-Old Patrick Ranch House (1852) is currently located beyond city limits and is proposed to be relocated within the city (PMC, 2008).

KNOWN PALEONTOLOGICAL RESOURCES IN THE PLANNING AREA

Paleontology is defined as a science dealing with the life of past geological periods as known from fossil remains. Paleontological resources include fossil remains, as well as fossil localities and formations that have produced fossil material. Such locations and specimens are important nonrenewable resources. The California Environmental Quality Act (CEQA) offers protection for these sensitive resources and requires that they be addressed during the environmental impact report process. A search of the University of California Museum of Paleontology (UCMP) collections database indicated that 126 sites with the fossilized remains of plants, invertebrates, and mammalian vertebrates have been discovered in the Chico Planning Area (University of California, Berkeley, 2009).

NATIVE AMERICAN COORDINATION

As of March 1, 2005, Senate Bill (SB) 18 (Gov. Code, Sections 65352.3, 65352.4) requires that, prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. On July 31, 2008, the City of Chico initiated the consultation process as required under these provisions of the Government Code and consultation meetings between the city and tribal representatives have been ongoing.

4.11.2 REGULATORY FRAMEWORK

FEDERAL

National Environmental Policy Act

The National Register of Historic Places (NRHP) is the nation's master inventory of known historic resources. The NRHP is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

Structures, sites, buildings, districts, and objects over 50 years of age can be listed in the NRHP as significant historic resources. However, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP. The criteria for listing in the NRHP include resources that:

a) Are associated with events that have made a significant contribution to the broad patterns of history;

b) Are associated with the lives of persons significant in our past;

c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent

a significant and distinguishable entity whose components may lack individual distinction; or

d) Have yielded or may likely yield information important in prehistory or history.

STATE

California Register of Historical Resources

The State Historical Resources Commission has designed the California Register of Historic Resources (CRHR) or use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archeological resources. This program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

Historical resource is a term with a defined statutory meaning (PRC Section 21084.1; determining significant impacts to historical and archaeological resources is described in the CEQA Guidelines, Section 15064.5 [a], [b]). Under CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Public Resources Code, Section 5024.1).

2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (Public Resources Code, Section 5024.1), including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) Is associated with the lives of persons important in our past;

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d) Has yielded, or may be likely to yield, information important in prehistory or history.

4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code[PRC]), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

Historic resources are usually 45 years old or older and must meet at least one of the criteria for listing in the California Register, described above (such as association with historical events, important people, or architectural significance), in addition to maintaining a sufficient level of physical integrity.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC, Section 5024.1 and California Code of Regulations (CCR), Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

For historic structures, CEQA Guidelines Section 15064.5, subdivision (b)(3) indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) shall be considered as mitigating impacts to a less than significant level.

As noted above, CEQA also requires lead agencies to consider whether projects will impact "unique archaeological resources." Public Resources Code Section 21083.2, subdivision (g), states that " 'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- Has a special and particular quality such as being the oldest of its type or the best available example of its type.

- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

Treatment options under Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Section 7050.5(b) of the California Health and Safety Code (CHSC) specifies protocol when human remains are discovered, as follows:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

CEQA Guidelines Section 15064.5, subdivision (e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Paleontological resources are classified as non-renewable scientific resources. California Public Resources Code Section 5097.5 et seq makes it a misdemeanor for anyone to knowingly disturb any archaeological, paleontological, or historical features situated on public lands. No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth-moving on state or private land in a project site.

LOCAL

City of Chico Historic Preservation Program

The city is currently working on expanding its historic preservation program. The City Council adopted a historic resources inventory in January 2009 as the first step of the Historic Preservation Program. The inventory is currently referenced in Title 19 of the Municipal Code as a necessary component to implement the Landmark Overlay zoning district. Following adoption of the pending historic preservation ordinance and establishment of an historic preservation board, the city will pursue Certified Local Government status with the State Office of Historic Preservation.

City of Chico Architectural Review Board

The Architectural Review Board reviews architectural drawings or renderings which are required to be submitted with an application for a commercial, industrial, or multi-family building permit. Furthermore, the Architectural Review Board (ARB) promotes responsible architectural design which is consistent with Chico's character by enforcing the design guidelines. In order to illustrate these guidelines, the City Design Manual contains graphic examples as well as explanations of the architectural review process. The design review process focuses on three major areas: site design, building design, and landscape design. As part of the comprehensive Historic Preservation Program, the current ARB will act as the new Architectural Review and Historic Preservation Board.

Landmark (-L) Overlay Zone – City of Chico Municipal Code

The Landmark overlay zone is intended to identify landmarks and historic sites in compliance with the General Plan, so that development and new land uses are designed and operated in a manner compatible with the preservation of these historic resources. Any land use normally allowed in the primary zoning district may be allowed within the Landmark overlay zone, in compliance with certificate of appropriateness requirements. New landmark overlay zoning districts may be established to implement (in part) a pending historic preservation ordinance.

4.11.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Following Public Resources Code Sections 21083.2 and 21084.1, and Section 15064.5 and Appendix G of the CEQA Guidelines, cultural resource impacts are considered to be significant if implementation of the project considered would result in any of the following:

1) Cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5.

2) Cause a substantial adverse change in the significance of an archaeological resource as defined in Public Resources Code Sections 21083.2 and 21084.1, and CEQA Guidelines Section 15064.5.

3) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

4) Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

CEQA Guidelines, Section 15064.5, subdivision (b)(2), defines "materially impaired" for purposes of the definition of substantial adverse change as follows:

> *The significance of an historical resource is materially impaired when a project:*
>
> *(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or*
>
> *(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or*
>
> *(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.*

CEQA requires that if a project would result in an effect that may cause a substantial adverse change in the significance of a historical resource or would cause significant effects on a unique archaeological resource, then alternative plans or mitigation measures must be considered. Therefore, prior to assessing effects or developing mitigation measures, the significance of cultural resources must first be determined. The steps that are normally taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources and unique archaeological resources;
- Evaluate the eligibility of historical resources; and
- Evaluate the effects of the project on eligible historical resources.

METHODOLOGY

A records search was completed by PMC at the Northeast Information Center, California State University Chico of the California Historical Resources Information System. PMC also completed archival research (e.g., Meriam Library Special Collections, California State University Chico), review of cultural resources information presented in the current 1994 City of Chico General Plan, the City of Chico's Historic Resources Inventory, National Register Criteria, California State Register Criteria, State Landmark Criteria, and the California Office of Historic Preservation Historic Directory of Properties for the City of Chico. A sacred lands search conducted by the Native American Heritage Commission, and consultation with the Native American community per the requirements of SB 18, was initiated by the City of Chico in July 2008. All Native American

groups identified by the NAHC were contacted by letter regarding the proposed General Plan Update.

The potential impacts of the proposed General Plan Update on cultural resources have been evaluated by considering both potential future construction activities and operational impacts of potential proposed projects which could occur under the proposed General Plan Update. The proposed policies and actions providing mitigation have been identified for each significant impact in this section. If the applicable proposed General Plan Update policies were determined not to fully mitigate or avoid impacts, then additional mitigation measures have been provided.

The following proposed General Plan Update policies and actions address cultural and paleontological resources:

Policy CRHP-1.1 *(Historic Preservation Program) – Maintain a comprehensive Historic Preservation Program that includes policies and regulations which protect and preserve the archaeological, historical and cultural resources of Chico.*

Action CRHP-1.1.1 *(Historic Preservation Ordinance) – Maintain and update as necessary the City's Historic Preservation Ordinance.*

Action CRHP-1.1.2 *(Historic Resources Inventory) – Maintain and update the City's Historic Resources Inventory.*

Action CRHP-1.1.3 *(Historic Preservation Board) – Appoint members for the Historic Preservation Board who meet the qualifications of a Certified Local Government and who also serve a dual role as members of the City's Architectural Review Board.*

Action CRHP-1.1.4 *(Certified Local Government) – Maintain the City's recognition by the State Historic Preservation Office as a Certified Local Government.*

Action CRHP-1.1.5 *(Financial Assistance Programs) – Pursue grant funding sources available to Certified Local Governments to establish and maintain a Cultural Resources Management Plan and to expand the City's Historic Preservation Program.*

Action CRHP-1.1.6 *(Conditions of Approval) – Develop standard conditions of approval for discretionary projects that ensure best management practices to protect cultural and historic resources.*

Policy CRHP-2.1 *(Infill and Historic Preservation) – Integrate the values of historic preservation with infill development and adaptive reuse.*

Action CRHP-2.1.2 *(Guidelines for Redevelopment of Historic Resources) – Utilize the City's Design Guidelines Manual for discretionary design review to address exterior alterations proposed to historic buildings in accordance with the Historic Preservation Ordinance.*

Policy CRHP-2.2 *(Adaptive Reuse) – Encourage the adaptive reuse of historic buildings when the original use of the structure is no longer feasible.*

Action CRHP-2.2.1 *(Exterior of Historic Structures) – With discretionary actions or in compliance with the Historic Preservation Ordinance, restore or preserve the original exterior of historic structures at the time of a change in use, whenever feasible.*

Policy CRHP-2.3 *(Demolition as Last Resort) – Limit the demolition of historic resources to an act of last resort, to be permitted only if rehabilitation of the resource is not feasible; demolition is necessary to protect the health, safety, and welfare of its residents; or the public benefits outweigh the loss of the historic resource.*

Policy CRHP-2.5 *(Purchase of Historically Significant Buildings) – Explore grant funding, partnerships, and other opportunities to purchase historically significant buildings or sites that are eligible for State or National Registers as they become available.*

Action CRHP-2.5.1 *(Register Listings of City-owned Properties) – Pursue the listing of City-owned historic properties on the National Register of Historic Places and California Register of Historical Resources.*

Policy CRHP-3.1 *(Partnerships to Preserve Heritage Resources) – Foster partnerships with interested parties to preserve heritage resources.*

Action CRHP-3.1.5 *(Public/Private Partnerships) – Explore public and private partnerships that support the City's historic preservation program. Continue to utilize the Chico Heritage Association as a resource for issues and projects.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address cultural and paleontological resources and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Potential Destruction or Damage to Historical Resources (Standard of Significance 1)

Impact 4.11.1 Subsequent activities under the proposed General Plan Update could potentially cause a direct substantial adverse change in the significance of a historical resource or structure. However, policy provisions in the proposed General Plan Update, existing Best Management Practices (BMPs), and continued implementation of the city's Municipal Code would ensure that historic resources are not adversely impacted. This would be a **less than significant** impact.

Future development allowed under the proposed General Plan Update could result in the destruction of historic buildings and alterations resulting in the loss of historic character-defining features of buildings. Indirect impacts could also occur from development adjacent to historic structures that conflict in design. As noted above, the Landmark overlay zone requires that development and new land uses are designed and operated in a manner compatible with the preservation of these historic resources. Any land use normally allowed in the primary zoning district may be allowed within the Landmark overlay zone.

Implementation of the proposed General Plan Update Cultural Resources and Historical Conservation Element policies and actions would ensure protection and preservation of significant historical resources by identifying resources and avoiding or mitigating potential impacts as well as by ensuring that infill development compliments existing historic structures. For example, Action CRHP-1.1.6 requires that conditions of approval for a proposed development project would have to include best management practices that protect cultural resources, while Action CRHP-2.1.2 requires review of proposed exterior alterations to historic buildings in accordance with the Historic Preservation Ordinance. Also, Policy CRHP-2.1 requires the city to integrate the values of historic preservation with infill development and adaptive reuse and Policy CRHP-2.3 limits the demolition of historic resources to an act of last resort. Future discretionary approvals that could result in the demolition of historical resources will be subject to individual review of potential impacts under a separate CEQA document. However, the proposed General Plan Update does not propose the removal of any historic resources. Thus, this impact would be **less than significant**.

Potential Destruction or Damage to Known and Undiscovered Archaeological Resources and Human Remains (Standards of Significance 2 and 4)

Impact 4.11.2 Subsequent activities under the proposed General Plan Update could result in the potential disturbance of cultural resources (i.e., prehistoric archaeological sites, historical archaeological sites, and isolated artifacts and features) and human remains. However, policy provisions in the proposed General Plan Update would ensure that archaeological resources are not adversely impacted. This would be a **less than significant** impact.

Cultural resources have been identified by previous investigations in the city, and it is anticipated that additional cultural resources may be discovered in other areas within the city during construction and build-out of land uses allowed under the proposed General Plan Update. Development which could occur has the potential to destroy and/or degrade known and unknown prehistoric archaeological resources, historical archaeological resources, or human remains. As noted above, CEQA Guidelines Section 15064.5, subdivision (e) requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Implementation of the proposed General Plan Update Cultural Resources and Historical Preservation Element policy and actions would ensure protection and preservation of significant archaeological resources by identifying resources and avoiding or mitigating potential impacts. For example, Action CRHP-1.1.8 mandates consultation and record searches with the Northeast Center of the California Historical Information System. Founded in the early 1970s, the Northeast

Center of the California Historical Resources Information System (NEIC) is one of eleven information centers under contract to the State of California Office of Historic Preservation (OHP) in Sacramento. These centers are nonprofit organizations located at various universities and museums throughout the state of California. NEIC staff provides research and information services regarding Northeastern California history and prehistory (Cal-Fire, 1999). Action CRHP-1.1.6 requires the development of standard conditions of approval for discretionary projects that ensure best management practices protect cultural resources. Thus, this impact would be **less than significant**.

Potential Destruction or Damage to Paleontological Resources (Standard of Significance 3)

Impact 4.11.3 Adoption of the proposed General Plan Update could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations) within the Planning Area. However, policy provisions in the proposed General Plan Update would ensure that paleontological resources are not adversely impacted. This would be a **less than significant** impact.

A search of the University of California Museum of Paleontology collections database indicated that 126 sites with the fossilized remains of plants, invertebrates, and mammals have been discovered in the Chico Planning Area. The potential exists for future projects being approved within the Planning Area to disturb other undiscovered paleontological resources. Development under the proposed General Plan Update could impact undiscovered paleontological resources in areas encompassed by the Planning Area.

However, the General Plan Update does not propose any development activities that would directly disturb currently undiscovered paleontological resources. Furthermore, as described under Impact 4.11.1 and 4.11.2, proposed General Plan Update Action CRHP-1.1.6 requires that conditions of approval for future proposed development projects to include best management practices that protect paleonotological resources. Future discretionary approvals that could result in the potential disturbance of paleontological resources will be subject to individual review of potential impacts under a separate CEQA document. As such, this impact would be **less than significant**.

4.11.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting associated with the proposed General Plan Update includes existing, proposed, planned, and reasonably foreseeable projects and growth within the Planning Area and the region (see Section 4.0 for a further description of cumulative growth conditions). Continued growth in the region would contribute to potential conflicts with cultural and paleontological resources. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement, farming, and economic development.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts on Historic Resources, Prehistoric Resources, and Human Remains (Standard of Significance 1, 2 and 4)

Impact 4.11.4 Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to cultural resources in the region. However, policy provisions in the proposed General Plan Update and continued implementation of the city's Municipal Code would ensure that historic and prehistoric resources are not adversely impacted. This impact would be **less than cumulatively considerable**.

Implementation of the proposed General Plan Update, in combination with cumulative development in the surrounding region, would increase the potential to disturb known and undiscovered cultural resources. The project might contribute to the cumulative loss of cultural resources in the region. This contribution might be considerable when combined with other past, present, and reasonably foreseeable development in the region.

However, as discussed under Impact 4.11.1 and 4.11.2, the proposed General Plan Cultural Resources and Historical Preservation Element contains several policies and actions that would assist in reducing potential cumulative impacts to historical resources, prehistoric resources, and human remains throughout the Planning Area. General Plan Update Action CRHP-1.1.6 requires that conditions of approval for future proposed development projects to include best management practices that protect cultural and historic resources. Future discretionary approvals that could result in the potential disturbance of paleontological resources will be subject to individual review of potential impacts under a separate CEQA document. General Plan Update Policy CRHP-2.1 requires the city to integrate the values of historic preservation with infill development and adaptive reuse and Policy CRHP-2.3 limits the demolition of historic resources to an act of last resort. In addition, Section 7050.5(b) of the CHSC specifies protocol when human remains are discovered on a project site, while Public Resources Code Section 21083.2 includes requirements for activities that preserve unique archeological resources in place in an undisturbed state. Future environmental and discretionary review of development or redevelopment projects under the proposed General Plan Update would ensure that the project's contribution to cumulative impacts would be **less than cumulatively considerable**.

Cumulative Impacts on Paleontological Resources (Standard of Significance 3)

Impact 4.11.5 Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to paleontological resources in the region. However, policy provisions in the proposed General Plan Update would ensure that impacts would be **less than cumulatively considerable**.

Implementation of the proposed project, in combination with cumulative development in the surrounding region, would increase the potential to disturb known and undiscovered paleontological resources in the region. However, during implementation of the current General Plan, little, if any impacts have occurred to paleontological resources. While multiple impacts may occur during the implementation period of the General Plan Update, cumulative impacts are unlikely. Cumulative impacts that may occur would be reduced to **less than cumulatively considerable** levels by implementation of Action CRHP-1.1.6 identified under Impact 4.11.3.

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4.12
Public Services and Utilities

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) describes the public services and utilities that would serve the City of Chico at build-out of the proposed General Plan Update. Specifically, this section includes an examination of fire protection and emergency medical services, law enforcement services, water services (supply and infrastructure), wastewater services, solid waste services, schools, parks and recreation, and electrical, natural gas, and telecommunications services. Each subsection includes a description of existing facilities and infrastructure, applicable service goals, potential environmental impacts resulting from implementation of the proposed General Plan Update, and cumulative impacts. In addition, proposed General Plan Update policies and mitigation measures that would reduce or eliminate impacts are identified.

The City uses 'average' staffing level goals for fire and police, and strives to attain and maintain these levels. It remains the policy of the city to increase police and fire staffing subject to the priorities of the City Council and within the parameters of available funding and based upon a demonstrated need. Not achieving a staffing goal is not an environmental impact per se, but a reality of a changing fiscal and political environment that requires a balancing of priorities.

Impacts associated with the following public service and utility issues are addressed in other sections of this Draft EIR, as listed below:

- Storm drainage system, including potential overflow and downstream flooding impacts – Section 4.9, Hydrology and Water Quality;
- Groundwater impacts, including water quality – Section 4.9, Hydrology and Water Quality;
- Hazardous waste – Section 4.4, Human Health/Risk of Upset; and
- Energy use, including energy demands associated with the proposed General Plan Update – Section 4.14, Energy and Climate Change.

4.12.1 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

4.12.1.1 EXISTING CONDITIONS

CHICO FIRE DEPARTMENT

The Chico Fire Department (CFD) provides fire protection and emergency medical services to a 31 square mile service area that includes the City of Chico. CFD services include fire suppression, emergency medical service, rescue service, hazardous material emergencies service, public assists (post-fire/accident cleanup, water removal, flooding assistance, assistance to the Police Department), fire prevention and life safety, and emergency preparedness including operation of the Emergency Operations Center (EOC) at the Fire Training Center. The CFD has mutual aid agreements with the California Department of Forestry and Fire Protection (Cal-Fire) and the Butte County Fire Department. The CFD is also signatory to the Chico Urban Area Fire and Rescue Agreement (CUAFRA), which is discussed in more detail under Regulatory Framework below (CFD, 2007).

Facilities and Equipment

The CFD currently operates six fire stations, as shown in **Figure 4.12.1-1**. In addition, a seventh fire station is anticipated to be constructed in 2014. The location and operational characteristics of each fire station are provided below (CFD, 2008):

- Fire Station #1 is located at 842 Salem Street and is the CFD's administrative headquarters. Equipment at this station includes two fire engines, two aerial ladder trucks, one Hazmat response vehicle, and one utility vehicle. This station also houses an antique 1925 Seagrave Engine.
- Station #2 is located at 182 East 5th Avenue, near the Enloe Medical Center and Enloe Conference Center. Equipment at this station includes two fire engines, a rescue unit, and a utility vehicle. This station was constructed in 1961 and currently does not meet the necessary space requirements. The City plans to replace and relocate Station #2 in 2016 (City of Chico, 2009).
- Station #3 is located at 145 Boeing Avenue. This station services the City of Chico Municipal Airport as well as the surrounding industrial park and residential areas. Equipment at this station includes two fire engines, two crash rescue vehicles, and one utility vehicle.
- Station #4 is located at Notre Dame Boulevard and Forest Avenue. Equipment at this station includes two fire engines, two patrol vehicles, and one foam trailer.
- Station #5 is located at 1777 Manzanita Avenue. Equipment at this fire station includes two engines, one aerial ladder truck, one utility vehicle, and one breathing support trailer. This station also houses the City's fully restored 1910 American La France horse-drawn steam Fire Engine #2.
- Station #6 is located at Highway 32 and East Avenue. Equipment at this station includes one engine, one Office of Emergency Services (OES) engine, and one utility vehicle. This station is the only public safety facility located west of the Union Pacific Railroad main line and is temporarily located in a leased facility. A new station is being designed for construction on a City-owned site at West 8th Avenue and State Route 32, adjacent to Oak Way Park and Emma Wilson School. The station's environmental impact report is currently in progress, and construction of the station is planned for 2011 (Beery, 2009).
- Station #7 will be located at Hicks Lane and Eaton Road. The City obtained the property for the station in 2008. The CFD *Strategic Plan for Personnel, Facilities and Apparatus, 2008–09 through 2017–18* identifies that the station should be designed to be approximately 12,000 square feet in size and capable of housing an engine and ladder company and a 1,000 square foot police substation (CFD, 2007). Construction of the station is expected to occur in 2014 (Beery, 2009).

In addition to the fire stations, the CFD operates one fire training facility. The fire training center is located at 1466 Humboldt Road in Chico and converts to the City's Emergency Operations Center during major disasters. The fire training center is approximately 6,000 square feet and hosts both fire and police department in-service training, as well as multi-agency training and drills. It includes a classroom capable of seating up to 110 persons, a conference room, offices, a five-story drill tower, and a pump test pit. The center also has full emergency power, multiple phone lines, computer network linkage, satellite access, city radio systems, and a full kitchen (CFD, 2009). The fire training center is an approved off-site instructional facility for Butte College and is a state-certified Rescue Systems I Training site. The Fire Department Training and Prevention Division Chief and Police Department Training Coordinator both have offices in the center.

T:_CS\Work\Chico, City of\General Plan Update - 27-0146\FIGURES, December 2007

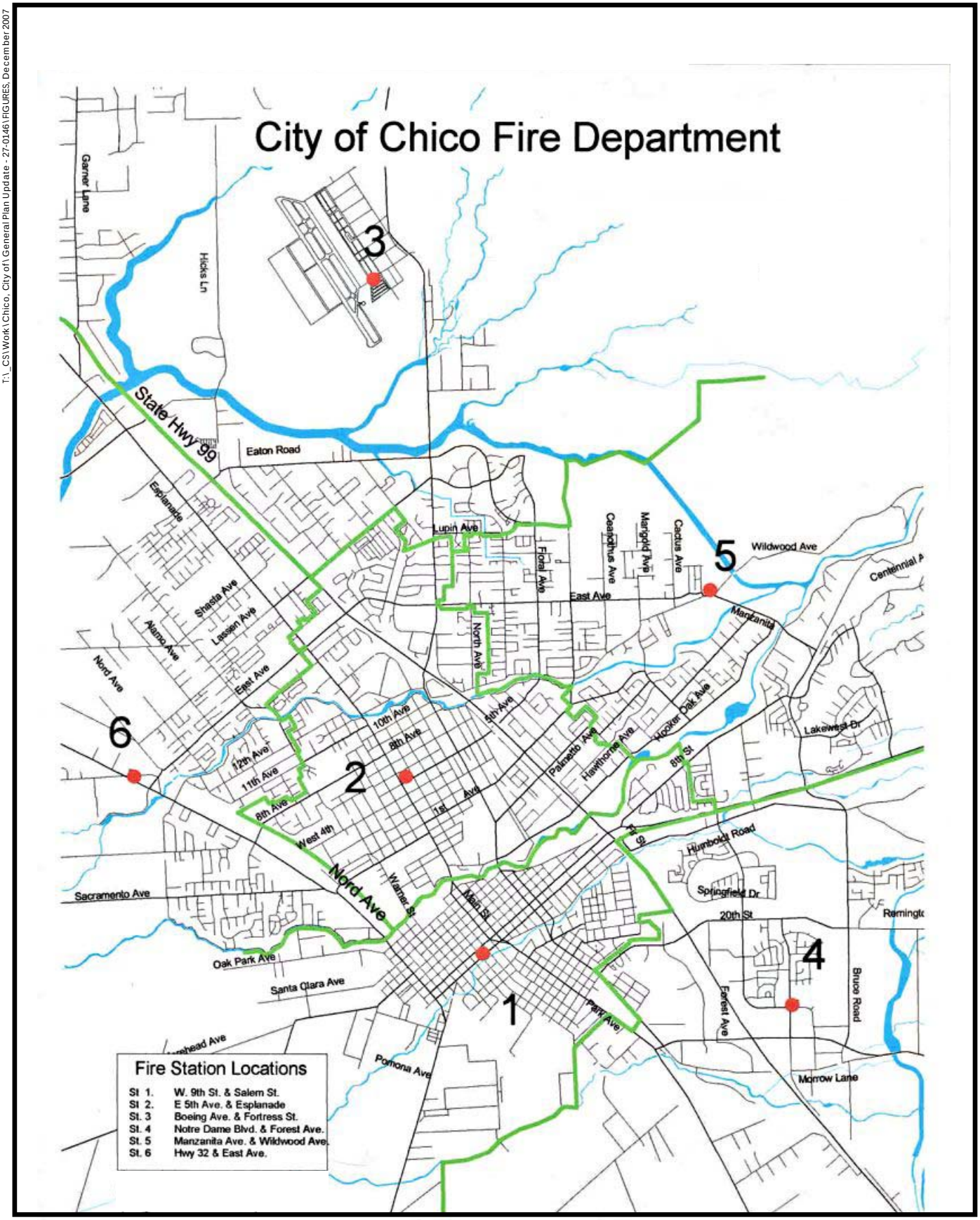


Figure 4.12.1-1
Fire Station Service Areas

PMC®

Personnel

The CFD consists of 75 paid personnel including a fire chief, two division chiefs, support staff, fire prevention officer (fire marshal), fire inspectors, fire captains, fire apparatus engineers, and firefighters. The department also maintains a force of 25 volunteer firefighters who are used on large-scale emergencies (Beery, 2009). The CFD currently has 21 uniformed firefighters on duty 24 hours per day, 7 days a week, 365 days per year (Beery, 2009)

Incident Calls

The CFD responded to 10,160 incidents in 2008, an average of 27.8 incidents per day. Stations 1 and 2 responded to 5,220, or 51.4 percent, of those incidents. The types of incidents are detailed in **Table 4.12.1-1**. Over 71 percent of incidents responded to were rescue/emergency medical calls.

TABLE 4.12.1-1
CHICO FIRE DEPARTMENT
2008 EMERGENCY INCIDENTS

Type of Incident	Total # of Incidents
Fire, Explosion	424
Overpressure Rupture, Overheat	64
Rescue, Emergency Medical Call	7,227
Hazardous Condition, Standby	494
Service Call	856
Good Intent Call	639
False Call	419
Natural Disaster	16
Other Type(s) of Situation(s) Found	21
Total	**10,160**

Source: CFD, 2008

Automatic and Mutual Aid

The City of Chico entered into the Chico Urban Area Fire and Rescue Agreement (CUAFRA) in June of 1999. The CUAFRA provides for automatic aid, meaning that for a call in the designated service area (including areas outside the city's Sphere of Influence), the closest fire engine is routed to the emergency as the first due response, regardless of the jurisdiction of the engine.

In areas not covered by the CUAFRA, Butte County and the Chico Fire Department can still call each other for backup "mutual aid" in addition to their first due response engine. Mutual aid is requested when a jurisdictional agency has insufficient resources immediately available to handle an emergency situation and assistance is requested from neighboring fire departments. Most agencies provide short-term mutual aid for free so that they will receive it in the same way when they have a major emergency. The California Department of Forestry and Fire Protection

(Cal-Fire) also maintains a mutual aid agreement with the City of Chico. **Table 4.12.1-2** shows the number of mutual aid responses provided and received by the CFD.

TABLE 4.12.1-2
CHICO FIRE DEPARTMENT
MUTUAL AID RESPONSES

	# of Responses Provided
Mutual Aid Received*	23
Mutual Aid Response Provided*	69
Automatic Aid Received**	1518
Automatic Aid Provided**	489

**Mutual aid is requested when the jurisdictional agency has insufficient resources immediately available to handle a situation. Assistance is requested from neighboring fire departments. Mutual aid assistance may require multiple or specialized resources.*
***Automatic aid is a pre-planned response that sends the closest fire engine to every call regardless of jurisdiction.*
Source: CFD, 2008

Response Times and Service Standards

The National Fire Protection Association (NFPA) and the Insurance Services Office (ISO) recommend a response time standard of 30 seconds to dispatch a call, 60 seconds "get away" time, and 4 minutes driving time from the fire station to the emergency for a total response time of not more than 5 minutes and 30 seconds. This standard covers the time from receipt of call until the first response unit arrives at the emergency. It is recommended that this standard be met at least 90 percent of the time. This applies specifically to structure fires. The City's currently adopted standard for average response time is 4 minutes throughout the city. The CFD average total response time from receipt of call to arrival at emergency was 4 minutes and 37 seconds in 2008. The average time from receipt of call to dispatch was 22 seconds and the average time from dispatch to arrival at emergency was 4 minutes and 15 seconds (CFD, 2008).

The CFD has a service ratio goal of four on-duty personnel per 10,000 population, including chief officers for command. Based on California Department of Finance estimates, Chico's population as of January 1, 2008, was 86,949. Therefore, with 21 on-duty personnel, the CFD's service ratio standard was not being met as of 2008. The completion and staffing of Fire Station 7 with nine personnel (three on duty) would help meet, but still leave the CFD short of this goal (CFD, 2007).

The CFD has a fire station ratio goal of one fire station per 10,000 population, unless mitigated by compact urban form, as well as a standard of one fire station per 5 square miles. There are currently sufficient fire stations to meet the square mile requirement, as there are six stations in a 31 square mile service area. As mentioned above, the city's population in 2008 was 86,949. Therefore, the CFD was not meeting the fire station per population ratio in 2008, as there were only 0.69 fire stations per 10,000 population. The CFD anticipates that the standard will be met upon completion of Station 7 and based on a compact urban form (CFD, 2007).

ISO Rating

The Insurance Services Office (ISO) is an independent organization that serves insurance companies, fire departments, insurance regulators, and others by providing information about risk. ISO's Public Protection Classification (PPC) service gauges the quality of local fire departments by collecting information on a community's public fire protection and then analyzing the data using a Fire Suppression Rating Schedule (FSRS). ISO then assigns a PPC from 1 to 10. Class 1 represents the best public protection and Class 10 indicates no recognized protection. A community's PPC depends on the following criteria (ISO, 2009):

- Fire alarm and communications systems, including telephone systems, telephone lines, staffing, and dispatching systems;
- The fire department, including equipment, staffing, training, and geographic distribution of fire companies; and
- The water supply system, including condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires.

Cities are normally rated about every 10 years. Chico was last field reviewed and rated in June 2005. The CFD currently has an ISO PPC rating of 2 (CFD, 2009).

Funding

The CFD is funded from the city's General Fund. It also received revenue from deployments of trained department personnel to state and federal fires during the summer wildland fire season. Other revenue sources include fire prevention inspection fees, fire code permits, false alarm fees, and various federal and state grants (CFD, 2007). In addition, the city collects a fire protection building and equipment fee for all new development. Currently the fire protection fees are $732 per single-family dwelling unit, $581 per multi-family dwelling unit, $0.35 per square foot of retail development, $0.21 per square foot of office development, and $0.05 per square foot of industrial development (City of Chico, 2009). These fees are used to fund site acquisition, construction, improvement and equipping of fire protection buildings and facilities, and acquisition and improvement of fire protection equipment.

Ambulance Service and Emergency Medical Service Facilities

Along with the emergency medical services provided by the CFD, First Responder EMS, Inc. provides advanced life support - paramedic ambulance service to Butte County, including the City of Chico. First Responder EMS paramedics operate out of nine different stations and sixteen ambulances spread throughout the Chico, Paradise and Oroville areas (First Responder, 2010).

Generally, emergency medical care in Chico is provided at Enloe Medical Center. Enloe Medical Center is a 382-bed hospital that offers health services ranging from preventative education and outpatient services to acute care, behavioral health, inpatient rehabilitation, home health and hospice services. Enloe Medical Center serves over 400,000 residents in a six-county region in Northern California. Enloe Medical Center encompasses eight facilities, with the primary facility being located at 1531 Esplanade Drive in Chico (Enloe Medical Center, 2010). The Esplanade campus is currently being expanded to meet the health care needs the growing community as well as seismic requirements. The expansion, known as the Century Project, will double the size of the medical center, adding 191,000 square feet of space. The Century Project

consists of a five-story patient tower with 140 new rooms; a single-story surgery center; a single-story trauma center; a parking structure; and a park, as well as improvements to the existing hospital (Enloe Medical Center, 2010).

4.12.1.2 REGULATORY FRAMEWORK

STATE

California Fire Code

The 2007 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout the State of California (CBSC, 2008). The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Health and Safety Code

Additional state fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which include regulations for building standards, fire protection and notification systems, fire protection devices such as extinguishers, smoke alarms, high-rise building and child-care facility standards, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Fighting Equipment, the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

LOCAL

Strategic Plan

The Chico Fire Department Strategic Plan covers fiscal years 2008–09 through 2017–18. The plan describes the array of fire and rescue services provided to the citizens and provides an evaluation of the current status of various commonly used service performance measures. The plan also makes recommendations for staffing, facilities, and station sites and remodels.

State Master Mutual Aid Agreement

The State Master Mutual Aid Agreement, signed by Butte County and the five incorporated cities in the county, establishes a framework that allows agencies to share resources when they have exhausted their own. The giving of mutual aid is voluntary, with the decision normally based on ability of the giving agency to maintain reasonable protection of its own jurisdiction. Federal firefighting resources are not a part of the California Master Mutual Aid Agreement.

The state is divided into six Fire and Rescue Regions. Butte County is in Office of Emergency Services (OES) Region III, which encompasses the 13 counties of northeastern California from Sutter, Yuba, and Sierra to the Oregon and Nevada borders. California OES fire engines are requested through the mutual aid system, but are under the terms of bilateral agreements between the assignee and the state (CFD, 2009).

Chico Urban Area Fire and Rescue Agreement

The Chico Urban Area Fire and Rescue Agreement and the companion Chico Urban Area Fire and Rescue Plan were adopted on June 29, 1999, and implemented on June 21, 2000. The key components of the agreement are:

- Closest engine response to all emergencies within the service area;
- Sharing of specialized emergency resources such as aerial ladder trucks, fire bulldozers, water tenders, wildland fire engines, and volunteer firefighters;
- Staffing of City Fire Station 6 on the west side of the railroad tracks at State Route 32 and W. East Avenue;
- Establishment of ideal future city and county fire station locations for the northwest corner of the county that avoids facility and staffing duplication; and
- Guidelines for a logical transition of the Urban Area from county to city fire protection.

An Operational Letter of Understanding approved by the Fire Chiefs, City Manager, and Chief Administrative Officer guides daily functioning of the CUAFRA (CFD, 2009).

City of Chico Municipal Code

Chapter 16R.42, Fire Regulations, of the City of Chico Municipal Code contains fire regulations adopted to safeguard life and property from the hazards of fire and explosion arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or structures. The code requires permits for certain hazardous activities and operations and inspections to determine whether such activities or operations can be conducted in a manner which complies with the fire regulation standards and in a manner which will not cause a fire or contribute to its spread. The Chico Municipal Code includes the California Fire Code, as promulgated in Part 9, Title 24 of the California Code of Regulations, and portions of the International Fire Code, 2006 Edition.

4.12.1.3 IMPACTS AND MITIGATION MEASURES

STANDARD OF SIGNIFICANCE

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. A fire protection and emergency services impact is considered significant if implementation of the project would:

- Create substantial adverse physical impacts associated with the provision of new or physically altered fire related facilities or services, the construction and/or provision of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency services.

METHODOLOGY

Evaluation of potential fire protection and emergency medical service impacts was based on information provided by the Chico Fire Department, as well as a review of the applicable fire codes and regulations, the existing Chico Municipal Code, and other relevant literature. A detailed list of reference material used in preparing this analysis can be found at this end of this section. This material was then compared to the proposed General Plan Update's specific fire service-related impacts.

The analysis takes into account the density and type of existing and proposed land uses within the Planning Area, as well as proposed and anticipated development in the City of Chico and surrounding areas.

The following proposed General Plan Update policies and actions address fire protection and emergency medical service:

Policy S-4.1 *(Fire Safety Staffing) – Maintain adequate fire suppression and prevention staffing levels.*

Action S-4.1.1 *(Fire Response Time) – Strive to maintain an initial response time of 4 minutes or less for at least 90 percent of emergency response calls for urbanized areas.*

Action S-4.2.1 *(Interagency Programs) – Continue to work with CalFire and the Butte County Fire Department on programs that will enhance fire protection and firefighting capabilities in the Planning Area, including maintaining aid agreements.*

Policy S-4.3 *(Fire Safety Standards and Programs) – Support the development and implementation of standards and programs to reduce fire hazards, and review development and building applications for opportunities to mitigate fire hazards and ensure compliance with relevant codes.*

Action S-4.3.1 *(Standards to Protect Structures) – Maintain, and update as needed, the standards manual for protecting structures in wildland fire areas.*

Action S-4.3.2 *(Structural Standards) – Incorporate building construction standards for the Local Resource Area, areas which are provided City fire suppression services, that are consistent with the requirements for the State Responsibility Area, areas that are provided State and County fire suppression services for Very High, High and Moderate Fire Hazard Severity Zones.*

Action S-4.3.4 *(Development Standards) – Encourage the County to require development in unincorporated area within the City's Sphere of Influence to conform to the City's development standards.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address fire protection services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Fire Protection and Emergency Medical Services

Impact 4.12.1.1 Implementation of the proposed General Plan Update could result in the need for additional fire protection and emergency medical services facilities in order to maintain acceptable service ratios and response times. The provision of these facilities could cause environmental impacts. However, future fire protection/EMS facilities would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Implementation of the proposed General Plan Update policy provisions and continued implementation of City goals would ensure emergency services and associated facilities are provided. Therefore, this is a **less than significant** impact.

Full buildout of the General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. Fire protection and emergency medical services for the city would continue to be provided by the CFD. The CFD has a goal of four on-duty personnel per 10,000 population, and one fire station per 10,000 population unless mitigated by a compact urban form. Based on these goals, a total of approximately 61 on-duty personnel and 15 fire stations would be necessary to provide adequate fire protection services at build-out of the proposed General Plan Update. Given the more compact urban form proposed by the General Plan Update, the CFD anticipates that expansions at several of the seven fire stations discussed in the Existing Conditions section above could adequately serve the build-out population (City of Chico, 2010).

Proposed General Plan Action S-4.1.1 directs the city to strive to maintain an average CFD response time of 4 minutes or less for 90 percent of emergency response calls for all existing and proposed urban development by providing a sufficient number of fire stations and appropriately staffed fire/rescue companies. This policy would ensure that both existing and future new development would be served by adequate fire protection and emergency medical services. In addition, the city has developed the Public Facilities Assessment associated with development under the proposed General Plan Update that identifies public facility and infrastructure needs and how they might be financed, including fire protection facilities and equipment. Additional personnel and facilities would be needed to meet the city's goal of an average response time

of 4 minutes. It remains the policy of the city to increase fire staffing within the parameters of available funding based upon a demonstrated factual basis supported by rational analysis. Not achieving a staffing goal is not an environmental impact per se, but a reality of a changing fiscal and political environment that requires a balancing of priorities.

The CFD utilizes computer modeling to analyze prospective station locations, staffing, and company placement. In some cases, the modeling allows the Department to enhance response time and response reliability problems by adding resources to an existing facility, thus avoiding the costs associated with constructing and maintaining additional facilities. The CFD continues to use the computer modeling to analyze its response times and make facility and staffing recommendations to the City Council to meet response time goals. In addition, compliance with the 2007 California Fire Code and City of Chico Municipal Code would help to prevent and minimize the occurrence of fires. Proposed General Plan Update Policy S-4.3 and its associated actions address fire safety development standards by requiring that the city review development and building applications to ensure that full consideration is given to the mitigation of fire hazards and compliance with relevant codes, such as the Fire Code. Compliance with this policy, and the 2007 Fire Code, would increase the ability of the CFD to provide adequate fire protection services.

The provision of additional facilities in the future would be required to undergo project-specific environmental review at such time as an application for a project was submitted. The typical environmental effects regarding the construction and operation of a fire protection/EMS facility may involve issues with noise (sirens), air quality (during the construction of the facility), biological resources (depending on location), cultural resources (depending on location), public utilities (demand for electric, water, and wastewater service), and traffic on a local level due to the interruption of traffic light timing by fire engines. The environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this Draft EIR as part of overall development of the proposed SOI.

All new development would be required to pay development impact fees as discussed under the Funding subsection above. These fees would assist in funding the fire protection facilities and equipment necessary to adequately serve growth.

It is also anticipated that increased population in the City of Chico would require Enloe Medical Center and First Responder Emergency Medical Services, Inc. to provide additional emergency medical services and associated equipment and facilities as demand increases. As described under the Existing Setting sub-section above, the Century Project that is currently underway will double the size of the Enloe Medical Center. The environmental impacts of the expansion were analyzed in the Enloe Medical Center Master Plan Draft Environmental Impact Report (SCH# 2004042118, May 2005). Any future expansion of the Enloe Medical Center facilities, as well as any expansion of First Responder Emergency Medical Services, would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency.

Compliance with the 2007 California Fire Code, the City of Chico Municipal Code, City fees, and implementation of the above General Plan Update policies and actions would ensure the provision of adequate fire protection services. Project-level CEQA review of future fire protection/EMS facilities would identify and mitigate significant environmental impacts associated with the provision of additional fire protection/EMS personnel and facilities. Therefore, impacts associated with fire protection and emergency medical services would be reduced to a **less than significant** level.

Adequate Fire Flow

Impact 4.12.1.2 Implementation of the proposed General Plan Update would result in additional need for water supply and infrastructure to provide adequate fire flows for fire protection. The provision of these facilities could cause environmental impacts. However, future improvements would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Therefore, this is a **less than significant** impact.

In addition to the fire protection facilities discussed under Impact 4.12.1.1 above, adequate water supply and pressure for fire flows would be necessary to ensure fire protection for future development. Water supplies are discussed in detail under the Water Supply and Service subsection below and, as identified by Impact 4.12.4.1 below, adequate water supplies are available to serve build-out of the proposed General Plan Update. Furthermore, according to Cal Water, there are currently no fire flow/water pressure problems in the city. Areas in the high pressure zone, which is located in the eastern foothills, could be required to construct on-site tanks in order to ensure adequate fire flow (Pembroke, 2009).

Subsequent development would be subject to City fire flow and development standards (e.g., City Municipal Code 16R.42, Fire Regulation Standards) and proposed General Plan Update requires the city to ensure that new city infrastructure provides for water flow and pressure at sufficient levels to meet domestic, commercial, industrial, institutional, and firefighting needs (Action PPFS-5.2.1). The site-specific environmental impacts associated with off-site improvements necessary for fire flows would be determined through project-level CEQA analysis at such time as they are proposed for development. The impact analysis in each of the technical sections of this DEIR, including temporary (i.e., construction-related), operational, direct, and indirect environmental effects, is based on development anticipated at buildout of the proposed Land Use Diagram and the transportation improvements identified in the proposed Circulation Element. As such, the environmental effects of construction water infrastructure within the Planning Area have been programmatically evaluated in the technical analyses of this DEIR as part of overall development of the proposed SOI.

Implementation of the proposed General Plan Update policy cited above would ensure that adequate fire flow would be available to serve existing and future new development. Project-level CEQA review of future improvements necessary for fire flows would identify and mitigate any significant environmental impacts. Therefore, impacts are considered **less than significant**.

4.12.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for fire protection and emergency medical services includes the service area boundaries of the CFD and the surrounding areas that give and receive mutual aid with the CFD, which includes Butte County. The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development in the CFD service area and Butte County that currently place demand on fire protection services or is expected to place demand on services in the future. **Table 4.0-4** in Section 4.0 of this DEIR contains a list of regional development projects that would be included in the cumulative setting.

Cumulative Demand for Fire Protection and Emergency Medical Services

Impact 4.12.1.3 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in Butte County, would increase the demand for fire protection and emergency medical services and thus require additional staffing, equipment, and related facilities under cumulative conditions. The provision of these facilities could result in environmental impacts. The project's contribution to the need for expanded fire protection and emergency medical services is considered **less than cumulatively considerable** given requirements for project-level CEQA review of future fire protection/EMS facilities, along with compliance with the California Fire Code.

Future regional growth would result in increased demand for fire protection and emergency medical services throughout Butte County. This cumulative regional demand could result in increased requests for mutual aid from the CFD, and growth in the city could result in increased requests for mutual aid from the County. However, the need for additional fire protection facilities associated with the proposed General Plan Update would be limited to facilities needed to serve the city, as the CFD's service area is limited to the city limits. It is not anticipated that increased mutual aid requests would result in the need for additional County or City fire protection facilities because mutual aid would be provided via existing facilities, equipment, and personnel at the time of the mutual aid request. Furthermore, as discussed under Impact 4.12.1.1 above, the environmental effects of the construction of any additional fire protection facilities within the proposed SOI have been programmatically evaluated in the technical analyses of this Draft EIR. In addition, future fire protection/EMS facilities projects would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency.

All new development in the county, including in the City of Chico, would be subject to the California Fire Code, which would help to prevent and minimize the occurrence of fires, thus increasing the ability of the CFD and other fire service providers to provide adequate fire protection services.

Project-level CEQA review of future fire protection/EMS facilities, along with compliance with the California Fire Code, would ensure that cumulative environmental impacts associated with the continued provision of fire protection and emergency medical response services would be considered **less than cumulatively considerable**.

4.12.2 LAW ENFORCEMENT SERVICES

4.12.2.1 EXISTING CONDITIONS

City of Chico Police Department

The Chico Police Department (CPD) provides law enforcement services to the City of Chico. If requested by the Butte County Sheriff's Office or the California Highway Patrol, the CPD may provide assistance in the surrounding unincorporated territory on a case-by-case basis.

As of January 2010, the CPD is authorized for 149 employees, 97 of which are sworn police officers (CPD, 2010). CPD personnel are organized into two divisions: Operations and Support. Each of the divisions is headed by a police captain. The Operations Division comprises the Patrol Section, Special Operations Section, and Animal Control Unit. The Support Division comprises the Communications Section, Records Section, Property Section, Detective Bureau, Juvenile Bureau, Crime Analysis Unit, Training Unit, and Tech Services Unit. Business Services for the CPD and the Public Information Unit are managed out of the Office of the Chief of Police (EIP, 2006).

Facilities and Equipment

CPD headquarters is located at 1460 Humboldt Road and consists of a 17,671 square foot building that was constructed in 1984 and was expanded in 1993. In addition to the main police headquarters building, the CPD has two substations, one located at the downtown parking structure at 4th and Salem streets and the other at Fire Station 5 at Wildwood and Manzanita avenues. The CPD also occupies approximately 1,500 to 2,000 square feet of Building 400 in the Municipal Services Center, where they also utilize covered storage facilities for bulk found property storage, bicycle storage, special vehicle parking, refrigerated evidence storage, a forensic laboratory, and primary property and evidence storage. The Chico Police Department Police Facilities Needs Assessment (LPA/DSA, 2006) identified that the headquarters at Humboldt Road has several functional deficiencies resulting from the size and configuration of the facility, including inadequate support space (lockers, storage, etc.), inadequate employee space, scattered property and evidence holding areas, inadequate meeting/conference/briefing space, decentralized configuration of buildings, short supply of parking, safety issues to site layout, and public access and movement issues (LPA/DSA, 2006).

The CPD vehicle fleet consists of 51 marked/unmarked sedans, eight vans/SUVs, six pick-up trucks, two animal transports, two DUI trailers, one traffic speed trailer, one holding stock trailer, one equipment trailer, one prisoner transport, one armored vehicle, three generators, and five motorcycles (LPA/DSA, 2006).

Butte County Jail

Persons taken into custody by the CPD are usually taken to the headquarters at 1460 Humboldt Road and, if not released on their own, transferred within six hours to the Butte County Jail. The Butte County Sheriff's Department operates the jail, which is located at 33 County Center Drive in Oroville. The Butte County Jail houses both male and female populations and is approved by the California Corrections Standards Authority to house 614 inmates. The Butte County Jail is operated 365 days a year, 24 hours a day by 135 correctional staff and civilian employees, including a medical department and a kitchen facility (Butte County, 2009).

Calls for Service

While the CPD service area comprises the Chico city limits, the department provides law enforcement services to the unincorporated parts of the Chico urban area on a daily basis (CPD, 2007). The number of calls for service/incidents handled by the CPD has risen steadily in recent years and at a higher rate than the city's population and the CPD's staffing have grown. In 1997 the department handled 75,261 incidents, and in 2007 it handled 119,300, an increase of 59 percent.

In addition, the CPD has had to respond to an increasing number of serious crimes as Chico has grown. Serious crimes, or "Part I Crimes" as they are also known, include murder, rape, robbery, assault, burglary, larceny, and auto theft. **Table 4.12.2-1** below indicates the number of reported Part I Crimes from 2002 to 2008.

TABLE 4.12.2-1
CHICO POLICE DEPARTMENT - PART I CRIMES 2002 –2008

Year	Number of Part I Crimes
2002	2,793
2003	2,830
2004	3,190
2005	3,040
2006	3,125
2007	2,932
2008	3,088

Source: CPD, 2008

Service Standards

The CPD has identified an average response time to incidents goal of 4 minutes to priority 1 and 2 calls, 6 minutes to priority 3 and 4 calls, and 8 minutes to priority 5, 6, and 7 calls. The average CPD response times to calls in 2006 through 2008 are shown in **Table 4.12.2-2** below.

TABLE 4.12.2-2
CHICO POLICE DEPARTMENT
RESPONSE TIMES 2006–2008

Call Type (Priority)	2006	2007	2008
1	2:56.775	2:55.416	2:48.855
2	3:37.964	3:38.750	3:32.775
3	4:03.818	4:03.697	4:11.639
4	6:24.900	5:58.646	7:00.001
5	12:16.661	11:26.838	13:29.113
6	33:12.160	33:16.042	35:17.847

Source: Woodward, 2009

The CPD has a goal of 1.3 sworn officers per 1,000 population and 0.6 civilian personnel per 1,000 population, which is consistent with average cities the size of Chico (population 50,000–99,999) in the western United States (CPD, 2007).

Funding

The CPD is funded via the city's General Fund and various fees (administrative fees, police officer services fees, alarm fees, etc.). In addition, the city collects a police protection building and equipment fee from all new development. These fees are used to fund site acquisition, construction, improvement and equipping of police protection buildings and facilities, and acquisition and improvement of police protection equipment.

4.12.2.2 REGULATORY FRAMEWORK

STATE

Emergency Response/Evacuation Plans

Government Code Section 8607(a) directs the Governor's Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. The program is intended to provide effective management of multi-agency and multijurisdictional emergencies in California. SEMS consists of five organizational levels, which are activated as necessary: (1) Field Response, (2) Local Government, (3) Operational Area, (4) Regional, and (5) State.

Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs. The City of Chico is generally responsible for emergencies that occur within city boundaries and has adopted an Emergency Operations Plan that is consistent with the SEMS.

LOCAL

Chico Police Department 2007–2017 Staffing

The CPD's 2007–2017 staffing report identifies staffing needs for the CPD for the ten-year period between 2007 and 2017. The report identifies immediate and long-term staffing needs necessary to maintain adequate service levels and proposes alternative organizational configurations for the department. The report also identifies alternatives for command of regional policing areas.

Chico Police Department Police Facilities Needs Assessment

The CPD's Police Facilities Needs Assessment documents current CPD services and identifies service demand projections, operational plans, and staffing plans that serve as the foundation for formulating a facilities space program. The assessment then identifies facilities necessary to adequately serve the Chico area through the year 2025.

Chico Police Department Strategic Plan Update

In 2001, the CPD presented a Strategic Plan to the City Council during the November budget review session. The Strategic Plan included a 20-year staffing needs analysis and staffing plan. The CPD then submitted mid-fiscal year updates to the plan in 2002 and 2003. In January of 2005, the Strategic Plan was updated again to include a status report on strategic goals and an updated staffing plan as well as the impact of budget reductions on the plan. The January 2005 Strategic Plan Update is a complete overview of the CPD, including the department's mission and values as well as past, present, and future perspectives on department organization, staffing, activities, facilities, and equipment.

City of Chico Emergency Plan

The objectives of the City of Chico Emergency Plan are to prepare for and facilitate coordinated and effective responses to emergencies in the City of Chico and to provide adequate assistance to other jurisdictions as needed. This plan specifies actions for the coordination of operations, management, and resources during emergencies; governmental

responsibilities during emergency events; and a plan for the organization of nongovernmental organizations providing support assistance.

4.12.2.3 IMPACTS AND MITIGATION MEASURES

STANDARD OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A law enforcement services impact is considered significant if implementation of the proposed General Plan Update would:

- Create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

METHODOLOGY

Evaluation of potential law enforcement impacts was based on information provided by CPD, as well as review of the CPD's staffing report and facilities needs assessment. As previously discussed, these reports identify future staffing and facilities needs for the CPD. The projections in these reports were compared to growth anticipated as a result of the proposed General Plan Update. The impact analysis focuses on whether those impacts would have a significant effect on the physical environment.

The following proposed General Plan Update policies and actions address law enforcement service:

Policy S-5.1 *(Police Services) – Continue to provide fundamental police services based upon rapid response to emergencies and response, control and intervention in conduct that threatens life and property.*

Action S-5.1.1 *(Strategic Plan) – Using community input, develop a Police Department Strategic Plan to help guide priorities for the Department.*

Action S-5.1.2 *(Response Time) – Analyze and monitor factors affecting police response times, and make operational adjustments as necessary in order to provide the most expeditious responses.*

Action S-5.1.3 *(Specialized Resources) – Train, equip and maintain specialized response teams for extraordinary emergency incidents.*

Policy S-5.3 *(Community Policing) – Reduce crime by strengthening police/community partnership and providing community-oriented policing services that are responsive to citizens' needs.*

Policy S-5.4 *(Collaboration and Coordination) – Maintain strong relationships with local and state law enforcement agencies, and participate in disaster preparedness planning.*

Action S-5.4.1 *(University Police) – Strive to maintain a cooperative agreement with CSU Chico University Police to coordinate law enforcement duties and services in the neighborhoods near the campus.*

Action S-5.4.2 *(Butte County Sheriff's Department) – Strive to maintain the mutual aid agreement, and continue cooperative policing in the greater Chico area with the Butte County Sheriff's Department.*

Policy S-5.5 *(Design to Deter Crime) – Support the deterrence of crime through site planning and community design.*

Action S-5.5.1 *(Crime Deterring Design) – Consider the incorporation of design features into development projects such as strategic window placement, lighting techniques, and landscaping that discourage criminal activity.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address law enforcement services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Law Enforcement Services (Standard of Significance 1)

Impact 4.12.2.1 Implementation of the proposed General Plan Update would result in increased demand for law enforcement services and could result in the need for new or physically altered law enforcement facilities, the construction of which could cause significant environmental impacts. However, future improvements would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Therefore, this is a **less than significant** impact.

Full buildout of the General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. This growth would result in increased demand for law enforcement services and associated law enforcement facilities that would be provided by the CPD. In order to achieve the CPD goal of 1.3 sworn officers per 1,000 population and 0.6 civilian personnel per 1,000 population, the CPD would need 67 additional sworn officers (51,588 additional persons x 1.3 officers per 1,000) and 31 additional civilian personnel (51,588 additional persons x 0.6 civilian personnel per 1,000) at build-out of the Land Use Diagram.

New or expanded facilities would be needed to accommodate this increase in CPD personnel and equipment. According to the Chico Police Department Police Facilities Needs Assessment (LPA/DSA, 2006), the CPD would need to expand the headquarter facility to a total building footprint of approximately 85,000 square feet to meet the Department's future needs. While these facilities needs are based on a city population of 134,121, it is anticipated that additional law enforcement facilities needed to serve build-out of the proposed General Plan Update

would be similar to those described above. The exact location and design for needed facilities would be determined at a future date based on the timing of development in the city.

It remains the policy of the city to increase police staffing within the parameters of available funding based upon perceptions and a demonstrated factual basis supported by rational analysis. Not achieving a staffing goal is not an environmental impact per se, but a reality of a changing fiscal and political environment that requires a balancing of priorities. The CPD performs data analysis on response times to make facility and staffing recommendations to the City Council to ensure a safe community.

In addition, proposed General Plan Update Policy S-5.1.2 requires that the city analyze and monitor factors affecting police response times, and make operational adjustments as necessary in order to provide the most expeditious responses. General Plan Update Policy S-5.5 and its associated actions are intended to prevent and minimize the occurrence of crime through community design and planning. Compliance with these policies would increase the ability of the CPD to provide adequate services using existing facilities and staffing.

The provision of additional personnel and facilities as described above, as well as any additional facilities necessary in the future, would be required to undergo project-specific environmental review at such time as an application for a project was submitted to the appropriate agency. Typical environmental effects regarding the construction and operation of law enforcement facilities can include issues with noise (sirens), air quality (during the construction of the facility), biological resources (depending on location), cultural resources (depending on location), and public utilities (demand for electric, water, and wastewater service). Future law enforcement facilities would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. The programmatic environmental effects of construction of such facilities have been considered in the technical analyses of this Draft EIR as part of overall development of the proposed SOI.

All new development would be required to pay development impact fees as discussed under the Funding subsection above. These fees would assist in funding the law enforcement facilities and equipment necessary to adequately serve growth. In addition, the city has developed a Public Facilities Assessment associated with development under the proposed General Plan Update that identifies public facility and infrastructure needs and how they might be financed, including law enforcement facilities and equipment.

Compliance with the proposed General Plan Update policies and actions and City fees and standards would ensure the provision of adequate law enforcement services. Project-level CEQA review of future police facilities would identify and mitigate significant environmental impacts. Therefore, impacts would be reduced to **less than significant**.

None required.

4.12.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for law enforcement services includes the service area boundaries of the CPD. The department provides services within the current Chico city limits, as well as to the surrounding unincorporated areas of Butte County. Therefore, the cumulative setting is limited to the Planning Area and does not extend to a regional level. The cumulative analysis includes all

existing, planned, proposed, approved, and reasonably foreseeable development within the Planning Area.

Cumulative Demand for Law Enforcement Services

Impact 4.12.2.2 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the CPD service area, would increase the demand for law enforcement services and thus require additional staffing, equipment, and facilities, the construction of which could cause significant environmental impacts. The project's contribution to the need for expanded law enforcement services is considered **less than cumulatively considerable** given requirements for project-level CEQA review.

As discussed in Impact 4.12.2.1 above, the proposed General Plan Update would result in the need for additional law enforcement staffing, equipment, and facilities. Growth anticipated in association with the proposed General Plan Update would occur in the city, the SOI, and the five SPAs included in the proposed General Plan Update. While areas outside of the city limits are not currently in the department's official service area, the CPD regularly provides services to these areas. Furthermore, the CPD service area would be expanded to cover areas of future development annexing into the city consistent with the proposed General Plan Update. Therefore, the proposed General Plan Update would not contribute to a cumulative demand for law enforcement services outside of the proposed SOI.

The environmental effects of the construction of any additional law enforcement facilities within the Planning Area have been programmatically evaluated in the technical analyses of this Draft EIR. In addition, future law enforcement facilities projects would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Project-specific environmental review would identify and mitigate cumulative environmental impacts. Therefore, the proposed General Plan Update's contribution to the continued provision of law enforcement services in the cumulative setting would be considered **less than cumulatively considerable.**

4.12.3 PUBLIC SCHOOLS

4.12.3.1 EXISTING SETTING

CHICO UNIFIED SCHOOL DISTRICT

The Chico Unified School District (CUSD) was formed in 1965 and now serves a 322 square mile area that includes the entire City of Chico as well as the surrounding unincorporated areas of Butte County. The CUSD operates eleven kindergarten through 6th grade (K–6) elementary schools, one kindergarten through 8th grade (K–8) open structure classroom school, three junior high schools, two comprehensive high schools, one continuation high school, one independent study program, and one community day school (CUSD, 2010). In addition, Loma Vista School provides services for students from preschool age to 21 years with a variety of disabilities including language and behavior disabilities and autism. CUSD schools are shown in **Table 4.12.3-1** below.

TABLE 4.12.3-1
CUSD SCHOOLS

K–6 Elementary Schools	
Chapman Elementary	Marigold Elementary
Citrus Elementary	Neal Dow Elementary
John A. McManus Elementary	Parkview Elementary
Little Chico Creek Elementary	Rosedale Elementary
Emma Wilson Elementary	Shasta Elementary
Sierra View Elementary	
Hooker Oak (K-8 Open Structured Classroom)	
Junior High Schools	
Bidwell Junior High	Marsh Junior High
Chico Junior High	
High Schools	
Chico High School	Pleasant Valley High School
Other Schools	
Fairview High (Continuation High School)	Academy for Change (Community Day) School
Oakdale (Independent Study)	
Loma Vista School (Special Services School)	

Source: CUSD, 2009.

Charter Schools

Charter schools are public schools that are created or organized by a group of teachers, parents, community leaders, or a community-based organization. Charter schools may provide instruction in any grades K–12 and are generally sponsored by a local public school board or county board of education. Specific goals and operating procedures for the charter school are detailed in an agreement (or "charter") between the sponsoring board and charter organizers. Public charter schools may not charge tuition and may not discriminate against any pupil on the basis of ethnicity, national origin, gender, or disability (CDE, 2009a).

The CUSD charters three schools in the Chico area: Nord Country, Forest Ranch, and Chico Country Day School. Nord Country was established in 2005 and is located in the City of Chico. Nord Country offers grades K–6 and serves the Nord community and large surrounding agricultural area. Chico Country Day School was established in 1996 and is also located in Chico. Chico Country Day School offers grades K–8. Forest Ranch, which opened in the fall of 2008, is located in Forest Ranch and consists of grades K–8. The CUSD has oversight and facility responsibilities for schools that it charters. The other two charter schools in Chico—Blue Oak and CORE school—are chartered through the Butte County Office of Education. Charter school student enrollment in the CUSD has increased by 13 percent since 2002, from 314 to 743 students (CUSD, 2010).

Transportation

The CUSD has approved the establishment of a fee-based transportation program in order to continue transportation services to eligible students. Elementary students are eligible for the transportation program (school buses) if they reside more than 2 miles from the school and secondary students are eligible if they reside more than 3 miles from school. Parents desiring transportation services to transport children from their homes to the school must apply for the service annually, receive district approval, and pay a fee.

Enrollment

Existing and Historical Enrollment

During the 2009–10 school year, the Chico Unified School District had an enrollment of 12,319 students. During the past ten years the CUSD's enrollments have fallen from 13,944 students in October 1998 to 12,319 students in October 2009, representing an overall decline of 11.65 percent. As shown in **Table 4.12.3-2**, district-wide enrollment has declined each year since 1999, with the exception of one year (2002-03 school year). The most significant decline occurred recently; from October 2008 to October 2009 the District lost 4 percent of its enrollment (501 students). The decline can be attributed to multiple factors, including (CUSD, 2009):

- Recent school closures and relocation of programs;
- The emergence of charter schools, (charter schools draw enrollments away from CUSD);
- Significant slowdown of residential development;
- Recession-related out migration of families with children; and
- Age-based demographic shifts (CUSD has a growing retirement and "empty nester" aged population with the age group 45+ significantly increasing in numbers).

It should be noted that the decline from October 2008 to October 2009 is considered an exceptional year, and is not reflective of baseline historical enrollment trends (CUSD, 2009).

TABLE 4.12.3-2
CHICO UNIFIED SCHOOL DISTRICT
ENROLLMENT TRENDS

School Year	District Enrollment	Change from Previous Year
1998–99	13,944	N/A
1999–00	13,641	-303
2000–01	13,548	-93
2001–02	13,451	-97
2002–03	13,572	121
2003–04	13,361	-211
2004–05	13,113	-248

School Year	District Enrollment	Change from Previous Year
2005–06	13,091	-22
2006–07	13,054	-37
2007–08	12,918	-136
2008–09	12,820	-98
2009 - 10	12,319	-501

Source: CUSD, 2009.

Projected Enrollment

As part of the long-range facilities planning process, the CUSD prepared a demographic analysis of the Chico Unified School District in 2010. The analysis identified enrollment projections for the 10-year period from the 2010–11 school year to the 2019–20 school year, taking into account proposed and approved development in the City of Chico and Butte County in the CUSD service area at the time the analysis was conducted. District-wide enrollment is project to reach 12,238 by the 2019-20 school year, with 6,629 elementary school students, 1,761 junior high students, 3,387 high school students, and 461 students in the four alternative schools. District enrollment projections for the CUSD through the 2019–20 school year are shown in **Table 4.12.3-3** below.

TABLE 4.12.3-3
GRADE LEVEL ENROLLMENT PROJECTIONS 2010 –11 THROUGH 2019 – 20

School Year	District Enrollment	Change from Previous Year
2010 - 11	12,250	N/A
2011 - 12	12,343	93
2012 - 13	12,281	-62
2013 - 14	12,113	-168
2014 - 15	12,089	-24
2015 - 16	12,154	65
2016 - 17	12,188	34
2017 - 18	12,279	91
2018 - 19	12,202	-77
2019 - 20	12,238	36

Source: CUSD, 2009.

Capacity

Capacity in the CUSD can be expressed in two ways. Maximum capacity assumes each chair in each classroom is fully loaded, with 30 students for grades K–3, with 33 students for grades 4–6, and with 35 students for the secondary level. Practical capacity assumes that the maximum number of students in each classroom and grade level will not be present at a given school site.

To determine practical capacity, the maximum capacity is decreased by a flexibility factor of 85 percent. The practical capacity for classrooms in grades K–3 is 25.5, grades 4–6 is 28, and for grades 7–12 is 30 (Leary, 2010). **Table 4.12.3-4** shows the practical capacity for CUSD schools.

TABLE 4.12.3-4
PRACTICAL CAPACITY OF CUSD SCHOOLS*

School	Practical Capacity
Elementary Schools K-6	
North Chico Elementary Schools (Emma Wilson, Marigold, McManus, Neal Dow, Shasta, Sierra View)	4,285
South Chico Elementary Schools (Chapman, Citrus, Little Chico Creek, Parkview, Rosedale)	3,364
Hooker Oak (K-8 Open Structured Classroom)	512
Total Elementary School Capacity	**8,161**
Junior High Schools	
Bidwell Junior High	1,215
Chico Junior High	1,139
Marsh Junior High	930
Total Junior High Capacity	**3,284**
High Schools	
Chico Senior High	2,185
Pleasant Valley High	2,307
Total High School Capacity	**4,492**
Total CUSD Capacity	**15,937**

*Note: * Does not include Fairview High, Oakdale, Academy for Change, and Loma Vista.*
Source: CUSD, 2010.

Enrollment projections indicate that CUSD elementary schools, junior high schools, and high schools have adequate capacity to accommodate expected student growth through the 2019–20 school year, as shown in **Table 4.12.3-5**.

TABLE 4.12.3-5
PROJECTED SCHOOL ENROLLMENT VERSUS CAPACITY*

School	Practical Capacity	2010–11 School Year		2019 –20 School Year	
		2010–11 Projected Enrollment	Open Seats	2019 –20 Projected Enrollment	Open Seats
North Chico Elementary Schools	4,285	3,565	720	3,795	490
South Chico Elementary Schools	3,364	2,148	1,216	2,370	994
Hooker Oak	512	414	98	463	49
Bidwell Jr. High	1,215	656	559	647	568

School	Practical Capacity	2010–11 School Year		2019 –20 School Year	
		2010–11 Projected Enrollment	Open Seats	2019 –20 Projected Enrollment	Open Seats
Chico Jr. High	1,139	569	570	561	578
Marsh Jr. High	930	554	376	553	377
Chico Senior High	2,185	1,837	348	1,644	541
Pleasant Valley High	2,307	1,998	309	1,743	564
Totals	**15,937**	**11,741***	**4,196**	**11,776***	**4,161**

*Note: * Does not include Fairview High, Oakdale, Academy for Change, and Loma Vista.*

Source: CUSD, 2010. Leary, 2010.

PRIVATE SCHOOLS

It should be noted that although private schools are not discussed in detail in this report because they are not public in nature and are not under the purview of the CUSD, there are several private schools that serve the City of Chico. These include Champion Christian School, Chico Christian School, Chico Montessori Child's House, Chico Oaks Adventist School, King's Christian School, Montessori Elementary, Notre Dame Elementary-Junior High School, Pleasant Valley Baptist School, Redeemer Lutheran School, and the Progressive Schoolhouse.

COLLEGES AND UNIVERSITIES

California State University, Chico

Founded in 1887, California State University, Chico (CSU Chico) is one of the oldest post-secondary institutions in California. CSU Chico is a state-supported comprehensive university that offers over 400 undergraduate and graduate academic programs, including 66 undergraduate majors in the liberal arts and professional/technical areas. In addition, a wide variety of minors, teaching credentials, certificates, and graduate programs are offered. The CSU Chico service area consists of the following counties: Butte, Colusa, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Sutter, Tehama, Trinity, and Yuba. Approximately 38.3 percent of the student population originates from the service area (CSU Chico, 2009).

The CSU Chico main campus consists of 119 acres and is located northwest of the City of Chico's downtown at 400 West First Street. In addition to the campus, the university maintains 2,330 acres of ecological reserves and an 800-acre farm facility that serves as a hands-on laboratory for the CSU Chico College of Agriculture (CSU Chico, 2009).

In fall of 2009, there were 15,160 full-time equivalent students (FTES) enrolled at CSU Chico. The future (2015) campus physical capacity as identified by the 2005 CSU Chico Master Plan is 15,800 FTES.

Butte College

Butte College is a fully accredited two-year community college serving the residents of Butte and Glenn counties. The main campus consists of 928 acres located near the geographic center of Butte County. Butte College also has centers in Chico and Orland. The college offers

courses in more than 50 career and technical education programs, plus a full range of classes that transfer to four-year colleges and universities.

Butte College had a student population of 14,182 in spring of 2010, down from 13,882 in 2000. Butte College had 1,065 staff members in 2009 (BGCCD, 2010).

Other Colleges and Universities

Cal Northern School of Law campus is at the corner of Ridgewood and Ceres in Chico and is the only law school between Sacramento and the Oregon border. Students can earn a J.D. (Doctor of Jurisprudence) degree in four years of night study, which fulfills the educational requirements for admission to the State Bar of California**.**

SCHOOL DISTRICT FUNDING

Development Impact Fees/SB 50

Proposition 1A, the Kindergarten-University Public Education Facilities Bond Act of 1998, or SB 50, was approved by the voters in November 1998. This proposition provided $6.7 billion in general obligation bonds for K–12 public school facilities and provided the first funding for the new School Facility Program, which provides state funding assistance for new construction and modernization. A primary result of SB 50 was the creation of different levels of developer fees, which are discussed in more detail below. Chico Unified School District currently levies development impact fees on development within the district's boundaries consistent with SB 50. The current fees are $2.97 per square foot for new residential development, $0.47 per square foot for new commercial development other than rental self-storage units, and $0.16 per square foot for rental self-storage units (CUSD, 2010).

General Obligation Bonds

In addition, the school district can use General Obligation (GO) bonds to fund school facilities, although voter approval is required. Measure A was a $48.725 million local school bond that was passed by Chico voters on April 14, 1998. State law mandates that bond funds can be used for construction and renovation projects only and not for school district salaries or operating expenses. Measure A funds were originally intended to fund, among other school facility improvement projects, a new high school known as Canyon View High School. A site was purchased for the high school in May of 2004. However, declining enrollment, combined with shifts in the way high school education is delivered, has since eliminated the need for a new high school for the foreseeable future. The CUSD still owns the school site and intends to retain it, as the site is considered to be in a strategic location to accommodate future growth in the community. The CUSD Board of Education will vote on how to allocate the Measure A funds previously dedicated to the Canyon View High School project.

4.12.3.2 REGULATORY FRAMEWORK

STATE

Leroy F. Greene School Facilities Act of 1998 (SB 50)

As discussed above, California voters approved Proposition 1A in November of 1998. Proposition 1A's companion legislation (Chapter 407, Statutes of 1998, SB 50) went into effect

upon the measure's approval. SB 50 significantly altered the system of fees that can be placed on new development in order to pay for the construction of school facilities. Prior to the passage of Proposition 1A, school districts were limited in the amount of school facility developer fees they could charge. Also, as a result of the Mira, Hart, and Murietta decisions made in the years preceding the passage of Proposition 1A, cities and counties were able to impose additional school facility fees on development as a condition of obtaining land use approval. SB 50 and Proposition 1A provided a comprehensive school facilities financing and reform program by authorizing the $9.2 billion school facilities bond issue, school construction cost containment provisions, and an eight-year suspension of the Mira, Hart, and Murrieta court cases. SB 50 created different levels of developer fees and prohibited local agencies from denying either legislative or adjudicative land use approvals on the basis that school facilities are inadequate. They also reinstated the school facility fee cap for legislative actions, which is adjusted biannually in January. According to Government Code Section 65996, the development fees authorized by SB 50 are deemed to be full and complete school facilities mitigation. These provisions were in effect until 2006 and will remain in place as long as subsequent state bonds are approved and available.

The three levels of developer fees established by SB 50 are described below:

1) Level 1 fees are base statutory fees. As of January 30, 2008, the maximum assessment for fees was $2.97 per square foot of residential development and $0.47 per square foot of commercial/industrial development (SAB, 2008).

2) Level 2 fees allow the school district to impose developer fees above the statutory levels, up to 50 percent of certain costs under designated circumstances. The state would match the 50 percent funding if funds are available.

3) Level 3 fees apply if the state runs out of bond funds after 2006, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school monies.

In order to levy the alternate (Level 2) fee and qualify for 50 percent state-matching funds, a school district must prepare and adopt a School Facilities Needs Analysis, apply and be eligible for state funding, and satisfy specified criteria. The ability of a city or county to impose fees is limited to the statutory and potential additional charges allowed by the act, as described above.

California Department of Education

The California Department of Education (CDE) establishes standards for school sites pursuant to Education Code Section 17251 and adopts school site regulations, which are contained in the California Code of Regulations, Title 5, commencing with Section 14001 (CDE, 2000). Certain health and safety requirements for school site selection are governed by state regulations and the policies of the CDE School Facilities Planning Division (SFPD) relating to:

- Proximity to airports, high-voltage power transmission lines, railroads, and major roadways;

- Presence of toxic and hazardous substances;

- Hazardous facilities and hazardous air emissions within one-quarter mile;

- Proximity to high-pressure natural gas lines, propane storage facilities, gasoline lines, pressurized sewer lines, or high-pressure water pipelines;
- Noise;
- Results of geological studies or soil analyses; and
- Traffic and school bus safety issues.

The SFPD prepared the Guide to School Site Analysis and Development in 1966. The guide assists school districts in determining the amount of land needed to support their educational programs in accord with their stated goals and in accord with recommendations of the CDE. Site size standards were updated in 1999–2000 to reflect significant changes in education, such as class size reduction in kindergarten through grade three, implementation of the (federal) Education Amendments of 1977, Title IX (gender equity), parental and community involvement, and technology. In addition to the educational reforms noted above, changes regarding the expanded use of buildings and grounds for community use and agency joint use and legislative changes in the site-selection process regarding environmental, toxic, and other student and staff safety issues were included in the updated standards. The guide contains specific recommendations for school size and suggests a ratio of 2:1 between the developed grounds and the building area (CDE, 2000). CDE is aware that in a number of cases, primarily in urban settings, smaller sites cannot accommodate this ratio. In such cases, the SFPD may approve an amount of acreage less than the recommended gross site size and building-to-ground ratio.

REGIONAL

CSU Chico Master Plan 2005

The CSU Chico Master Plan identifies projected growth and facilities needs through the year 2015. The Master Plan identifies facilities necessary to take the campus to a student enrollment of 15,800 FTES, including the construction of five new major academic buildings, two recreational facilities, a natural history museum, a child-care center, approximately 1,300 bed-spaces of student housing, and two parking structures (AC Martin Partners, 2005).

LOCAL

CUSD Facilities Master Plan

The CUSD Facilities Master Plan (FMP) addresses the CUSD's facilities improvement needs. The FMP examines overall educational and facilities needs beyond any modernizations or improvements currently constructed at each site. The CUSD is currently in the process of updating the FMP to identify necessary facilities through the 2019-20 school year (CUSD, 2010).

Butte College Facilities Master Plan

The Butte College Facilities Master Plan is currently being developed.

4.12.3.3 IMPACTS AND MITIGATION MEASURES

STANDARD OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A public schools impact is considered significant if implementation of the proposed General Plan Update would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

METHODOLOGY

The analysis of potential environmental impacts associated with public schools was based on information provided by the CUSD, including demographic analysis conducted for the facilities master planning process. A detailed list of reference material can be found at the end of this section. This information was compared to the potential number of students that could be generated by the proposed General Plan Update, as well as existing and planned school facilities, in order to determine if the proposed General Plan Update would have a significant effect on the physical environment associated with the provision of public school services.

The following proposed General Plan Update policies and actions address public school service:

Policy PPFS-3.1 *(CUSD Coordination) – Support Chico Unified School District's efforts to provide school sites and facilities that meet the educational needs of the community.*

Action PPFS-3.1.1 *(School Sites) Encourage Chico Unified School District to:*

- *Locate schools to serve new neighborhoods.*
- *Locate school sites safely away from heavy traffic, excessive noise, and incompatible land uses.*
- *Locate schools in areas where existing or planned circulation infrastructure allows for safe access.*
- *Promote safe student loading and unloading.*

Action PPFS-3.1.2 *(Plan for School Sites) – Consult with Chico Unified School District staff when planning the Special Planning Areas to ensure that school facilities are in place to meet the needs of development.*

Action PPFS-3.1.3 *(School Information) – Provide information to developers and interested parties on school locations and school facility fees during the City's project review process.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant

impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address school services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Public Schools

Impact 4.12.3.1 Implementation of the proposed General Plan Update would increase population in the CUSD service area, which would subsequently increase student enrollment in CUSD schools. New or expanded school facilities may be necessary to serve the increased demand. Subsequent development under the proposed General Plan Update would be subject to school facility fees to pay for additional school facility needs. This is a **less than significant** impact.

Full buildout of the 2030 General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. Projected growth would increase student enrollment in the CUSD and could result in the need for new or expanded public school facilities, the construction of which could cause significant environmental impacts.

As shown in **Table 4.12.3-4**, the most current district-wide enrollment projections estimate that total CUSD enrollment will reach 12,238 by the 2019-20 school year. These projections were based on existing and future land use data provided by the City of Chico and Butte County (CUSD, 2009). The capacity of existing CUSD facilities is expected to exceed projected 2019-20 enrollment by 4,161 seats (**Table 4.12.3-5**). Therefore, it is not anticipated that new or expanded school facilities would be needed prior to or during the 2019-20 school year.

Full build-out of the proposed General Plan Update Land Use Diagram is anticipated to occur after 2030. Therefore, no enrollment projections from the CUSD are currently available for buildout of the General Plan Update. Based on a student generation study conducted for the 2009 *Demographic Analysis and Student Housing Projection Report*, the CUSD district-wide student generation rate for new residential development is 0.330 students per single-family housing unit and 0.155 students per multi-family housing unit. As discussed above, the proposed General Plan Update would accommodate an increase of 21,495 housing units at buildout. Using the CUSD's 2009 generation rate, increased development associated with buildout of the proposed General Plan Update would be expected to result in a total of 4,853 additional students that would need to be absorbed by the CUSD (**Table 4.12.3-6**). However, as discussed under the Existing Setting section, CUSD district-wide enrollment has declined steadily since 1999 due to the relocation of programs, increased enrollment in charter schools, economic conditions, and demographic shifts. Given these factors, as well as the projected capacity surplus of 4,161 seats by the 2019-20 school year, it is unlikely that buildout of the General Plan Update would result in the need for substantial new or expanded school facilities.

TABLE 4.12.3-6
GENERAL PLAN UPDATE
STUDENT GENERATION AT BUILDOUT

	General Plan Update Growth Potential (in # of units)	Generation Rate	Additional Students at Buildout of General Plan
Single-Family Units	8,689	0.330	2,868
Multi-family Units	12,805[1]	0.155	1,985
Total	**21,495**	**-**	**4,853**

[1] *Includes MF Residential units and Mixed Use units as shown in Table 4.0-1.*

If any of the factors discussed above were to change (i.e relocation of programs to the CUSD, demographic shifts, etc) and new or expanded school facilities were required, the CUSD would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities. The City of Chico has no direct control over the location and construction of schools. The proposed General Plan Update policies and actions require the city to coordinate with the CUSD regarding future school sites in an effort to minimize environmental impacts. New schools, or the expansion of existing schools, would contribute environmental impacts such as increased traffic, increased noise, potential habitat loss, degradation of air quality, degradation of water quality, potential conversion of agricultural land, and increased demand for public services and utilities such as water, wastewater, and solid waste services. The environmental effects of construction and operation of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this Draft EIR as part of overall development of the proposed SOI.

In addition, California Government Code Section 65995(h) states that "the payment or satisfaction of a fee, charge or other requirement levied or imposed . . . [is] deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities." As discussed under the Funding and Financing Mechanisms subsection above, the CUSD currently levies fees of $2.97 per square foot for residential units and $0.47 per square foot for new commercial development other than rental self-storage units, and $0.16 per square foot for rental self-storage units.

Given that the CUSD will be required to conduct environmental review prior to any significant expansion of school facilities or the development of new school facilities, as well as current state law requirements that the environmental impact of other new development on school facilities is considered fully mitigated through the payment of required development impact fees, this impact is considered **less than significant**.

Increased Demand for Post-Secondary Education Facilities (Standard of Significance)

Impact 4.12.3.2 Implementation of the proposed General Plan Update would increase population in the city, which could also increase the number of students attending local post-secondary education facilities. The provision of new or expanded facilities would not result in substantial adverse physical impacts. This is a **less than significant** impact.

Projected growth and expanded facilities could increase the number of college-age students in the Planning Area. However, population growth in an area does not necessarily produce a corresponding increase in enrollment at local post-secondary institutions such as CSU Chico and Butte College. People often choose to attend college in another city or even in another state depending on course of study, cost, etc. For example, only 38.3 percent of CSU Chico students list their area of permanent residence as being within the 12 northern California counties that comprise the primary service area. While 60 percent of Butte College students live in Chico, the college anticipates that increased competition from adjoining colleges, private institutions, and online competitors will make it much more challenging to attract and retain students (BGCCD, 2007). Therefore, while the proposed General Plan Update would likely result in a slight increase in enrollment for local post-secondary institutions, it is not anticipated that the increases would be significant.

A Facilities Master Plan for Butte College is currently being developed. The CSU Chico Master Plan, which identifies projected growth and facilities needs through the year 2015, was approved in 2005. The CSU Chico Master Plan anticipates a student enrollment of 15,800 FTES in 2015, an increase of 1,800 FTES over the current capacity. However, growth and facilities needs were based on a population of 132,404 in the Chico SOI by 2015. As previously discussed, full buildout of the 2030 General Plan Land Use Diagram would occur after 2030 and would result in a total population of 151,039. Therefore, it is likely new or expanded post-secondary facilities would be necessary to serve buildout of the General Plan Update. The proposed General Plan Update Parks, Public Facilities and Services Element requires the city to work with Butte College and CSU Chico to meet existing and new student housing, transportation, and facility needs.

The *Draft Environmental Impact Report California State University, Chico, Campus Master Plan 2004 (SCH# 2004092071)* was approved in 2005 and identifies the significant environmental impacts of growth and facilities identified in the CSU Chico Master Plan. Any further expansion or construction of post-secondary facilities would contribute environmental impacts similar to those described under Impact 4.12.3.1 above. In the future, both CSU Chico and Butte College would be required to conduct the appropriate environmental review prior to any significant expansion of facilities or the development of new facilities. The environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this DEIR as part of overall development of the proposed SOI.

Any future facilities proposed by CSU Chico or Butte College would be subject to CEQA review. Furthermore, it is not anticipated that the increases in student population resulting from the proposed General Plan Update would be significant given that only 38.3 percent of CSU Chico students permanently reside in northern California and that Butte College expects difficulty in attracting new students due to increased competition. Therefore, impacts are considered **less than significant**.

4.12.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for public school impacts includes the district boundaries for CUSD for grade school services and the service area of CSU Chico and Butte College for post-secondary education services. The CUSD service area includes the entire City of Chico as well as the surrounding unincorporated areas of Butte County. The CSU Chico service area consists of the following counties: Butte, Colusa, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Sutter, Tehama, Trinity, and Yuba. The Butte College serves Butte and Glenn Counties. Any existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative

setting could result in cumulative impacts. **Table 4.0-4** in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, includes a list of cumulative projects that could contribute to cumulative public school impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Schools Impacts

Impact 4.12.3.3 Population growth associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative setting, would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth. This is a **less than cumulatively considerable** impact.

As discussed under Impact 4.12.3.1 and Impact 4.12.3.2 above, implementation of the proposed General Plan Update is expected to result in population growth that would increase student enrollment in the Chico Unified School District, CSU Chico, and Butte College. As noted above, current state law requires that the environmental impact of new development on grade school facilities is considered fully mitigated through the payment of required development impact fees. All new development associated with the proposed General Plan Update would be required to pay the applicable development impact fees. Furthermore, any significant expansion of school facilities or development of new school facilities (grade school and post-secondary) would be subject to the appropriate CEQA environmental review, which would identify any site-specific impacts and provide mitigation to reduce those impacts. Therefore, cumulative impacts on school facilities (grade school and post-secondary) are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.12.4 WATER SUPPLY AND SERVICE

4.12.4.1 EXISTING CONDITIONS

CALIFORNIA SERVICE WATER COMPANY

Water service in the Planning Area is provided by the California Water Service Company (Cal Water), which is an investor-owned public utility supplying water service to 1.7 million people (435,000 connections) in California. Cal Water has 25 separate water systems that serve 63 communities from Chico in northern California to the Palos Verdes Peninsula in southern California (Cal Water, 2007).

The Planning Area is in Cal Water's Chico-Hamilton City District (Chico District), which serves the City of Chico, Hamilton City, and the surrounding areas in unincorporated Butte County. Residents in the Planning Area not currently supplied by Cal Water, as well as agricultural users, obtain their water from private wells.

Water Supply

The sole source of water supply for the customers of the Chico District is groundwater extracted from subbasins of the Sacramento Valley Groundwater Basin, including the Vina Subbasin, the West Butte Subbasin, and the East Butte Subbasin. The Vina Subbasin is bounded on the west by the Sacramento River, on the north by Deer Creek, on the east by the Chico Monocline, and on the south by Big Chico Creek. The West Butte Subbasin is bounded on the west and south by the Sacramento River, on the north by Big Chico Creek, on the northeast by the Chico Monocline, and on the east by Butte Creek. The subbasin is hydrologically contiguous with the Vina and East Butte subbasins at depth. The East Butte Subbasin is bounded on the west and northwest by Butte Creek, on the northeast by the Cascade Ranges, on the southeast by the Feather River, and on the south by the Sutter Buttes (Cal Water, 2007).

The Sacramento Valley Groundwater Basin is currently unadjudicated and no safe yield has been determined (Cal Water, 2007). Water rights in unadjudicated groundwater basins are not clearly defined, as they are in adjudicated basins where groundwater pumping is managed and operated according to court settlements. Since no safe yield has been established for the groundwater basin, Cal Water considers the theoretical supply for the Chico District to be the total design capacity of all the active wells, which is 99,200 acre-feet per year (af/yr) (Cal Water, 2007).

Historical data indicates that water level decreases in the groundwater basin are seasonal and that the groundwater basin typically recharges during the winter months. Therefore, although long-term historical data shows that well levels seasonally and annually fluctuate, there is no significant difference in the well levels over the long term (CDM, 2005a).

According to the California Water Service Company's 2007 Urban Water Management Plan (UWMP), the groundwater level in the Chico District has remained relatively unchanged over the last 37 years (Cal Water, 2007) despite the fact that the greatest growth increases in water demand have occurred during the past 20+ years (Cal Water, 2007). Short periods of groundwater elevation decline and recovery have occurred during this period.

The reader is referred to Section 4.9, Hydrology and Water Quality, regarding further details on the groundwater resources in the Planning Area.

State Water Project Water

Butte County has entitlement to approximately 27,000 acre-feet per year of State Water Project (SWP) water. Historically, Butte County has not made full use of the majority of this entitlement. However, the Butte County Department of Water and Resource Conservation has proposed developing a feasibility study to determine the most appropriate way to make full use of this entitlement. At this time it is not clear whether SWP water will be available for purchase by Cal Water, used for groundwater recharge, or sold to outside interests. The feasibility study has not been funded and is speculative at this time (Cal Water, 2007; Pembroke, 2009).

Recycled Water

The recycling of wastewater offers several potential benefits to Cal Water and its customers, the greatest of which is to help maintain a sustainable groundwater supply, either through direct recharge or by reducing potable supply needs by utilizing recycled water for appropriate uses (e.g., landscape, irrigation) now being served by potable water. Currently, no wastewater is recycled for direct reuse in the Chico District. It is not anticipated that any customers would be

serviced with reclaimed water from the Chico Water Pollution Control Plant in the near future, as the treatment plant would require an upgrade to include filtration as one of the treatment processes in order to provide suitable water quality for unrestricted reuse. Furthermore, using recycled water for any other purpose (e.g., commercial/residential irrigation and toilet flushing) is not considered economically viable since serving potential customers would entail high costs for construction of transmission lines (Cal Water, 2007). Although no recycled water use is immediate planned, Cal Water is examining the potential for recycled water to meet 2030 water supply demands in the Chico District (Pembroke, 2009).

Historical and Projected Water Demand

In 2006, the Chico District provided water to 26,293 service connections with a total water supply demand of 28,987 acre-feet. The *California Water Service Company 2007 Urban Water Management Plan, Chico-Hamilton District* (UWMP) projects future service connections and water demand based on past service counts identified as the five-year average and ten-year average. The five-year average includes service connections from 2002 through 2006 and is the Chico District's short-term growth rate. The ten-year average includes service connections from 1997 to 2006 and is the Chico District's long-term growth rate (see **Table 4.12.4-1** below). The overall average short-term growth rate in the Chico District has been 2.49 percent and the average long-term growth rate has been 2.32 percent.

TABLE 4.12.4-1
CHICO DISTRICT SERVICE CONNECTIONS AND WATER SALES
1997–2006

Year	Service Connections	Water Supply Demand (af)
1997	21,236	25,980
1998	21,624	22,932
1999	22,151	26,269
2000	22,791	27,301
2001	23,251	28,689
2002	23,876	29,661
2003	24,421	28,573
2004	25,196	31,529
2005	25,831	29,992
2006	26,293	29,897
Five-Year Average (2002–2006)	**25,123.4**	**29,930.4**
Ten-Year Average (1997–2006)	**23,667**	**28,082.3**

Source: Cal Water, 2007

The 2007 UWMP uses three projection scenarios to develop a range of projected demand for the Chico District. The service connection growth pattern shown in **Table 4.12.4-1** above was applied to three different sets of demand per service data to identify the three projection scenarios (Scenarios 1 through 3). Scenario 1 represents low demand, Scenario 2 represents average demand, and Scenario 3 represents high demand. Scenario 2 was identified as the most probable demand values through the year 2030. Scenario 2 combines the Chico District's five-year average with the ten-year average demand per service for each customer class. This

scenario forecasts total demand for the year 2030 at 50,288 af/yr (without system losses) (Cal Water, 2007). Project 2030 service connections and water supply demand for Scenario 2 are shown in **Table 4.12.4-2** below.

TABLE 4.12.4-2
PROJECTED 2030 SERVICE CONNECTIONS AND WATER DELIVERIES FOR SCENARIO 2

Type of Service Connection	Number of Service Connections	Water Supply Deliveries (af)
Single-Family Residential	41,653	36,537
Multi-Family Residential	536	3,172
Commercial	5,182	8,932
Industrial	41	269
Institutional/Government	327	1,246
Other	73	132
Totals	**47,813**	**50,288**

Source: Cal Water, 2007

Water Supply Reliability

Cal Water is not a regional water wholesaler and does not store water seasonally in reservoirs. Therefore total runoff figures cannot be used to determine supply reliability, and total supply amounts have been used instead. Water supply reliability is considered to be 100 percent in both single and multiple dry years (Cal Water, 2007). Although the historical climatic record shows that the demand can be met by the supply, an extended drought could reduce the groundwater table significantly.

In addition, greater groundwater level decline occurs where groundwater is extracted for agricultural and/or municipal use during the summer months. However, historical data indicate that the water level decrease is seasonal and the basin groundwater typically recharges during the winter months. Long-term historical data shows that while well levels seasonally and annually fluctuate, there is no significant difference in the well levels over the long term (CDM, 2005a).

The only other factor which may threaten the reliability of supply is water quality, which is discussed in Section 4.9, Hydrology and Water Quality.

Supply and Demand Comparison

Table 4.12.4-3 below compares Chico District projected water supply to projected demand for year 2030 in normal and drought conditions, as shown in the 2007 UWMP. The active wells in the Chico District currently have total capacity of 99,200 af/yr. Wells planned to be constructed in the near future would increase the total capacity to 104,039 af/yr. The total supply capacity of the system is further expected to increase slightly over time as new wells are installed, but this increase in supply will be tempered somewhat as aging wells are taken out of service.

TABLE 4.12.4-3
YEAR 2030 SUPPLY AND DEMAND COMPARISON (IN AF)

	Normal Year (af)	Single Dry Year (af)	Multiple Dry Year (af)
Supply Total	104,039	104,039	112,104
Demand Total	55,029	64,977	39,917
Difference	+49,010	+39,062	+72,187

Source: Cal Water, 2007

Normal Year Comparison

Normal year projections are based on average consumption (Scenario 2). For the purposes of the UWMP analysis, Cal Water limited supply projections to current capacities of the present wells and the planned wells in the near future. Even with this limitation, the projected supply in 2030 is 163 percent of the projected demand.

Single Dry Year Comparison

According to operational records, the Chico District's demand increases during a single dry year as compared to normal years due to maintenance of landscape and other high water uses that would normally be supplied by precipitation. Therefore, the single dry year comparison compares the current and projected water supply and demand based on high consumption rate (Scenario 3). As shown, supply would still exceed demand in single dry year conditions because additional demand would be met via additional pumping from the groundwater wells. As shown, the full capacity of the wells would meet the higher demands that are expected during single dry year conditions (Cal Water, 2007).

Multiple Dry Year Comparison

Multiple dry year projections are based on an extended drought. During the first year, the projected average demand (Scenario 2) was used, followed by a high demand year (Scenario 3) for the second year. After this time, optional or mandatory water use restrictions would be implemented for the third year, which would be expected to reduce the demand to average conditions (Scenario 2) again. Thereafter, for years 4 through 5, the low water demand (Scenario 1) was used as stricter water restrictions would be expected (Cal Water, 2007). Section 357 of the Water Code requires that suppliers that are subject to regulation by the California Public Utilities Commission (CPUC) shall secure its approval before imposing water consumption regulations and restrictions required by water shortage emergencies. As such, approval from the CPUC must be obtained prior to implementation of mandatory restrictions.

With groundwater being the sole supply for the Chico District, the entire demand will be met for multiple year droughts with increased pumping from the wells, which will only be limited to the pumping capacity of the wells. However, continued heavy pumping during drought conditions would result in lowering of water levels and lowering the pumping capacity. Therefore, in multiple drought years, the conservation methods discussed below would need to be implemented to reduce demand and the demand on the groundwater basin (Cal Water, 2007).

Water Shortage Contingency Plan (Conservation Programs)

During periods of water shortages, Cal Water's conservation programs can be expanded and may include more restrictive measures such as mandatory reductions, rationing, and penalties. Cal Water currently has a four-stage rationing plan that includes voluntary and mandatory stages. Approval from the California Public Utilities Commission (CPUC) must be obtained prior to implementation of mandatory restrictions. The four stages of Cal Water's rationing plan are discussed below (Cal Water, 2007):

Stage 1

- California Water Service Company maintains an ongoing public information campaign consisting of distribution of literature, speaking engagements, monthly bill inserts, and conservation messages printed in local newspapers.
- Educational programs in area schools are also ongoing.

Stage 2

- California Water Service Company will aggressively continue its public information and education programs.
- Ask consumers for 10 to 20 percent voluntary or mandatory water use reductions.
- Prior to implementation of mandatory reductions, obtain approval from CPUC.
- Lobby for passage of drought ordinances by appropriate governmental agencies.

Stage 3

- Implement mandatory reductions after receiving approval from CPUC.
- Maintain rigorous public information campaign explaining water shortage conditions.
- Water use restrictions go into effect; prohibited uses can include watering resulting in gutter flooding, using a hose without shutoff device, filling of pools or fountains, etc.
- Limiting landscape irrigation by restricting the hours of the day and/or days of the week during which water for irrigation can be used.
- Monitor production weekly for compliance with necessary reductions.
- Installation of a flow restrictor on the service line of customers who consistently violate water use restrictions.

Stage 4

- All of steps taken in prior stages intensified.
- Discontinuance of water service for customers consistently violating water use restrictions.
- Monitor production daily for compliance with necessary reductions.
- More restrictive conditions for, or a prohibition on, landscape irrigation.

Water Supply Infrastructure

The Chico District extracts groundwater via 69 wells located throughout the service area, 66 in Chico (including one leased well) and 3 in Hamilton City. Current design capacity for the operational wells (including standby wells) is 63,305 gallons per minute (gpm) (Cal Water, 2007). There are no water treatment plants in the Chico District; water is treated via well head treatment with chlorine injections (Pembroke, 2009).

Currently there are eight surface storage structures with 2.375 million gallons of water storage in the Chico District. The surface storage structures enable the groundwater wells to pump to storage during non-peak demand periods. Additionally, 333 miles of distribution mains and four booster pumps comprise the system (EIP, 2006).

There are three separate pressure zones in the Chico District: the low, high, and Chico Airport zones. The lower elevations in the city (approximately 260 feet and lower) fall within the low zone; this zone is not dependent on pumps or any special facilities for delivery (EIP, 2006).

The pipeline infrastructure is well maintained, as evidenced by the lack of leaks and relatively low percentage of unaccounted-for water. An aggressive pipe replacement program ensures that infrastructure remains in good condition. Wells are properly maintained and monitored through a telemetry system. The storage tanks in the system have been retrofitted with shock-absorbing equipment to prevent damage in case of a seismic event (EIP, 2006).

Funding

Cal Water is partially funded via monthly service charges. Service charges for metered customers are based on water meter sizes. The service charge is a readiness-to-serve charge which is applicable to all metered service and is added to the current charge for water used computed at the quantity rate ($0.5554 per 100 cubic feet). Flat rate residential customers are charged based on the unit area's square footage, plus a surcharge per service connection per month.

In addition, new development is charged a "per lot" fee of $1,000, which covers a percentage of the cost of new and/or upsized infrastructure to serve the development (Pembroke, 2009).

Agricultural Water

Within the city's Sphere of Influence and Greenline, there are less than 1,000 acres of irrigated agricultural land. Agricultural water demand is supplied entirely by private groundwater wells. While agricultural water use figures for the city are not available, total agricultural demand in the county is about one million acre-feet in a normal water year and 1.1 million acre-feet in a drought year, or about 70 percent and 73 percent of total county water demand, respectively. Butte County has an adequate supply of surface water and groundwater to meet current agricultural demands (CDM, 2005b).

4.12.4.2 REGULATORY FRAMEWORK

FEDERAL

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells. The SDWA applies to every public water system in the United States but does not regulate private wells which serve fewer than 25 individuals.

The SDWA authorizes the United States Environmental Protection Agency (USEPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Originally, the SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments changed the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach is intended to ensure the quality of drinking water by protecting it from source to tap (USEPA, 2009).

STATE

California Water Plan Update 2009

The California Water Plan is the state's blueprint for integrated water management and sustainability. The California Department of Water Resources (DWR) updates the Water Plan approximately every five years. California Water Plan Update 2009 is the latest edition of the water plan and provides statewide strategic plan for water management to the year 2050. The California Water Plan provides framework and resource management strategies promoting two major initiatives: integrated regional water management that enables regions to implement strategies appropriate for their own needs and helps them become more self-sufficient, and improved statewide water management systems that provide for upgrades to large physical facilities, such as the State Water Project, and statewide management programs essential to the California economy (DWR, 2009a).

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610–10656). The act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The act describes the contents of the Urban Water Management Plans (UWMP) as well as how urban water suppliers should adopt and implement the plans. It is the intention of the act to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied (DWR, 2009c). As discussed under Regulatory Framework – Regional below, Cal Water adopted an Urban Water Management Plan for the Chico District in 2007.

Senate Bill (SB) 610

SB 610 makes changes to the Urban Water Management Planning Act to require additional information in Urban Water Management Plans if groundwater is identified as a source available to the supplier. Required information includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if nonadjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current California Department of Water Resources (DWR) publication on that basin. If the basin is in overdraft, the plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to the California Environmental Quality Act (CEQA) supplied with water from a public water system be provided a specified water supply assessment, except as specified in the law (DWR, 2009b).

Assembly Bill (AB) 901

AB 901 requires Urban Water Management Plans to include information relating to the quality of existing sources of water available to an urban water supplier over given time periods and the manner in which water quality affects water management strategies and supply (DWR, 2009b).

Senate Bill (SB) 221

SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s). This requirement also applies to increases of 10 percent or more of service connections for public water systems with less than 500 service connections. The law defines criteria for determining "sufficient water supply" such as using normal, single dry, and multiple dry year hydrology and identifying the amount of water that the supplier can reasonably rely on to meet existing and future planned uses. Rights to extract additional groundwater, if groundwater is to be used for the project, must be substantiated (DWR, 2009b).

California Urban Water Conservation Council

The California Urban Water Conservation Council (CUWCC) was created in 1991 by numerous urban water agencies, public interest organizations, and private entities throughout California to assist in increasing water conservation in the state. The goal of the CUWCC is to integrate best management practices (BMPs) into the planning and management of California's water resources. A Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California (2007) was signed by these agencies and formalizes an agreement to implement the BMPs and makes a cooperative effort to reduce the consumption of California's water resources (CUWCC, 2009). Cal Water is a signatory of the memorandum. By signing the council's MOU, members agree to implement 14 BMPs to conserve water in urban areas. The council's BMPs were updated in 2008 to include current technology and to credit agencies for innovative water conservation programs. The 14 BMPs are now organized into five categories. Two categories, Utility Operations and Education, are foundational BMPs, because they are considered to be essential water conservation activities by any utility and are adopted for implementation by all signatories to the MOU as ongoing practices with no time limits. The remaining BMPs are programmatic BMPs and are organized into residential, commercial, industrial, and institutional (CII), and landscape categories. The BMPs are shown in **Table 4.12.4-4** below.

TABLE 4.12.4-4
CUWCC REVISED BMPS

Old BMP Number & Name	New BMP Category
1. Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers	Programmatic: Residential
2. Residential Plumbing Retrofit	Programmatic: Residential
3. System Water Audits, Leak Detection and Repair	Foundational: Utility Operations – Water Loss Control
4. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	Foundational: Utility Operations – Metering
5. Large Landscape Conservation Programs and Incentives	Programmatic: Landscape
6. High-Efficiency Clothes Washing Machine Financial Incentive Programs	Programmatic: Residential
7. Public Information Programs	Foundational: Education – Public Information Programs
8. School Education Programs	Foundational: Education – School Education Programs
9. Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts	Programmatic: Commercial, Industrial, and Institutional
10. Wholesale Agency Assistance Programs	Foundational: Utility Operations – Operations
11. Retail Conservation Pricing	Foundational: Utility Operations – Pricing
12. Conservation Coordinator	Foundational: Utility Operations – Operations
13. Water Waste Prohibition	Foundational: Utility Operations – Operations
14. Residential ULFT Replacement Programs	Programmatic: Residential

Source: CUWCC, 2009

Cal Water has implemented several conservation programs in the Chico District, including plumbing retrofits, public education, and a conservation demonstration garden. Cal Water applies water-efficient landscape guidelines to all landscapes designed for Cal Water properties, including renovations. Other water conservation activities include distribution system water audits and offering high-efficiency washing machine rebates. In addition, while over half of single-family residential services are currently unmetered, all new construction services are required to be metered. Each year, some previously flat rate, unmetered services are converted to metered status (EIP, 2006).

Assembly Bill 1420

Effective January 1, 2009, AB 1420 amended the Urban Water Management Planning Act to require that water management grants or loans made to urban water suppliers and awarded or administered by DWR, the State Water Resources Control Board, or the California Bay-Delta Authority or its successor agency be conditioned on implementation of the water demand management measures (DMMs). The DMMs correspond to the CUWCC's 14 best management practices shown in **Table 4.12.4-4** above.

Governor's 20x2020 Program

On February 28, 2008, California Governor Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. As part of the plan, the Governor directed state agencies to prepare and implement a program to achieve a 20 percent reduction in statewide average per capita water use by year 2020 (20x2020 Program). Several state agencies involved in water planning and management have joined together to form an agency team to direct the development and implementation of the 20x2020 Program. The focus of the 20x2020 Program is to understand the current urban water use patterns in order to propose a practical and effective conservation strategy. The process of developing this program involves five steps:

- Data analysis
- Baseline definition
- Preliminary targets development
- Conservation potential identification
- Implementation planning

Currently, the 20x2020 team is in the process of developing baseline definitions and preliminary targets (SWRCB, 2009). The Governor's plan is being legislated in AB 2175, AB 49, and SB 261, each of which is at a different level of development (Cal Water, 2009).

Cal Water is currently developing a conservation program intended to achieve a 20 percent reduction in per capita water use by year 2020 consistent with the Governor's 20X2020 Program. The current target for gallons per capita per day (gpcd) in 2013 is 290.4 gpcd, which represents a 4.5 percent reduction from baseline (2008) water consumption of 304 gpcd (Cal Water, 2009). Cal Water is currently implementing BMPs as identified above in order to begin working toward this goal. It is anticipated that further BMPs will be implemented in coming years as funding allows and as approved by the California Public Utilities Commission (CPUC).

REGIONAL

Sacramento Valley Integrated Regional Water Management Plan

In December 2006, the Northern California Water Association published a draft Sacramento Valley Integrated Regional Water Management Plan covering much of the Sacramento River Hydrologic Region (as defined in the DWR's California Water Plan) from the Redding Groundwater Basin in the north to the Sacramento metropolitan area in the south. The plan area encompasses all of Butte, Sutter, Yuba, Yolo, Amador, Shasta, and Sacramento counties, as well as portions of Colusa, Lake, Napa, Solano, El Dorado, Sierra, Placer, Nevada, Sierra, Plumas, Lassen, Modoc, Siskiyou, and Shasta counties. The primary objectives of the plan are to:

- Improve the economic health of the region;
- Improve regional water supply reliability;
- Improve flood protection and floodplain management;

- Improve and protect water quality; and
- Protect and enhance the ecosystem.

The plan also includes water management strategies and conservation strategies, as well as information regarding financing mechanisms, prioritization of projects, and performance and monitoring (DC&E, 2007).

LOCAL

Butte County Department of Water and Resource Conservation

The mission of the Butte County Department of Water and Resource Conservation (BCDWRC) is to manage and conserve water and other resources for the citizens of Butte County. The BCDWRC is involved in a wide range of activities focused on water resources monitoring and planning. The BCDWRC is responsible for developing some of the key water resource planning documents for the county. These documents are discussed below (DC&E, 2007).

Butte County Groundwater Conservation Ordinance

In November 1996, Butte County voters approved the Groundwater Conservation Ordinance intended to provide groundwater conservation through local regulation of water transfers which move water outside of the county and have a groundwater component. A permit is now required for both exportation of groundwater outside the county and groundwater pumping as a substitute for surface water exported outside the county. A permit for this type of water transfer outside of the county would be denied if the proposed activity would adversely affect the groundwater resources in the county, including causing or increasing overdraft of the groundwater, causing or increasing saltwater intrusion, exceeding the safe yield of the aquifer or related subbasins in the county, causing subsidence, or resulting in uncompensated injury to overlying groundwater users or other users.

Butte County Groundwater Management Ordinance

The Butte County Groundwater Management Ordinance was adopted in February of 2007 and includes the development and monitoring of basin management objectives (BMOs) associated with groundwater levels, groundwater quality, and land subsidence. The BMO concept was developed to overcome some of the issues and uncertainties inherent in using terms such as "safe yield" and "overdraft." Briefly stated, the BMOs consist of locally developed guidelines for groundwater management that describe actions to be taken by well owners in response to well-monitoring data. Key concepts of the BMO approach include:

- Definition of management areas and subareas within which the differing needs and goals of local users can be reflected;
- Creation of a series of objectives or thresholds for critical parameters in the areas listed above;
- Obtaining public input into those parameters;
- Providing for monitoring to evaluate whether objectives are being met and evaluating data associated with that monitoring;

- Allowing for refinement and adaptive management in response to changing user needs, environmental conditions and monitoring data; and

- Enforcement of regulations if thresholds for basin health are exceeded.

A total of 15 sub-inventory units have been established with individual objectives, monitoring, and reporting parameters determined by local citizens. The Chico Sub-Inventory Unit (SIU) covers an area of about 15,400 acres in the greater Chico urban area and is split between the Vina and West Butte inventory units. The SIU boundary corresponds roughly to the Cal Water municipal water service area for the City of Chico. BMOs for the Chico Urban Area include maintaining groundwater levels adequate to sustain municipal, agricultural, and domestic use and the quality of streams and groundwater-dependent vegetation in each of the three aquifers underlying the city (BCDWRC, 2009b).

Butte County Integrated Water Resources Plan

The Butte County Integrated Water Resource Plan (IWRP) documents Butte County's integrated water resources planning process and presents policy recommendations developed through close collaboration with a diverse stakeholder group. The IWRP is intended to provide direction for resource protection and management into the future. Current and future water demands for agricultural, urban, and environmental water uses in the county are discussed, along with descriptions of water resource management options (CDM, 2005b).

Butte County Groundwater Management Plan (AB 3030 Plan)

The Butte County Groundwater Management Plan summarizes groundwater level and land subsidence data collected by Butte County and the California Department of Water Resources up to and through October 2003. The report presents locations of wells and extensometers, information related to groundwater level trends, and hydrographs depicting groundwater levels over time. The plan also includes groundwater management objectives, including (CDM, 2005a):

- Minimize the long-term drawdown of groundwater levels;

- Protect groundwater quality;

- Prevent inelastic land surface subsidence resulting from groundwater pumping;

- Minimize changes to surface water flows and quality that directly affect groundwater levels or quality;

- Minimize the effect of groundwater pumping on surface water flows and quality;

- Evaluate groundwater replenishment and cooperative management projects; and

- Provide effective and efficient management of groundwater recharge projects and areas.

Drought Management Plan

The BCDWRC prepared a Drought Management Plan to reduce short- and long-term impacts of drought to Butte County. The plan includes a procedure for monitoring climatic conditions that

may foreshadow drought and formalizes the institutional structure and associated responsibilities that the County will act under during drought. The Drought Management Plan is intended to assist the BCDWRC in minimizing the effect of drought on residents of Butte County through the early detection of drought conditions and the establishment of drought management procedures prior to experiencing the next drought (CDM, 2005b).

2007 Urban Water Management Plan, Chico-Hamilton District

Cal Water complies with the California Water Code (as discussed above) and files an Urban Water Management Plan (UWMP) at least once every five years on or before December 31 in years ending in five and zero. However, since Cal Water operates 25 districts, updating and submitting all 25 UWMPs in a single year is not feasible. Therefore, the districts have been divided into three sets that follow an established three-year schedule. The UWMP for the Chico District is part of the 2007 grouping and was last submitted in 2004 and will be updated in 2010.

The 2007 UWMP, Chico-Hamilton District is a foundation document and source of information for Water Supply Assessments and Written Verifications of Water Supply. The 2007 UWMP provides long-range planning for water supply and source data for development of a regional water plan and city and county general plans. The plan includes descriptions of water sources, a water shortage contingency plan, water use provisions, and a supply and demand comparison.

4.12.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. A water service impact is considered significant if implementation of the project would:

1) Result in the need for new entitlements or a substantial expansion or alteration to local or regional water supplies that would result in a physical impact to the environment.

2) Result in the need for new systems or a substantial expansion or alteration to the local or regional water treatment or distribution facilities that would result in a physical impact to the environment.

3) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

As previously mentioned, water quality impacts are discussed in Section 4.9, Hydrology and Water Quality.

METHODOLOGY

Evaluation of potential water service impacts was based primarily on Cal Water's 2007 UWMP, Chico-Hamilton District, as well as consultation with Cal Water staff. A detailed list of reference material used in preparing this analysis can be found at this end of this section and in Section 4.9, Hydrology and Water Quality. This material was then compared to the proposed General Plan Update's specific water service-related impacts. The analysis includes a comparison of

potential water demand and supplies at build-out of proposed land uses in the city, as well as proposed and anticipated development in the surrounding areas. The reader is referred to Section 4.0 for a discussion of assumed land uses and development conditions associated with the proposed General Plan Update.

The following proposed General Plan Update policies and actions address water service:

Action SUS-4.2.1 *(Public Landscaping) – Install drought tolerant landscaping in new City facilities, medians, and parkway strips to reduce water use and maintenance costs.*

Action PPFS-5.1 *(Protect Aquifer Resources) – Protect the quality and capacity of the Tuscan Aquifer underlying Chico.*

Action PPFS-5.1.1 *(Groundwater Supplies and Budgeting) – Support Cal Water's periodic evaluation of groundwater availability using the Butte Basin Groundwater Model and their work to establish a water supply budget with specific measures to assure sustainable levels of groundwater.*

Action PPFS-5.2 *(Future Water System) – Consult with Cal Water to ensure that its water system will serve the City's long-term needs and that State regulations SB 610 and SB 221 are met.*

Action PPFS-5.2.3 *(Water Services for New Development) – Work with Cal Water to ensure that water treatment and delivery infrastructure are in place prior to occupancy or assured through the use of bonds or other sureties to the City and Cal Water's satisfaction.*

Policy PPFS-5.3 *(Water Conservation) – Work with Cal Water to implement water conservation management practices.*

Action PPFS-5.3.1 *(Recycled Wastewater) – Explore the feasibility of using recycled wastewater to provide irrigation to parks, landscaped areas and other suitable locations to reduce the demand for treated water.*

Policy PPFS-5.4 *(Large Water Users) – Encourage large water users such as CSU Chico, Chico Unified School District, and Enloe Medical Center to implement water conservation practices.*

Policy OS-3.2 *(Protect Groundwater Recharge Areas) – Protect aquifer recharge areas to maintain groundwater supply and quality.*

Action OS-3.2.1 *(Protect Recharge Areas) – Avoid impacts to groundwater recharge areas through stream setbacks and clustering development.*

Policy OS-3.3 *(Water Conservation and Reclamation) – Encourage water conservation and the use of reclaimed water and grey water systems.*

Action OS-3.3.1 *(Water Conservation Program Funding) – Work with the California Water Service Company to develop a water conservation program to reduce per capita water use 20 percent by 2020 pursuant to the requirements of the State Water Plan.*

Action OS-3.3.2 *(Reduce the Use of Turf) – Limit the use of turf on landscape medians, parkways, and other common areas to those that serve a recreational function. As a substitute for turf, incorporate native and drought tolerant ground cover, mulch, and other design elements.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address water supply and groundwater and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Water Supply Demand and Environmental Effects (Standards of Significance 1 and 3)

Impact 4.12.4.1 Implementation of the proposed General Plan Update would increase demand for water supply and thus require increased groundwater production, which could result in significant effects on the physical environment. However, adequate groundwater supply sources exist, and proposed General Plan Update policy provisions and Cal Water's water conservation provisions would ensure adequate water service. This is considered a **less than significant** impact.

As discussed in Section 4.0, it is estimated that an additional 16,376 dwelling units will be needed in the City of Chico by the year 2030 based primarily on the city's historic 2 percent growth rate, which has been relatively stable over the last 40 years. This assumption is consistent with the Butte County Association of Government (BCAG) projections and Regional Housing Need Plan (RNHA) allocation, as well as the California Department of Finance (DOF) estimates. This growth would increase demand for water supply and thus require increased groundwater production. The growth rates that CalWater used for its water projections in its 2007 UWMP are consistent with Chico's anticipated 2 percent growth rate. The projected water service connections identified in the 2007 UWMP are based on an overall short-term (five-year) annual average growth rate of 2.49 percent and an overall long-term (ten-year) annual average growth rate of 2.32 percent. The Chico District's five-year average growth pattern was combined with the ten-year average demand per service for each customer class to project the most probable demand values through the year 2030. Because the growth rates that CalWater used for its water projections in its UWMP are consistent with the General Plan's expected 2 percent annual growth through 2030, it is anticipated that water supplies would be adequate to serve the city.

However, as demonstrated in **Table 4.0-1**, the proposed General Plan Update growth capacity would exceed the city's anticipated needs for year 2030 for both residential and nonresidential growth. While it is important to note that the proposed General Plan Update does not include any policy provisions that require that its build-out potential be attained, the Draft EIR impact analysis is based on the development anticipated at buildout of the proposed Land Use Diagram and the transportation improvements identified in the proposed Circulation Plan. In

other words, even though build-out of the proposed General Plan Update Land Use Diagram is anticipated to occur after 2030, this EIR assumes that complete build-out occurs by 2030 in order to conduct a conservative technical analysis of the environmental effects of the proposed General Plan Update.

Full buildout of the 2030 General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. At build-out of the proposed General Plan Update, water supply would continue to be provided by Cal Water. The *California Water Service Company 2007 Urban Water Management Plan, Chico-Hamilton District* identifies per capita water demand for residential uses in the Chico District as 186.5 gallons per day (gpd) per person. Applying those factors to the growth anticipated as a result of the proposed General Plan Update would equate to an increase in water demand of 9,621,162 gallons per day (gpd) over baseline conditions (51,588 additional persons x 186.5 gpd per person). Additional water supply would be necessary to serve nonresidential customers as well; however, the exact number and specific type of nonresidential connections cannot be determined until specific development projects are proposed. Water projections beyond 2030 are not currently available; however, it is possible that buildout of the General Plan Update would require additional groundwater beyond that discussed in the 2007 UWMP given that proposed General Plan Update growth capacity exceeds the city's anticipated needs for year 2030.

Environmental Effects Associated with Increased Groundwater Production

Generally, increased groundwater production has the potential to result in a lowering of groundwater levels. As previously discussed, the Chico District is located in an unadjudicated groundwater basin for which no safe yield has been established. However, according to well level records, the groundwater level has been consistent over the last 37 years, and the historical climatic record shows that the demand can be met by the supply (Cal Water, 2007). Implementation of proposed General Plan Update Action PPFS-5.1.1 requires the city to work with Cal Water to periodically reevaluate the projected availability of groundwater using the Butte Basin Groundwater Model and to establish a water supply budget and define the specific measures that need to be implemented to assure sustainable levels of groundwater quantity and quality. Since the sustainable yield of the basin is not currently known, this policy provides for continued regular evaluation of groundwater levels and availability.

In addition, build-out of the proposed General Plan Update would preserve significant groundwater recharge areas and would result in increased water use efficiency. Build-out of the proposed General Plan Update would result in increased water use efficiency because the proposed General Plan Land Use Diagram (see **Figure 3.0-3** in Section 3.0, Project Description) designates residential and non-residential land uses in some areas that are currently in agricultural use. The conversion of irrigated farmland to residential and other urban land uses would serve to reduce water usage from current conditions. In addition, policies and development densities proposed in the General Plan Update promote compact infill and mixed-use development and the establishment of water conservation measures in building, landscaping, and municipal operations, all of which would improve water use efficiency over current conditions.

The proposed General Plan Update would also result in the preservation of groundwater recharge areas. As shown in **Figure 3.0-3**, much of foothill lands located in the eastern portion of the Planning Area are designated as a combination of uses dominated by land use designations such as Primary Open Space, Secondary Open Space, and Resource Constraint. The Primary Open Space land use category is intended to protect areas with sensitive habitats including oak

woodlands, riparian corridors, wetlands, creek-side greenways, and other habitat for highly sensitive species, as well as groundwater recharge areas and areas subject to flooding that are not used for agriculture. The Secondary Open Space land use category includes land used for both active and passive recreational activities, such as parks, lakes, golf courses, and trails. Land in this category may also be used for resource management, detention basins, power transmission line corridors, agriculture, grasslands, and other similar passive uses. Finally, the Resource Constraint Overlay identifies areas with environmental resources resulting in development constraints. As the groundwater system underlying Chico is largely sustained by recharge in the foothills located in the eastern portion of the Planning Area, these designations will maintain the potential to conserve natural ground surfaces in this region and encourage groundwater recharge in the Planning Area.

For these reasons, a significant lowering of groundwater levels in association with the proposed General Plan Update is not anticipated. Cal Water is also pursuing secondary water supply opportunities and is actively managing its water system to efficiently use a limited water supply as discussed below. These actions would further reduce the potential for lowering of groundwater levels.

Water demand would increase during a single dry year and multiple dry years as compared to normal years due to maintenance of landscape and other high water uses that would normally be supplied by precipitation. Since Chico is located in an unadjudicated groundwater basin and withdrawals are not limited, Cal Water assumes the demand would be met by additional pumping from the groundwater wells. However, as previously mentioned, continued heavy pumping during drought conditions would result in lowering of groundwater levels. Therefore, conservation methods would need to be implemented to reduce demand on the basin during multiple dry years (Cal Water, 2007). Cal Water currently has a water shortage contingency plan that includes a four-stage rationing plan with both voluntary and mandatory stages. These stages would assist in reducing potential lowering of groundwater levels during drought events.

Secondary Water Supply Opportunities

As discussed under Existing Setting above, Butte County has entitlement to approximately 27,000 af/yr of State Water Project (SWP) water and has proposed developing a feasibility study to determine the most appropriate way to make full use of this entitlement. This water could potentially be made available for purchase by Cal Water at a future point. However, the feasibility study has not been funded and is speculative at this time (Cal Water, 2007; Pembroke, 2009). In addition, although it is not anticipated that any customers will be serviced with reclaimed water from the Chico Water Pollution Control Plant in the near future due to economic factors, Cal Water is examining the potential for recycled water to meet 2030 water supply demands in the Chico District (Pembroke, 2009).

The provision of expanded water service to the city under the proposed General Plan Update would require the expansion and development of new water infrastructure facilities that could result in physical effects to the environment. The provision of such facilities within the Planning Area has been programmatically considered in the technical analysis provided in this Draft EIR associated with build-out of the Planning Area. Water supply infrastructure is discussed further under Impact 4.12.4.2 below.

Conservation

Cal Water is actively managing its water system to efficiently use a limited water supply. Cal Water currently implements or plans to implement in the future a number of water conservation policies and programs as described below.

CUWCC Water Conservation BMPs

Cal Water's conservation program currently implements several of the CUWCC Water Conservation BMPs and is planning to coordinate the implementation of additional BMPs in the near future. Current BMPs being implemented include plumbing retrofits (BMP No. 2) and public education (BMP Nos. 7 and 8). Additional BMPs to be implemented include metering with commodity rates for all new connections and retrofit of existing connections (BPM No. 4), large landscape surveys (BMP No. 5), washing machine rebate program (BMP No. 6), commercial, industrial, and institutional audits (BMP No. 9), and ULFT replacement programs (BMP No. 14) (Cal Water, 2007). Implementation of these BMPs would improve water efficiency and serve generally to reduce groundwater pumping for the Cal Water Chico District.

20 Percent Per Capita Reduction by 2020 Program

As previously discussed, Cal Water is currently developing a conservation program to achieve a 20 percent reduction in per capita water use by year 2020 consistent with the Governor's 20X2020 Program. The BMPs identified above are currently working toward this goal. The current target for gallons per capita per day (gpcd) in 2013 is 290.4 gpcd, which represents a 4.5 percent reduction from baseline (2008) water consumption of 304 gpcd (Cal Water, 2009).

Distribution System Water Audit and Leak Detection Program

Cal Water implemented an in-house water audit and leak detection program for its distribution systems. The program was administered by a company employee equipped with state-of-the-art leak detection equipment and trained in the methodology described in the *American Water Works Association's Manual of Water Supply Practices: Water Audits and Leak Detection*. It was expected that each district would be audited once every three years. After realizing initial success, this program was suspended as the rate of leak repair outpaced the rate of new leaks being found.

Water-Efficient Landscape Guidelines

In 1992, Cal Water developed water-efficient landscape guidelines that apply to all landscapes designed for Cal Water properties, including renovations. For ease of adoption by districts with a multitude of climates and microclimates, the guidelines are generic. They do, however, adhere to water-efficient landscape (xeriscape) principles.

Proposed General Plan Update policies and actions also include extensive requirements for conservation measures that would further reduce water use, as would be necessary in drought years as discussed above. For example, the Sustainability Element requires the city to install drought tolerant landscaping in new City facilities, medians, and parkway strips to reduce water use and the Open Space and Environment Element encourages the use of reclaimed water and grey water systems. These policies, along with the conservation programs identified above, will likely reduce water usage of future development.

Both well level records and the historical climatic record shows that water supply demand for Chico can be met by the existing supply. Furthermore, growth rates used for Cal Water water projections are consistent with the General Plan's expected 2 percent annual growth through 2030, meaning that water supplies are expected to be adequate to serve the city. Policies in the proposed General Plan Update provide for continued regular evaluation of groundwater levels and availability in coordination with Cal Water and build-out of the proposed General Plan Update would preserve significant groundwater recharge areas and would result in increased water use efficiency. Thus, this impact is considered **less than significant**.

Water Supply Infrastructure (Standard of Significance 2)

Impact 4.12.4.2 Implementation of the proposed General Plan Update would increase demand for water supply and thus require additional water supply infrastructure that could result in a physical impact to the environment. This is considered a **less than significant** impact.

The provision of expanded water service to the city under the proposed General Plan Update would require the expansion and development of new water infrastructure facilities that could result in physical effects to the environment. Since groundwater withdrawals are not limited, the theoretical water supply for the Chico District is the total design capacity of all the active wells, which is 99,200 af/yr. Planned wells would increase the total capacity to 104,039 af/yr in the near future, and the total supply capacity of the system is further expected to increase slightly over time as new wells are installed. However, in order meet the average day and maximum day requirements of new customers under the proposed General Plan Update, new wells, booster stations, and surface storage facilities may need to be constructed.

Implementation of the proposed General Plan Update would also allow for development in areas currently not served by water supply transmission infrastructure. Development of these areas would require the extension of new water transmission pipelines and other associated infrastructure. Water supply infrastructure would be upsized and expanded in areas of new development as such development is proposed.

Furthermore, as discussed above, the Butte County Department of Water and Resource Conservation has proposed developing a feasibility study to determine the most appropriate way to make full use of its State Water Project (SWP) entitlement. If SWP water were to be made available for purchase by Cal Water, a water treatment plant would need to be constructed. However, the feasibility study has not been funded and is speculative at this time (Pembroke, 2009).

Proposed General Plan Update Action PPFS-5.2.3 requires the city to work with Cal Water to ensure that water treatment and delivery infrastructure are in place prior to occupancy or assured through the use of bonds or other sureties to the city and Cal Water's satisfaction. Implementation of this action would ensure that water supply and delivery systems would be available in time to meet the demand created by new development (prior to issuance of building permit). The site-specific environmental impacts associated with water supply infrastructure improvements needed to serve new development would be determined through project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known. However, the provision of such facilities within the Planning Area has been programmatically considered in the technical analysis provided in this Draft EIR associated with build-out of the proposed SOI. Potential environmental impacts associated with upgrades and improvements to water supply transmission facilities are shown in **Table 4.12.4-5** below.

TABLE 4.12.4-5
TYPES OF POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH NEW WATER SUPPLY FACILITIES

Types of Potentially Affected Resources	Related and Potential Impacts
Geology and Soils	Increase in erosion and sedimentation from construction activities; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.
Water Quality	Changes in waterway temperature, dissolved oxygen, turbidity, total suspended solids, and other water quality parameters of concern during construction and operation of new facilities.
Wetlands	Changes in the amount or functions and values of various types of wetlands from the construction of new facilities.
Biological Resources including Special-status Species	Disturbance to rare plants and their habitat and other types of vegetation through disturbance by construction activities.
Wildlife Resources including Special-status Species	Changes in the amount and quality of affected wildlife habitat from construction activities.
Visual Resources	Short-term and long-term direct visual impacts associated with construction activities (distribution pipelines, storage tanks).
Agriculture	Permanent direct loss of agricultural productivity (disruption pipeline construction and operation).
Noise	Adverse noise impacts during the operation of expanded booster pump stations. Noise (direct) during construction (distribution pipelines, storage tanks).
Cultural Resources	Historic, prehistoric, and ethnographic resources could be affected by the construction and maintenance of new facilities.
Public Utilities	The routing and sitting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.
Air Quality	Air quality emissions (direct) of oxides of nitrogen (NOx) during construction (distribution pipelines).
Transportation	Local roads would experience traffic increases during construction.
Public Health and Safety	Construction activities could create some safety hazards. Temporary direct disruption of property access during distribution pipeline construction.

Types of Potentially Affected Resources	Related and Potential Impacts
Growth-inducing Effects	New water infrastructure would likely cause growth-inducing impacts.

Project-level CEQA review of future water supply infrastructure would identify and mitigate significant environmental impacts. Implementation of the proposed General Plan Update would ensure that water supply and delivery systems would be available in time to meet the demand created by new development. Therefore, impacts associated with increased demand for water supply infrastructure are considered **less than significant**.

4.12.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for water services, including supplies and related infrastructure, consists of Cal Water's Chico District boundaries, as well as all other areas obtaining water from the Sacramento Valley Groundwater Basin. The Chico District serves the City of Chico, Hamilton City, and the surrounding areas in unincorporated Butte County. The Sacramento Valley Groundwater Basin lies between the Coast Range to the west, the Cascade and Sierra Nevada ranges to the east, and extends from Red Bluff in the north to the Delta in the south, covering 4,900 square miles. It covers parts of Sacramento, Placer, Solano, Yolo, Yuba, Colusa, Tehama, Glenn, and Butte counties (CDM, 2005a).

The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development in the Chico District service area and the Sacramento Valley Groundwater Basin. Section 4.0 of this DEIR contains a description of regional development projects that would be included in the cumulative setting.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Supply Impacts (Standards of Significance 1 and 3)

Impact 4.12.4.3 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would increase the cumulative demand for water supplies and related infrastructure. The project's contribution to cumulative water supply and infrastructure impacts is considered **less than cumulatively considerable**.

As noted under Impact 4.12.4.1, growth in the Planning Area is expected to be consistent with projected Cal Water Chico District demand, and it is anticipated that water supplies would be adequate to serve build-out of the proposed General Plan Update. Future growth in Butte County and the surrounding region would further contribute to the need for additional groundwater supply to be drawn from the Sacramento Valley Groundwater Basin. As previously discussed, the Sacramento Valley Groundwater Basin is an unadjudicated groundwater basin and no safe yield has been established. However, groundwater levels have remained consistent over time and long-term historical data shows that well levels seasonally and annually fluctuate with no significant difference in the well levels over the long term. Similarly, localized well drawdowns do occur; but the overall groundwater level of the aquifer recovers and remains

consistent over time. In addition, Cal Water periodically reevaluates the projected availability of groundwater using the Butte Basin Groundwater Model in order to assure sustainable levels of groundwater quantity and quality. Therefore, it is assumed that an adequate supply will be available to meet cumulative demand and it is not anticipated that growth in the cumulative setting would result in significant groundwater level declines.

Regional growth would also result in the need for new water supply infrastructure. However, it is anticipated that such infrastructure would be evaluated on a project-by-project basis and that any necessary improvements would be required to be installed by developers as part of individual developments. The potential environmental effects associated with additional water supply infrastructure include, but are not limited to, air quality, agricultural resources, temporary property access disruption, land use, noise, traffic, visual resources, and odor, as shown in **Table 4.12.4-5** above.

Implementation of the proposed General Plan Update, as well as future project-level CEQA review, would require the city to ensure that new development would not proceed without adequate water supply and necessary infrastructure. Build-out of the proposed General Plan Update would preserve significant groundwater recharge areas and would result in increased water use efficiency in the Planning Area as discussed under Impact 4.12.4.2. In addition, proposed General Plan Update policies and actions include extensive requirements for conservation measures that would further reduce the proposed General Plan Update's contribution to cumulative water supply impacts. Cal Water, as well as the BCDWRC, is actively working to manage and conserve groundwater and maintain groundwater levels in the cumulative setting. For example, the Butte County Groundwater Management Ordinance includes the development and monitoring of basin management objectives to maintaining groundwater levels adequate to sustain municipal, agricultural, and domestic use. In addition, the Butte County Integrated Water Resource Plan discusses current and future water demands and water resource management options and the Butte County Groundwater Management Plan includes groundwater management objectives. Therefore, as it is anticipated that groundwater supply would be available to serve cumulative development without overdraft of the basin, this impact is considered **less than cumulatively considerable**.

4.12.5 WASTEWATER SERVICE

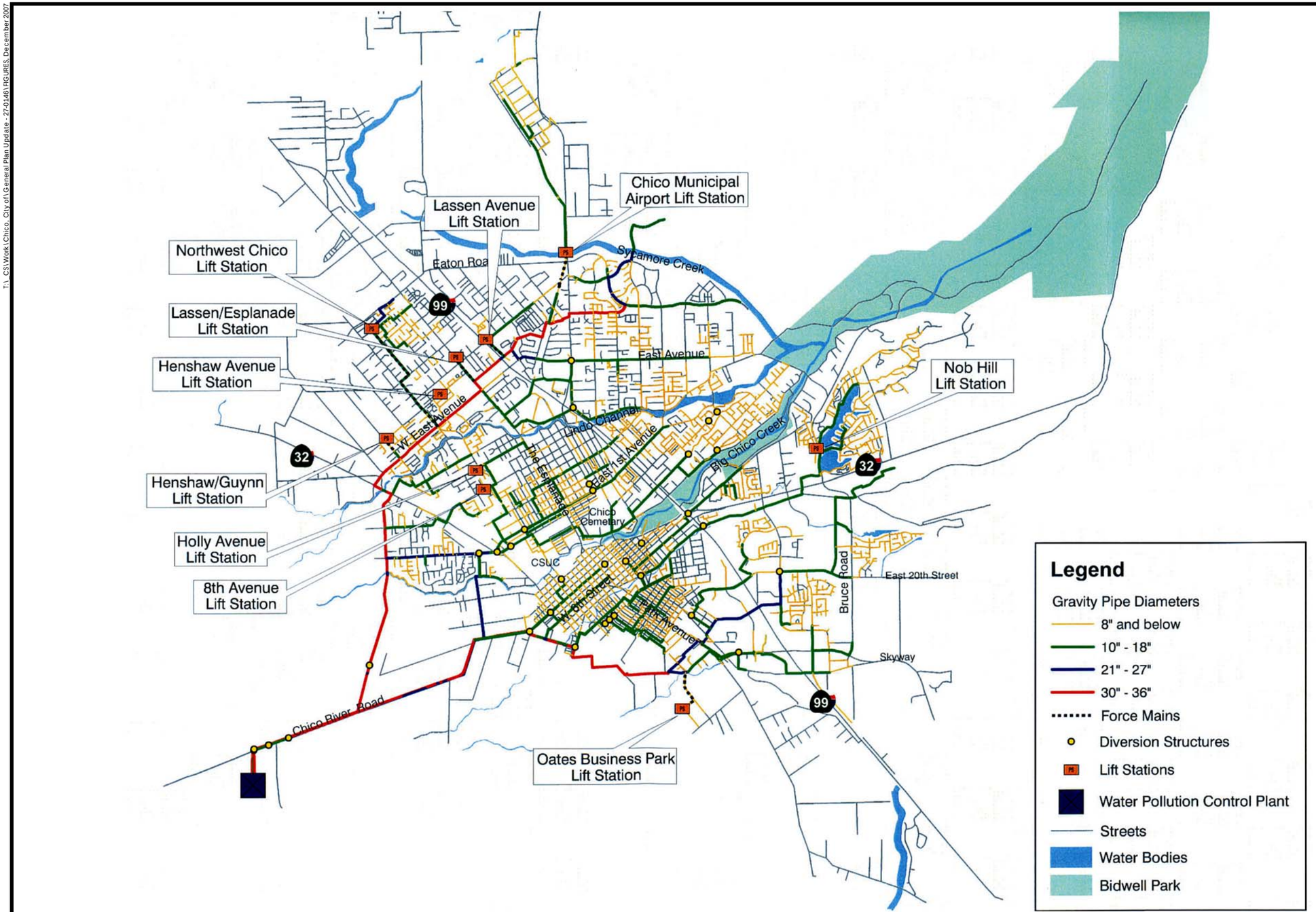
4.12.5.1 EXISTING CONDITIONS

The City of Chico maintains facilities to convey, treat, and dispose of municipal wastewater generated within city limits. Wastewater in the city is either discharged to septic systems or routed to the sanitary sewer system. Wastewater that is discharged to septic systems eventually percolates into the aquifer underlying the city.

Wastewater Collection and Conveyance Facilities

The city's gravity-flow sewer system consists of gravity sewers and pumping stations to collect wastewater from residential, commercial, and industrial customers. **Figure 4.12.5-1** shows the city's entire wastewater collection and treatment system, including the lift stations and sewage basins.

T:_CS\Work\Chico, City of\General Plan Update - 27-01461\FIGURES, December 2007



Source: City of Chico, 2003

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Figure 4.12.5-1
Chico Wastewater Collection and Treatment System

PMC®

Sewer System Pipelines

The City's existing sanitary sewer system pipelines range in diameter from 4 inches to 36 inches and are primarily constructed of vitrified clay. The larger interceptor pipelines range in diameter from 10 inches to 36 inches and are the major pipes tributary to the city's Water Pollution Control Plant (Carollo Engineers, 2003). **Table 4.12.5-1** presents a summary of total length of pipe for each associated diameter.

TABLE 4.12.5-1
COLLECTION SYSTEM PIPELINES

Diameter (inches)	Length (feet)
4	2,049
5	1,158
6	230,409
8	418,593
10	100,952
12	80,089
14	9,109
15	63,936
16	133
18	49,989
21	13,332
24	28,821
27	3,275
30	13,356
33	42,868
36	13,800
Total	**1,071,932**

Source: Carollo Engineers, 2003.

Other collection system facilities within the city service area include ten lift stations and numerous diversion structures. Diversion structures transfer wastewater from one pipeline to another and most serve as overflow pipes that have been installed to relieve wastewater flow from capacity-deficient pipes. Once collected, wastewater is discharged to trunk sewers and conveyed to the Water Pollution Control Plant (WPCP) for treatment. The City's lift stations and numerous diversion structures are shown in **Figure 4.12.5-1**.

A Sanitary Sewer Master Plan conducted by Brown and Caldwell in 1985 recommended the construction of a large trunk sewer line ranging from 24 to 27 inches in diameter that would convey flows along East Eaton Road going toward the southwest and eventually following Chico River Road to the Water Pollution Control Plant. Due to budget constraints at the time, City staff developed an interim improvement plan which included the construction of the Northwest Chico and the Chico Municipal Airport lift stations circa 1993. These lift stations are

viewed as temporary and will be abandoned upon completion of the aforementioned sewer trunk line (Carollo Engineers, 2003).

Collection System Capacity

A sanitary sewer system receives two flow components—dry weather flow (DWF) and wet weather flow (WWF)—over the course of a year. The dry weather flow component (or baseflow) is generated by routine water usage in the residential, commercial, business, and industrial sectors of the city. The other component of dry weather flow is the contribution of dry weather groundwater infiltration into the collection system. Dry weather groundwater infiltration will enter the collection system when the relative depth of the groundwater table is higher than the elevation of the pipeline and when the condition of the sanitary sewer pipe allows infiltration through defects such as cracks, misaligned joints, and broken pipelines. The wet weather flow component includes stormwater inflow, trench infiltration, and groundwater infiltration. The stormwater inflow and trench infiltration comprise the wet weather flow component termed rainfall-dependent inflow and infiltration (RDII). They are termed RDII because the response in the collection system to the rainfall event is seen immediately or within hours after the rainfall event. Groundwater infiltration is not specific to a single rainfall event but rather the effects on the collection system occur over the entire wet weather season. The peak wet weather flow criteria (or surcharge criteria), set by the city, allows a pipeline to surcharge one-half the distance from the crown of the pipe to the ground elevation. Existing pipelines with less surcharging than this are considered to be sufficient in capacity to convey RDII flows (Carollo Engineers, 2003).

According to modeling and analysis conducted for the City of Chico Collection System Facilities, Sanitary Sewer Master Plan Update (SSMPU) (Carollo Engineers, 2003), over 100 pipelines do not meet the city's surcharging criteria during peak wet weather flows for existing conditions. These surcharged pipelines were caused by 30 pipelines that did not have sufficient capacity to pass the peak wet weather flow (Carollo Engineers, 2003).

Planned and funded improvements to the sanitary sewer system to correct these existing deficiencies are contained in the city's Capital Improvement Program (CIP). Repairs and replacement of damaged sanitary sewer lines at various locations throughout the city have been performed annually from 2005 and will continue through 2010. The SSMPU identified five CIP projects required for existing pipelines: West 11th Street Trunk Sewer, parallel pipelines at WPCP, Olive Street Trunk Sewer, Warner Street and Brice Avenue Trunk Sewer, and Filbert Avenue Trunk Sewer. The SSMPU also identified sewer pipelines necessary to serve future growth, including construction of one major trunk sewer (the Northwest Trunk Sewer). This trunk system will ultimately serve the airport, properties along Eaton Road west of Cohasset Road, properties along Hicks Lane south of Mud Creek (portion of North Chico Specific Plan area), and development in northwest Chico.

In addition, the existing capacity in the Northwest Chico Trunk Sewer line would be insufficient to accommodate flows anticipated from the Northwest Chico Specific Plan (NCSP). The NCSP proposes to construct the portion of the Northwest Trunk Sewer line within the NCSP area and an 18-inch sewer main to tie into the existing infrastructure at the Northwest Chico lift station. These improvements will be undertaken as part of the development proposed and approved for the area.

Wastewater Treatment Facility – City of Chico Water Pollution Control Plant

Wastewater treatment is provided by the City of Chico Water Pollution Control Plant (WPCP), located at 4827 Chico River Road, approximately 4 miles southwest of the city in the western portion of Butte County. The WPCP serves development both within and outside the city limits. In 2000, construction was completed on the 1997 WPCP Expansion Project, which increased the WPCP's average wet weather flow (AWWF) capacity from 6 million gallons per day (mgd) to 9 mgd. As of 2006, the average daily dry weather flow (ADDWF) is approximately 7.2 mgd (EIP, 2006). Past wastewater flows received by the WPCP from all sources are shown in **Table 4.12.5-2.**

TABLE 4.12.5-2
HISTORICAL WASTEWATER FLOW TO THE CHICO WPCP

Year	Daily Flow – Average Day, Average Month (mgd)[1]
1995	6.0
1996	6.0
1997	6.1
1998	7.2
1999	6.3
2000	6.0
2001	6.3
2002	6.9
2003	7.2

Source: EIP, 2006
[1] Wastewater flow is based on the flow levels of an average day during an average dry month.

Municipal sewage enters the WPCP through the headworks via two 33-inch and three 18-inch sewer pipes. Sewage then flows by gravity through two mechanical bar screens and the grit chamber, where it is conveyed to the three primary clarifiers. After primary treatment, the effluent is split into two secondary treatment process trains, referred to as Plants 1 and 2. Plant 1 consists of the facilities constructed before the 1997 expansion, and Plant 2 was constructed during the 1997 expansion. In Plant 1, the primary effluent is distributed to Aeration Tanks 1 and 2 via the aeration tank influent channel. Return activated sludge (RAS) could be mixed with the primary effluent or delivered directly from the RAS splitter box to the aeration tanks. After treatment in the aeration tanks, effluent flows through two 36-inch pipes to Secondary Clarifiers 1 and 2, and then to Chlorine Contact Basins 1 and 2 for disinfection. Effluent enters Plant 2 from the Primary Effluent Lift Station to the influent channel for Aeration Tanks 3 and 4. RAS can be mixed with primary effluent at this point or added directly to each aeration tank. Mixed liquor from the two aeration tanks is split into two streams and transported to Secondary Clarifiers 3 and 4, then to Chlorine Contact Basins 3 and 4. At the outfall box, effluent from Plants 1 and 2 is combined, dechlorinated, and then allowed to flow to the Sacramento River through a 48-inch pipe and a 33-inch pipe. The existing effluent disposal system can discharge treated water and on-site stormwater to the Sacramento River, the emergency storage ponds, or the M&T Ranch irrigation canal on the west side of the treatment plant (Jones & Stokes, 2005). Annual discharge is 2,548 million gallons per year, which is 78 percent of the WPCP's permitted discharge volume (EIP, 2006).

The City is currently in the construction phase of a project to upgrade the WPCP's capacity from 9 mgd to 12 mgd in order to meet the wastewater treatment needs stemming from projected growth in the WPCP's service area as well as incorporation of county lands into the service area as required by the Chico Urban Area Nitrate Compliance Plan (discussed under Regulatory Framework subsection below). The expansion project is also intended to ensure that the WPCP meets the National Pollutant Discharge Elimination System (NPDES) permit requirements for the discharge of effluent (Jones & Stokes, 2005). An additional upgrade to 15 mgd by 2017 is proposed, with the planning and design phase of this upgrade anticipated to begin in 2015. All treatment systems will be the same under the proposed expansion, including screening for removal of large solids, grit removal, primary clarification, activated sludge treatment, and chlorination/dechlorination (Jones & Stokes, 2005).

Projected Wastewater Flows

The quantity of wastewater generated in an area is proportional to the population and the water use in the service area. Projected dry weather wastewater flows in the city, based on Cal Water's domestic water demand projections, are presented in **Table 4.12.5-3** below. The numbers shown include 7,800 residential units that are expected to be added to the city's wastewater service area as a result of the Nitrate Compliance Plan (NCP). As shown, the city's wastewater flow is projected to reach 15.2 mgd by 2025.

TABLE 4.12.5-3
PROJECTED WASTEWATER FLOWS

Year	Average Day, Average Month Dry Weather Flow with NCP (mgd)
2005	7.2
2010	10.6
2015	11.8
2020	13.5
2025	15.2

Source: EIP, 2006

Funding

City Fees

The City typically funds infrastructure and services through the General Fund and the city's Capital Improvement Program, which identifies the revenue source through which specific projects are funded. The City follows state regulations for collecting impact fees from development projects (Government Code section 66000 et seq.) and local provisions that govern development impact fees (Chico Municipal Code 3.85) and sewer service fees (Chico Municipal Code 15.36). Title 15, Water and Sewers, of the Municipal Code requires the collection of the following sewer fees: Sewer Service, WPCP Capacity, Trunkline and Lift Station Capacity, Sewer Main and Sewer Lateral Installation. Revenues received by the city from these fees are deposited in revenue accounts and used for the appropriate operations and improvements. Premises are entitled to receive City sewer service upon issuance of a connection permit and payment of all fees.

Monthly service fees fund operations and maintenance costs. Residential and nonresidential units in the city pay a flat monthly rate per unit. Nonresidential units also pay an additional

consumption charge based on the amount of usage. Residential and nonresidential units outside of the city pay a higher flat monthly fee. Nonresidential units outside the city also pay an additional consumption charge, but at the same rate as nonresidential units in the city. No Wastewater Industrial Surcharges (Section 15.36.061 Chico Municipal Code) are currently being imposed. A Sanitary Sewer Rate Analysis was conducted in 2003 to evaluate City sewer service fees. As a result of this study, sewer service rates were restructured so that revenues would fully fund maintenance and operation, as well as generate an appropriate reserve (EIP, 2006).

State Revolving Fund

The State Revolving Fund (SRF) is a revolving loan program that provides low interest loans to address water quality problems associated with discharges from wastewater and water reclamation facilities. Funds for the program are administered by the State Water Resources Control Board (SWRCB) and provided in part by the USEPA (EIP, 2006).

The City's WPCP expansion project is eligible for the SRF. Specifically, the expansion project matches the definition of a project with Class C priority (Policy, Section IV, C). This definition encompasses projects that must comply with Waste Discharge Requirements (WDRs), projects necessary for corrections of threatened violations of existing WDRs, and projects that recycle water and are cost effective when compared to development of new sources of water. The 1997 WPCP expansion project, which increased the WPCP's capacity from 6 mgd to 9 mgd in 2000, was also funded by the SRF (EIP, 2006).
In addition, an SRF loan of $38 million was approved by the SWRCB in December 2007 in order to help fund the Nitrate Action Plan described above. The Nitrate Action Plan is also funded by a $50 million capital improvement project to install sanitary sewers in the urban areas of Chico presently relying on septic tanks.

4.12.5.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act (CWA) is the primary federal legislation governing surface water quality protection. The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." Pollutants regulated under the CWA include "priority" pollutants, including various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, oil and grease, and pH; and "non-conventional" pollutants, including any pollutant not identified as either conventional or priority. The CWA regulates both direct and indirect discharges (USEPA, 2009).

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) program, Section 402 of the CWA, controls direct discharges into navigable waters. Direct discharges, or point source discharges, are from sources such as pipes and sewers. NPDES permits, issued by either the USEPA or an authorized state/tribe contain industry-specific, technology-based, and/or water-quality-based limits, and establish pollutant monitoring and reporting requirements. (The USEPA has authorized

40 states to administer the NPDES program.) A facility that intends to discharge into the nation's waters must obtain a permit before initiating a discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent and the permit will then set forth the conditions and effluent limitations under which a facility may make a discharge (USEPA, 2009).

General Pretreatment Regulations

Another type of discharge that is regulated by the CWA is discharge that goes to a publicly owned treatment works (POTW). POTWs collect wastewater from homes, commercial buildings, and industrial facilities and transport it via a collection system to the treatment plant. Here, the POTW removes harmful organisms and other contaminants from the sewage so it can be discharged safely into the receiving stream. Generally, POTWs are designed to treat domestic sewage only. However, POTWs also receive wastewater from industrial (nondomestic) users. The General Pretreatment Regulations establish responsibilities of federal, state, and local government, industry, and the public to implement Pretreatment Standards to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the state/tribe or the USEPA (USEPA, 2009).

STATE

Porter-Cologne Water Quality Act

In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act to preserve, enhance, and restore the quality of the state's water resources. The act established the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards as the principal state agencies with the responsibility for controlling water quality in California. Under the act, water quality policy is established, water quality standards are enforced for both surface water and groundwater, and the discharges of pollutants from point and nonpoint sources are regulated. The act authorizes the SWRCB to establish water quality principles and guidelines for long-range resource planning including groundwater and surface water management programs and control and use of recycled water (U.S. Department of Energy, 2009).

State Water Resources Control Board

Created by the State Legislature in 1967, the five-member State Water Resources Control Board (SWRCB) allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine regional water quality control boards located in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters (SWRCB, 2009).

The SWRCB is responsible for implementing the CWA and issues NPDES permits to cities and counties through Regional Water Quality Control Boards (RWQCBs). The City of Chico is located in a portion of the state that is regulated by the RWQCB's Central Valley Region.

Waste Discharge Requirements Program

In general, the Waste Discharge Requirements (WDRs) Program (sometimes referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to Section 20230 of Title 27. Several SWRCB programs are administered under the WDRs Program, including the Sanitary Sewer Order and recycled water programs (SWRCB, 2009).

Sanitary Sewer Overflow Program

A sanitary sewer overflow (SSO) is any overflow, spill, release, discharge, or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oil, and grease and can pollute surface and ground waters, threaten public health, adversely affect aquatic life, and impair the recreational use and aesthetic enjoyment of surface waters. To provide a consistent, statewide regulatory approach to address SSOs, the SWRCB adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003 (Sanitary Sewer Order) on May 2, 2006. The Sanitary Sewer Order requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all SSOs to the State Water Resources Control Board's online SSO database. All public agencies that own or operate a sanitary sewer system that is comprised of more than one mile of pipes or sewer lines which conveys wastewater to a publicly owned treatment facility must apply for coverage under the Sanitary Sewer Order (SWRCB, 2009).

Recycled Water Policy

To establish uniform requirements for the use of recycled water, the SWRCB adopted a statewide Recycled Water Policy on February 3, 2009. The purpose of the policy is to increase the use of recycled water from municipal wastewater sources that meets the definition in Water Code Section 13050(n), in a manner that implements state and federal water quality laws. The policy describes permitting criteria that are intended to streamline the permitting of the vast majority of recycled water projects. The intent of this streamlined permit process is to expedite the implementation of recycled water projects in a manner that implements state and federal water quality laws while allowing the Regional Water Boards to focus on projects that require substantial regulatory review due to unique site-specific conditions (SWRCB, 2009).

Statewide General Permit for Landscape Irrigation Uses of Recycled Water

The SWRCB is also developing a statewide general permit for landscape irrigation uses of recycled water (General Permit). The intent of the new law is to develop a uniform interpretation of state standards to ensure the safe, reliable use of recycled water for landscape irrigation uses, consistent with state and federal water quality law, and for which the California Department of Public Health has established uniform statewide standards. The new law is also intended to reduce costs to producers and users of recycled water by streamlining the permitting process for using recycled water for landscape irrigation.

Department of Public Health

The California Department of Public Health (formerly Department of Health Services) is responsible for establishing criteria to protect pubic health in association with recycled water use. The criteria issued by this department are found in the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled Water Recycling Criteria. Commonly referred to as Title 22 Criteria, the criteria contain treatment and effluent quality requirements that vary based on the proposed type of water reuse. Title 22 sets bacteriological water quality standards on the basis of the expected degree of public contact with recycled water. For water reuse applications with a high potential for the public to come into contact with the reclaimed water, Title 22 requires disinfected tertiary treatment. For applications with a lower potential for public contact, Title 22 requires three levels of secondary treatment, basically differing by the amount of disinfectant required (SBWR, 2009).

Title 22 also specifies the reliability and redundancy for each recycled water treatment and use operation. Treatment plant design must allow for efficiency and convenience in operation and maintenance and provide the highest possible degree of treatment under varying circumstances. For recycled water piping, the department has requirements for preventing backflow of recycled water into the public water system and for avoiding cross-connection between the recycled and potable water systems (SBWR, 2009).

The Department of Public Health does not have enforcement authority for the Title 22 criteria; instead the RWQCBs enforce them through enforcement of their permits containing the applicable criteria.

REGIONAL

Regional Water Quality Control Board, Central Valley Region

The Central Valley RWQCB provides planning, monitoring, and enforcement techniques for surface and groundwater quality in the Central Valley region, including the City of Chico and surrounding area. The primary duty of the RWQCB is to protect the quality of the waters in the region for all beneficial uses. This duty is implemented by formulating and adopting water quality plans for specific ground or surface water basins and by prescribing and enforcing requirements on all agricultural, domestic and industrial waste discharges (RWQCB, 2009).

Water Reuse Requirements (Permits)

The Central Valley RWQCB issues water reuse requirements (permits) for projects that reuse treated wastewater. These permits include water quality protections as well as public health protections by incorporating criteria established in Title 22. The Central Valley RWQCB may also incorporate requirements into the permit in addition to those specified in Title 22. These typically include periodic inspection of recycled water systems, periodic cross-connection testing, periodic training of personnel that operate recycled water systems, maintaining a database and/or permitting individual use sites, periodic monitoring of recycled water and groundwater quality, and periodic reporting.

Waste Discharge Requirements

The Central Valley RWQCB typically requires a Waste Discharge Requirement (WDR) permit for any facility or person discharging or proposing to discharge waste that could affect the quality of the waters of the State, other than into a community sewer system. Those discharging

pollutants (or proposing to discharge pollutants) into surface waters must obtain an NPDES permit from the Central Valley RWQCB. The NPDES permit serves as the WDR permit. For other types of discharges, such as those affecting groundwater or in a diffused manner (e.g., erosion from soil disturbance or waste discharges to land) a Report of Waste Discharge must be filed with the Central Valley RWQCB in order to obtain a WDR permit. For specific situations, the Central Valley RWQCB may waive the requirement to obtain a WDR permit for discharges to land or may determine that a proposed discharge can be permitted more effectively through enrollment in a general NPDES permit or general WDR permit (RWQCB, 2009).

The Central Valley RWQCB issued WDRs (Order R5-2004-0073) with the NPDES permit system to the city on June 4, 2004, for the discharge of secondary treated effluent to the Sacramento River. The City submitted a report of waste discharge in November 2003 to the Central Valley RWQCB for a permit renewal to discharge into the Sacramento River. The City received Order No. R5-2004-0073 in June 2004, which allows the discharge of up to 9 mgd of average dry weather (July–September) flow and includes effluent limitations for copper, lead, zinc, bromodichloromethane, dibromochloromethane, biochemical oxygen demand (BOD), total suspended solids, coliform organisms, and chlorine residual. The existing WPCP has not had difficulty meeting its Waste Discharge Requirements (Jones & Stokes, 2005).

LOCAL

Collection System Facilities Sanitary Sewer Master Plan Update

The City's Collection Systems Facilities Sanitary Sewer Master Plan Update (Carollo Engineers, 2003) evaluates the capacity of the city's wastewater collection system during peak wet weather flows and describes current services and plans to connect currently unserved areas and future development areas to the city's sanitary sewer system. The plan provides a detailed Capital Improvement Program (CIP) for the necessary improvements to the existing wastewater collection system facilities and improvements needed for future growth, as well as a detailed cost summary and implementation plan.

City of Chico Municipal Code

Title 15R, Water and Sewers, of the City of Chico Municipal Code identifies the sewer service fees charged by the city to premises connected to the sanitary sewer system, as described above. Title 15R also contains discharge requirements (local limitations on specific pollutants), industrial wastewater permit, reporting, and sampling requirements.

Nitrate Compliance Plan

In the 1980s, the RWQCB recognized that on-site sewage disposal systems were contributing to elevated nitrate levels in groundwater in the Chico area and initially issued a Prohibition Order requiring all existing septic systems in the Chico urban area to convert to the community sewer system. In response, Butte County, the City of Chico, and the RWQCB developed strict standards limiting any new systems, the creation of an on-site district, and a plan to finance the conversion of existing septic systems to the city sewer system. In 2001 the Butte County Board of Supervisors adopted the Nitrate Compliance Plan, which superseded the previous Nitrate Action Plan. The Nitrate Compliance Plan enacts strict standards for density requirements for new septic systems. The standards allow for conventional septic systems only in narrowly defined circumstances, call for the elimination of existing systems in most of the Chico Urban Area, and identify a financing mechanism to do this. The plan also provides for case-by-case evaluation of nonresidential

septic systems and recognizes that sewer connection may not be practical or feasible in all cases (DC&E, 2007).

Butte County Environmental Health Division

In Butte County, septic systems are regulated by the Environmental Health Division. The County is currently preparing an environmental impact report (EIR) for the Butte County Individual On-Site Wastewater Ordinance. The ordinance would apply to unincorporated portions of Butte County not served by municipal wastewater treatment and disposal facilities. The ordinance would update and replace existing County regulations in order to be consistent with applicable requirements of the Central Valley RWQCB Basin Plan and to incorporate other changes based on the current state of knowledge and advances in practices and technologies for on-site wastewater treatment and disposal. Notably, the ordinance would (a) implement more standardized procedures for soil and site evaluations; (b) incorporate new requirements pertaining to the vertical separation between the bottom of dispersal systems and groundwater or restrictive layers; (c) provide a broader range of treatment and dispersal designs; and (d) institute a program to assure ongoing maintenance of certain types of systems (Butte County, 2009).

4.12.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following standards are based on State CEQA Guidelines Appendix G. A significant impact to wastewater service would occur if implementation of the proposed General Plan Update would:

1) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

2) Require or result in the construction of new water or wastewater treatment facilities or expansion or existing facilities, the construction of which could cause significant environmental effects.

3) Result in a determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

METHODOLOGY

Evaluation of potential impacts on wastewater facilities and services was based on the city's Collection System Facilities Sanitary Sewer Master Plan Update (Carollo Engineers, 2003), the Draft Environmental Impact Report for the City of Chico Water Pollution Control Plant Expansion Project (Jones & Stokes, 2005), and other relevant literature. A detailed list of reference material used in preparing this analysis can be found at this end of this section. Wastewater demand projections, as well as infrastructure conditions and needs, discussed in these documents were compared to potential impacts resulting from growth anticipated in association with the proposed General Plan Update and whether those impacts would have a significant effect on the physical environment.

The following proposed General Plan Update policies and actions address wastewater service:

Policy PPFS-4.1 *(Sanitary Sewer System) – Improve and expand the sanitary sewer system as necessary to accommodate the needs of existing and future development.*

Action PPFS-4.1.1 *(Require Connection to Sewer System) – Require all commercial and industrial development, as well as all residential development with lots one acre or smaller, to connect to the City's sewer system.*

Action PPFS-4.1.2 *(Sanitary Sewer Master Plan) – Update and maintain the City's Sanitary Sewer Master Plan, as well as the Sewer System Model, to assure that improvements to the system are identified, planned, and prioritized.*

Action PPFS-4.1.3 *(Wastewater System Costs) – Secure financing for the expansion and maintenance of the Water Pollution Control Plant and sewer system through the use of connection fees, special taxes, assessment districts, developer dedications, or other appropriate mechanisms. Financing should be sufficient to complete all related project-specific sewer trunk and main lines at their full planned capacities in a single phase.*

Policy PPFS-4.3 *(Capacity of Water Pollution Control Plant) – Increase system capacity by reducing wet weather infiltration into the sanitary sewer system.*

Action PPFS-4.3.1 *(Infiltration Program) – Develop and implement an inflow and infiltration program to identify, monitor, and line or replace existing pipes that are the source of excessive wet weather infiltration, which reduce system capacity.*

Policy PPFS-4.4 *(Wastewater Flows) – Ensure that total flows are effectively managed within the overall capacity of the Water Pollution Control Plant.*

Action PPFS-4.4.1 *(Wastewater Meters for Industrial Uses) – Require installation of wastewater meters for all new or expansions of existing Significant Industrial User facilities.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address wastewater service and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Waste Discharge Requirements (Standard of Significance 1)

Impact 4.12.5.1 Implementation of the proposed General Plan Update could result in wastewater discharge that would exceed wastewater treatment

requirements of the Central Valley Regional Water Quality Control Board. This impact is considered **less than significant.**

Implementation of the proposed General Plan Update is expected to accommodate a 2 percent annual growth rate in the city, the SOI, and the five SPAs included in the proposed General Plan Update. By 2030, this would represent an increase of 21,495 housing units and 51,588 persons from baseline (2008) conditions. This growth would increase wastewater flows that would need to be treated and ultimately discharged into the Sacramento River. As previously discussed, the Chico WPCP is currently operating under Order No. R5-2004-0073, which allows the discharge of up to 9 mgd of average dry weather (July–September) flow and includes effluent limitations for copper, lead, zinc, bromodichloromethane, dibromochloromethane, BOD, total suspended solids, coliform organisms, and chlorine residual.

As part of the current WPCP expansion project, the city plans to renew the City's NPDES permit, or before the planned effluent flow exceeds 9 mgd during dry weather, whichever occurs first. Any future expansion of the WPCP would require submission of a Report of Waste Discharge (RWD) to the RWQCB. The RWD would request an increase in the permitted flow capacity and would be submitted and approved by the RWQCB prior to operation of the expanded plant.

The City is not currently exceeding any limits established in its current WDR and will be required by the RWQCB to remain in compliance after any future expansion of flow capacity. In addition, as specified in the Nitrate Compliance Plan and required by the RWQCB to ensure groundwater quality, the City of Chico is in the process of eliminating most existing septic systems in the city. Implementation of the Nitrate Compliance Program calls for the construction of sewer mains and laterals to serve over 5,600 parcels. In late 2009, the first phase of this large-scale project was 90 percent complete. Therefore, the proposed General Plan Update is not expected to exceed wastewater treatment requirements or orders of the Regional Water Quality Control Board, Central Valley Region, and impacts are considered **less than significant**.

Wastewater Conveyance and Treatment (Standards of Significance 2 and 3)

Impact 4.12.5.2 Subsequent development under the proposed General Plan Update would increase wastewater flows and require additional infrastructure and treatment capacity to accommodate anticipated demands. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure adequate wastewater facilities are provided. This impact is considered **less than significant**.

Implementation of the proposed General Plan Update is expected to accommodate a 2 percent annual growth rate in the city, the SOI, and the five SPAs included in the proposed General Plan Update. By 2030, this would represent an increase of 21,495 housing units and 51,588 persons from baseline (2008) conditions. Increased population and development would increase wastewater flows would result in increased demand for wastewater services. Meeting increased demand would require the extension of new wastewater collection system infrastructure and increased treatment and disposal capacity to ensure adequate treatment of the city's wastewater flows.

According to the city's Municipal Services Review (EIP, 2006), average wastewater flow per household is 288 gallons per equivalent dwelling unit (EDU) per day, while nonresidential flow is estimated at 1,500 gallons per acre per day. Based on those factors, the proposed General Plan Update would result in build-out wastewater flows of 23.48 million gallons per day (mgd)

average flow (see **Table 4.12.5-4** below). It should be noted that the calculation shown is an estimate for analysis purposes and is not intended to be an accurate representation of wastewater flows in 2030.

TABLE 4.12.5-4
PROJECTED WASTEWATER FLOW AT BUILD-OUT OF THE PROPOSED GENERAL PLAN UPDATE

	Build-Out (2030) Conditions	Flow Factor	Projected Wastewater Flows (mgd)
Residential Wastewater Flow	62,933 housing units	288 gallons per equivalent dwelling unit per day	18.12 mgd
Nonresidential Wastewater Flow	955 acres[1]	1,500 gallons per acre per day	1.43 mgd
		Total	**19.55 mgd**

Source: EIP, 2006

Note: [1] Nonresidential acreage was calculated using the total nonresidential square footage projected at build-out of the proposed General Plan Update as identified in Table 3.0-1 in Section 3.0 of this DEIR (41,604,485 square feet/43,560 square feet in an acre).

The existing capacity of the WPCP is not adequate to accommodate the anticipated wastewater flows of 19.55 mgd at build-out of the proposed General Plan Update. The City is currently constructing a treatment capacity expansion for the WPCP which will increase capacity to 12 mgd in 2010, and an additional upgrade to 15 mgd by 2017 is proposed. However, additional treatment capacity would be needed in order to accommodate build-out flows.

In addition, increased wastewater flows would exacerbate existing deficiencies in the wastewater collection and conveyance system, which could result in inadequate wastewater conveyance. The costs to correct existing deficiencies would be fully funded from monthly service charges. With the exception of the Northwest Trunk Sewer, all other build-out improvements would be fully funded by sewer connection fees or constructed as part of land development. In addition, wastewater conveyance infrastructure would need to be expanded to areas not currently served by the city's sanitary sewer system. The timing and specific location of these improvements is not yet known. The City has developed a Public Facilities Assessment (PFA) associated with development under the proposed General Plan Update that identifies public facility and infrastructure needs and how they might be financed, including wastewater facilities.

The site-specific environmental impacts associated with the wastewater infrastructure improvements needed to serve new development would be determined through project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known. **Table 4.12.5-5** identifies types of potential project-specific environmental impacts from further plant expansion of the WPCP and the improvement and/or extension of wastewater conveyance infrastructure. However, the potential programmatic environmental impacts that could be associated with expansion of these facilities have been identified and disclosed in this Draft EIR as part of overall development of the Planning Area.

TABLE 4.12.5-5
TYPES OF POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH NEW WASTEWATER TREATMENT AND SUPPLY INFRASTRUCTURE

Types of Potentially Affected Resources	Related and Potential Impacts
Geology and Soils	Increase in erosion and sedimentation from construction activities; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.
Wetlands	Changes in the amount or functions and values of various types of wetlands from the construction of new facilities.
Biological Resources including Special-status Species	Disturbance to rare plants and their habitat and other types of vegetation from construction activities.
Wildlife Resources including Special-status Species	Changes in the amount and quality of affected wildlife habitat from construction activities.
Visual Resources	Short-term direct visual impacts associated with construction activities (trunk sewers). Addition of new project facilities could affect the visual environment. New pipelines and pumping stations near or in residential areas or highly visited areas would cause negative impacts. Adverse visual impacts during the construction and operation of new or expanded wastewater infrastructure.
Agriculture	Permanent direct loss of agricultural productivity (trunk sewer construction, operation and percolation ponds) and potential indirect conversion of agricultural land by expansion of urban services through agricultural lands within the Planning Area (sewer mains). Some irrigated land or grazing land could be taken out of production where project conveyance facilities need to be located to accommodate growth.
Cultural Resources	Historic, prehistoric, and ethnographic resources could be affected by the construction and maintenance of new facilities.
Public Utilities	The routing and sitting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.
Air Quality and Noise	Air quality emissions (direct) of oxides of nitrogen (NOx) during construction (trunk and sewer mains, wastewater treatment capacity expansion). Traffic and loud noises could occur during the construction phase of new projects. Short-term increases in noise during construction (trunk and sewer mains) as well as operational noise from new or expanded lift stations would likely impact nearby residents and recreationists. Adverse odor impacts during the construction and operation of new or expanded wastewater infrastructure.
Transportation	Local roads would experience traffic increases during construction. Property access would be temporarily disrupted during trunk sewer construction.

Types of Potentially Affected Resources	Related and Potential Impacts
Public Health and Safety	Construction activities could create some safety hazards. Temporary direct disruption or property access (trunk sewer construction).
Water Quality	Degradation of water quality (surface and groundwater). Any expansion of the TWWTP would require a Waste Discharge Requirement (WDR) permit from the RWQCB. This would substantially reduce the possibility of significant water quality impacts.
Growth-inducing Effects	New wastewater infrastructure would likely cause growth-inducing impacts.

As discussed above, the existing WPCP and the city's wastewater conveyance infrastructure would not be adequate to accommodate wastewater service demands resulting from the proposed General Plan Update. However, implementation of proposed General Plan update policies and actions direct future WPCP expansions to provide adequate capacity to serve new development. Specifically, Policy PPFS-4.1 requires the city to improve and expand the sanitary sewer system as necessary to accommodate the needs of existing and future development. In addition, Action PPFS-4.3.1 seeks to implement an inflow and infiltration program in order to identify sources of excessive wet weather infiltration and repair the problem. Furthermore, the proposed General Plan Update policies and actions include monitoring and conservation requirements that would serve to reduce demands placed on the sewer system capacity and ensure that capacity would not be exceeded. Therefore, implementation of the proposed General Plan Update policies and associated actions would ensure that adequate wastewater services would be available, thus reducing wastewater service impacts to less than significant. Furthermore, new or expanded wastewater conveyance and treatment facilities needed to serve new development would undergo site-specific, project-level CEQA analysis at such time as they are proposed for development and their design and alignment are known. Therefore, impacts associated with wastewater conveyance and treatment facilities would be considered **less than significant**.

4.12.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

As wastewater services are provided by the city, the cumulative setting for wastewater services includes the full build-out of the Planning Area, which is expected to occur in 2030. Growth associated with the proposed General Plan Update is projected to occur in the city, the SOI, and the five SPAs included in the proposed General Plan Update. The reader is referred to Section 4.0 regarding the cumulative setting and build-out under the proposed General Plan Update.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Wastewater Service Impacts (Standards of Significance 2 and 3)

Impact 4.12.5.3 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would contribute to the

cumulative demand for wastewater service. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure adequate wastewater facilities are provided. This impact is considered to be a **less than cumulatively considerable** impact.

As identified under the Existing Setting subsection, additional wastewater treatment and infrastructure capacity improvements would be needed to serve future development. Build-out of the proposed General Plan Update would further increase the need for upgraded and expanded wastewater infrastructure to adequately serve the anticipated population and associated nonresidential development anticipated by 2030. Impacts associated with build-out of the proposed General Plan Update are discussed under Impact 4.12.5.2 above and were identified as less than significant. Since the cumulative setting is concurrent with the city's Planning Area, no cumulative impacts would be expected beyond those previously identified.

As described under Impact 4.12.5.2 above, proposed General Plan Update policies require that wastewater conveyance and treatment capacity and infrastructure be available in time to meet the demand created by new development. Proposed policies also require monitoring and conservation that would serve to reduce demands placed on the sewer system capacity and ensure that capacity would not be exceeded. Therefore, the proposed General Plan Update would not contribute to cumulative wastewater infrastructure impacts, and this impact is considered **less than cumulatively considerable**.

4.12.6 SOLID WASTE

4.12.6.1 EXISTING CONDITIONS

Solid Waste Services

Solid waste services for the City of Chico are provided by North Valley Waste Management and Norcal Waste Systems.

Norcal Waste Systems of Butte County

Norcal Waste Systems of Butte County (Norcal) provides residential and commercial recycling and garbage collection, debris box service, and compactor service for residents and businesses in the cities of Chico, Colusa, Oroville, and Williams, as well as in unincorporated areas of Butte County (including Durham, Dayton, Magalia, and Sterling City) and Colusa County (including Arbuckle, Maxwell, and Princeton). In addition, Norcal operates a materials recovery facility, a transfer station, a household hazardous waste facility, a scrap metal public drop-off center, and a recycling buyback center, and offers green waste, recycling, construction, and demolition service (Norcal, 2009).

North Valley Waste Management

North Valley Waste Management (NVWM) provides refuse and recycling collection services to the cities of Chico, Anderson, Biggs, Corning, Grass Valley, Gridley, Nevada City, Orland, Shasta Lake, and Willows and to unincorporated areas of Butte, Glenn, Nevada, and Shasta counties. NVWM offers residential garbage, recycling, and green waste pickup in the City of Chico (NVWM, 2009).

Solid Waste Disposal

The City of Chico disposed of a total of 94,758 tons of waste in landfills in 2007. Approximately 47 percent, or 44,511 tons, of that waste was household (residential) waste. Household waste disposal rates have remained consistent since 1999, fluctuating between an average 2.75 to 3.25 pounds per resident per day. The average resident daily disposal rate in the city is 3 pounds of solid waste per resident per day (EIP, 2006). Total business waste disposal for the City of Chico was 50,194 tons in 2004. Business waste has also remained consistent since 1999, fluctuating between an average 5.5 to 7 pounds per $100 of taxable sales.

Solid Waste Facilities

The majority of solid waste generated in the City of Chico is disposed of at the Neal Road Sanitary Landfill, which is owned by Butte County and operated by the Butte County Public Works Department. According to the California Department of Resources Recycling and Recovery (CalRecycle), solid waste from the City of Chico was disposed of at 9 additional landfills in 2008 (CalRecycle, 2010). **Table 4.12.6-1** below shows the location for landfills utilized by the city in 2008, along with their permitted, remaining capacities and maximum permitted daily disposal.

TABLE 4.12.6-1
LANDFILLS UTILIZED FOR CITY OF CHICO SOLID WASTE IN 2008[1]

Disposal Site	Location	Total Permitted Capacity (in cubic yards)	Total Remaining Capacity (in cubic yards)	Total Remaining Capacity (percentage)	Maximum Permitted Daily Disposal (in tons)
Altamont Landfill and Resource Recovery	10840 Altamont Pass Road, Livermore	62,000,000	45,720,000	73.7%	11,500
Anderson Landfill, Inc.	18703 Cambridge Road, Anderson	16,840,000	11,914,025	70.7%	1,850
Bakersfield Metropolitan (Bena) SLF	2951 Neumarkel Road, Caliente	53,000,000	44,818,958	84.6%	4,500
Forward Landfill, Inc.	9999 S. Austin Road, Manteca	51,040,000	23,700,000	46.4%	8,668
Hay Road Landfill, Inc. (B + J Landfill)	6426 Hay Road; 1/4 mile W Hwy 113, Vacaville	28,240,000	21,814,578	77.2%	2,400
Kettleman Hills - B18 Nonhaz Codisposal	35251 Old Skyline Road, Kettleman City	Information Not Available	Information Not Available	Information Not Available	Information Not Available
Neal Road Landfill	1023 Neal Road, 1 Mile East Of Hwy 99, Chico	25,271,900	21,716,471	85.9%	1,500
North County Landfill	17900 East Harney Lane, Victor	17,300,000	17,600,000	101.7%	825

Disposal Site	Location	Total Permitted Capacity (in cubic yards)	Total Remaining Capacity (in cubic yards)	Total Remaining Capacity (percentage)	Maximum Permitted Daily Disposal (in tons)
Recology (Norcal) Ostrom Road LF Inc.	5900 Ostrom Road, Wheatland	41,822,300	40,600,000	97.1%	3,000
Sacramento County Landfill (Kiefer)	12701 Kiefer Blvd, Sloughhouse	117,400,000	112,900,000	96.2%	Information Not Available

Source: CalRecycle, 2010

Notes: [1] Capacity data is from 2000, which is the most recent year for which data is available.

Neal Road Sanitary Landfill

Solid waste generated in the city is disposed of primarily at the Neal Road Sanitary Landfill, which is located at 1023 Neal Road in unincorporated Butte County, approximately 7 miles southeast of Chico. The facility is located on 190 acres, 140 of which are used for solid waste disposal. Agriculture and open space land surrounds the landfill. The Neal Road Landfill is permitted to accept municipal solid waste, inert industrial waste, demolition materials, special wastes containing non-friable asbestos, and seepage (DC&E, 2007).

As shown in **Table 4.12.6-1** above, the Neal Road Landfill is permitted to accept a maximum of 1,500 tons of waste per day, although peak usage rarely exceeds 1,200 tons. The average daily tonnage accepted is approximately 500 tons. The landfill accepted 183,706 tons of waste in 2006. Of that waste, 166,610 tons were buried and 17,096 tons were recycled on site (EIP, 2006).

As of the year 2000, the total estimated permitted capacity of the landfill was 25,271,900 cubic yards, 14.1 percent of which was utilized. Therefore, in 2000, the landfill had 21,716,471 cubic yards of capacity remaining. The Neal Road Landfill was expanded in 2002 to accommodate the growing population and increasing solid waste disposal. Therefore, the remaining capacity of approximately 22 million cubic yards was still accurate as of 2007 (DC&E, 2007). The landfill is expected to operate until 2033 accommodating a 2.5 percent to 3.5 percent annual increase in waste due to anticipated growth in Chico and Butte County. No further expansions of the landfill are planned (EIP, 2006).

Recycling Facilities

Transfer Stations

Private collection firms operate three transfer stations in Butte County: the Ord Ranch Transfer Station, the Oroville Transfer Station, and the North Valley Disposal Transfer Station. These transfer stations are discussed below.

Ord Ranch Transfer Station

The Ord Ranch Transfer Station is leased by the City of Gridley from Butte County and operated by North Valley Waste Management. The transfer station is situated on 1 acre and is permitted to transfer up to 64 tons per day, operating only on weekends. All materials collected at the transfer station are hauled to Neal Road Landfill for disposal (DC&E, 2007).

Oroville Transfer Station

The Oroville Transfer Station, owned and operated by Norcal Waste Systems, Inc., is permitted to process 195 tons per day of refuse from residents and businesses in Oroville and communities in the Central Valley. It is an indoor facility, situated on 13 acres, and equipped with a stationary compactor; it also includes a materials recovery facility and a household hazardous waste management facility (DC&E, 2007).

North Valley Disposal Transfer Station

The North Valley Disposal Transfer Station is owned and operated by North Valley Waste Management and is located at 2569 Scott Avenue in Chico. The transfer station is permitted to process 20 tons of refuse per day and has a total permitted capacity of 107 tons (CalRecycle, 2009).

Composting Facilities

The City of Chico Greenwaste Composting Facility is a 24-acre composting operation located at 4441 Cohasset Road. The facility accepts lawn clippings, prunings, leaves, and non-painted scrap wood. The facility has a maximum permitted capacity of 7,500 cubic yards per year and a maximum permitted throughput of 725 cubic yards per day. The cost to drop off yard waste starts at $5.00 per compact pickup load and varies depending on vehicle and load size. Finished compost is also available for sale at the facility (City of Chico, 2009).

The Earthworm Soil Factory is a privately owned company that operates a 2-acre facility at 704 Neal Road. The facility uses earthworms to compost green waste. The green waste is ground, composted, and then used as feedstock for over 2,500,000 earthworms. The permitted capacity of the facility is 5,000 cubic yards per year and the maximum permitted throughput is 800 cubic yards per day. Chico landscape contractors are allowed to dispose of green waste at the facility at no charge.

Household Hazardous Waste

Hazardous materials used in many household products (e.g., drain cleaners, waste oil, cleaning fluids, insecticides, and car batteries) are often improperly disposed of as part of normal household trash. These hazardous materials have the potential to interact with other chemicals and create risks to people. Improperly disposed of household waste can also result in soil and groundwater contamination.

The California Department of Health Services (CCR Title 22) and the City of Chico define household hazardous waste as any substance that is characteristic of one of the following:

- Ignitability – flammable (e.g., lighter fluid, spot and paint removers)
- Corrosivity – eats away materials and can destroy human and animal tissue by chemical action (e.g., oven and toilet bowl cleaners)
- Reactivity – creates an explosion or produces deadly vapors (e.g. bleach mixed with ammonia-based cleaners)

- Toxicity – capable of producing injury, illness, or damage to human, domestic livestock, or wildlife through ingestion, inhalation, or absorption through any body surface (e.g., rat poison, cleaning fluids, pesticides, bleach)

Such products include toxic pesticides, caustic drain openers, ignitable paint thinners, and other reactive or explosive materials (EIP, 2006).

Butte Regional Household Hazardous Waste Collection Facility

Through a cooperative agreement between the City of Chico and the County of Butte, all Butte County residents are able to recycle and properly dispose of household hazardous waste at the Butte Regional Household Hazardous Waste Collection Facility located at the Chico Airport Industrial Park at 1101 Marauder Street. The facility also serves the communities of Biggs, Gridley, Oroville, and Paradise.

Disposal and Diversion Rates

CalRecycle tracks disposal and diversion rates for all California jurisdictions, including the City of Chico. AB 939 (discussed under Regulatory Framework below) requires cities and counties to divert 50 percent of their waste stream from landfill disposal through source reduction, recycling, composting, and transformation programs. **Table 4.12.6-2** shows waste diversion data from the CALRECYCLE for the City of Chico. As shown, the City of Chico has consistently diverted over 50 percent of its waste stream since 2001.

TABLE 4.12.6-2
CITY OF CHICO DIVERSION RATES

Year	Percentage of Waste Diverted
1996	42%
1997	41%
1998	49%
2000	48%
2001	54%
2002	52%
2003	55%
2004	57%
2005	53%
2006	58%

Source: CalRecycle, 2009

Funding

Solid waste collection and disposal is funded through monthly service fees paid by users of these services. Funding options support disposal sites, diversion activities, public education programs, hazardous waste collection, and transportation programs, along with other requirements of state and federal laws. Funding for the city's solid waste management services comes from the city's General Fund. Other fees are provided by a surcharge on residential collection bills for recycling programs, tipping fees for construction and debris at Neal Road Landfill, the sale of recyclables, waste hauler franchise fees, special programs (recycling and hazardous materials), and grants (EIP, 2006).

4.12.6.2 REGULATORY FRAMEWORK

FEDERAL

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA), an amendment to the Solid Waste Disposal Act of 1965, was enacted in 1976 to address the huge volumes of municipal and industrial solid waste generated nationwide. The RCRA gives the United States Environmental Protection Agency (USEPA) the authority to control hazardous waste from "cradle to grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also sets forth a framework for the management of nonhazardous solid wastes. The Federal Hazardous and Solid Waste Amendments (HWSA) are the 1984 amendments to the RCRA that focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased enforcement authority for the USEPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program. Amendments to the RCRA in 1986 enabled the USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances (USEPA, 2009).

STATE

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (Public Resources Code, Section 42900-42927) requires all California cities and counties to reduce the volume of waste deposited in landfills by 50 percent by the year 2000 and continue to remain at 50 percent or higher for each subsequent year. The purpose of this Act is to "reduce, recycle, and re-use solid waste generated in the State to the maximum extent feasible."

- The California Integrated Waste Management Act requires each California city and county to prepare, adopt, and submit to the California Department of Resources Recycling and Recovery (CalRecycle) a source reduction and recycling element (SRRE) that demonstrates how the jurisdiction will meet the Integrated Waste Management Act's mandated diversion goals. Each jurisdiction's SRRE must include specific components, as defined in Public Resources Code (PRC) Sections 41003 and 41303. In addition, the SRRE must include a program for management of solid waste generated in the jurisdiction that is consistent with the following hierarchy: (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal. Included in this hierarchy is the requirement to emphasize and maximize the use of all feasible source reduction, recycling, and composting options in order to reduce the amount of solid waste that must be disposed of by transformation and land disposal (PRC Sections 40051, 41002, and 41302) (CalRecycle, 2009).

In compliance with requirements set forth in the Public Resources Code Section 42900-42927, the City of Chico has developed a Source Reduction and Recycling Element (SRRE) and a Household Hazardous Waste Element (HHWE). In combination, the SRRE and the HHWE comprise the city's Integrated Waste Management Plan.

REGIONAL

Butte County, Solid Waste Division

The Solid Waste Division is responsible for operating the Neal Road Sanitary Landfill, regulating local waste collectors, providing safe disposal opportunities for household hazardous waste and universal Waste, enforcing laws against illegal dumping, administering grant programs, coordinating solid waste and recycling education programs, and implementing programs that divert waste from landfills. The Solid Waste Division coordinates these activities with the cities in Butte County, as well as with other public agencies such as the Regional Water Quality Control Board, the Department of Toxic Substances Control, and the California Integrated Waste Management Board (Butte County, 2009).

LOCAL

City of Chico Municipal Code

Chapters 8.04 through 8.14 of the City of Chico Municipal Code set forth the city's solid waste provisions, including restrictions on disposing of any garbage, rubbish, or waste matter in the city other than at a disposal site established by the City Council or designated by the City Manager, prohibitions on solid waste collectors disposing of recyclable materials, and restrictions on accumulation of solid waste on residential properties.

4.12.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G. A solid waste impact is considered significant if implementation of the proposed General Plan Update would:

1) Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.

2) Fail to comply with federal, state, and local statutes and regulations related to solid waste.

Hazardous waste sites and disposal issues, including potential impacts resulting from the proposed General Plan Update, within the Planning Area are discussed in Section 4.4, Human Health/Risk of Upset, of this Draft EIR.

METHODOLOGY

Evaluation of potential solid waste service impacts was based primarily on information from the California Integrated Waste Management Board. A detailed list of reference material used can be found at this end of this section. The capacity of landfills and other solid waste facilities was evaluated, as well as compared to the proposed General Plan Update's specific solid waste service-related impacts. The impact analysis focuses on whether or not impacts would have a significant impact on the physical environment.

The following proposed General Plan Update policies and actions address solid waste service:

Policy SUS-3.3 *(Municipal Waste Reduction) – Reduce consumption and increase recycling and reuse of materials in City operations.*

Action SUS-3.3.1 *(Municipal Recycling) – Promote the use of recycling bins at municipal facilities, and as necessary, Increase the size and number of recycling bins as well as the range of materials accepted.*

Policy PPFS-8.1 *(Waste Recycling) – Provide solid waste collection services that meet or exceed state requirements for source reduction, diversion, and recycling.*

Action PPFS-8.1.1 *(Green Waste) – Encourage recycling, composting, and organic waste diversion within the City and continue providing green waste recycling services, seasonal leaf collection and street sweeping services.*

Action PPFS-8.1.2 *(Reduce Municipal Waste) – Establish the City as a role model for businesses and industrial operations through programs designed to encourage recycling, waste diversion and source reduction.*

Action PPFS-8.1.3 *(Recycled and Recyclable Products) – Pursue City procurement that emphasizes the use of recycled and recyclable products.*

Action PPFS-8.1.4 *(Locations for Waste Management) – Consult with Butte County and solid waste collectors to provide safe and convenient locations for the disposal and recycling of household hazardous wastes, electronics construction wastes and other special wastes.*

Action PPFS-8.1.5 *(Recyclable Construction Materials) – Use the Green Building Checklist to encourage the use of recyclable materials in new construction.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address solid waste services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Solid Waste Disposal (Standard of Significance 1)

Impact 4.12.6.1 Implementation of the proposed General Plan Update would generate increased amounts of solid waste that would need to be disposed of in landfills or recycled. This would be a **less than significant** impact.

Implementation of the proposed General Plan Update is expected to accommodate a 2 percent annual growth rate in the city, the SOI, and the five SPAs included in the proposed General Plan Update. By 2030, this would represent an increase of 21,495 housing units and 51,588 persons from baseline (2008) conditions, with a total build-out population of 151,039. This increased development would generate additional solid waste, which would require collection and disposal in landfills.

At build-out of the proposed General Plan Update, solid waste collection services would continue to be provided by North Valley Waste Management and Norcal Waste Systems. Increased solid waste collection and recycling services are funded via residential service fees, tipping fees, and waste hauler franchise fees (EIP, 2006).

The solid waste generated as a result of the proposed General Plan Update is expected to continue to be sent to the Neal Road Landfill. Based on the city's daily disposal rate of 3 pounds of solid waste per resident per day, total solid waste generated at build-out of the General Plan Update would be approximately 453,117 pounds per day, or 226.6 tons per day. Business waste would add to disposal rates. In 2007, business waste represented 53 percent of the city's total waste disposal. Using a similar estimate, business waste at build-out of the proposed General Plan Update would be approximately 510,962 pounds per day, or 255.5 tons per day. Assuming no waste diversion, total waste generated at build-out of the proposed General Plan Update would be approximately 482.1 tons per day and would not exceed the landfill's maximum permitted disposal of 1,500 tons per day. In addition, the Neal Road Landfill is expected to have capacity to operate until 2033, accommodating a 2.5 percent to 3.5 percent annual increase in waste due to anticipated growth in Chico and Butte County. The projected increase in solid waste generated from the proposed General Plan Update (482.1 tons per day) from total solid waste disposed of in 2007 (259.6 tons per day) is equivalent to an average annual waste increase of 3.2 percent over a 26-year period, when it is estimated that the Neal Road Landfill will reach capacity (2007 through 2033). Therefore, the Neal Road Landfill would be able to accommodate waste generated at build-out of the proposed General Plan Update. Furthermore, other regional landfills have available capacity, as shown in **Table 4.12.6-1** above. At build-out of the proposed General Plan Update, solid waste generated in the city could be sent to these facilities as well.

The General Plan Update includes policies and associated actions that would reduce the generation of solid waste in the city, which would further contribute to sustained capacity available at the Neal Road Landfill and other regional landfills. Particularly, the General Plan encourages recycling, waste diversion and source reduction in City operations (Policy SUS-3.3), as well as the procurement of recycled and recyclable products for the city (Action PPFS-8.1.3). The General Plan also requires that the city ensure solid waste collection services that meet or exceed state requirements for source reduction, diversion, and recycling (Policy PPFS-8.1).

Implementation of the proposed General Plan Update would also result in increased trips to the landfills to dispose of the waste, which would result in additional air quality and traffic impacts. Traffic, air quality, and noise effects of the proposed General Plan Update are programmatically addressed by the impact analyses in the appropriate technical sections of this Draft EIR.

As identified above, adequate landfill capacity is available to meet the needs of the City of Chico beyond 2030 at the Neal Road Landfill and at other regional landfills. Implementation of the proposed General Plan Update policies and associated actions shown above would further assist in solid waste reduction measures. This impact would therefore be considered **less than significant**.

Compliance with Solid Waste Regulations (Standard of Significance 2)

Impact 4.12.6.2 Implementation of the proposed General Plan Update would not be expected to result in conflicts with any federal, state, or local solid waste regulations. This impact would be considered **less than significant**.

As discussed above, the City of Chico has developed a Source Reduction and Recycling Element and a Household Hazardous Waste Element as part of their Integrated Waste Management Plan consistent with Public Resources Code, Section 42900-42927. In addition, the City of Chico has reliably diverted over 50 percent of its waste stream since 2001. Implementation of the proposed General Plan Update includes policies that would continue current recycling and waste reduction efforts (discussed under Impact 4.12.6.1 above). Therefore, implementation of the proposed General Plan Update would not be expected to conflict with Public Resources Code, Section 42900-42927and current compliance with waste diversion rates, and the city's Integrated Waste Management Plan would be expected to continue. Impacts would be considered **less than significant**.

4.12.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for solid waste includes Butte County and the surrounding region. The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development in these areas. **Table 4.0-4** in Section 4.0 of this Draft EIR contains a list of regional development projects that would be included in the cumulative setting. Future development associated with the proposed General Plan Update, as well as in the surrounding region, would result in an incremental cumulative demand for solid waste collection and disposal in regional landfills.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Solid Waste Impacts (Standards of Significance 1 and 2)

Impact 4.12.6.3 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development in the region, would result in increased demand for solid waste services. This impact is **less than cumulatively considerable**.

Implementation of the proposed General Plan Update, in combination with other existing, approved, proposed, or reasonably foreseeable development, may significantly increase the amount of residential, commercial, and industrial development in the region. This growth would result in increased generation of solid waste that would need to be processed at the Neal Road Landfill. The landfill has capacity to accept waste from the entirety of its service area, including the City of Chico, until 2033. In addition, other regional landfills would be available to accept cumulative solid waste as shown in **Table 4.12.6-1** above.

Implementation of General Plan policies and actions as discussed under Impact 4.12.6.1 above would reduce the proposed General Plan Update's contribution to cumulative solid waste generation. Subsequent development in other areas of the region would also be subject to waste reduction programs consistent with Public Resources Code, Section 42900-42927. In addition, adequate landfill capacity would be available under cumulative conditions to meet the needs of the City of Chico and surrounding region through 2030. Therefore, the proposed General Plan Update would not contribute significantly to cumulative solid waste impacts, and this impact is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.12.7 ELECTRICAL, NATURAL GAS, AND TELECOMMUNICATIONS SERVICES

4.12.7.1 EXISTING CONDITIONS

Electrical and Natural Gas Services

Electric and natural gas service in Butte County, including the Planning Area, is provided by Pacific Gas and Electric (PG&E). PG&E provides natural gas and electric service to approximately 15 million people throughout a 70,000 square mile service area in northern and central California (PG&E, 2009).

Electric Services

Electricity purchased from PG&E by local customers in Butte County is generated and transmitted to the county by a statewide network of power plants and transmission lines. Various transmission and distribution lines traverse Butte County, serving to carry electrical power from power plants within and outside the county to electrical substations where power is converted to voltages suitable for distribution to end users. Butte County has control over the siting of electrical substations (DC&E, 2007).

Table 4.12.7-1 below shows electricity consumption by land use for PG&E's service area from 1996 to 2007 expressed in millions of kilowatt-hours (kWh). Butte County's electricity consumption in 2007 is shown in **Table 4.12.7-2** below.

TABLE 4.12.7-1
ELECTRICITY CONSUMPTION FOR PG&E'S SERVICE AREA (IN MILLIONS OF KWH) 1996–2007

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Streetlight	Total Usage
1996	5,723	29,466	5,104	20,486	2,629	28,120	542	92,069
1997	5,975	31,203	4,897	21,750	2,716	28,599	559	95,699
1998	5,000	31,156	4,841	21,117	2,563	29,596	572	94,845
1999	6,005	33,176	5,165	20,572	2,585	30,521	509	98,534
2000	6,004	34,503	5,279	20,748	2,599	31,646	552	101,331
2001	6,350	33,329	4,857	18,893	2,397	29,657	509	95,993
2002	6,439	34,220	4,944	18,143	2,283	30,537	503	97,070
2003	6,324	35,243	4,682	17,954	2,477	31,976	516	99,171
2004	6,778	35,741	4,987	18,352	2,642	32,708	532	101,740
2005	5,402	35,819	5,113	18,619	2,863	33,106	537	101,460

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Streetlight	Total Usage
2006	6,010	36,943	5,407	18,561	2,912	34,345	542	104,719
2007	7,864	37,731	5,851	18,317	3,068	34,608	549	107,987

Source: ECDMS, 2009

TABLE 4.12.7-2
2007 BUTTE COUNTY ELECTRICITY CONSUMPTION

Sector	2007 Consumption (in millions of kWh)
Residential	716
Nonresidential	753
Total	1,469

Source: ECDMS, 2009

Natural Gas Service

Much of PG&E's natural gas supply comes from Canada and is supplied to the region through the Hershey station in Colusa County. Wild Goose Storage Inc. operates an underground natural gas storage facility in Butte County. A 25-mile pipeline carries gas between the main PG&E pipeline in Colusa County and the Wild Goose facility, which stores natural gas in an underground rock formation that previously produced natural gas. Compressors are used to inject gas into the reservoir, where it is stored until subsequently withdrawn and delivered to customers over the PG&E natural gas transmission and distribution system (DC&E, 2007).

Table 4.12.7-3 below shows natural gas consumption by land use for PG&E's service area from 1996 to 2006 expressed in millions of therms. As shown, total usage began declining in 2000 and in 2007 was down 422 million therms from 1996 levels. Butte County's natural gas consumption in 2007 is shown in **Table 4.12.7-4** below.

TABLE 4.12.7-3
NATURAL GAS CONSUMPTION FOR PG&E'S SERVICE AREA (IN MILLIONS OF THERMS) 1996–2007

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Total Usage
1996	55	706	81	2,081	44	1,982	4,950
1997	64	723	67	2,014	163	1,978	5,010
1998	70	789	67	1,914	319	2,283	5,442
1999	71	831	64	1,837	236	2,422	5,461
2000	79	797	55	1,909	288	2,164	5,291
2001	50	642	67	1,770	296	2,029	4,853
2002	59	819	35	1,547	272	2,086	4,818

Year	Ag & Water Pump	Commercial Building	Commercial Other	Industry	Mining & Construction	Residential	Total Usage
2003	85	887	49	1,471	268	2,051	4,810
2004	65	812	68	1,538	304	2,024	4,811
2005	41	779	79	1,560	329	1,935	4,724
2006	48	923	104	1,517	286	2,021	4,899
2007	46	859	50	1,513	37	2,023	4,528

Source: ECDMS, 2009

TABLE 4.12.7-4
2007 BUTTE COUNTY NATURAL GAS CONSUMPTION

Sector	2007 Consumption (in millions of therms)
Residential	28.471845
Non-residential	16.854974
Total	45.326819

Source: ECDMS, 2009

In parts of Butte County not served by PG&E's gas distribution network, including many of the county's rural areas, residents and businesses make use of liquid propane gas or other tanked or bottled gas for heating and cooking.

Telecommunications Services

There are several purveyors providing telecommunications services such as telephone service, cable television, and Internet services in the Planning Area. Telephone and Internet service providers include Verizon Wireless, Cingular, Sprint, AT&T, Metro PCS, Pacific Bell, 2B Telecom, Norcal Wireless, and Comcast. Comcast provides cable television services in the Planning Area, while DISH Network and DirecTV provide satellite television services. Cable fibers and underground and aerial telephone transmission lines are generally collocated and installed concurrently with other utility infrastructure.

4.12.7.2 REGULATORY FRAMEWORK

STATE

California Public Utilities Commission

The California Public Utilities Commission (CPUC) is the state agency that regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. The CPUC grants operating authority, regulates service standards, sets rates, and monitors utility operations for safety, environmental stewardship, and public interest (CPUC, 2007).

Traditionally, general rate cases have been the major form of regulatory proceeding for the CPUC. General rate case applications may be filed every three years and take about a year to

complete. The utility bases its revenue request on its estimated operating costs and revenue needs for a particular future year. Customer rates will be based on the CPUC's determination of how much revenue the utility reasonably requires to operate (CPUC, 2007).

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Energy Commission adopted the 2008 standards on April 23, 2008, and the Building Standards Commission approved them for publication on September 11, 2008. The new standards went in to effect on July 1, 2009 (CEC, 2009).

4.12.7.3 IMPACTS AND MITIGATION MEASURES

STANDARD OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G. A utilities impact is considered significant if implementation of the project would:

- Result in the need for new systems or supplies or a substantial expansion or alteration to electricity, natural gas, or telecommunication systems that result in a physical impact on the environment.

Detailed energy use, including energy demands associated with the proposed General Plan Update, is addressed in Section 4.14, Energy and Climate Change.

METHODOLOGY

Evaluation of potential electricity, natural gas, or telecommunication impacts was based on information from the California Energy Commission and the California Public Utilities Commissions. A detailed list of reference material used can be found at this end of this section. This material was compared to the proposed General Plan Update's specific electricity, natural gas, or telecommunication impacts. The impact analysis below focuses on whether or not the physical environment would be significantly affected.

The following proposed General Plan Update policies and actions address electricity, natural gas, or telecommunication services:

Policy SUS-4.1 *(Green Public Buildings) – Incorporate green building techniques in the site design, construction, and renovation of public projects.*

Action SUS-4.1.1 *(Green Facilities) – Construct new municipal facilities greater than 5,000 square feet in size to at least the baseline certification level of Leadership in Energy and Environmental Design (LEED), or its equivalent.*

Policy SUS-5.1 *(Energy Efficient Retrofits) – Encourage energy efficient retrofit improvements in existing buildings.*

Policy SUS-5.2 *(Energy Efficient Design) – Support the inclusion of energy efficient design and renewable energy technologies in public and private projects.*

Action SUS-5.2.1 *(Integration of Energy Efficiency Technology) – Suggest the integration of energy efficiency measures and renewable energy devices, in addition to those required by the state, during early project review.*

Action SUS-5.2.3 *(Passive Solar) – Incorporate passive solar design principles (e.g., building materials, high-albedo roofs, eaves, window placement, and building orientation) into the City's Design Guideline Manual.*

Action SUS-5.2.4 *(Remove Barriers to Renewable Energy) – Revise the Municipal Code to allow deviations from normal requirements such as height limits, setbacks, or screening when doing so is necessary to allow the efficient use of renewable energy devices.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address utility services.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Electrical, Natural Gas, and Telecommunications Services

Impact 4.12.7.1 Implementation of the proposed General Plan Update would increased demand for electrical, natural gas, and telecommunications services, including associated infrastructure that could result in a physical impact on the environment. This is considered to be a **less than significant** impact.

Implementation of the proposed General Plan Update is expected to accommodate a 2 percent annual growth rate in the city, the SOI, and the five SPAs included in the proposed General Plan Update. By 2030, this would represent an increase of 21,495 housing units and 51,588 persons from baseline (2008) conditions, with a total build-out population of 151,039. This increase in population and housing units, as well as nonresidential growth associated with the proposed General Plan Update, would increase demand for electrical, natural gas, and telecommunications services and associated infrastructure.

PG&E currently provides electrical and natural gas services to the City of Chico and would continue to provide these services to future development resulting from implementation of the proposed General Plan Update. PG&E is required by the California Public Utilities Commission to update the existing systems to meet any additional demand. PG&E builds new infrastructure on an as-needed basis. All electrical and natural gas distribution lines, substations, transmission lines, delivery facilities, and easements required to serve build-out of the proposed General Plan Update would be subject to CEQA review. However, it is expected that much of the distribution infrastructure would be collocated with other utilities underground within roadway right-of-way and would minimize the extent of environmental effects. Potential environmental effects of obtaining more power through the development of power plants include, but are not limited to, air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil

resources, and health hazards. Potential environmental effects for the construction of transmission lines include, but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards.

At build-out of the proposed General Plan Update, it is expected that telecommunications services would continue to be provided by various market-driven purveyors. Infrastructure for telephone and cable service is typically installed at the point of initial development and in accordance with service demand. Most underground and aerial telecommunications transmission lines are collocated with other utilities on poles or underground trenches and are constructed in public and roadway rights-of-way to reduce visual and aesthetic impacts and potential safety hazards. This infrastructure is installed underground within new development in order to reduce visual and aesthetic impacts and any potential safety hazards. The environmental review of providing telecommunications services is typically handled on a case-by-case basis in conjunction with individual development projects. The potential environmental effects of increased telecommunications infrastructure would be similar to the effects of increased electrical and natural gas infrastructure as described above.

While the environmental effects of necessary infrastructure to serve development accommodated by the proposed General Plan Update are addressed programmatically in this Draft EIR, the specific environmental impacts resulting from the provision of electrical, natural gas, and telecommunications services would be identified by project-level environmental review in conjunction with individual development projects.

Implementation of proposed General Plan Update policies and actions encourage energy efficiency in both public and private development, which would reduce demand and lessen impacts. The General Plan Update Sustainability Element supports the inclusion of energy efficient design and renewable energy technologies in public and private projects and requires that the city suggest the integration of energy efficiency measures and renewable energy devices during early project review. In addition, subsequent development would be required to comply with energy efficiency standards in Title 24 of the California Code of Regulations intended to minimize impacts to peak energy usage periods and to reduce impacts on overall state energy needs (see Section 4.14, Energy and Climate Change, for analysis of energy use impacts).

As previously mentioned, infrastructure for electrical, natural gas, and telecommunications services are installed at the point of initial development and in accordance with service demand. The specific environmental impacts resulting from that infrastructure would be identified by project-level environmental review in conjunction with individual development projects. Therefore, impacts would be considered **less than significant.**

4.12.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

The cumulative setting for electrical, natural gas, and telecommunications services encompasses the service areas of the each particular service provider (PG&E, Comcast, Verizon, etc.). The cumulative setting includes all existing, planned, proposed, approved, and reasonably foreseeable development in these service areas that currently places demand on these services or is expected to place demand on them in the future. **Table 4.0-4** in Section 4.0 of this DEIR contains a list of regional development projects that would be included in the cumulative setting.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Demand for Electrical, Natural Gas, and Telecommunications Services

Impact 4.12.7.2 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would contribute to the cumulative demand for electrical, natural gas, and telecommunications services and associated infrastructure that could result in a physical impact on the environment. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development in areas served by PG&E and various telecommunications purveyors would result in a cumulative increase in demand for electrical, natural gas, and telecommunications services and associated infrastructure and could result in increased infrastructure extensions to serve future development. PG&E and other providers build infrastructure on an as-needed basis. All electrical and natural gas distribution lines, substations, transmission, delivery facilities, and easements required to serve the Planning Area would be subject to CEQA review as discussed under Impact 4.12.7.1 above. It is expected that much of the distribution infrastructure would be co-located with other utilities within roadway right-of-way that would minimize the extent of environmental effects. The proposed General Plan Update's contribution to cumulative environmental impacts resulting from the construction of such facilities has been considered in the technical analyses of this Draft EIR as part of overall development of the Planning Area.

In addition, subsequent development under the proposed General Plan Update, as well as future development in the service areas of the each service provider, would be required to comply with energy efficiency standards in Title 24 of the California Code of Regulations intended to minimize impacts to peak energy usage periods and to reduce impacts on overall state energy needs. Regardless, PG&E is required by the Public Utilities Commission to update the systems to meet any additional demand. Therefore, it is assumed that PG&E will have the capacity to provide electricity and natural gas to the entirety of its service area. According to the energy consumption analysis conducted for the proposed General Plan Update (**Appendix F**), the City of Chico consumed a combined 1,431,704,000 kilowatt hours of electricity and natural gas in 2008, and it is projected to consume a combined 2,181,775,000 kilowatt hours of electricity and natural gas in 2030 with implementation of the proposed General Plan. This is an increase of 750,071,000 kilowatt hours of energy consumed over existing conditions. According to the California Energy Demand Forecast 2010-2020, the most up-to-date reference for PG&E demand forecasts, the PG&E Planning Area, which includes the city, is projected to demand 119,814,000,000 kilowatt hours of electricity by 2020. In other words, Chico's projected energy demand for 2030 would equate to approximately 1.8 percent of the 2020 projected demand of the entire PG&E Planning Area. Please refer to Section 4.14 for a discussion on the impacts of energy use.

Since future energy-related projects would be reviewed for project-level environmental impacts and the majority of this infrastructure would be collocated and constructed concurrently with other utilities within roadway rights-of-way to lessen or eliminate potential environmental effects, the proposed General Plan Update's contributions to the continued provision of electrical, natural gas, and telecommunications services and infrastructure in the cumulative setting would be considered **less than cumulatively considerable.**

4.12.8 PARKS AND RECREATION

4.12.8.1 EXISTING CONDITIONS

Park, recreation, and open space resources, facilities and services have historically been provided by both the City of Chico Park Division and the Chico Area Recreation and Park District (CARD). In the past, the city had primary responsibility for Bidwell Park and neighborhood parks and CARD had primary responsibility for recreation programming and community parks. In 2010, the City of Chico and CARD entered into a Memorandum of Understanding (MOU) of Intergovernmental Cooperation, Coordination and Understanding that streamlines the provision of parks and recreational services to the city and surrounding community through a realignment of the roles and responsibilities of each agency. Through this arrangement, the city will retain ownership and maintenance responsibility for Bidwell Park, creekside greenways, and City-owned preserves, while CARD will assume ownership and operation of the various other developed parks and recreation systems in the city (e.g., neighborhood and community parks and recreation programming).

Parks and Recreation Facilities

The City of Chico currently includes a total of 4,317 acres of park, recreation, and open space areas, including Bidwell Park**.** A list of existing parks, the responsible agency, and acreages are shown below in **Table 4.12.8-1**.

TABLE 4.12.8-1
PARK, RECREATION, AND OPEN SPACE FACILITIES

Park Name	Park Jurisdiction	Park Acreage
Neighborhood Parks		
Baroni Park	CARD	7.3
Chapman Park	CARD	3
Hancock Park	CARD	3.8
Oak Way Park	CARD	7.9
Nob Hill/Husa Ranch Park	CARD	2.9
Peterson Park	CARD	4.1
Rotary Park	CARD	0.3
Humboldt Park	City of Chico	2.8
Bidwell Park (neighborhood park allocation)	CARD	10
Neighborhood Parks Subtotal		**42.1**
Community Parks		
20th Street Community Park	CARD	40
DeGarmo Park	CARD	36
Wildwood Park (Bidwell)	City of Chico	19
Hooker Oak (Bidwell)	City of Chico	23

Park Name	Park Jurisdiction	Park Acreage
One Mile Recreation Area (Bidwell)	City of Chico	35
	Community Parks Subtotal	**153**
Specialty/Mini Recreation Areas		
City Plaza	City of Chico	1.5
Depot Park	City of Chico	1
Children's Park	City of Chico	3.7
Humboldt Neighborhood Park	City of Chico	1
BMX Freestyle Park	City of Chico	3
	Specialty/Mini Recreation Subtotal	**10.2**
Bidwell Park		
Lower Bidwell Park	City of Chico	418
Upper Bidwell Park	City of Chico	1,815
South Rim Addition	City of Chico	1,389
Former BLM Park Addition	City of Chico	37
	Bidwell Park Subtotal	**3,659**
Greenways/Open Space		
Teichert Ponds	City of Chico	32.7
Verbena Fields	City of Chico	16.4
Lindo Channel Greenway	City of Chico	150
North Chico Bike Path	City of Chico	10
Comanche Creek	City of Chico	15
Little Chico Creek	City of Chico	22.5
Mud Sycamore Creek	City of Chico	6
Bidwell Ranch	City of Chico	200 **
	Greenways/Open Space Subtotal	**453**
	Total Park, Recreation, and Open Space Areas	**4,317**

** Portions of the 750-acre Bidwell Ranch site will be available as publicly accessible open space upon completion of the Bidwell Ranch Wetland Mitigation Bank Project.
Source: City of Chico, 2010.

Bidwell Park

The 3,670-acre Bidwell Park is one of the largest municipal parks in the United States. The park is managed by the City of Chico and offers a variety of recreational opportunities that draw visitors from throughout the region. Bidwell Park stretches over 10 miles along Big Chico Creek from the Cascade foothills to the valley floor and has been divided into three zones that roughly correlate with topography and elevation: Lower Park, Middle Park, and Upper Park. The riparian corridor along Big Chico Creek traverses all the park zones.

Lower Park encompasses the area between the historic Bidwell Mansion and Manzanita Avenue, including Lost Park, Annie's Glen/Camellia Way, the One-Mile Recreation Area, and the Cedar Grove area including the Chico Creek Nature Center. Lower Park is characterized by flat terrain with a thick canopy of trees (EDAW, 2008).

The area east of Manzanita Avenue to the golf course and the ridge just east of the Horseshoe Lake area is referred to as Middle Park. Middle Park includes the Hooker Oak Recreation Area, Horseshoe Lake area, Five-Mile Recreation Area, Kiwanis Community Observatory, a horse arena, and Bidwell Municipal Golf Course. The terrain in Middle Park changes from the valley floor to rolling foothills (EDAW, 2008).

Upper Park includes the eastern portion of the park and is characterized by steep foothill terrain. Upper Park includes prime examples of many geologic formations, including the Chico Formation and Tuscan, Redbluff, and Lovejoy Basalt. Upper Park also includes Bidwell Park's popular swimming holes including Alligator Hole, Bear Hole, Salmon Hole, and Brown's Hole as well as many popular hiking trails (EDAW, 2008).

Other Parks and Recreation Facilities

Chico Unified School District (CUSD)

While school districts are not recreation providers, school playground and ball field facilities are available for public use. Current City and CARD policies promote development of new park facilities in conjunction with school recreation facilities.

California State University, Chico

California State University, Chico, located in the heart of the City of Chico just north of downtown, has a variety of recreational facilities, some of which are available for public use. Public facilities include an all-weather track, racquetball courts, acres of multipurpose grass fields, and a gym for occasional public use.

Bidwell Mansion State Park

Bidwell Mansion State Historic Park is a three-story, 26-room Victorian House Museum in memorial to John and Annie Bidwell. The entire first floor of the mansion may be seen on a regular tour, and the second and third floors may be seen on video at the Visitor Center. The museum includes a gift shop, theater, and lobby. There are also restrooms and water fountains.

Fairgrounds

The Silver Dollar Fairgrounds and Speedway located on Fair Street in the southern portion of the city feature a wide variety of racing events from March through September, highlighted by the Mini Gold Cup each March and the Gold Cup Race of Champions in September. Other events include the six-day Silver Dollar Fair held each May, antique shows, home and garden shows, industrial barbecues, business expos, craft fairs, bull riding championships, doll shows, beanie babies shows, gun shows, bridal fairs, Oktoberfests, and musical concerts. In addition, the fairgrounds currently host BMX activities provided by Silver Dollar BMX, Inc. The BMX facility is planned to be moved to an adjacent 3.56-acre property owned by the city.

Greenways and Open Space

Lindo Channel (Sandy Gulch)

The Lindo Channel consists of 150 acres of undeveloped parkland that stretches over 5.5 miles. Lindo Channel is under the jurisdiction of the city and is under consideration for use in implementation of AB 1634, which allows the City Council to consider exchanging and/or selling property involved in encroachments. Management of the Lindo Channel will also involve the completion of a master plan for the Lindo Channel (Sandy Gulch) Greenway and implementation of a vegetation management program. The final plan will dictate the need for future resources.

Greenways (Little Chico Creek, Comanche Creek)

As part of the recently approved Meriam Park development project, a 22.5-acre greenway along Little Chico Creek will be restored and a portion will be used for passive recreational activities, including community gardens, bicycle trails, walking trails, a dog park, and small playground.

The approximately 15-acre Comanche Creek greenway is owned by the city and the RDA, and a planning effort is underway to develop it as a passive park with trails, bike/pedestrian crossings, and picnic areas.

Bidwell Ranch

In May of 2005, the City Council designated the Bidwell Ranch site, located adjacent to the western edge of Upper Bidwell Park, as Open Space. The City has entered into a contract with River Partners, a local nonprofit conservation group, to develop a conservation and mitigation bank on the Bidwell Ranch site. In exchange for permanently protecting the land, the city can either use or sell habitat credits to satisfy legal requirements for mitigation of environmental impacts of development projects. The site has significant environmental resources, including vernal pools and Butte County meadowfoam.

Verbena Fields

Verbena Fields is a former gravel mining quarry located between Lindo Channel and East 1st Avenue near Verbena Avenue. The site is currently being restored in order to expand and improve seasonal wetlands, increase the floodplain width by an average of about 80 feet, restore native plantings, establish Mechoopda cultural planting areas, construct a walking trail loop, and provide public education as well as pre- and post-restoration site monitoring (City of Chico, 2009).

Teichert Ponds

Most of the land comprising the 32.7-acre area known as Teichert Ponds is owned in fee title by the City of Chico. There are three ponds on site, created as a result of past aggregate mining activities. The site also supports wildlife and habitat resources and important health and safety functions, such as improving water quality and flood detention in the City of Chico. The maintenance road around the site is heavily used by the public for running, biking, fishing, and dog walking. The site is also popular for birding and fishing.

Parkland Standards

The CARD Park and Recreation Master Plan (discussed under Regulatory Framework below) identifies detailed level of service standards for each parkland classification. As CARD is assuming ownership and operation of developed neighborhood parks and recreation systems in the city, the 2030 General Plan defers to CARD's parkland standards for future neighborhood and community parks. CARD standards consist of 1.5 acres per 1,000 residents for neighborhood parks and 2.5 acres per 1,000 residents for community parks. In addition, the city's existing standard of 2.5 acres of greenways per 1,000 residents is being maintained. Through these standards, it is the intention of the city and CARD that most residents would be within a convenient walking distance of a neighborhood or community park and have access to open space and greenways.

The City of Chico does not currently meet the CARD level of service standards. As shown in **Table 4.12.8-2**, an additional 88.3 acres of neighborhood parks and 64.4 acres of community parks are needed to meet the standards.

TABLE 4.12.8-2
PARKLAND LEVEL OF SERVICE DEFICIENCIES

	CARD Standard (Acres Per 1,000 Residents)	Acreage Need to Meet CARD Standard[1]	Existing Acreage	Existing Deficiency/Surplus
Neighborhood Parks	1.5	130.4	42.1	-88.3
Community Parks	2.5	217.4	153	-64.4
Greenways/Open Space	2.5	217.4	453	235.6

[1] *Based on Chico's 2008 population of 86,949.*
Source: DOF, 2008. CARD, 2008.

However, the city's existing parkland deficiencies are due to a number of factors, including:

- The change in the park acreage level of service standards between those in the 1994 Chico General Plan and standards identified in the CARD Park and Recreation Master Plan (**Table 4.12.8-3**);
- Significant annexation of County areas into the city over the past 8 years that included residences without supporting parklands; and
- Planned parks that are currently undeveloped, including Henshaw and Highland neighborhood parks (approximately 11.5 acres total).

TABLE 4.12.8-3
PARKLAND STANDARDS

Park Classification	Standard (Acres Per 1,000 Residents)	
	1994 Chico General Plan	CARD 2008 Park and Recreation Master Plan
Neighborhood Parkland	0.9	1.5
Community Parkland	1.6	2.5
Greenways	2.5	2.5
Total	5.0	6.5

Source: City of Chico, 2010.

4.12.8.2 REGULATORY FRAMEWORK

STATE

Quimby Act

The goal of the 1975 Quimby Act (California Government Code Section 66477) was to require developers to help mitigate the impacts of property improvements by requiring them to set aside land, donate conservation easements, or pay fees for park improvements. The Quimby Act gave authority for passage of land dedication ordinances only to cities and counties, thus requiring special districts to work with cities and/or counties to receive parkland dedication and/or in-lieu fees. The fees must be paid and land conveyed directly to the local public agencies that provide parks and recreation services community-wide. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities (Westrup, 2002).

Originally, the Quimby Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards (e.g., 3 to 5 acres per 1,000 residents). In some California communities the acreage fee was very high where property values were high, and many local governments did not differentiate on their Quimby fees between infill projects and green belt developments. In 1982, the Quimby Act was substantially amended via AB 1600. The amendments further defined acceptable uses of or restrictions on Quimby funds, provided acreage/population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (nexus) to a project's impacts as identified through traffic studies required by CEQA. In other words, AB 1600 requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or park land and the type of development project upon which the fee is imposed (Westrup, 2002). Cities or counties with a high ratio of parkland to inhabitants can set a standard of 5 acres per 1,000 residents for new development. Cities or counties with a lower ratio can only require the provision of up to 3 acres of parkland per 1,000 residents. The calculation of a city's or county's parkland-to-population ratio is based on a comparison of the population count of the last federal census to the amount of city- or county-owned parkland.

LOCAL

Chico Parks Division Strategic Plan

The City of Chico Park Department Strategic Plan identifies goals for four categories of park maintenance and education: Parks and Greenways, Park Ranger Program, Volunteer Program, and Urban Forestry Program. The plan also identifies major planning and capital projects proposed for parks and greenways over a five-year period (EIP, 2006).

Bidwell Park Master Management Plan

The City is responsible for the management, operation and maintenance of the 3,669-acre Bidwell Park. In 2008, the City Council adopted the Bidwell Park Master Management Plan (BPMMP) which sets forth the city's vision for the Park and establishes policies and practices for operation and management of the Park.

City of Chico Municipal Code

Title 12, Parks, of the City of Chico Municipal Code sets forth provisions and regulations regarding the city's parks and playgrounds. The provisions include establishing a drug-free zone in Bidwell Park and giving the Bidwell Park and Playground Commission supervision, control, and management over all public parks and playgrounds in the city. Title 12R contains the rules and regulations of playgrounds and park facilities in Bidwell Park.

Bidwell Park and Playground Commission (BPPC)

The Bidwell Park and Playground Commission (BPPC) is a seven-member commission charged with providing guidance and oversight to the Park Division regarding the management of playgrounds and parks, including Bidwell Park. The BPPC meets monthly to discuss management issues, and meetings are open to the public.

CARD Park and Recreation Master Plan

In 2008, CARD adopted a Park and Recreation Master Plan (PRMP) which provides a comprehensive evaluation of existing parks and recreation resources; identifies and describes resource types and facilities; identifies current system deficiencies and projected system demands; and establishes new standards for developed parks and community use facilities. The City and CARD will continue to work together, through their cooperative arrangement, to plan for and develop new park and community use facilities that offer high quality recreation services for City residents.

4.12.8.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A park and recreation impact is significant if implementation of the proposed General Plan Update would:

1) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

2) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

METHODOLOGY

Evaluation of potential park and recreation service impacts was based on review of the most recent recreation and facilities guides and master plans and other relevant literature. A detailed list of reference material used can be found at this end of this section. This material was compared to the proposed General Plan Update's specific park and recreation service-related impacts. The impact analysis below focuses on whether those impacts would have a significant effect on the physical environment. The analysis of future parks and recreational facilities is based on CARD's parkland standards for neighborhood and community parks and the city's greenway standards as discussed above.

The following proposed General Plan Update policies and actions address park and recreation service:

Policy PPFS-1.1 *(Park and Recreation Facilities) – Partner with CARD and local providers to provide parks and recreation facilities that offer recreation opportunities for the community.*

Action PPFS-1.1.1 *(CARD Leadership) – Convey properties and funding mechanisms to the Chico Area Recreation and Parks District (CARD) for operation, maintenance and programming of parks identified in the City of Chico/CARD Memorandum of Intergovernmental Cooperation, Coordination, and Understanding.*

Action PPFS-1.1.2 *(Park Development Fees) – Adopt park development fees that support the goals of the CARD Parks and Recreation Master Plan to fund the acquisition and development of neighborhood and community parks, and community use facilities such as an aquatic park needed as a result of new development.*

Action PPFS-1.1.3 *(Cooperative Development of Facilities) – Pursue cooperative development of neighborhood, community, and regional parks, as well as facilities that enhance recreational opportunities and economic development, such as sports and aquatic complexes, with the Chico Area Recreation and Parks District.*

Action PPFS-1.1.4 *(Park Maintenance Funding) – Aid in the formation of maintenance districts or other funding mechanisms to pay for the cost of ongoing maintenance and operation of parks.*

Action PPFS-1.1.5 *(CARD Review of City Projects) – Solicit comments from Chico Area Recreation and Parks District staff as part of early project review for Special Planning Areas and larger subdivision proposals.*

Action PPFS-1.1.6 *(Multiple Use of School Facilities) – Consult with the Chico Unified School District, CSU Chico, Butte College, and the Chico Area Recreation and Parks District to coordinate the joint use of school facilities for community recreation and other public purposes.*

Policy OS-2.1 *(Planning and Managing Open Space) – Continue acquisition and management of open space to protect habitat and promote public access.*

Action OS-2.1.1 *(Open Space Plan) – Develop an Open Space and Greenways Master Plan that catalogues the City's open space land holdings, ensures that management and maintenance programs are in place, identifies long-term funding, coordinates with other open space holdings, and prioritizes additional open space acquisitions to enhance connectivity, protect resources, and facilitate public access and circulation.*

Action OS-2.1.2 *(Funding for Open Space) – Pursue outside funding sources for open space acquisition, management, and restoration.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address park and recreation facilitites/services and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Increased Demand for Parks and Recreation Facilities (Standards of Significance 1 and 2)

Impact 4.12.8.1 Implementation of the proposed General Plan Update would accommodate population growth, which could subsequently increase the use of existing parks and recreation facilities and/or require the construction or expansion of park and recreational facilities to meet increased demand. This is considered to be a **less than significant** impact.

Full buildout of the 2030 General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. This growth would require the construction or expansion of park and recreational facilities and increase the use of existing parks such that physical deterioration of the facility could occur or be accelerated. As described in the Existing Setting section above, the 2030 General Plan directs use of CARD's parkland standards of 1.5 acres per 1,000 residents for future neighborhood parks and 2.5 acres per 1,000 residents for future community parks. The 2030 General Plan maintains the city's existing standard of 2.5 acres of greenways per 1,000 residents. Based on these standards, future development under the General Plan Update would need to add approximately 77.4 acres of neighborhood parkland (51,588 additional residents x 1.5 acres per 1,000), 129 acres of community parkland (51,588 additional residents x 2.5 acres per 1,000), and 129 acres of greenways (51,588 additional residents x 2.5 acres per 1,000) to meet the anticipated demand. The provision of these additional park and recreation areas could result in adverse physical effect on the environment.

In addition, the City of Chico does not currently meet the CARD level of service standards. Existing deficiencies are due to a number of factors, including increased standards, annexations, and planned parks as discussed in the Existing Setting sub-section above. While not meeting a parkland standard does not in itself result in an environmental impact, it does indicate that additional park and recreation facilities will be needed, the provisions of which could result in adverse physical effect on the environment. As shown in **Table 4.12.8-2**, an additional 88.3 acres of neighborhood parks and 64.4 acres of community parks are needed to meet the standards (based on the city's 2008 population of 86,949).

The specific environmental impacts resulting from the provision of park and recreational facilities would be identified by project-level environmental review in conjunction with individual development projects. The typical environmental effects regarding the construction and operation of parks and recreational facilities may involve issues with noise (during construction and playfields and playgrounds), air quality (during the construction of the facility), biological resources (depending on location), historic/cultural resources (depending on location), public services and utilities (demand for police and fire protection, electric, water, and wastewater service), and traffic on a local neighborhood level. The programmatic environmental effects of construction of such facilities have been considered in the technical analyses of this Draft EIR as part of overall development of the Planning Area.

In addition, the policies and actions included in the General Plan Update support continued cooperation with CARD and other agencies (such as the CUSD, CSU Chico, Butte College) to provide parks and recreation facilities that offer recreation opportunities for the community (Policy PPFS-1.1). To that end, future development projects would be required to pay development impact fees for park facilities on behalf of CARD and the city in order to fund the acquisition and development of neighborhood and community parks and community use facilities to the extent they are needed as a result of new development (Action PPFS-1.1.2). Implementation of the General Plan Update policies and actions, along with project-level environmental review, would ensure that future development under the General Plan Update would provide adequate park, recreation, and greenway facilities consistent with CARD parkland standards. Project-level environmental review would also ensure that site-specific environmental impacts associated with the provision of such facilities would be identified and mitigated. Therefore, this impact is **less than significant**.

Mitigation Measures

None required.

4.12.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for parks and recreation consists of the CARD's service area boundary, which encompasses 255 square miles and includes the City of Chico and surrounding unincorporated area in Butte County. Under build-out conditions, the city will have ownership and maintenance responsibility for Bidwell Park, creekside greenways, and city-owned preserves, while CARD will own and operate the various other developed parks and recreation systems in the city. Any existing, planned, proposed, approved, and reasonably foreseeable development within the CARD service area could contribute to cumulative impacts. The reader is referred to Section 4.0 for a discussion of assumed land uses and development conditions associated with the proposed General Plan Update.

Cumulative Park and Recreation Demands (Standards of Significance 1 and 2)

Impact 4.12.8.2 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would increase the use of existing parks and would require additional park and recreation facilities within the cumulative setting, the provision of which could have an adverse physical effect on the environment. This would be a **less than cumulatively considerable** impact.

Future development consistent with the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development in the region, would increase the use of existing parks and would contribute to the cumulative demand for regional and local parks and recreational facilities and services in the CARD service area. As previously discussed, the specific environmental impacts resulting from the provision of park and recreational facilities would be identified by project-level environmental review in conjunction with individual development projects. The potential environmental effects of parks and recreational facilities in the cumulative setting would be similar to those described under Impact 4.12.8.2 above.

Individual development projects associated with the proposed General Plan Update would be subject to development impact fees to fund the provision of physical parkland, and the General Plan directs that the city collaborate with CARD, CUSD, and CSUC to pursue other park funding sources and look for opportunities for joint use of facilities for community recreation and other public purposes. These fees and policy provisions would ensure that the city would adequately provide for park and recreation needs for residents and environmental review of new development would mitigate any environmental impacts of park and recreational facilities. Therefore, the proposed General Plan Update would have a **less than cumulatively considerable** impact on parks and recreation services.

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4.13
Visual Resources and Aesthetics

This section describes the existing visual resources of the City of Chico, summarizes its landscape characteristics, and discusses the impacts associated with implementation of the proposed General Plan Update. The analysis focuses on the anticipated alteration of the landscape characteristics and potential visual resource impacts in the city. Key issues addressed in this section include alteration of existing scenic resources (potential degradation of scenic resources or views of scenic resources), visual character, and urban lighting characteristics (increased nighttime light and daytime glare). Information for this section comes from city staff, field observations, and other public documents.

4.13.1 EXISTING SETTING

EXISTING CONDITIONS

Chico is located within the northern reaches of the Sacramento Valley. Chico lies at the transition between the foothills to the east and the agricultural lands to the west. State Route (SR) 99 general marks the edge of the flat agricultural landscape and the point where elevation begins to rise to the east. This location at the interface of two distinct and productive landscapes has contributed to the economic well-being of the city, which has benefited from a legacy of timber-related businesses as well as agriculture.

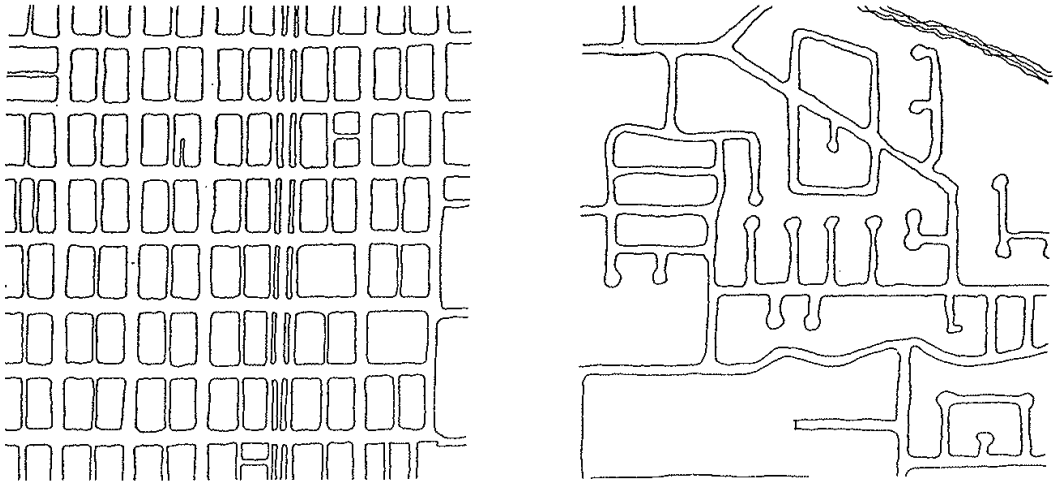
Overall Community Structure

The original grid of the city consisted of a compact square focused around the City Plaza. Over time the city expanded incrementally, initially adjacent to the Main Street/Broadway area. The Downtown developed in the current Main Street/Broadway area as a mixed-use center, containing a variety of uses, services, and building types. By 1912, a second grid had been added to the north of the Downtown that took on a more residential character with its longer blocks and alleys. This area is now known as the Avenues. From the Main Street/Broadway area, Chico has expanded outward, mostly to the north, east, and south. California State University, Chico (CSUC), originally the Northern Branch State Normal School of California, is built in 1887 on land donated by John Bidwell and is the second oldest campus in the CSU system. The South Campus Historic District was constructed between 1862 and 1930 and illustrates the range of uses found in proximity to one another in neighborhoods developed in the years following Chico's inception. Developments to the west of the railroad are industries, scattered service commercial uses, multi-family housing predominantly occupied by university students, and some single-family subdivisions along West Sacramento Avenue.

The initial series of grid developments in Chico were laid out in slightly different alignments, originally oriented to Big Chico and Little Chico creeks and on a northwest/southeast alignment.

The Chapmantown area (an unincorporated community surrounded by incorporated city land) was a notable exception in that it oriented to the meridian (north/south). Within the framework of the original grid and its extensions, Chico grew by the 1950s to a population of 12,000 residents. By 1970, SR 99 had been developed at the eastern edge of the city, prompting development further in the direction of the foothills. The patchwork pattern of grids on rotated alignments, which have been penetrated by north-south transportation corridors, creates a strong organizational structure for the portion of Chico west of State Route 99. To the east of SR 99, a more fragmented pattern of incomplete and meandering streets creates a different suburban character.

FIGURE 4.13-1
CITY STREET AND DEVELOPMENT PATTERNS

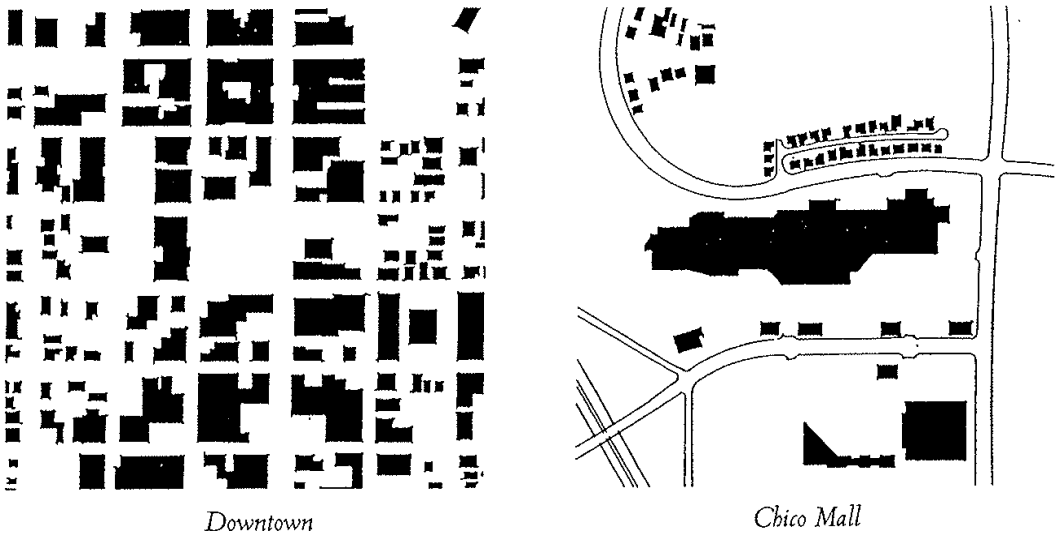


Source: City of Chico, Community Character Assessment, 1993

Comparing and contrasting old and new Chico is instructive in understanding how the community has changed over time. For instance, the plan for the Avenues illustrates the continuity and accessibility of the residential grid pattern (see **Figure 4.13-1**). In contrast, the Filbert Avenue/Hooker Oak area, built in the 1960s, is marked by discontinuous and fragmented streets and tenuous connections between neighborhoods (see **Figure 4.13-1**).

In the case of commercial centers, one can compare the historic downtown area to the Chico Mall (see **Figure 4.13-2**). In the downtown area, individual buildings are organized along streets and focus on the City Plaza, whereas at the Chico Mall, there is a greater internalization of commercial space within a single building reflecting 1987 cultural preferences.

FIGURE 4.13-2
CITY COMMERCIAL CENTER DEVELOPMENT PATTERNS



Source: City of Chico, Community Character Assessment, 1993

The traditional downtown has changed since it was originally established in the late 1800s as the center of a grid-pattern community oriented to the rail and organized around the City Plaza. Densities have generally decreased as taller buildings (of approximately four to five stories in height) were replaced by single-story buildings and a more homogeneous mix of uses. The Downtown still remains the heart of the community and a focus of community activities. The commercial areas along Park Avenue, Mangrove Avenue, and Cohasset are characterized by a mix of uses with parcels that range in scale and orientation to the street. These districts reflect an increasing scale and auto orientation compared to the downtown area.

FIGURE 4.13-3
CHICO CITY PLAZA

Adding to the attraction and vitality of the downtown core is the CSUC campus, located along Big Chico Creek next to the Bidwell Mansion. CSUC's unique architecture and location within the city make CSUC one of the key contributors to Chico's community design and sense of place. CSUC was founded in the 1860s and is one of the few residential campuses in the state system adjacent to a historic downtown.

In nearly every U.S. city since World War II, there has been a tremendous suburbanized expansion and associated reduction in overall density. Like other places, Chico has expanded with larger-lot residential development and has extended into the surrounding landscape with parcels of an increasingly larger size and lower density. Modern single-family residences on ½-acre to 2½-acre parcels are being built in unincorporated lands adjacent to the city. This development is particularly focused to the north of the city along Hicks Lane and Keefer Road in Butte County. In this area, ranchettes have been built along existing roads and transportation routes.

One of Chico's most unique qualities is that it lies at the transition between two landscapes, the Sierra Nevada foothills to the east and the expansive Central Valley to the west. Although the contrast between the landscapes can clearly be seen from overhead, the transition is not abrupt. Rather, the valley floor gradually inclines into the foothills and a series of ridges and buttes form intermediary break points in the terrain to the east. Chico's urbanized boundary is difficult to define from a visual perspective. It seldom corresponds with clear natural or physical edges nor heightens the contrast between the city and the landscape. Over the past several years, attempts have been made to establish a clearer definition of the boundaries at the edge of the city through the encouragement of intensification and infill development of available and developable land within the city as opposed to at its margins.

The shifts in elevation are significant in defining and describing community character as development in the foothill areas east of the city becomes more visible from the valley floor and from development in areas of increasing topography. The orchards and agricultural lands along the western side of the city also contribute to the identity of Chico.

There are four traditional city entrances to the western side of Chico. Chico River Road, Dayton Road, Midway, and State Route 32 connect Chico to other agricultural communities, such as

Colusa, Dayton, Durham, and Orland. To the east of the city, State Route 32 connects Chico to foothill and mountain communities, such as Forest Ranch and Butte Meadows, in Butte County and continues into eastern Tehama County. State Route 99 provides entrance to Chico from several agricultural communities in the northern Central Valley to the north and south of Chico, such as Vina to the north and Biggs and Gridley to the south.

Existing uses on lands outside the boundaries of the city are primarily agricultural and rural residential. Lands northeast and east of the city are used for seasonal grazing of livestock. The area north of the city, east of SR 99, and south of Rock Creek is developed for rural residential land uses interspersed with orchards, field crops, and grazing land.

Streets and creeks are the two most essential elements providing linkage and access within the Chico community. Besides acting as movement corridors, streets and creeks also operate as open spaces, providing important views that affect the image and identity of the city. The Esplanade is an attractive and gracious boulevard with five rows of street trees separating frontage roads and center medians. Woodland Avenue, adjacent to Bidwell Park, is an example of a residential street designed to complement the adjoining open space. Other examples, such as Francis Willard and East Sacramento avenues, as well as some of the older unimproved streets recently annexed from Butte County, have established an attractive character through street trees and relatively narrow pavement areas.

Residential Neighborhoods

The City of Chico has many distinct and unique neighborhoods that help to define the urban form and character of the city. The most notable of these can be seen in the architecture, urban form, and urban forest of Chico's older neighborhood areas.

Specifically, the historical ties to the grid street pattern, craftsman and bungalow architecture, and full mature tree canopy can be seen in the Avenues neighborhoods and the Barber Neighborhood. Additionally, older areas of the city located adjacent to Bidwell Park display the characteristics of a primarily rectilinear street orientation and a thick urban forest canopy. While the architecture of the Filbert and Palmetto avenues areas is typical of a post World War II ranch style of development, these areas substantially maintain the urban structure of the historic neighborhoods of the city.

In contrast, this pattern and style is a significant diversion from the urban form of some of Chico's newer residential development areas, including areas in north and east Chico. These areas can be characterized as having a less mature vegetative cover, a street pattern that is less reliant on a rectilinear orientation and more reliant on natural features, terrain, and discontinuous streets, and having a mixture of architectural feels ranging from larger acreage ranch houses, small-lot urban infill dwellings, and low-density single-family dwellings often constructed utilizing stucco and/or panel exteriors.

Nonresidential Corridors

The same divergence of style, form, and architecture can be used to describe the nonresidential corridors and nodes of the city. Within the historic and extended downtown areas, the primary orientation of nonresidential uses is based on the grid street pattern. The form and architecture of the historic core area can be described as having higher densities (multi-story buildings versus single-level structures) with limited street setbacks and oriented to a grid street pattern. Moving away from the historic downtown area, the commercial areas of the city take two general forms, the first being a linear form typified by the nonresidential uses located

along Manzanita and Park avenues, and the second being the commercial node form typified by the Chico Mall and North Valley Plaza developments. In both the linear and node forms, the form of the commercial uses exhibits an orientation having larger visual fields of parking and a more homogenous design and feel, often resulting from a shift in building techniques away from historical brick and mortar construction and trending more toward modern prefabricated panel construction or large-volume warehouse-style construction.

FIGURE 4.13-4
FIVE MILE RECREATION AREA

Natural Visual Features

Chico is unique in that it is located in an area that is both a part of the Great Central Valley with its agricultural uses and also close to the foothills. The agricultural landscape provides a large-scale grid pattern of fields and orchards and a rural atmosphere on traditional entry roads into the city through remnant orchard plantings. The foothills create a contrast to the verdant agricultural lands, with volcanic landforms consisting of canyons and buttes. Rising elevations to the east of Chico create a perceptible edge and highly visible backdrop to the city.

Bisecting the city is a series of creeks that drain westward to the Sacramento River. Several major creeks are found within the Planning Area, including Mud Creek, Sycamore Creek, Lindo Channel (Sandy Gulch), Big Chico Creek, Little Chico Creek, Butte Creek, Dead Horse Slough, and Comanche Creek. These waterways penetrate the urban fabric and frequently form boundaries to neighborhoods and districts within the city. Very often, the overall character or mix of uses does not change from one side of a creek to the other, but one grid pattern may stop and another begin with a somewhat different orientation or scale. Furthermore, creek crossings are limited, particularly east of the freeway. Thus, the creeks tend to break up the city into smaller districts and neighborhoods.

FIGURE 4.13-5
NORTH RIM, UPPER BIDWELL PARK

Bidwell Park stretches over 10 miles along Big Chico Creek from the Sierra Nevada foothills to the valley floor and serves as an important biological corridor linking the habitats of the mountains to those of the Sacramento River. Bidwell Park is home to a variety of important and sensitive natural resources, including native plant communities as well as plant and wildlife species. Bidwell Park can be

seen from several vantage points. A network of trails, bike paths, and roads within and alongside the park provide visual access to the park. Upper Bidwell Park includes South Rim Trail and Humboldt Trail, which run along the south ridgeline. On the north side, the North Rim Trail provides views of the canyon, while Lower Trail and Yahi Trail provide access to views of the sloping terrain and Big Chico Creek.

Viewpoints in Lower Bidwell Park are more constrained, due to the flatter terrain and the increased presence of structures and vegetation. At the same time, the quality of Lower Bidwell Park's viewshed is unique by virtue of its riparian vegetation characterized by mature trees and thick understory. Lower Bidwell Park is also frequented by many more people due to its proximity to the urban core of Chico. Many viewpoints exist along Manzanita Avenue, Vallombrosa Avenue, East 8th Street, North Park Drive, and South Park Drive, which parallel the park and offer views of Big Chico Creek. In addition, there are numerous pedestrian, bicycle, and equestrian trails in Lower Bidwell Park.

Nighttime Lighting Conditions

Lighting conditions of the developed (city) portion of the Planning Area consists of typical urban light conditions found in urban areas (e.g., roadway lighting, commercial buildings, and headlights from motor vehicles). These conditions contrast with the very low ambient nighttime lighting and illumination of agricultural and rural uses of the Planning Area surrounding the city.

Sources of daytime glare include direct beam sunlight and reflections from windows, architectural coatings, glass, and other shiny reflective surfaces. Nighttime light illumination and associated glare can be divided into stationary and mobile sources. Stationary sources of nighttime light include structure illumination, decorative landscape lighting, lighted signs, sports field lighting, and streetlights. The primary source of mobile nighttime light is headlights of motor vehicles. During winter nighttime hours, the ambient light in the Planning Area can be accentuated during periods of low cloudiness or fog, which reflects light, resulting in intensification of the amount of light.

4.13.2 REGULATORY FRAMEWORK

STATE

State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to state highways. The state regulations and guidance governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. A scenic corridor is the land generally adjacent to and visible from the highway and is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon.

There are no state scenic highways in the Planning Area. The status of a scenic highway changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway (Caltrans, 2007).

Nighttime Sky – Title 24 Outdoor Lighting Standards

The California legislature passed a bill in 2001 requiring the California Energy Commission (CEC) to adopt energy efficiency standards for outdoor lighting for both the public and private sector. In November 2003, CEC adopted changes to the Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. The new standards will likely improve the quality of outdoor lighting and help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures of the 2000 Census. Areas can be designated as LZ1 (dark), LZ2 (rural), or LZ3 (urban).

LOCAL

City of Chico Municipal Code Chapter 19.18

Chapter 19.18 of the Municipal Code provides a design review process for development in the city intended to promote a visual environment of high aesthetic quality. The Chico Architectural Review Board promotes responsible architectural design which is consistent with Chico's character by enforcing the design guidelines as set forth in Chapter 19.18 of the Chico Municipal Code. The Architectural Review Board reviews architectural drawings or renderings which are required to be submitted with an application for a building permit. In order to fully illustrate these guidelines, the City Design Manual contains graphic examples and explanations of the architectural review process. The design process focuses on three major areas: site design, building design, and landscape design.

City of Chico Municipal Code Section 19.60.050

Section 19.60.050 of the Municipal Code requires that exterior lighting be architecturally integrated with the character of all structures, energy-efficient, and shielded or recessed so that direct glare and reflections are confined, to the maximum extent feasible, within the boundaries of the site. Exterior lighting is to be directed downward and away from adjacent properties and public rights-of-way. Shielded means that the light rays are directed onto the site, and the light source, whether bulb or tube, is not visible from an adjacent property. This section of the Municipal Code does not apply to sign illumination, traffic safety lighting, or public street lighting. Permanently installed lighting cannot blink, flash, or be of unusually high intensity or brightness. All lighting fixtures must be appropriate in scale, intensity, and height to the use they are serving.

City of Chico Municipal Code Chapter 19.66

Chapter 19.66 of the Municipal Code provides for development standards for development within the city's foothill areas at elevations in excess of 250 feet to preserve and enhance natural topographic features and reduce grading and environmental degradation.

Landmark District Overlay Zone

The Landmark overlay zone is intended to identify landmarks and historic sites in compliance with the General Plan, so that development and new land uses are designed and operated in a manner compatible with the preservation of these historic resources. Any land use normally

allowed in the primary zoning district may be allowed within the Landmark overlay zone, in compliance with certificate of appropriateness requirements.

4.13.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

An aesthetic or visual resource impact is considered significant if implementation of the project would result in any of the following:

1) Have a substantial adverse effect on a scenic vista.

2) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

3) Substantially degrade the existing visual character or quality of the site and its surroundings including the scenic quality of the foothills.

4) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

METHODOLOGY

The visual resource analysis is based on field review of the Planning Area and review of topographic conditions, as well as anticipated changes within the Planning Area from implementation of the proposed Land Use Diagram and other anticipated development in the Planning Area.

The following proposed General Plan Update policies and actions address visual quality and urban design:

Policy LU-1.2	*(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a more compact urban form.*
Action LU-1.2.1	*(Greenline) – Retain the Greenline.*
Action LU-1.2.2	*(Foothill Development) – Apply the City's Foothill Development Standards to projects in foothill areas.*
Policy LU-2.4	*(Land Use Compatibility) – Promote land use compatibility through use restrictions, development standards, and special design considerations.*
Action LU-2.4.1	*(Update Zoning Code) – Establish zoning districts, use regulations, development standards, and performance requirements in the Municipal Code consistent with the General Plan.*
Action LU-2.4.4	*(Design Guidelines) – Maintain and update, as necessary, the City's Design Guidelines Manual.*

Policy LU-2.5 *(Open Space and Resource Conservation) – Protect open space areas with known sensitive resources.*

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and open space uses are permitted within the buffer. Design criteria for buffers are as follows:*

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*
- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-3.3 *(Neighborhood Services) – Recognize existing neighborhoods and continue to facilitate the development of neighborhood plans in partnership with residents and property owners to preserve and enhance neighborhood character, identity, and livability.*

Action LU-4.2.1 *(Residential Infill Guidelines) – Amend the Design Guidelines Manual to include residential infill guidelines that address compatibility between new and existing development such as visual intrusion and massing within a transition zone.*

Action LU-4.2.2 *(Emphasis on Neighborhood Compatibility) – For residential infill projects outside of Opportunity Sites and Special Planning Areas, maintaining neighborhood character may take precedence over meeting density goals. It may be necessary to limit project density to ensure compatibility.*

Action LU-6.2.2 *(Bell Muir SPA Planning) – Plan the Bell Muir SPA with primarily low density housing compatible with existing residential development and ongoing agricultural uses in the area. Subsequent planning will:*

- *Identify locations for community gardens or small-scale farms, and develop design guidelines and buffering requirements to address potential incompatibilities.*
- *Address infrastructure needs with particular attention to storm drainage and circulation, including north-south connections to East Avenue and improved access to State Route 32.*
- *Develop special lighting and street standards* appropriate for the rural character of the area.

Action LU-6.2.4 *(Doe Mill/Honey Run SPA Planning) – Plan the Doe Mill/Honey Run SPA with a broad range of housing types and densities*

integrated with significant open space and recreational areas, supporting commercial services, and public facilities. Subsequent planning will:

- *Address circulation with primary connections to the site via Skyway and E. 20th Street.*
- *Incorporate significant accessible open space on the eastern portion of the SPA, a community park, as well as neighborhood and pocket parks.*
- *Maintain open space by clustering development and providing open space buffers on the northern, eastern, and southern edges of the SPA.*
- *Include visual simulations to ensure that development is not visually intrusive as viewed from lower elevations.*
- *Incorporate special lighting standards to reduce impacts on the nighttime sky.*

Policy CD-1.1 *(Natural Features and Cultural Resources) – Reinforce the City's positive and distinctive image by recognizing and enhancing the natural features of the City and protecting cultural and historic resources.*

Action CD-2.1.4 *(Creek Views and Access) – As part of the design review of development and capital projects, improve visual and recreational access to creekside corridors.*

Policy CD-2.4 *(Context Sensitive Foothill Development) – Minimize disruption of viewsheds from foothill development, through the careful location of roads, buildings, and other infrastructure.*

Action CD-2.4.1 *(Foothill Development) – Blend foothill development with the surrounding landscape and topography to diminish its visual prominence from the valley floor.*

Action CD-2.4.2 *(Foothill Streets) – In order to minimize cut and fill grading operations in foothill areas, design new streets at the minimum dimension necessary for access and parking.*

Action CD-2.4.3 *(Contours of Natural Slope) – Limit the extent and amount of grading in foothill areas, and where grading occurs, emulate the contours of the natural slope.*

Action CD-2.4.4 *(Foothill Viewshed) – Minimize the development of highly visible or intrusive structures that impact foothill viewsheds.*

Policy CD-3.1 *(Lasting Design and Materials) – Promote architectural design that exhibits timeless character and is constructed with high quality materials.*

Policy CD-4.1 *(Distinctive Character) – Reinforce the distinctive character of neighborhoods with design elements reflected in the streetscape, landmarks, public art, and natural amenities.*

Action CD-4.1.1 *(Neighborhood Design Details) – Develop and implement neighborhood plans that identify design qualities and elements for specific areas.*

Action PPFS-2.1.1 *(Greenway Acquisition) – Continue the City's greenway purchase program to acquire properties located along creeks as they become available in order to expand habitat protection, trail creation, and recreation opportunities.*

Action PPFS-2.1.2 *(Creekside Design) – Continue to use Chico's Design Guidelines Manual for proposed development adjacent to creeks to address setbacks, building orientation, security measures, and lighting designed to promote the City's creeks and amenities without detracting from the natural setting.*

Action PPFS-2.1.3 *(Pathway and Trail Planning) – Design pedestrian and bicycle paths and trails adjacent to creeks that protect the riparian environment.*

Action PPFS-2.1.4 *(Assess Potential Impacts to Creeks) – Through the development and environmental review processes, including consultation with state and federal agencies, ensure that natural areas and habitats located in and along the City's creeks are protected and enhanced.*

Policy OS-2.4 *(Visual Resources) – Preserve the foothills as a natural backdrop to the urban form.*

Action OS-2.4.1 *(Visual Simulations) – Require visual simulations for foothill development to assess view shed impacts.*

Policy OS-2.5 *(Creeks and Riparian Corridors) – Preserve and enhance Chico's creeks and riparian corridors as open space for their aesthetic, drainage, habitat, flood control, and water quality values.*

Policy OS-5.1 *(Urban/Rural Boundary) – Protect agriculture by maintaining the Greenline boundary between urban and rural uses.*

Policy OS-6.1 *(Healthy Urban Forest) – Ensure the protection and management of the urban forest.*

Action OS-6.1.1 *(Urban Forest Maintenance) – Maintain and expand the urban forest by:*

- *Maintaining existing trees.*
- *Planting new trees to replace those that require removal.*

- *Requiring street and parking lot tree planting in new development.*
- *Implementing the Municipal Code's tree protection regulations.*
- *Utilizing volunteer groups and property owners to care for newly planted trees and maintain young trees and provide information and instructions regarding such care and maintenance.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant visual resource impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that protect visual resources effects and avoid or minimize significant impacts.

PROJECT IMPACTS AND MITIGATION MEASURES

Substantial Adverse Effect on a Scenic Vista (Standard of Significance 1)

Impact 4.13.1 Implementation of the proposed General Plan Update could have a substantial effect on a scenic vista. However, implementation of proposed General Plan Update policy provisions and continued implementation of the city's Municipal Code would ensure that no adverse impact to a scenic vista would occur. Therefore, this impact is considered to be **less than significant**.

The City of Chico Planning Area is characterized by scenic views including flat to hilly topography with agricultural areas, foothills, bluffs, ravines, and creeks. Many areas are still undeveloped and feature oak savanna and riparian areas, but have received approvals for development (e.g., Meriam Park). As discussed in the Existing Setting section above, scenic resources in the Planning Area, and thus scenic vistas that could be adversely affected by implementation of the General Plan Update, include views of the transition between landscapes (Sierra Nevada foothills to the east and the Central Valley to the west), the agricultural landscape, the foothills and rising elevations to the east of Chico, the major creeks, and of Bidwell Park. In addition, views of the city's neighborhoods could be adversely affected.

The boundaries of the Planning Area remain the same for the proposed General Plan Update as they were for the 1994 General Plan. The proposed General Plan Update includes the Land Use Diagram and associated policy provisions that combine specific land use designations in the Planning Area (see **Figure 3.0-3**). The key differences between the 1994 General Plan and the 2030 General Plan Update are related to new Special Planning Areas (3 of which are outside of the city's current Sphere of Influence), and the inclusion of fifteen Opportunity Sites, or existing areas within the city designated to be the focus of improvement, change, and revitalization over the next 20 years (see **Figure 3.0-3**). The five SPAs are shown on the Land Use Diagram (see **Figure 3.0-3**). The SPA designation identifies areas with significant new growth opportunity and that require more detailed subsequent land use planning. The Opportunity Sites are those areas that have been designated for mixed use, increased residential development potential, or an alternative land use designation better suited to the existing or evolving surrounding uses.

While these Opportunity Sites and Special Planning Areas have the potential to increase development within the Planning Area and therefore impact existing scenic vistas, subsequent development and redevelopment would be subject to proposed General Plan policies, as well

as existing city development and design standards set forth in the city's Municipal Code and Design Guidelines. The General Plan Land Use Element facilitates a compact urban form and provides incentives for infill and redevelopment in existing developed areas. As such, future development in the city would reduce the extent of outward city growth into agricultural and foothill areas, thus preserving the aesthetic quality and character of these resources. The Land Use Element also contains specific policies related to individual SPAs that direct the subsequent master planning efforts to address viewshed, context sensitive design, and nighttime lighting considerations associated with new development. Furthermore, future development and redevelopment projects would be subject to the city's established Design Review process, which is directed by the Municipal Code and city's Design Guidelines Manual. Chapter 19.18 (Site Design and Architectural Review) of the Chico Municipal Code requires that the Planning Commission, Architectural Review Board, and the Planning Services Director to base determinations of development proposals on certain findings that include consistency with adopted design guidelines and development standards. The Manual guides the aesthetic qualities of development in the city via guidelines addressing site design, architecture, exterior lighting, and signage. Compliance with the Manual and Municipal Code development standards would reduce the visual impact of new development and redevelopment in the Planning Area by ensuring that such development would be thoughtfully integrated with existing development and/or the existing natural setting.

The General Plan also includes extensive policies aimed at protecting scenic views of natural areas. For example, the Community Design Element requires development projects to incorporate and highlight natural features into project design (Action CD-1.1.1). The Parks, Public Facilities, and Services Element requires that the city continue to acquire properties located along creeks (Action PPFS-2.1.1) and that development adjacent to creeks address setbacks, building orientation, security measures, and lighting in order to promote and protect the creeks (Action PPFS-2.1.2). Furthermore, the City Council adopted the Bidwell Park Master Management Plan (BPMMP) in 2008. The BPMMP establishes policies and practices for operation and management of the Park. Decisionmaking for the Park is subject to, and guided by, the BPMMP and the proposed General Plan Update requires the city to utilize the BPMMP. Therefore, implementation of the proposed General Plan Update would not adversely affect the visual quality of Bidwell Park. Another important General Plan action is OS-2.4.1, which requires that visual simulations be prepared for foothill development to assess view shed impacts, which will support project-level environmental review and site design for future foothill projects.

Chico retains a distinct identity because of its relative distance from other urban areas. Traveling into Chico from any direction highlights the contrast of the city and its surrounding landscape and greatly influences one's impressions of the city. In addition, the city entrances provide a sense of structure and orientation to the urban environment. The General Plan Land Use Element requires that the city to maintain the long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, thus ensuring that views displaying the contrast of the city and its surrounding landscape will be retained. Furthermore, as discussed above, the compact urban form facilitated by the General Plan would prohibit sprawl from adversely affecting transitional views between landscapes.

As described above, the City of Chico has many distinct and unique neighborhoods that help to define the urban form and character of the city, yet the most notable of these can be seen in the architecture and urban form of Chico's older neighborhood areas. These neighborhoods typically exhibit a strong grid pattern with well-defined limits, landscaped streets, a mix and diversity of lot sizes and housing types, and a clear neighborhood identity. It is the individuality of these older neighborhoods that helps to give Chico its sense of place. Consistent with policies in the Land Use Element, new neighborhoods resulting from implementation of the General Plan

Update will be designed and developed as complete neighborhoods (Policy LU-3.1), which are intended to emulate Chico's older neighborhoods in creating a sense of place through a mix of housing types, community gathering places, conveniently-located facilities and services, walkability, interconnected street systems, and extensive tree canopy and attractive landscaping. Action LU-4.2.1 directs the City to amend the Design Guidelines Manual to include residential infill guidelines that address compatibility between new and existing development such as visual intrusion and massing within a transition zone. Further, Action LU-4.2.2 directs placing a greater emphasis on neighborhood compatibility over meeting density goals when considering infill project. Additionally, the General Plan requires infill and redevelopment within existing neighborhoods to enhance developed areas consistent with the complete neighborhood concept (Policies LU-4.2 and LU-4.3; Policy CD-5.1). In requiring new development, infill, and redevelopment to recreate or maintain these features of Chico's older neighborhoods, the policy framework of the proposed General Plan Update will result in continuity that reinforces the city's sense of place. In addition, the City of Chico Design Guidelines Manual (discussed above) relies on the sense of place concept for its implementation. As such, implementation of the General Plan Update would not be expected to adversely affect views or the sense of place created by the city's neighborhoods.

Implementation of the proposed General Plan Update, as well as existing city development and design standards, would ensure visual compatibility with existing development as well as the preservation of unique natural features and scenic resources in the city. Therefore, this impact would be **less than significant**.

Substantially Damage Scenic Resources within a State Scenic Highway (Standard of Significance 2)

Impact 4.13.2 Implementation of the proposed General Plan Update would not damage any scenic resources within a state scenic highway. Therefore, there is **no impact**.

There are no state scenic highways in the City of Chico or the Planning Area. Therefore, impacts associated with damage to scenic resources within a state scenic highway are considered to have **no impact**.

Substantially Degrade the Existing Visual Character, Including the Scenic Quality of the Foothills (Standard of Significance 3)

Impact 4.13.3 Implementation of the proposed General Plan Update would result in increased development which would alter the existing visual character of the Planning Area. This impact is considered **significant**.

Implementation of proposed General Plan Update would result in increased development in the Planning Area that would change its visual character. The proposed General Plan Update envisions compact and dense development in the Sphere of Influence and provides for infill development in existing developed areas of the city. This approach to the accommodation of future development in the city would reduce the extent of outward growth and the conversion of open land to urban development. As described under Impact 4.13.1, implementation of existing city development and design standards, as well as proposed General Plan Update and policies and actions, would ensure visual compatibility with existing development as well as the preservation of unique natural features and scenic resources.

However, the proposed General Plan Update identifies five areas on the proposed Land Use Diagram designated as Special Planning Areas (SPA) (see **Figure 3.0-3**) that would extend the current urban/development footprint of the city. The SPA designation identifies areas with significant new growth opportunity. Increased development as well as intensification of development would alter visual character by introducing urban uses into previously vacant areas. Additional development results in alteration of the visual character of the Planning Area to more dense land uses. It should be noted that large amounts of undeveloped land which currently provide a visual amenity of open space would be developed as currently approved under previous land use entitlements (e.g., Meriam Park and the Northwest Specific Plan). The aesthetic impacts of urbanization of the city were previously identified in the 1994 General Plan Update EIR and the associated adoption of the 1994 General Plan as a significant and unavoidable impact (see City Resolution No. 81 94-95).

The Doe Mill/Honey Run SPA was not considered a growth area under the 1994 General Plan and is notable due to its location in the lower foothills east of the city. The area is undeveloped and is currently defined by grasslands and blue oaks in valley areas, grasslands with sparse vegetation across gradually sloping ridgelines, and corridors of mixed oak and mixed woodlands along seasonal streams and along more sharply defined ridgelines. Development of this SPA would result in an alteration of the landscape characteristics of this portion of the Planning Area.

The proposed General Plan Update Land Use Element, as well as the Doe Mill/Honey Run SPA Conceptual Land Use Plan, requires that subsequent planning incorporate significant open space areas on the eastern portion of the SPA, as well as along the entire Stilson Canyon rim to the north and along Honey Run Road to the south. These open space areas would visually "buffer" the prominence of new development and would assist in preserving the undeveloped character of the SPA. General Plan Update Action LU-6.2.4 also requires clustered development in the SPA. The concept of clustered housing is to group, or "cluster", urban development such as residences together on a site while leaving large portions of the site as open space. Clustering development allows for greater contiguous open space preservation than would occur if urban development were to be dispersed throughout a site and open space were parceled out to accommodate individual yards. Therefore, because clustering preserves contiguous open space and promotes development in less visually prominent areas, it allows for the overall allowable density of a site to be realized while preserving the visual character of a less urbanized area. In the case of the Doe Mill/Honey Run SPA, clustering would preserve open space visible to urban areas located on the valley floor. General Plan Update Action LU-6.2.4 also requires future planning efforts to include visual simulations that illustrate the appearance of the proposed development as it would be viewed from lower elevations. Such simulations would allow decision-makers on development proposals to carefully evaluate the visual impacts of a proposed development in the foothill areas. Proposed General Plan Update Community Design Policy CD-2.4 and associated action items also provide for minimal disruption of viewsheds from foothill development via limitations on cut and fill grading operations in foothill areas as well as restrictions on highly visible or intrusive structures. Minimizing grading and intrusive structures would maintain the natural contours of the foothill areas, thus reducing alterations to the landscape characteristics of these areas.

In addition to policies and actions in the proposed General Plan Update, subsequent development in the Doe Mill/Honey Run SPA would be subject to the city's existing regulatory framework addressing the scenic quality of the foothills, including the city's Design Guidelines and Foothill Development Standards (Chapter 19.66 of the Municipal Code). The Design Guidelines direct the use of earth tones and compatibility in foothill development. The Foothill Development Standards are intended to encourage site specific design solutions that preserve and enhance the beauty of hillside landscape by encouraging retention of natural topographic

features and vegetation. The Standards include requirements for clustered development on more level portions of a site to preserve steeper areas, setbacks between structures and tops of slopes, and grading standards intended to preserve topographic conditions. Environmental and discretionary review of future development projects would analyze project-level compliance with these regulations and would require site-specific mitigation to reduce or eliminate visual impacts.

While the city's proposed and existing policy and regulatory framework would be effective in reducing the visual prominence and aesthetic impact of new development in the foothills as discussed above, any new development in these areas would be in contrast to the existing, undeveloped conditions that provide a natural visual backdrop to the city. The city's approach to protecting and maintaining the scenic qualities of the foothill areas is comprehensive and there are no additional mitigation measures available to offset this alteration of the current landscape characteristics of the Planning Area. Therefore, this impact is considered **significant and unavoidable**.

Create a New Source of Substantial Light or Glare (Standard of Significance 4)

Impact 4.13.4 Implementation of the proposed General Plan Update could result in an increase of daytime glare and/or nighttime lighting. This increase in daytime glare sources and nighttime lighting levels could have an adverse effect on adjacent areas and land uses. This is considered a **less than significant** impact.

Implementation of the proposed General Plan Update may introduce new sources of daytime glare and may change nighttime lighting and illumination levels. Lighting nuisances typically are categorized by the following:

- Glare – Intense light that shines directly or is reflected from a surface into a person's eyes.
- "Skyglow"/Nighttime Illumination – Artificial lighting from urbanized sources that alters the rural landscape in sufficient quantity to cause lighting of the nighttime sky and reduction of visibility of stars and other astronomical features.
- "Spillover" Lighting – Artificial lighting that spills over onto adjacent properties, which could interrupt sleeping patterns or cause other nuisances to neighboring residents.

The main sources of daytime glare in the Planning Area are from sunlight reflecting from structures with reflective surfaces such as windows. Subsequent development under the proposed General Plan Update would include residential, commercial, and office structures and other potential sources of glare. Building materials (e.g., reflective glass and polished surfaces) are the most substantial sources of glare. The amount of glare depends on the intensity and direction of sunlight, which is more acute at sunrise and sunset because the angle of the sun is lower during these times.

A source of glare during the nighttime hours is artificial light. The sources of new and increased nighttime lighting and illumination include, but are not limited to, new residential development, lighting from nonresidential uses, lights associated with vehicular travel (e.g., car headlights), street lighting, parking lot lights, and security-related lighting for nonresidential uses. Increased nighttime lighting and illumination could result in adverse effects to adjacent land uses through the spilling over of light into these areas and skyglow conditions.

Subsequent development would be subject to existing city development and design standards set forth in the city's Municipal Code. For instance, Section 19.60.050 of the Municipal Code requires that exterior lighting be architecturally integrated with the character of all structures, energy-efficient, and shielded or recessed so that direct glare and reflections are confined, to the maximum extent feasible, within the boundaries of the site. Exterior lighting is to be directed downward and away from adjacent properties and public rights-of-way. Shielded means that the light rays are directed onto the site and the light source, whether bulb or tube, is not visible from an adjacent property. Permanently installed lighting cannot blink, flash, or be of unusually high intensity or brightness. All lighting fixtures must be appropriate in scale, intensity, and height to the use they are serving.

In addition, the Chico Municipal Code requires city decisionmakers to base determinations of development proposals on certain findings that include consistency with adopted design guidelines included in the city's Design Guidelines Manual. The Manual requires that exterior lighting enhance a project's sense of place without impacting offsite uses or night skies. To that effect, the Manual requires that exterior lighting be incorporated at the minimum intensity necessary and that lamp types enhancing architecture and minimizing glare be prioritized.

Furthermore, General Plan Update Action LU-6.2.2 requires that subsequent planning for the Bell Muir SPA develop special lighting standards appropriate for the rural character of the area and General Plan Update Action LU-6.2.4 requires that subsequent planning for the Doe Mill/Honey Run SPA incorporate special lighting standards to reduce impacts on the nighttime sky. Therefore, new development in these areas would be subject to additional lighting standards that would minimize potential lighting and glare impacts.

It should also be noted that there are approved development projects in the city that have adopted conditions of approval and mitigation measures for approved developments that include provisions regarding architectural design and lighting standards. Similarly, the potential for increased daytime glare and/or nighttime lighting associated with future development projects would be addressed as part of subsequent project-level environmental review and if significant impacts were identified, additional mitigation measures would be incorporated into the project to reduce impacts.

Implementation of existing city standards, use of the city's Design Guidelines, and adherence to Municipal Code Section 19.60.050 identified above would reduce the impacts to daytime glare and nighttime lighting by requiring design guidelines and standards to limit lighting leakage and glare. Therefore, this impact is considered **less than significant**.

4.13.2 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting condition includes the unincorporated rural communities surrounding the City of Chico, as well as the larger Butte County region, including the cities of Biggs, Chico, Gridley, and Oroville, the Town of Paradise, and the County of Butte. The cumulative setting also includes the proposed and approved large-scale development projects listed in **Table 4.0-4**. Development in the Planning Area as well as in Butte County would alter the scenic resources and visual character of the region.

The cumulative impact analysis herein focuses on whether the project's contribution to regional visual resource impacts would result in a cumulatively considerable environmental impact. The project's impact would be cumulatively considerable if, when considered with other existing,

approved, proposed, and reasonably foreseeable development in the region, it would result in substantial alteration of the visual character of the region, significant impacts to scenic vistas, or substantial increases in daytime glare and nighttime lighting.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts to Scenic Vista, Scenic Resources, Existing Visual Character, and Light and Glare (Standards of Significance 1, 3, and 4)

Impact 4.13.5 Implementation of the proposed General Plan Update, in combination with other reasonably foreseeable development projects within Butte County, would contribute to the alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting. This is considered a **cumulatively considerable** impact.

The Butte County region is anticipated to experience growth in association with new and infill development, which would result in cumulatively considerable changes in the visual character and scenic views of the region, as well as increases in the amount of light and glare in the region. As undeveloped areas transition from a rural to an urban character, existing viewsheds within the county and incorporated cities would be affected, existing views of rural uses and open spaces would be changed to urban uses, and views of the foothills may be altered and/or obstructed. Important visual resources such as mature trees, rock outcroppings, and rural structures would be lost. Development under the proposed General Plan Update would contribute to this trend in alteration of the visual character of the area by converting open space and rural uses to urban development. While a good portion of the Planning Area is devoted to land use designations such as Primary Open Space that would retain natural areas, trees, and the like, the overall urban/development footprint of the city would increase. This would also contribute to changes in nighttime lighting and illumination levels in the region.

As discussed under Impacts 4.13.1 through 4.13.4, the city's proposed and existing policy and regulatory framework (General Plan, Municipal Code, Design Guidelines Manual) provides a comprehensive approach to reducing the visual prominence of new development, adverse impacts to existing scenic vistas, and substantial increases in light and glare in the Planning Area. Even so, new development and redevelopment in the Planning Area would contribute to other similar impacts resulting from development in the larger Butte County region. Even with incorporation of smart growth principles and other mitigation, the proposed General Plan Update would still contribute to significant cumulative impacts associated with alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting in the region. No additional mitigation measures are available to offset these impacts. Therefore, this impact is considered **cumulatively considerable** and **significant and unavoidable.**

REFERENCES

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4.14
Energy and Climate Change

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) addresses climate change and energy use and associated environmental effects. The reader is also referred to Section 4.12, Public Services and Utilities, for additional discussion regarding electrical and natural gas service.

4.14.1 EXISTING SETTING

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. The temperature on Earth is regulated by this greenhouse effect, which is so named because the Earth's atmosphere acts like a greenhouse, warming the planet in much the same way that an ordinary greenhouse warms the air inside its glass walls. Like glass, the gases in the atmosphere let in light yet prevent heat from escaping.

GHG are naturally occurring gases such as water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that absorb heat radiated from the Earth's surface. GHGs — CO_2, CH_4, N_2O, and others — are transparent to certain wavelengths of the sun's radiant energy, allowing them to penetrate deep into the atmosphere or all the way to the Earth's surface. Clouds, ice caps, and particles in the air reflect about 30 percent of this radiation, but oceans and land masses absorb the rest (70 percent of the radiation received from the sun) before releasing it back toward space as infrared radiation. GHG and clouds effectively prevent some of the infrared radiation from escaping; they trap the heat near the Earth's surface where it warms the lower atmosphere. If this natural barrier of atmospheric gases were not present, the heat would escape into space and Earth's average global temperatures could be as much as 61 degrees Fahrenheit (°F) cooler (NASA, 2009).

In addition to natural sources, human activities are exerting a major and growing influence on climate by changing the composition of the atmosphere and by modifying the land surface. Particularly, the increased consumption of fossil fuels (natural gas, coal, gasoline, etc.) has substantially increased atmospheric levels of greenhouse gases. Measured global GHG emissions resulting from human activities, especially the consumption of fossil fuels, have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004 (IPCC, 2007). This increase in atmospheric levels of GHG unnaturally enhances the greenhouse effect by trapping more infrared radiation as it rebounds from the Earth's surface and thus traps more heat near the Earth's surface. Prominent GHGs contributing to the greenhouse effect and climate change include carbon dioxide, methane, ozone (O_3), nitrous oxide, and chlorofluorocarbons (CFCs). Emissions of these gases are attributable to human activities associated with the industrial/manufacturing, utilities, transportation, residential, and agricultural sectors (CEC, 2006a).

According to the USEPA, the Earth's average surface temperature has increased by about 1.2 to 1.4°F since 1900. The warmest global average temperatures on record have all occurred within the past 15 years, with the warmest two years being 1998 and 2005. Eleven of the years between 1995 and 2006 ranked among the hottest years on record since 1850, when reliable worldwide temperature measurements began (IPCC, 2007). Most of the warming in recent decades is likely the result of human activities. Other aspects of the climate are also changing, such as rainfall patterns, snow and ice cover, and sea level.

Global Implications

Recognizing the problem of global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. It is open to all members of the United Nations and WMO. The role of the IPCC is to assess on a comprehensive, objective, open, and transparent basis the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation. IPCC projects that the Earth's average surface temperature should rise 1.8 to 6.3ºF before the year 2100 (IPCC, 2007). At a more local level, the California Climate Action Team found that California-specific models estimate an average warming increase of 2.7 to 10.5ºF throughout California before the year 2100 (CAT, 2009). This may not seem like a significant increase, yet even at the lowest projected global increase of 1.8 ºF, the Earth would be warmer than it has been for 10,000 years (Miller, 2000).

The IPCC Fourth Assessment Report's Working Group I Summary for Policymakers synthesizes current scientific understanding of global climate change and projects future climate change using the most comprehensive set of well-established global climate models. The report incorporates findings of the current effects of global climate change. These findings include:

- The intensity of tropical cyclones (hurricanes) in the North Atlantic has increased over the past 30 years, which correlates with increases in tropical sea surface temperatures.
- Droughts have become longer and more intense and have affected larger areas since the 1970s, especially in the tropics and subtropics.
- Since 1900 the Northern Hemisphere has lost 7 percent of the maximum area covered by seasonally frozen ground.
- Mountain glaciers and snow cover have declined worldwide.
- Satellite data since 1978 show that the extent of Arctic sea ice during the summer has shrunk by more than 20 percent.
- Since 1961, the world's oceans have been absorbing more than 80 percent of the heat added to the climate, causing ocean water to expand and contributing to rising sea levels. Between 1993 and 2003, ocean expansion was the largest contributor to sea level rise.
- Melting glaciers and losses from the Greenland and Antarctic ice sheets have also contributed to recent sea level rise.

An enhanced greenhouse effect will generate new patterns of microclimate and will have significant impacts on the economy, environment, and transportation infrastructure and operations due to increased temperatures, intensity of storms, sea level rise, and changes in precipitation. Impacts may include flooding of tunnels, coastal highways, runways, and railways, buckling of highways and railroad tracks, submersion of dock facilities, and a shift in agriculture to areas that are now cooler. Such prospects will have strategic security as well as transportation implications.

Climate change affects public health and the environment. Increased smog and emissions, respiratory disease, reduction in the state's water supply, extensive coastal damage, and

changes in vegetation and crop patterns have been identified as effects of climate change. The impacts of climate change are broad-ranging and interact with other market failures and economic dynamics, giving rise to many complex policy problems. The findings are the latest in a string of reports warning that the rate of carbon dioxide accumulating in the atmosphere is increasing at an alarming pace.

California Implications

Increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's flood control system.

If anticipated flooding occurs, resultant effects could include increased coastal flooding, saltwater intrusion, and disruption of wetlands (CEC, 2006b). Many communities could experience compromised wastewater treatment due to inundation from rising sea levels (BCDC, 2009). Climate change and global warming could negatively affect agriculture, forestry, water resources, coastal areas, energy production, air quality, public health, public infrastructure, natural protections, sensitive species and habitats, public safety, and the economy (CAT, 2009; BCDC, 2009). The estimated economic value of shoreline development that could be impacted by a 55-inch rise in sea level is $62 billion. As the existing climate throughout California changes over time, mass migration of species, or worse, failure of species to migrate in time to adapt to the perturbations in climate, could also result.

Agriculture

Potential impacts, such as reduced water supply, more severe droughts, more winter floods, and drier growing seasons will affect California's agriculture. Many farms, especially in the fruit and nut business, require long-term investments, making fast adaptation difficult, and could thus experience serious losses if decisions continue to be made with no regard to expected climate changes.

Fishing

Studies found that as a result of changes in ocean conditions, the distribution and abundance of major fish stocks will change substantially. Impacts to fisheries related to El Niño/Southern Oscillation illustrate how climate directly impacts marine fisheries on short-term scales. Higher sea surface temperatures in 1997–1998 during the El Niño had a great impact on market squid, California's largest fishery by volume. The California Regional Assessment reports that landings fell to less than 1,000 metric tons in that season, down from 110,000 tons in the 1996–1997 season. Other unusual events also occurred such as poor salmon returns, a series of plankton blooms, and seabird die-offs.

Coastline

With climate changes, recreational facilities and developed coastlines will also be more vulnerable to hurricanes, storm surges, and flooding. Increasing population growth in coastal areas is a reason for further concern, since these areas could be more vulnerable to climate change impacts. Impacts of expected sea level rise and increased storm surges are numerous. Beachfront homes and harbors as well as wetlands may flood. Sewage systems may be overwhelmed by storm runoff and high tides.

Forests

The California Regional Assessment notes an increase in the number and extent of areas burned by wildfires in recent years, and modeling results under changing climate conditions suggest that fires may be hotter, move faster, and be more difficult to contain under future climate conditions. The factors which contribute to the risk of catastrophic fires (fuel loads, high temperatures, dry conditions, and wind) are typically present already in summer and fall seasons in California, but can exist at other times of the year, especially in drought conditions. Public safety is an issue as more home and tourism developments on coastal hills and mountains, and the foothills and higher elevations in the Sierra Nevada are highly susceptible to catastrophic wildfires.

Ecosystems

The current distribution, abundance, and vitality of species and habitats are strongly dependent on climatic (and microclimatic) conditions. Climate change is expected to result in warmer temperatures year-round, accompanied by substantially wetter winters. Rising sea level will significantly affect coastal wetlands because they are mostly within a few feet of sea level. As the sea rises, these wetlands will move inland. The overall acreage of wetlands will be reduced due to constraints by existing urban development and steeper slopes immediately inland of existing wetlands. Tidal rivers, estuaries, and relatively flat shoreline habitats will be more subject to damage by flooding and erosion. More severe storm surges from the ocean, due to higher sea levels, combined with higher river runoff could significantly increase flood levels by more than the rise in sea level alone. Erosion of beaches would decrease habitat for beach-dependent species, such as seals, shorebirds, and endangered species (for example, snowy plover and least tern).

The timing and amounts of water released from reservoirs and diverted from streams are constrained by their effects on various native fish, especially those that are listed under the federal and state endangered species acts as threatened or endangered. Several potential hydrological changes associated with global climate change could influence the ecology of aquatic life in California and have several negative effects on cold-water fish (DWR, 2006). For example, if climate change raises air temperature by just a few degrees Celsius, this change could be enough to raise the water temperatures above the tolerance of salmon and trout in many streams, favoring instead non-native fishes such as sunfish and carp (DWR, 2006). Unsuitable summer temperatures would be particularly problematic for many of the threatened and endangered fish that spend summers in cold-water streams, either as adults or juveniles or both (DWR, 2006). In short, climate change could significantly affect threatened and endangered fish in California. It could also cause non-threatened and non-endangered fish to reach the point where they become designated as such (DWR, 2006).

Changes in temperature and precipitation patterns would also shift California's current climate zones, and thus habitats associated with these zones, northward by approximately 100 to 400 miles, as well as upwards in elevation by 500 to 1,500 feet. Global climate change would alter the composition, structure, and arrangement of the vegetation cover of the state (forest and wildland). Species distribution would move geographically as the climate changes, with forest stands, woodlands, and grassland species predicted to move northward and higher in elevation. The entire vegetative community may be affected if non-native invasive species occupy sites and replace native plants. Outbreaks of insects and diseases could compromise forest health and the capability of the forest stands to reproduce and to store carbon on a landscape basis. Forest fires are likely to become more frequent and severe if soils become drier. Changes in pest populations could further increase the stress on forests.

Wildfire Risk

With climate change, the potential for wildfires may increase due to changes in fuel conditions, such as forests transitioning to chaparral and grasslands; precipitation, including longer dry seasons and higher extreme temperatures; wind, which affects the spread of wildfire; and other variables. Wildfire intensity and frequency have increased in recent years across the western United States, with the total area burned increasing nearly seven times for the period between 1987 and 2003 as compared to the period between 1970 and 1986 (CEC, 2009a). The wildfire season in the western United States has increased by 78 days since 1979 (CEC, 2009a). Land management is often blamed for the increase in wildfire frequency. A century of fire suppression has led to increased forest densities and accumulation of fuel wood that can result in more severe fires when this excess buildup of fuel is ignited. Yet climate also plays an important role. Warmer temperatures and longer dry seasons are the main reasons for the increasing trend in forest wildfire risk (CEC, 2009a). Reduced winter precipitation and early spring snowmelt deplete the moisture in soils and vegetation, leading to longer growing seasons and drought. These increasingly dry conditions provide more favorable conditions for ignition. In addition, higher temperatures increase evaporative water loss from vegetation, increasing the risk of rapidly spreading and large fires.

Climate change research predicts increased numbers and acres of wildfire. Wildfire occurrence statewide could increase from 57 percent to 169 percent by 2085 and by more than 100 percent in most northern California forests (Cal Natural Resources Agency, 2009). Fire severity is also predicted to increase as a result of more frequent severe fire weather. The wildfire season already appears to be starting sooner, lasting longer, and increasing in intensity (California Natural Resources Agency, 2009). Burned wildland acreage has increased in the last several decades. Over 48 million acres, or nearly half of the state, is at a high to extreme level of fire threat (California Natural Resources Agency, 2009).

Increases in the frequency and intensity of wildfires will make forests more susceptible to vegetation conversions from trees to brush or grasslands (California Natural Resources Agency, 2009). In order for trees to reestablish after wildfires, patches of living trees must be left to provide seeds for the recruitment of new seedlings. As wildfires increase in size, they can result in "stand-replacing" burns that are too big for natural regeneration. More frequent fires may also result in vegetation conversion by repeatedly killing regeneration. Vegetation conversions of chaparral and forest vegetation will impact biodiversity, habitats, watershed conditions, timber resources, and other goods and services.

On rangelands, climate-change-induced wildfire increases are predicted to increase grassland acreage, while decreasing brush and oak woodlands (California Natural Resources Agency, 2009). Wildfires may increase invasion by annual and brush non-native species, which are generally less palatable to livestock and wildlife than native grass and brush species. Annual grasses also increase fire risk and hazard by producing "flashy fuels" that ignite easily and carry fire quickly across the landscape.

Larger and more frequent wildfires will impact California's economy by increasing fire suppression and emergency response costs, damages to homes and structures, interagency post-fire recovery costs, and damage to timber, water supplies, recreation use, and tourism. The California Department of Forestry and Fire Protection (Cal-Fire) spent over $500 million on fire suppression during fiscal year 2007/2008. As climate change continues, these costs are expected to increase (California Natural Resources Agency, 2009).

Air Quality

Projected climate changes will impact the quality of California's air, public health, and environment. Higher temperatures increase the formation of O_3, PM_{10}, and $PM_{2.5}$, making it more difficult to meet the health-based air quality standards for these pollutants. Air pollution is also made worse by increases in natural hydrocarbon emissions and evaporative emissions of fuels and solvents which lead to higher levels of O_3, PM_{10}, and $PM_{2.5}$ during hot weather. Warmer temperatures that cause increased use of air conditioners can cause increased air pollutants from power plants and from vehicle operation. In addition, warming, drying, and increased winds could mean hotter, harder-to-control wildfires. These wildfires could result in increased levels of fine particulate matter that could also exceed state and federal standards and harm public health.

Water Supply

While most climate model simulations project relatively moderate changes in precipitation over this century, rising global temperatures are expected to result in reductions in snowpack for the Sierra Nevada (i.e., precipitation changing in the form of rain from snow). By the 2035 to 2064 period, the Sierra Nevada snowpack could decrease from 12 percent to 40 percent as compared to historic levels (depending on the climate scenario) (CalEPA, 2007). The Sierra Nevada snowpack currently acts as natural water storage by holding winter precipitation and releasing it during the spring and early summer months as the snow melts. According to the California Natural Resources Agency (2009), nearly 75 percent of California's available water supply originates in the northern third of the state (north of Sacramento), mainly from water stored in the Sierra Nevada snowpack. Reduction of this natural water storage during the winter could mean water shortages in the future and would require the alteration of the management of existing reservoirs (while not losing flood control capacity or hydropower generation capacity) and/or the construction of additional human-made reservoirs to compensate for this storage loss.

The state's water supply system already faces challenges to provide water for California's growing population. Climate change is expected to exacerbate these challenges through increased temperatures and possible changes in precipitation patterns. The trends of the last century, especially increases in hydrologic variability, will likely intensify in this century (California Natural Resources Agency, 2009). Californians can expect to experience more frequent and larger floods and deeper droughts. Increasing average temperatures may have several impacts on water supply and demand, affecting California's farms, municipalities, and ecosystems.

First, increasing winter and early spring temperatures will cause earlier melting of the Sierra Nevada snowpack, the most important seasonal surface reservoir of water in California. Historically this snowpack has released about 15 million acre-feet of water slowly over the warming spring and summer months (one acre-foot provides the annual water needs of one to two families) (California Natural Resources Agency, 2009). California's water storage and conveyance infrastructure gathers this melting snow in the spring and delivers it for use during the drier summer and fall months. This same infrastructure is also used for flood control in the winter and early spring by keeping lower reservoir levels. With earlier snowmelt and heavy winter/spring rains possibly coinciding, difficult tradeoffs may need to be made between water storage and flood protection.

Concerns over the availability, quality, and distribution of water are not new to California, but these concerns are growing and solutions are becoming more complex as water managers navigate competing interests and regulations to reliably provide quality water to farms,

businesses, and homes, while also protecting the environment and complying with legal and regulatory requirements. Water adaptation strategies are primarily driven by the possibility of reduced future water supplies and increased flood threat brought about by climate change.

The California Water Service Company (Cal Water) provides water service in the Planning Area as part of Cal Water's Chico-Hamilton City District (Chico District). The sole source of water supply for the customers of the Chico District is groundwater extracted from subbasins of the Sacramento Valley Groundwater Basin that underlie the district: the Vina Subbasin, the West Butte Subbasin, and the East Butte Subbasin (see Section 4.12, Public Services and Utilities, for an expanded discussion of water supply). Minimal research has been conducted on the effects of climate change on specific groundwater basins, groundwater quality, or groundwater recharge characteristics. Changes in rainfall and changes in the timing of the groundwater recharge season would result in changes in recharge. Warmer temperatures could lead to higher evaporation as well as prolonged drought periods that would reduce the amount of water entering the ground that could further limit deficient water supply conditions. Warmer and wetter winters could increase the amount of runoff available for groundwater recharge. Additional winter runoff, however, could be occurring at a time when groundwater basins are being recharged at their maximum capacity.

It is no simple matter to figure out how regional changes in precipitation, expected to result from global climate change, may affect water supplies. New analysis led by Massachusetts Institute of Technology (MIT) researchers has found that the changes in groundwater may actually be much greater than the precipitation changes themselves (MIT, 2008). For example, in places where annual rainfall may increase by 20 percent as a result of climate change, the groundwater might increase as much as 40 percent. Conversely, the analysis showed in some cases just a 20 percent decrease in rainfall could lead to a 70 percent decrease in the recharging of local aquifers (MIT, 2008). The analysis combines computer modeling to determine how precipitation, soil properties, and vegetation affect the transport of water from the surface to the aquifers below. The analysis focused on a specific semi-arid region near Lubbock, Texas, in the southern High Plains (MIT, 2008).

However, the exact effects of climate change on groundwater recharge depend on a complex mix of factors, including soil type, vegetation, and the exact timing and duration of rainfall events, so detailed studies will be required for each local region in order to predict the possible range of outcomes (MIT, 2008). According to the Butte County Groundwater Management Plan (2004), the Butte County Department of Water and Resource Conservation in coordination with the California Department of Water Resources, has developed and monitors the Sacramento Valley Groundwater Basin through an extensive monitoring network. Ongoing groundwater monitoring provides information needed to document current conditions, assess long-term trends, and efficiently respond to the effects of climate change.

Increased Flooding

Currently, there is no accurate information to accurately assess the impact of climate change for flood frequency or severity, because of the absence of detailed regional precipitation information from climate models and because water management choices can substantially influence overall flood risk. However, increased amounts of winter runoff could be accompanied by increases in flood event severity and warrant additional dedication of wet season storage space for flood control as opposed to water supply storage. This need to manage water storage facilities to handle increased runoff could in turn lead to water shortages during high water demand. It is recognized that these impacts would result in increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply.

Sudden Climate Change

Most global climate models project that anthropogenic climate change will be a continuous and fairly gradual process through the end of this century (DWR, 2006). California is expected to be able to adapt to the water supply challenges posed by climate change, even in some of the warmer and drier projections for change. Sudden and unexpected changes in climate, however, could leave water managers unprepared and could, in extreme situations, have significant implications for California and its water supplies. For example, there is speculation that some of the recent droughts that occurred in California and the western United States could have been due, at least in part, to oscillating oceanic conditions resulting from climatic changes. The exact causes of these events are, however, unknown, and evidence suggests such events have occurred during at least the past 2,000 years (DWR, 2006).

Current Greenhouse Gas Emissions

The following is a summary of current estimates of greenhouse gas emissions for the state, Butte County, and the City of Chico.

California Emissions

The California Energy Commission estimates that California is the second-largest state emitter of GHG emissions in the United States, behind Texas in absolute emissions (CEC, 2006a). However, the state has relatively low carbon intensity when considering GHG emissions per person or GHG emissions per unit gross state product. Worldwide, California is estimated to be the 12th to 16th largest emitter of CO_2 and is responsible for approximately 2 percent of the world's CO_2 emissions (CEC, 2006a). The California Air Resources Board (CARB) released estimates of California's 1990 emissions inventory, which amounted to 433.29 million gross metric tons of carbon dioxide equivalent (MMT CO_2e) (CARB, 2009). CARB has also estimated that 2006 emissions levels were 483.87 MMT CO_2e. Factoring in the reduction in GHG emissions due to the functioning of existing forests and rangeland as carbon sinks, California's GHG emissions in 2006 were 479.80 MMT CO_2e. Greenhouse gas emissions for California were apportioned to the following sectors in 2006: transportation (38.4 percent), electric power (21.9 percent), commercial and residential energy usage (9.2 percent), industrial (19.9 percent), recycling and waste (1.3 percent), high global warming potential gases (3.1 percent), agriculture (6.2 percent), and forestry (0.04 percent) (CARB, 2009).

Butte County Emissions

A 2006 GHG inventory for Butte County was prepared as part of the Butte County General Plan. In 2006, GHG emissions in Butte County totaled 601,266 $MTCO_2e$ (Butte County, 2010). On-road vehicles contributed 295,750 $MTCO_2e$, or 49.2 percent, and off-road equipment contributed an additional 6.8 percent, or 40,939 $MTCO_2e$ (Butte County, 2010). Approximately 28.1 percent of the 2006 GHG emissions can be attributed to electricity and natural gas used to power or heat residences, homes, and industries (Butte County, 2010). Industrial sources (stationary sources) related to the burning of other fuels or fugitive emissions accounted for 4,093 $MTCO_2e$, or 0.7 percent (Butte County, 2010). Waste generated by Butte County residents in 2006 will produce 17,873 metric tons of GHGs (due to landfill methane) over the next 30 years, roughly the decompositional lifetime of the landfilled waste (Butte County, 2010). Waste currently in place at the Neal Road Recycling and Waste Facility will result in 14,247 $MTCO_2e$ in the form of landfill methane that year; this amount is 2.4 percent of the 2006 total. The burning of fuel to power agricultural equipment in 2006 contributed 77,019 $MTCO_2e$, roughly 10 percent of the on-road vehicle emissions and 12.8 percent of the county total for 2006 (Butte County, 2010).

City of Chico Emissions

In April 2008, the City of Chico completed a GHG inventory for calendar year 2005 titled *City of Chico Greenhouse Gas & Criteria Air Pollutant Emissions Inventory*. The inventory analyzed carbon dioxide (CO_2) emissions from fuel use, electricity use, and waste.

Community-Wide Inventory

The community-scale GHG inventory included the CO_2 generated from all residences and businesses in the city and all traffic that drives on roads in the city. The largest source of CO_2 was transportation (54 percent), followed by the commercial sector (23 percent), the residential sector (19 percent), the waste sector (4 percent), and the industrial sector (less than 1 percent). The report concluded that Chico was responsible for approximately 610,951 metric tons of CO_2 in 2005.

The GHG inventory also provided an analysis of GHG emission by fuel type and a summary of energy use. The majority of GHG emissions generated by the Chico community originated from gasoline, which generated nearly half of all GHG emissions (44.8 percent). The next largest amount of GHG emissions generated by Chico originated from the use of generated electricity (23.3 percent), followed by natural gas consumption (18.4 percent).

Municipal Operations and Facilities Inventory

City operations and facilities accounted for about 1 percent of the overall community emissions. Within the City operations and facilities, the key contributors to CO_2 were emissions associated with the vehicle fleet (26 percent), followed by the water/sewage sector (25 percent), the employee commute sector (22 percent), the streetlights sector (13 percent), the buildings sector (12 percent), and the waste sector (2 percent).

ENERGY CONSUMPTION

Electricity

California

In 2008, California used over 285,574 gigawatts of electricity (CEC, 2009b).[1] California's electricity generation system currently generates over 290,000 gigawatt hours of electricity each year, which is transported over California's 32,000 miles of transmission lines (CEC, 2007a). By 2020, electricity consumption in the state is projected to reach almost 320,000 gigawatts (CEC, 2009b). In 2008, this electricity was produced from power plants fueled by natural gas (45.7 percent), hydrologic sources (11.0 percent), coal (18.2 percent), nuclear (14.4 percent), and renewable methods (10.6 percent). Approximately 68.1 percent of the electricity was generated within California, with the balance imported from other states, Canada, and Mexico (CEC, 2009b). Overall electricity use in California is projected to grow by 1.2 percent annually (CEC, 2009b). However, peak demand is growing at a rate of 1.30 percent (850 megawatts) per year (CEC,

[1] Energy usage is typically quantified using the British thermal unit (BTU). As points of reference, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWhr) of electricity are 124,884 BTUs, 1,000 BTUs, and 3,400 BTUs, respectively.

2009b). This increase in peak demand is the result of a population that is moving inland to the warmer areas of the state, prompting higher demand for electricity for air conditioning.

Electricity usage varies substantially by the type of uses, type of construction materials used, and the efficiency of all electricity-consuming devices within a building. The average annual usage of electricity is roughly 6,500 kilowatt hours (kWhr) per residence. The average annual usage of electricity is roughly 13 kWhr per square foot for all commercial buildings and roughly 18 kWhr per square foot for office/research and development buildings (CEC, 2007a).

Electricity supply in California involves a complex grid of power plants and transmission lines located in the western United States, Canada, and Mexico. Almost 32 percent of the electricity used in California is imported from 11 other western states as well as from Canada and Mexico. The issue is complicated by market forces that have become prominent since 1998, when a new regulatory environment commonly referred to as "deregulation" took effect in California. Supply is further complicated by the fact that the peak demand for electricity is significantly higher than the off-peak demand. For example, in August 2004, peak electric demand — due in large part to hot weather — reached a record high of 44,497 megawatts, which is almost double the lowest demand period.

City of Chico

Electric service within the City of Chico is provided by Pacific Gas and Electric (PG&E). PG&E provides electric service to approximately 15 million people throughout a 70,000 square mile service area in northern and central California (PG&E, 2009). Electricity purchased from PG&E by local customers in Butte County, including Chico, is generated and transmitted to the area by a statewide network of power plants and transmission lines. Various transmission and distribution lines traverse Butte County, serving to carry electrical power from power plants within and outside the county to electrical substations where power is converted to voltages suitable for distribution to end users. Please refer to Section 4.12, Public Services and Utilities, for an expanded discussion of electric services in Chico.

In 2008, the City of Chico released the *Greenhouse Gas & Criteria Air Pollutant Emissions Inventory,* which provides an estimate of GHG emissions produced within Chico. The primary data used to determine the amount of GHG emissions for the residential, commercial, and industrial sectors within Chico was electrical and natural gas consumption information obtained through PG&E. In 2005, Chico residential, commercial, and industrial uses consumed a combined 1,220,809,991 kilowatt hours of electricity and natural gas (City of Chico, 2008).

Natural Gas

California

In 2007, California consumed about 12,494 million (MM) therms of natural gas. The California natural gas demand for 2010 is projected to be just slightly less than this (CEC, 2009b). As a state, California is the second largest natural gas consumer in the United States, representing more than 10 percent of national natural gas consumption. Customers in the residential and commercial sectors, referred to as "core" customers, accounted for 29 percent of the state's natural gas demand in 2008 (CEC, 2009b). Large consumers such as electricity generators and the industrial sector, referred to as "noncore" customers, accounted for about 71 percent of demand in the same year. California remains heavily dependent on natural gas to generate electricity, which accounted for more than 40 percent of natural gas demand in 2008 (CEC, 2009b). Approximately 13.5 percent of the natural gas produced in 2006 was within California,

with the balance imported via pipeline from other states and Canada (CEC, 2007a). California is at the farthest end of those pipelines, forcing it to compete with other states that are located closer to generation plants in Canada for supplies.

As with electricity, natural gas usage in California for different land uses varies substantially by the type of use, type of construction materials, and the efficiency of all gas-consuming devices in a given building. The average annual usage of natural gas is roughly 45,000 cubic feet per residence. The average annual usage of natural gas is roughly 37 cubic feet per square foot for commercial buildings and roughly 29 cubic feet per square foot for office buildings.

According to the California Energy Commission's 2009 Integrated Energy Policy Report, natural gas has become an increasingly important source of energy since more of the state's power plants rely heavily on this fuel. While California's successful efficiency programs and its reliance on renewable sources of electricity should slow the demand of natural gas, competition for the state's imported supply is increasing. This reliance on imported gas leaves the state vulnerable to price shocks and supply disruptions.

The annual forecast of North American natural gas production has decreased each year since 2002, a difference of about eight trillion cubic feet a year (CEC, 2007a). PG&E has publicly commented that it believes that western Canadian natural gas production will be less than predicted while another energy company, Sempra/SoCalGas, believes that several supply basins throughout North America will produce less than forecast.

Natural gas is critical in meeting the state's energy demand. California's growing population requires more natural gas for residential heating and cooking, industrial processing, and most importantly, electricity production. Natural gas, like petroleum, has become a global commodity and California competes not just with other U.S. states for access to less abundant natural gas supplies, but also with Western Europe and Asia Pacific consumers in a world market for natural gas. The result is that prices are likely to continue increasing (CEC, 2007a).

Peak electricity demand in California is expected to grow at about 1.30 percent each year through 2017 and will be the sector with the largest natural gas increase over the next decade. Before 1997, natural gas consumption for electricity averaged 500 billion cubic feet each year (1,400 million cubic feet per day); however, future demand is anticipated to average 2,500 million cubic feet each day (CEC, 2007a).

City of Chico

Natural gas service in Chico is also provided by PG&E. Much of PG&E's natural gas supply comes from Canada and is supplied to the region through the Hershey station in Colusa County. Wild Goose Storage Inc. operates an underground natural gas storage facility in Butte County. A 25-mile pipeline carries gas between the main PG&E pipeline in Colusa County and the Wild Goose facility, which stores natural gas in an underground rock formation that previously produced natural gas. Compressors are used to inject gas into the reservoir, where it is stored until subsequently withdrawn and delivered to customers over the PG&E natural gas transmission and distribution system. Please refer to Section 4.12, Public Services and Utilities, for an expanded discussion of natural gas services in Chico.

Vehicle Energy Consumption

California

California's transportation system includes 33.5 million registered vehicles (cars, trucks, trailers, and motorcycles) and almost 170,000 miles of roads maintained by local, state, and federal governments. A total of 2,453 miles are U.S. interstate freeways. The state's motor vehicle fleet includes private passenger cars as well as buses, motorcycles, and light- and heavy-duty trucks, which are used for passenger and freight movement respectively (CEC, 2007b). In 2007, taxable gasoline sales (including aviation gasoline) in California accounted for 15,672,334,029 gallons of gasoline (CEC, 2007b). For more information regarding state transportation energy, go to the CEC website at http://energyalmanac.ca.gov/transportation/summary.html#fuel

City of Chico

Chico's transportation network is characterized by two state highways, State Route 99 and State Route 32. Arterial streets provide regional and local access. Compared with other cities, mobility within Chico is generally good with an average commute time of 17.4 minutes (City of Chico, 2008). The low commute time is a result of the city's compact form and the availability of commercial centers, educational institutions, medical facilities, and recreational site within the city limits (City of Chico, 2008). Despite efforts to create a balanced transportation system that serves bicyclists and pedestrians, roughly 70 percent of commuters commute in single-occupancy vehicles (City of Chico, 2008). According to the *Greenhouse Gas & Criteria Air Pollutant Emissions Inventory*, the City of Chico consumed 34,220,413 gallons of automotive gasoline and diesel fuel in 2005**.**

4.14.2 REGULATORY FRAMEWORK

FEDERAL

Greenhouse Gases

The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). Previous to 2007, the USEPA did not have regulations addressing greenhouse gases. The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA and that USEPA has the authority to regulate emissions of GHGs. However, there are no federal regulations or policies regarding GHG emissions applicable at the time of this writing.

STATE

Assembly Bill 1493

Assembly Bill (AB) 1493 (Pavley) of 2002, (Health and Safety Code Sections 42823 and 43018.5), requires CARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as "Pavley I." The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce

GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the State is authorized to do under the CAA, to allow the State to require reduced tailpipe emissions of CO_2. In late 2007, the USEPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the USEPA related to this denial.

In January 2009, President Obama instructed the USEPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the USEPA granted California's waiver request enabling the State to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Also in 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the United States. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon (mpg) by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order S-3-05

Executive Order S-3-05 (state of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created a Climate Action Team (CAT) made up of members from various state agencies and commissions. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

Assembly Bill 32 (AB 32) [2], requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The reduction to 1990 levels will

[2] Assembly Bill 32 is codified at Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561-38565, 38570, 38571, 38574, 38580, 38590, 38592-38599

be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32, specifies that regulations adopted in response to AB 1493 , (Health and Safety Code Sections 42823 and 43018.5), should be used to address GHG emissions from vehicles. However, AB 32, also includes language stating that if the AB 1493, regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32, also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October of 2008, CARB published its Climate Change Proposed Scoping Plan, which is the State's plan to achieve GHG reductions in California required by AB 32, (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). The scoping plan contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_2e, or approximately 30 percent from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent, from 2002–2004 average emissions). The scoping plan also includes CARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations are from improving emission standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e), implementation of the Low-Carbon Fuel Standard (15.0 MMT CO_2e), energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e). CARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the proposed scoping plan does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, CARB is also developing an additional protocol for community emissions.) CARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The proposed scoping plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the proposed scoping plan expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below. The Climate Change Proposed Scoping Plan was approved by CARB on December 11, 2008.

Senate Bill 1368

Senate Bill 1368 (SB 1368) (codified in Public Utilities Code, Section 8340(h)) is the companion bill of AB 32. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a greenhouse gas emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The bill also required the California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards

cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

California Climate Action Registry

The California Climate Action Registry (CCAR) was established in 2000 by Senate Bill 1771[3] and modified in 2001 by Senate Bill 527[4] as a nonprofit voluntary registry for GHG emissions. The purpose of CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry. The California Climate Action Registry has now merged its GHG emissions registry with the climate registry and is primarily focused on offset projects and research.

Senate Bill 97

Senate Bill 97 (SB 97) (Public Resources Code Sections 21083.05 and 21097), signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under the California Environmental Quality Act (CEQA). This bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The Resources Agency is required to certify and adopt those guidelines by January 1, 2010.

Senate Bill 1078 and Governor's Order S-14-08

Senate Bill 1078 (SB 1078)[5] addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. SB 1078 changed the target date of this bill's implementation to 2010. This Senate Bill would affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewable Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target.

[3] Senate Bill 1771 is codified at Health and Safety Code Section 42800 et seq. and Public Resources Code Section 25730 et seq.

[4] Senate Bill 527 is codified at Health and Safety Code Sections 42400.4, 42801, 42810, 42821-42824, 42840-42843, 42860, 42870, 43021, 42410, 42801.1, 43023

[5] Senate Bill 97 is codified at Public Utilities Code Sections 387, 390.1, 399.25 and Section 399.11 et seq.)

Senate Bill 375

Senate Bill 375 (SB 375)[6], signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years, but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Executive Order S-13-08: The Climate Adaptation and Sea Level Rise Planning Directive

On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08 in order to reduce and assess California's vulnerability to climate change and sea level rise. The Executive Order initiated four major actions:

1) Initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009;

2) Request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts;

3) Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and

4) Initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

The Executive Order will provide consistency and clarify to state agencies on how to address sea level rise in current planning efforts.

[6] Senate Bill 375 is codified at Government Code Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01 as well as Public Resources Code Sections 21061.3, 21159.28, and Chapter 4.2.

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Energy Commission adopted the 2008 Standards on April 23, 2008, and the Building Standards Commission approved them for publication on September 11, 2008. The new standards went into effect on July 1, 2009 (CEC, 2008).

LOCAL

City of Chico

As part of a separate but related process, the City is developing a Climate Action Plan (CAP). The CAP will provide direction to ensure the City fulfills its commitment to the U.S. Conference of Mayors Climate Protection Agreement to reduce greenhouse gas emissions by 25 percent from 2005 levels by the year 2020. The plan will include a summary of the recently conducted Community Greenhouse Gas Emissions Inventory as well as programs and actions to reduce greenhouse gas emissions in the energy, transportation, solid waste, water, and land use and development sectors that will help achieve Chico's emission reduction target. Financial analysis of the emission reduction strategies will also be included. The CAP will implement the policy direction of the proposed General Plan Update to reduce greenhouse gases. Specifically, the proposed Sustainability Element includes a policy with a supporting action (SUS-6.1) to continually update the citywide greenhouse gas inventory and the CAP as necessary to achieve the City's emission reduction goal. The CAP relied on the public participation process for the General Plan Update and responds to the community desires outlined in the vision, goals, policies, and actions of the proposed General Plan Update.

4.14.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G and Appendix F of the California Environmental Quality Act (CEQA) Guidelines and Butte County Air Quality Management District (BCAQMD) recommendations, impacts related to energy use and climate change are considered significant if implementation of the proposed project would result in any of the following:

1) Inefficient, wasteful, and unnecessary consumption of energy.

2) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

3) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

The reader is referred to Section 4.12, Public Services and Utilities, regarding potential infrastructure impacts associated with servicing development under the proposed General Plan Update.

BCAQMD does not currently have an adopted threshold of significance for GHG emissions. Instead, BCAQMD recommends that local agencies discuss GHG emissions consistent with the

California Air Pollution Control Officers Association's (CAPCOA) CEQA and Climate Change white paper (see CAPCOA 2008) and illustrate consistency with CAPCOA's Model Policies for Greenhouse Gases in General Plans (CAPCOA, 2009). In addition the BCAQMD recommendations, significance thresholds developed by the Bay Area Air Quality Management District (BAAQMD) for General Plans are employed for purposes of this analysis. The primary objective in employing BAAQMD's GHG thresholds is to identify a GHG significance threshold. BAAQMD's GHG thresholds are based on statewide climate protection planning processes under AB 32 and thus provide a methodology that could be replicated elsewhere in the state. According to Appendix D, *Threshold of Significance Justification* of the BAAQMD CEQA Guidelines (June 2010), BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions.

If a plan would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact and would be considered significant. If mitigation can be applied to lessen the emissions such that the plan meets its share of emission reductions needed to address the cumulative impact, the project would be considered less than significant. BAAQMD's general plan emission threshold is 6.6 metric tons of CO_2 equivalent (CO_2e) per service population (residents plus employees) per year in 2020 (BAAQMD, 2010). The BAAQMD thresholds were chosen based on the substantial evidence that such thresholds represent quantitative and/or qualitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA (BAAQMD, 2010). Compliance with such thresholds will be part of the solution to the cumulative GHG emissions problem, rather than hinder the state's ability to meet its goals of reduced statewide GHG emissions.

Utilization of this threshold was considered reasonable and appropriate by BCAQMD staff due to the fact that the BCAQMD does not currently have an adopted threshold of significance for GHG emissions (Williams, 2010). Furthermore, BCAQMD recommendations that local agencies illustrate consistency with the California Air Pollution Control Officers Association's (CAPCOA) Model Policies for Greenhouse Gases in General Plans has still been completed (see **Table 4.14-1**) in conjunction with the BAAQMD significance threshold.

GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. No single land use project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts and as such is addressed only as a cumulative impact.

METHODOLOGY

Evaluation of potential electricity or natural gas impacts was based on information from the California Energy Commission and the California Public Utilities Commission. A detailed list of reference material used can be found at this end of this section. This material was compared to the proposed General Plan Update's specific electricity and natural gas impacts.

Direct area source and mobile source GHG emissions were quantified using the URBEMIS model. Indirect emissions from electricity and natural gas demand and water conveyance were quantified in accordance with the methodology outlined in CAPCOA's CEQA and Climate Change white paper (CAPCOA, 2008).

As noted in Section 3.0, Project Description, the proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. These "smart growth" strategies have well-documented benefits in terms of lower energy use and fewer and shorter vehicle trips since residents and employees of these areas have more home, work, and shopping opportunities within walking or biking distance. Transit is also a more viable form of transportation since these developments have a larger number of potential transit users and can support more frequent transit service to regional destinations. The City of Chico 4D Model Development and Results prepared for the proposed General Plan Update focused on how smart growth developments increase the viability of non-auto modes of travel and thereby decrease the number of vehicle trips and the amount of vehicle miles traveled (VMT), and thus GHG emissions from mobile sources.

The following proposed General Plan Update policies and actions address impacts related to energy consumption and the city's contribution to greenhouse gases:

Policy SUS-3.4 *(Sustainable Fleet) – Support sustainable modes of transportation for City vehicles.*

Policy SUS-4.1 *(Green Public Buildings) – Incorporate green building techniques in the site design, construction, and renovation of public projects.*

Action SUS-4.1.1 *(Green Facilities) – Construct new municipal facilities greater than 5,000 square feet in size to at least the baseline certification level of Leadership in Energy and Environmental Design (LEED), or its equivalent.*

Policy SUS-5.1 *(Energy Efficient Retrofits) – Encourage energy efficient retrofit improvements in existing buildings.*

Policy SUS-5.2 *(Energy Efficient Design) – Support the inclusion of energy efficient design and renewable energy technologies in public and private projects.*

Action SUS-5.2.1 *(Integration of Energy Efficiency Technology) – Suggest the integration of energy efficiency measures and renewable energy devices, in addition to those required by the state, during early project review.*

Action SUS-5.2.3 *(Passive Solar) – Incorporate passive solar design principles (e.g., building materials, high-albedo roofs, eaves, window placement, and building orientation) into the City's Design Guideline Manual.*

Action SUS-5.2.4 *(Remove Barriers to Renewable Energy) – Revise the Municipal Code to allow deviations from normal requirements such as height limits, setbacks, or screening when doing so is necessary to allow the efficient use of renewable energy devices.*

Policy LU-1.3 *(Growth Plan) – Maintain balanced growth by encouraging infill development where City services are in place, and allowing expansion into Special Planning Areas.*

Action LU-2.3.3 *(Encourage Mixed-Use) – Allow horizontal and/or vertical mixed-uses in the following land use designations:*

- *Residential Mixed Use*
- *Neighborhood Commercial*
- *Commercial Mixed Use*
- *Regional Commercial*
- *Office Mixed Use*
- *Industrial Office Mixed Use*

Action LU-2.3.4 *(Require Mixed-Use) – Require horizontal or vertical mixed-use in the following land use designations:*

- *Special Mixed Use*
- *Mixed Use Neighborhood Core*
- *Special Planning Areas (with the exception of the Bell-Muir SPA)*

Policy LU-3.1 *(Complete Neighborhoods) – Direct growth into complete neighborhoods with a land use mix and distribution to reduce auto trips and support walking, biking, and transit use.*

Policy LU-3.2 *(Neighborhood Serving Centers) – Promote the development of strategically located neighborhood serving centers with commercial, employment or entertainment uses; provide housing opportunities; are within walking distance of surrounding residents; and are served by transit. Neighborhood center designations are Neighborhood Commercial (NC) and Mixed Use Neighborhood Core (MUNC).*

Policy PPFS-5.1 *(Protect Aquifer Resources) – Protect the quality and capacity of the Tuscan Aquifer underlying Chico.*

Action PPFS-5.1.1 *(Groundwater Supplies and Budgeting) – Support Cal Water's periodic evaluation of groundwater availability using the Butte Basin Groundwater Model and their work to establish a water supply budget with specific measures to assure sustainable levels of groundwater.*

Policy PPFS-5.2 *(Future Water System) – Consult with Cal Water to ensure that its water system will serve the City's long-term needs and that State regulations SB 610 and SB 221 are met.*

Action PPFS-5.2.1 (Water Flow and Pressure) – Ensure that new City infrastructure provides for water flow and pressure at sufficient levels to meet domestic, commercial, industrial, institutional, and firefighting needs.

Action PPFS-5.2.2 (Wells and Private Water Systems) – Where public water delivery systems are available, discourage use of wells and private water systems for domestic water use.

Action PPFS-5.2.3 (Water Services for New Development) – Work with Cal Water to ensure that water treatment and delivery infrastructure are in place prior to occupancy or assured through the use of bonds or other sureties to the City and Cal Water's satisfaction.

Policy PPFS-5.3 (Water Conservation) – Work with Cal Water to implement water conservation management practices.

Action PPFS-5.3.1 (Recycled Wastewater) – Explore the feasibility of using recycled wastewater to provide irrigation to parks, landscaped areas and other suitable locations to reduce the demand for treated water.

Policy PPFS-5.4 (Large Water Users) – Encourage large water users such as CSU Chico, Chico Unified School District, and Enloe Medical Center, to implement water conservation practices.

Action PPFS-6.1.1 (Update the Storm Drainage Master Plan) – Update, adopt and implement an updated Storm Drainage Master Plan that identifies areas with infrastructure deficiencies and establishes a program to amend the deficiencies. Address drainage issues on a basin or sub-basin scale. Identify opportunities to increase infiltration, based on such factors as existing infrastructure, geology, the hydrology and hydraulics of the receiving waters, and planned land uses.

Action PPFS-6.1.2 (Development Fees) – Update the development fee program as needed to ensure that storm water drainage development fees are equitable and adequate to pay for the storm water drainage infrastructure needed for future development.

Policy PPFS-6.5 (Flood Control) – Manage the operation of the City's flood control and storm drainage facilities and consult with local and state agencies that have facilities providing flood protection for the City.

Action PPFS-6.5.1 (Flood Management) – Consult with Butte County and other flood control agencies to ensure that all possible actions are taken to prevent floodwaters from entering the City.

Action PPFS-6.5.3 (Flood Impacts) – Require that new development not increase flood impacts on adjacent properties in either the upstream or downstream direction.

Action PPFS-6.5.4 *(Flood Zones) – Require new development to fully comply with State and Federal regulations regarding development in flood zones.*

Policy OS-1.1 *(Sensitive Habitats and Species) – Preserve native species and habitat through land use planning, cooperation, and collaboration.*

Action OS-1.1.1 *(Development/Preservation Balance) – Direct development to appropriate locations consistent with the Land Use Diagram, and protect and preserve areas designated Open Space.*

Action OS-1.1.2 *(Regional Conservation Planning) – Actively participate in regional conservation planning efforts, in particular the Butte County Habitat Conservation Plan process, which seeks the preservation of habitat areas needed for the ongoing viability of native species, sponsored by the Butte County Association of Governments.*

Action OS-1.1.3 *(Sustainable Community Strategy) – Work with Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart growth development to urbanized areas.*

Policy S-1.1 *(Emergency Preparedness) – Promote public safety from hazards that may cause death, injury, or property damage through emergency preparedness and awareness.*

Action S-1.1.1 *(Emergency Plan Maintenance) – Maintain and update, as needed, the City's Emergency Plan to guide emergency management in the City.*

Action S-1.1.2 *(Emergency Response Awareness) – Promote community awareness and preparedness for hazards.*

Action S-1.1.3 *(Incident Training) – Continue to participate in the National Office of Emergency Services' National Incident Management System program, which provides a standardized approach to emergency incidents.*

Policy S-2.1 *(Potential Flood Hazards) – When considering areas for development, analyze potential impacts of flooding.*

Action S-2.1.1 *(Flood Hazard Analysis) – As part of project review, analyze potential impacts from flooding and require compliance with appropriate building standards and codes for structures subject to 200-year flood hazards.*

Action S-2.1.2 *(Flood Hazard Designations) – Continue efforts to work with the Federal Emergency Management Agency and state and local agencies to evaluate the potential for flooding, identify areas susceptible to flooding, accredit the flood control levees in the*

City, and require appropriate measures to mitigate flood related hazards.

Policy S-4.1 *(Fire Safety Staffing) – Maintain adequate fire suppression and prevention staffing levels.*

Action S-4.1.1 *(Fire Response Time) – Strive to maintain an initial response time of 4 minutes or less for at least 90 percent of emergency response calls for urbanized areas.*

Policy S-4.2 *(Interagency Coordination) – Continue to maintain interagency relationships to maximize fire protection services and support programs that reduce fire hazards.*

Action S-4.2.1 *(Interagency Programs) – Continue to work with CalFire and the Butte County Fire Department on programs that will enhance fire protection and firefighting capabilities in the Planning Area, including maintaining aid agreements.*

Policy S-4.3 *(Fire Safety Standards and Programs) – Support the development and implementation of standards and programs to reduce fire hazards, and review development and building applications for opportunities to mitigate fire hazards and ensure compliance with relevant codes.*

Action S-4.3.1 *(Standards to Protect Structures) – Maintain, and update as needed, the standards manual for protecting structures in wildland fire areas.*

Action S-4.3.2 *(Structural Standards) – Incorporate building construction standards for the Local Resource Area, areas which are provided City fire suppression services, that are consistent with the requirements for the State Responsibility Area, areas that are provided State and County fire suppression services for State-designated Very High, High and Moderate Fire Hazard Severity Zones.*

Action S-4.3.3 *(Project Design) – As part of project review process in wildland fire areas, require consideration of emergency evacuation routes and defensible buffer areas.*

Action S-4.3.4 *(Development Standards) – Encourage the County to require development in unincorporated area within the City's Sphere of Influence to conform to the City's development standards.*

Action S-4.3.5 *(Fire Sprinklers, New Structures) – Consider adoption of an ordinance that exceeds state standards requiring automatic fire sprinklers in new construction.*

Policy S-4.4 *(Vegetation Management) – Support vegetation management and weed abatement programs that reduce fire hazards.*

Policy S-5.4 *(Collaboration and Coordination) – Maintain strong relationships with local and state law enforcement agencies, and participate in disaster preparedness planning.*

Action S-5.4.3 *(Disaster Planning) – Through the Butte County Office of Emergency Services, participate with area public safety agencies to plan and train for disaster preparedness.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that address climate change and energy use and avoid or minimize significant impacts.

IMPACTS AND MITIGATION MEASURES

Inefficient, Wasteful, and Unnecessary Consumption of Energy (Standard of Significance 1)

Impact 4.14.1 Development under the proposed General Plan Update would increase the consumption of energy associated with electrical, natural gas, and vehicle fuel. However, implementation of proposed General Plan Update policies and state programs and requirements would ensure that energy usage is not inefficient, wasteful, or unnecessary. This is considered to be a **less than significant** impact.

Residential and Nonresidential Energy Use

Full buildout of the 2030 General Plan Land Use Diagram would result in an increase of 21,495 housing units and 51,588 persons in the SOI, for a total of 62,933 housing units and a population of 151,039. This increase in population and housing units, as well as nonresidential growth associated with the proposed General Plan Update, would increase demand for electrical and natural gas service and associated infrastructure. As previously mentioned, in 2005, Chico residential, commercial, and industrial uses consumed a combined 1,220,809,991 kilowatt hours of electricity and natural gas (City of Chico, 2008).[7]

According to the energy consumption analysis conducted for the proposed General Plan Update (**Appendix F**), the City of Chico consumed a combined 1,431,704,000 kilowatt hours of electricity and natural gas in 2008, and it is projected to consume a combined 2,181,775,000 kilowatt hours of electricity and natural gas in 2030 with implementation of the proposed General Plan. This is an increase of 750,071,000 kilowatt hours of energy consumed over existing conditions.

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent update of

[7] Natural gas, typically measured in therms or BTUs, has been converted to kilowatt hours in order to achieve consistency between electricity and natural gas units.

these standards is contained in the *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*. According to the U.S. Department of Energy, California's building efficiency standards (along with those for energy-efficient appliances) have saved more than $56 billion in electricity and natural gas costs since 1978. The updated standards contained in these 2008 Building Energy Efficiency Standards are expected to save an additional $23 billion by 2013 (USDE, 2009). These projections are based on the standards' provisions to:

- Respond to the Global Warming Solutions Act of 2006, which mandates that California must reduce its greenhouse gas emissions to 1990 levels by 2020.

- Pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.

- Act on the findings of California's Integrated Energy Policy Report (IEPR) that standards are the most cost-effective means to achieve energy efficiency, expects the Building Energy Efficiency Standards to continue to be upgraded over time to reduce electricity and peak demand, and recognizes the role of the standards in reducing energy related to meeting California's water needs and in reducing greenhouse gas emissions.

- Meet the West Coast Governors' Global Warming Initiative commitment to include aggressive energy efficiency measures into updates of state building codes.

- Meet the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards (CEC, 2008).

The *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* include code regulations for lighting; windows; roofing; skylights; swimming pool and spa equipment; heating, ventilation, and air conditioning equipment and controls; and the New Solar Homes Partnership (NSHP). Part of the California Solar Initiative, NSHP provides financial incentives and other support to home builders to encourage construction of energy-efficient solar homes. High-performance windows that are more resistant to heat and better insulated will now be required in new homes. Heating, ventilating, and air conditioning systems for homes and businesses must now be more efficient. "Cool roof" standards have also been upgraded to include residential and nonresidential buildings. Cool roofs are made of highly reflective, insulated roofing materials that stay up to 40 degrees cooler than normal roofing materials under a hot summer sun. Cool roof standards are designed to reduce air conditioner demand, save money, and reduce the urban heat island effect. A cool roof can reduce a homeowner's electricity consumption by as much as 20 percent (USDE, 2008).

The new standards also require energy-efficient lighting, including expanded use of skylights in large nonresidential buildings. For example, the old requirement to install skylights in commercial warehouses larger than 25,000 square feet has been changed to include warehouses starting at 8,000 square feet. As a result, businesses will use more natural daylight and save on electricity costs.

Many of the changes in the standards are tailored to help reduce not only overall energy use, but peak energy use (electricity demand on hot summer days when air conditioning loads can nearly double California's need for power). The latest efficiency standards are expected to cut the state's peak energy demand by 129 megawatts the first year the standards are in effect and increase cumulatively in subsequent years (USDE, 2008). By some estimates, the new standards will save as much as 500 megawatts by 2013 (USDE, 2008).

As previously mentioned, the proposed General Plan Update would result in an increase of 750,071,000 kilowatt hours of energy consumed over existing conditions. However, future residential and nonresidential development under the proposed General Plan Update would be required to adhere to the energy efficiency requirements of the *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings.* New development will be more energy efficient per square foot than existing energy use modeling data can quantify. Therefore, the projected increase of energy consumed over existing conditions would most likely be much less than 750,071,000 kilowatt hours.

Transportation Energy Use

While an increase in population as anticipated under the proposed General Plan Update would result in an increase in vehicle trips, these trips would be reduced in length due to the increased density proposed under the proposed General Plan Update, thus reducing the amount of automobile fuel consumed. Strategies in the proposed General Plan Update include promoting compact, walkable, infill, and mixed-use development and focusing redevelopment along transit corridors and at other key locations. As shown in the City of Chico 4D Model Development and Results (the 4D analysis identifies the smart growth enhancement developed for the City of Chico VISUM TDF model and presents the results of the traffic travel demand forecast [TDF] model run when the smart growth enhancement is enabled), vehicle miles traveled (VMT) per household for build-out conditions under the proposed General Plan Update would be reduced by 11 percent as compared to build-out under the 1994 General Plan (see **Appendix B**).

According to a fuel consumption analysis conducted for the proposed General Plan Update (**Appendix F**), the City of Chico consumed approximately 165,509 gallons of automotive fuel (diesel and gasoline) per day in 2008. As a consequence of the proposed General Plan Update policy provisions and the Land Use Diagram that result in the reduction of vehicle miles traveled per household (as compared to build-out under the 1994 General Plan), as well as the fuel efficiency requirements of AB 1493, automobile use in the City of Chico is projected to result in the consumption of 159,932 gallons of automotive fuel per day at build-out under the proposed General Plan Update. This is a reduction of 5,577 gallons of automotive fuel used per day over existing conditions (refer to **Appendix F** for detailed assumptions and modeling output files).

In addition, the proposed General Plan Update contains policies and actions that include requirements and standards that address energy consumption. While Policy SUS-4.1 aims to incorporate green building techniques in the site design, construction, and renovation of public projects, Action SUS-4.1.1 mandates that the construction of new municipal facilities greater than 5,000 square feet in size achieve at least the baseline certification level of Leadership in Energy and Environmental Design (LEED), or its equivalent. LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies intended to improve performance in metrics such as energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Action SUS-5.2.3 seeks to incorporate passive solar design principles (e.g., building materials, high-albedo roofs, eaves, window placement, and building orientation) into the City's Design Guideline Manual. And Action SUS-5.2.4 would revise the Municipal Code to allow deviations from normal requirements such as height limits, setbacks, or screening when doing so is necessary to allow the efficient use of renewable energy devices.

Implementation of the proposed General Plan Update would result in efficient energy usage in both public and private development (Actions SUS-4.1.1, SUS-5.2.3, SUS-5.2.4) while subsequent development would also be required to comply with energy efficiency standards in Title 24 of the California Code of Regulations. In addition, transportation fuel use would be reduced under build-out of the proposed General Plan Update as a result of implementation of AB 1493. Due to the fuel efficiency requirements of AB 1493, automobile use in the City of Chico is projected to result a reduction of 5,577 gallons of automotive fuel used per day over existing conditions (refer to **Appendix F** for detailed assumptions and modeling output files). Furthermore, Policy LU-3.1 directs growth into complete neighborhoods with a land use mix and distribution to reduce auto trips and support walking, biking, and transit use. Therefore, impacts would be considered **less than significant.**

Generate Greenhouse Gas Emissions that May Have a Significant Impact on the Environment or Conflict with Applicable Adopted Reduction Measures (Standards of Significance 2 and 3)

Impact 4.14.2 Implementation of the proposed General Plan Update would be consistent with the goals of AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). However, it could still result in greenhouse gas emissions that may further contribute to significant impacts on the environment. This is considered a **cumulatively considerable** impact.

The analysis of greenhouse gas emission and climate change impacts divided below into an analysis of emission estimates and consistency with greenhouse gas reduction efforts.

Greenhouse Gas Emissions Associated with the Proposed General Plan Update

Subsequent development activity anticipated with build-out of the proposed General Plan Update would result in direct emission of GHGs from area and mobile sources and indirect GHG emissions associated with electricity consumption and the conveyance of water. As shown in **Table 4.14-1**, under existing conditions (2008), the City of Chico generates 1,132,311 metric tons of CO_2e annually. With build-out of the proposed General Plan Update, GHG emissions are calculated to grow to 1,611,757 metric tons per year

As noted in the Standards of Significance discussion above, the Butte County Air Quality Management District (BCAQMD) does not currently have an adopted threshold of significance for GHG emissions. For purposes of this analysis, a significance threshold developed by the Bay Area Air Quality Management District (BAAQMD) for general plans is employed. BAAQMD's approach is to identify the emissions level for which a plan would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. BAAQMD's general plan emission threshold is 6.6 metric tons of CO_2e per service population (residents plus employees) per year in 2020 (BAAQMD, 2009). Based on the population and employment figures listed in Section 3.0, Project Description, the 2008 service population was 99,451 and the build-out service population is anticipated to be 151,039 under the proposed General Plan Update. Dividing the GHG emissions for each time period yields a metric ton per service population ratio of 7.96 and 7.34 for existing conditions and build-out conditions, respectively. While the proposed General Plan Update would improve GHG emission per service population, the ratio is greater than the 6.6 metric tons per service population threshold and would still result in a net increase in GHG emissions.

However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its growth potential be attained. Not all of the identified land will be available for development at any given time based on landowner willingness to sell or

develop, site readiness, environmental constraints, market changes, and other factors. This greenhouse gas emission analysis assumes full growth potential under the General Plan Update in order to present the maximum amount of emissions possible. The more realistic 2030 population projection of 139,713 is far less than that assumed under build-out and therefore the GHG emission will likely be much less than that shown in **Table 4.14-1**.

TABLE 4.14-1
GREENHOUSE GAS EMISSIONS
(METRIC TONS PER YEAR)

Source	Emissions (MT/yr CO_2e)
2008 Existing Conditions	
Direct Emissions	
Area Sources	161,722
Mobile Sources	484,353
Indirect Emissions	
Electricity and Natural Gas Consumption	472,260
Water Conveyance	13,977
Total Unmitigated	1,132,311
2030 Build-Out Conditions	
Direct Emissions	
Area Sources	249,811
Mobile Sources[1]	618,902
Indirect Emissions	
Electricity and Natural Gas Consumption	719,677
Water Conveyance	23,367
Total Unmitigated	1,611,757
Net Difference (2030 Build-Out Conditions – 2008 Existing Conditions)	
Net Difference	479,446

Source: PMC, 2010

Notes: CO_2e = carbon dioxide equivalent; MT/yr = metric tons per year; refer to Appendix F for detailed assumptions and modeling output files.

[1] Year 2030 mobile source emissions estimates do not include mandated future passenger vehicle fuel economy improvements due to limitations in emissions modeling software (see AB 1493 discussion under the Regulatory Framework subsection above).

Other non-quantified GHG sources (at this time) include the following:

1) Industrial combustion and industrial processes;

2) Agricultural and other non-road equipment;

3) Land use changes (urban conversions, etc.);

4) Air travel and City of Chico operations;

5) Emissions from production of materials outside the Chico region that are used in the city;

6) Wastewater and solid waste storage and disposal; and

7) Construction equipment.

Quantification of these sources is subject to substantial uncertainty at this time due to the lack of detailed information on future industrial processes, the extent of equipment activity for future agricultural activity, the change in carbon sequestration from conversion of natural lands to other land covers, how to account for air travel without double-counting, and the actual character of construction activity in the future.

As noted in Section 3.0, Project Description, the proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. These smart growth strategies have well-documented benefits in terms of lower GHG emissions due to fewer and shorter vehicle trips since residents and employees of these areas have more home, work, and shopping opportunities within walking or biking distance. Transit is also a more viable form of transportation since these developments have a larger number of potential transit users and can support more frequent transit service to regional destinations.

According to the City of Chico 4D Model Development and Results conducted for the proposed General Plan Update which compared the "smart growth" strategies of the proposed General Plan Update to the more low-density land use pattern outlined in the current 1994 General Plan, build-out of the proposed General Plan Update would result in an average 56 daily vehicle miles traveled per Chico household compared with an average 64 daily vehicle miles traveled per Chico household under build-out of the current 1994 General Plan (Fehr & Peers, 2010). The resulting reduction in average vehicle miles traveled per Chico household would also equate to a reduction in average GHG emissions from mobile sources per Chico household.

As noted in Section 3.0, Project Description, the City is developing a Climate Action Plan (CAP). The CAP will provide a strategy to ensure the City fulfills its commitment to the U.S. Conference of Mayors Climate Protection Agreement to reduce greenhouse gas emissions by 25 percent from 2005 levels by the year 2020. The CAP will include a summary of the recently conducted Community Greenhouse Gas Emissions Inventory as well as programs and actions to reduce greenhouse gas emissions in the energy, transportation, solid waste, water, and land use and development sectors that will help achieve Chico's emissions reduction target. The CAP implements the policy direction of the proposed General Plan Update to reduce greenhouse gases. Specifically, the Sustainability Element includes a policy with supporting actions (SUS-6.1) to continually update the citywide greenhouse gas inventory and the CAP as necessary to achieve the City's emission reduction goal. As of the preparation of this EIR, a draft of the CAP had not been completed, so no GHG reductions from implementation of the CAP are factored in this analysis.

As identified in the above setting discussion, there are many technical studies available regarding the environmental effects of climate change on the Earth as a whole as well as in California specifically. However, the extents of these environmental effects are still being defined as climate modeling tools become more refined. Potential environmental effects of climate

change that could impact the Planning Area could include the following (which were previously noted above):

- Adverse impacts on water supply availability;
- Increased severity of flooding events;
- Increased wildland fire hazards;
- Alteration of natural habitats for special-status plant and animal species; and
- Air quality impacts.

These potential impacts are real, given the general concurrence in the scientific community about the potential impacts of climate change on the environment. However, the extent and severity of such impacts to the Planning Area is still speculative at this time. Nevertheless, a number of proposed General Plan Update policies and actions are intended to help the City reduce potential exposure of people and projects to future impacts of climate change.

In regard to adverse impact on water supply availability, the General Plan Update contains provisions to evaluate groundwater availability using the Butte Basin Groundwater Model and to establish a water supply budget with specific measures to assure sustainable levels of groundwater (Action PPFS-5.1.1). In addition, Action PPFS-5.3.1 will explore the feasibility of using recycled wastewater to provide irrigation to parks, landscaped areas and other suitable locations to reduce the demand for treated water. Policy PPFS-6.5 and associated Actions PPFS-6.5.1 through PPFS-6.5.4 aim to manage flood waters. For instance, Action PPFS-6.5.3 requires that new development not increase flood impacts on adjacent properties in either the upstream or downstream direction and Action S-2.1.1 requires that as part of project review, the City shall analyze potential impacts from flooding and require compliance with appropriate building standards and codes for structures subject to 200-year flood hazards.

Action S-1.1.1 seeks to maintain and update, as needed, the City's Emergency Plan to guide emergency management in the City. This provision will assist in community readiness to increased natural disaster potential. In addition, Action S-1.1.3 requires continued participation in the National Office of Emergency Services' National Incident Management System program, which provides a standardized approach to emergency incidents, and Policies S-4.1 through S-4.4 and associated Actions all address fire hazard readiness. For example, Action S-4.3.2 requires incorporation of building construction standards for the Local Resource Area, areas which are provided City fire suppression services, that are consistent with the requirements for the State Responsibility Area, areas that are provided State and County fire suppression services for State-designated Very High, High and Moderate Fire Hazard Severity Zones.

Because considerable uncertainty remains with respect to the overall impact of global climate change on California and the Planning Area, it is unknown whether these impacts would be significant. This also includes the uncertainty surrounding to what degree global climate change may adversely impact future water supply and availability in the Planning Area. However, based on consideration of the recent regional and local climate change studies, and since the city's water sources are anticipated to largely remain intact, in combination with the City's existing standards and proposed General Plan Update policy provisions, it is expected that the environmental effects of global climate change on the City of Chico would not be significant. Furthermore, the environmental effects of climate change are gradual and, as such, it is not

anticipated that substantial changes in the environment resulting from climate change would impact the City within the 20-year timeframe of the proposed General Plan.

Consistency with Greenhouse Gas Reduction Efforts

The proposed General Plan Update includes a number of policies and actions designed to reduce GHG emissions that are consistent with AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). **Table 4.14-2** summarizes the level of consistency of the General Plan Update policies and actions with CAPCOA's Model Policies for Greenhouse Gases in General Plans that were developed to assist local agencies in addressing climate change and greenhouse gas reduction measures in a manner consistent with State efforts. It is important to note that not all of the model policies will necessarily be applicable to conditions within the City of Chico. Additionally, overall consistency of the proposed General Plan Update policies and actions with the model policies are intended to be indicative of the proposed General Plan Update's self-mitigating capabilities with respect to GHG emissions. Separate and subsequent development of a Climate Action Plan by the City will provide for additional City activities designed to reduce GHG emissions. The table also does not take into account other actions by the City to reduce GHG emissions that are not explicitly documented in policies and actions for the proposed General Plan Update.

TABLE 4.14-2
COMPLIANCE OF PROPOSED GENERAL PLAN UPDATE WITH CAPCOA MODEL POLICIES FOR GREENHOUSE GASES IN GENERAL PLANS

CAPCOA-Recommended Policies	Consistency
Greenhouse Gas Reduction Planning Policies	
Emission Inventories: The City/County will establish GHG emissions inventories including emissions from all sectors within the City/County, using methods approved by, or consistent with guidance from CARB. The City/County will update inventories every 3 years to incorporate improved methods, better data, and more accurate tools and methods, and to assess progress. • The City/County will establish a baseline inventory of GHG emissions including municipal emissions, and emissions from all business sectors and the community. • The City/County will define a "business as usual" scenario of municipal, economic, and community activities, and prepare a projected inventory for 2020 based on that scenario.	Consistent See Policy SUS-1.2; Action SUS-1.2.1; Action SUS-1.2.2; Policy SUS-6.1; Action SUS-6.1.1
Climate Action Plans: The City/County will establish plans to reduce or encourage reductions in GHG emissions from all sectors within the City/County. • The City/County will establish a Municipal Climate Action Plan which will include measures to reduce GHG emissions from municipal activities by at least 30% by 202 compared to the "business as usual" municipal emissions (including any reductions required by ARB under AB 32). • The City/County will, in collaboration with the business community, establish a Business Climate Action Plan, which will include measures to reduce GHG emissions from business activities, and which seek to reduce emissions by at least 30 percent by 2020 compared to "business as usual" business emissions. • The City/County will, in collaboration with the stakeholders from the	Consistent See Policy SUS-1.2; Action SUS-1.2.1; Action SUS-1.2.2; Policy SUS-6.1; Action SUS-6.1.2; Policy OS-5.3

CAPCOA-Recommended Policies	Consistency
community at large, establish a Community Climate Action Plan, which will include measures to reduce GHG emissions from community activities, and which will seek to reduce emissions by at least 30 percent by 2020 compared to "business as usual" community emissions.	
Sustainable Communities Strategy/Regional Blueprint Planning: The City/County will participate in the Sustainable Communities Strategy/Regional Blueprint Planning effort and will ensure that local plans are consistent with the Regional Plan.	Consistent See Policy SUS-6.4; Policy LU-1.1; Policy CIRC-1.6; Action CIRC-1.6.1; Action CIRC-1.6.2; Action OS-1.1.3
Land Use and Urban Design Policies	
Urban Growth Boundary: The City will establish an urban growth boundary (UBG) with related ordinances or programs to limit suburban sprawl; the City County will restrict urban development beyond the UGB and streamline entitlement processes with the UGB for consistent projects. • Urban development should occur only where urban public facilities and services exist or can be reasonably made available. • The improvement and expansion of one urban public facility or service should not stimulate development that significantly precedes the City's, or other jurisdiction's, ability to provide all other necessary urban public facilities and service at adequate levels.	Consistent See Policy LU-1.2; Action LU-1.2.1; Action LU-1.2.2; Action OS-1.1.1; Policy OS-6.1
Reserve Limits: The City/County will redirect new growth into existing city/urban reserve areas.	Consistent See Policy LU-1.3; Action LU-1.3.2; Policy LU-3.1
Infill: The City/County will encourage high-density, mixed-use, infill development and creative reuse of brownfield, under-utilized and/or defunct properties within the urban core.	Consistent See Action LU-1.3.1; Action LU-2.2.2; Action LU-2.2.3; Policy LU-5.1; Policy LU-5.2; Policy LU-6.1; Policy LU-6.2; Policy LU-6.4; Policy LU-6.5; Policy DT-2.1; Policy DT-2.2; Policy DT-2.4; Policy DT-2.5; Action ED-1.5.7
Urban Service Line: The City/Council will maintain a 1 dwelling unit per 10 acre minimum lot size or lower density in areas outside designated urban service lines. • Adopt an urban-rural transition zone along the urban service line to ensure that land uses within the City/County are compatible with adjacent open space and agricultural uses.	Consistent See Policy LU-1.2; Action LU-1.2.1; Action LU-1.2.2; Policy LU-2.4; Action LU-2.4.1; Policy LU-2.5
Density: The City/County will increase densities in urban core areas to support public transit. • Remove barriers to the development of accessory dwelling units in existing residential neighborhoods inside urban service lines.	Consistent See Action LU-1.3.1; Policy LU-3.1; Policy LU-3.2; Action LU-6.1.1; Action LU-6.1.3; Policy LU-6.2; Action LU-6.2.1; Action DT-2.1.1; Policy DT-2.5; Action DT-4.2.1
Road Width: The City/County will reduce required road with standards wherever feasible to calm traffic and encourage alternative modes of transportation.	Consistent See Policy CIRC-2.1; Action CIRC2.1.1; Action CIRC-2.1.3; Action CIRC-3.1.1; Action CIRC-3.1.2; Action DT-3.7.1
Parking Spaces: The City/County will reduce parking space requirements, unbundle parking from rents and charge for parking in new developments.	Consistent See Action LU-2.2.4; Action LU-6.4.3;

CAPCOA-Recommended Policies	Consistency
	Action CIRC-9.1.1; Action DT-7.2.1; Action DT-7.2.2
Bicycle Facilities: The City/County will add bicycle facilities to city streets and public spaces.	Consistent See Policy CIRC 2.1; Action CIRC-2.1.1; Action CIRC-4.1.1; Action CD-2.1.3
Levels of Service: The City/County will discourage the extension of urban levels of service for new development beyond existing urban service lines, and, if necessary, use zoning to assure that development occurs only if public services are adequate.	Consistent See Policy LU-1.4; Action LU-1.4.1; Action LU-1.4.2
Mixed-Use Development: The City/County will plan for and create incentives for mixed-use development. • The City/County will identify sites suitable for mixed-use development within an existing urban service line and will establish appropriate site-specific standards to accommodate the mixed uses. Site-specific standards could include: – Increasing allowable building height or allowing height limit bonuses; – Allowing flexibility in applying development standards (such as floor area ration [FAR] and lot coverage) based on the location, type, and size of the units, and the design of the development; – Allowing the residential component to be additive rather than within the established FAR for that zone, and eliminating maximum density requirements for residential uses in mixed use zones; – Allowing reduced and shared parking based on the use mix, and establishing parking maximums where sites are located within 0.25 mile of a public transit stop; – Allowing for tandem parking, shared parking and off-site parking leases; – Requiring all property owners in mixed-use areas to unbundle parking from commercial and residential leases; – Creating parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities; – Establishing performance pricing of street parking, so that it is expensive enough to promote frequent turnover and keep 15 percent of spaces empty at all times. • The City/County will seek funding to prepare specific plans and related environmental documents to facilitate mixed-use development at selected sites, and to allow these areas to serve as receiver sites for transfer of development rights away from environmentally sensitive lands and rural areas outside established urban growth boundaries. • The City/County will enable prototype mixed-use structures for use in neighborhood center zones that can be adapted to new uses over time with minimal internal remodeling. • The City/County will identify and facilitate the inclusion of complementary land uses not already present in local zoning districts, such as supermarkets, parks and recreational fields, schools in neighborhoods, and residential uses in business districts, to reduce the vehicle miles traveled and promote bicycling and walking to these uses. • The City/County will work with employers developing larger projects to ensure local housing opportunities for their employees, and engage	Consistent See Action LU-2.2.2; Action LU-2.2.3; Action LU-2.2.4; Policy LU-2.3; Action LU-2.3.1; Action LU-2.3.3; Action LU-2.3.4; Policy LU-3.1; Policy LU-3.2; Action LU-3.2.1; Action LU-3.2.2; Action LU-3.2.3; Policy LU-5.1; Policy LU-5.2; Action LU-6.1.2; Action LU-6.2.1; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.4; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Policy DT-2.4; Policy DT-2.5

CAPCOA-Recommended Policies	Consistency
employers to find ways to provide housing assistance as part of their employee benefits packages; major projects in mixed-use areas should include work-force housing where feasible. • The City/County will revise zoning ordinance(s) to allow local-serving businesses, such as childcare centers, restaurants, banks, family medical offices, drug stores, and other similar services near employment centers to minimize midday vehicle use. • The City/County will develop form-based community design standards to be applied to development projects and land use plans, using a comprehensive community outreach, for area designated mixed-use. • Mix affordable housing units with market rate units as opposed to building segregated affordable housing developments.	
Transit-Supportive Density: The City/County will implement a Housing Overlay Zone for transit centers and corridors. This shall include average minimum residential densities of 25 units per acre within 0.25 mile of transit centers; average minimum densities of 15 unit per acre within on quarter mile of transit corridors; and minimum FAR of 0.5:1 for non-residential uses within 0.25 mile of transit centers or corridors.	Consistent See Action LU-6.1.3; Policy LU-6.2; Policy DT-2.1; Policy DT-2.2; Action DT-4.2.1
Transit-Oriented Development: The City/County will identify transit center appropriate for mixed-use development, and will promote transit-oriented, mixed-use development within these targeted areas, including: • Amending the Development Code to encourage mixed-use development within one-half mile of intermodal hubs and future rail stations; to offer flexible standards for affordable housing; and to establish minimal residential densities and non-residential FAR; • Rezoning commercial properties to residential and/or mixed-use where appropriate; • Providing expanded zoning for multi-family housing; • Providing maximum parking standards and flexible building height limitations; • Providing density bonus programs; • Establishing guidelines for private and public spaces; • Providing incentives for redevelopment of underutilized areas, such as surface parking lots; • Establishing a minimum pedestrian and bicycle connectivity standard; • Creating parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities; • Establishing performance pricing of street parking, so that it is expensive enough to promote frequent turnover and keep 15 percent of spaces empty at all times; • Discouraging auto-oriented development.	Consistent See Policy LU-3.1; Policy LU-3.2; Policy LU-6.2; Action LU-6.2.1; Policy CIRC-1.1; Action CIRC-2.1.4; Action CIRC-6.4.2; Policy CD-3.2; Policy CD-3.3; Policy DT-2.1; Policy DT-2.2; Policy DT-3.1; Action DT-4.2.1; Action DT-5.1.2
Transit-Oriented Brownfield Development: The City/County will promote the development of brownfield sites and other underused or defunct properties near existing public transportation.	Consistent See Policy LU-6.2; Policy DT-2.4; Policy DT-2.5
Public Transit Development Focus: The City/County will ensure new development is designed to make public transit a viable choice for residents, including: • Locating medium-high density development near activity centers that can be served efficiently by public transit and alternative transportation	Consistent See Policy LU-3.1; Policy LU-3.2; Action CIRC-2.1.4; Action CIRC-6.4.2; Action DT-5.1.2

CAPCOA-Recommended Policies	Consistency
modes; • Locating medium-high density development near streets served by public transit whenever feasible; • Linking neighborhood to bus stops by continuous sidewalks or pedestrian paths.	
City-Centered Corridors: The City/County will establish city-centered corridors, directing development to existing transportation corridors.	Consistent See Policy LU-6.3; Policy CIRC-2.1; Action CD-3.2.3
Transit-Oriented Development Design Standards: The City/County will develop form-based community design standards to be applied to development projects, and land use plans, using a comprehensive community outreach program, for areas designated mixed-use.	Consistent See Action CIRC-2.1.4; Action CIRC-6.4.2
Affordable Housing: Affordable Housing will be located in transit-oriented development whenever feasible.	Consistent Action ED-1.6.3
Pedestrian-Oriented Character: The City/County will create and preserve distinct, identified neighborhoods whose characteristics support pedestrian travel, especially within, but not limited to, mixed-use and transit-oriented development areas, including: • Designing or maintaining neighborhoods where the neighborhood center can be reached in approximately five minutes of walking; • Increasing housing densities from the perimeter to the center of the neighborhood; • Directing retail, commercial, and office space to the center of the neighborhood; • Encouraging pedestrian-only streets and/or plazas within developments, and destinations that may be reached conveniently by public transportation, walking, or bicycling; • Allowing flexible parking strategies in neighborhood activities centers to foster a pedestrian-oriented streetscape; • Encouraging neighborhood parks and recreation centers near concentrations of residential areas (preferably within one quarter mile) and include pedestrian walkways and bicycle paths that encourage non-motorized travel.	Consistent See Policy LU-3.1; Policy LU-3.2; Action LU-3.2.1; Action LU-3.2.2; Action LU-3.2.3; Action LU-6.3.1; Policy CIRC-5.3; Policy CD-2.1; Action CD-2.1.1; Policy CD-3.3; Action CD-3.3.1; Action DT-3.1.1; Action DT-3.2.1; Action DT-3.3.1; Action DT-3.5.1
Pedestrian Access: The City/County will ensure pedestrian access to activities and services, especially within, but not limited to, mixed-use and transit-oriented development areas, including: • Ensuring new development that provides pedestrian connections in as many locations as possible to adjacent development, arterial streets, thoroughfares; • Ensuring a balanced mixed of housing, workplaces, shopping, recreational opportunities, and institutional uses, including mixed-use structures; • Locating schools in neighborhoods, within safe and easy walking distances or residents served; • For new development, primary entrances shall be pedestrian entrances, with automobile entrances and parking located to the rear; • Support development where automobile access to building does not impede pedestrian access, by consolidating driveways between building or developing alley access;	Consistent See Policy LU-3.1; Policy LU-3.2; Action LU-3.2.1; Action LU-3.2.2; Action LU-3.2.3; Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.3; Policy CIRC-3.1; Action CIRC-3.1.1; Action CIRC-3.1.2; Policy CIRC-5.2; Action CIRC-5.2.1; Action CIRC-5.2.2; Action CD-2.1.3; Action CD-3.3.2; Action DT-3.1.1; Action DT-3.2.1; Action DT-3.2.2; Action DT-3.3.1; Action DT-3.5.1

CAPCOA-Recommended Policies	Consistency
• Street parking provided shall be utilized as a buffer between sidewalk pedestrian traffic and the automobile portion of the roadway; • Establish pedestrian and bicycle connectivity standards for new development, with block sizes between 1 and 2 acres; • For existing areas that do not meet established connectivity standards, prioritize the physical development of pedestrians connectors; • Prioritizing grade-separated bicycle/pedestrian crossing where appropriate to enhance connectivity or overcome barrier such as freeways, railways and waterways.	
Developer Fees: The City/County will promote desired land uses by scaling developer fees based on desired criteria, for example: • Increasing or reducing fee proportionally with distance from city center or preferred transit sites; • Increasing or reducing fee based on the degree to which mixed-uses are incorporated into the project; • Reducing fees for creative re-use of brownfield sites; • Increasing fees for the use of greenfield sites.	Consistent See Action ED-1.4.2; Action PPFS-7.1.3
Administrative Fees and Streamlining: The City/County will provide fast-track permitting and reductions in processing fees for desired projects. The City/County will research and implement a program for incentives for development projects that are fully consistent with the Sustainable Communities Strategy/Regional Plan.	Consistent See Action LU-5.2.2; Action LU-5.2.3; Action LU-6.3.2; Action ED-1.4.1
Incentives and Loans: The City/County will provide incentive funding and/or infrastructure loans to support desired projects.	Consistent See Action SUS-4.3.2; Action SUS-5.2.1; Action LU-1.3.1; Action LU-6.1.2; Action LU-6.2.3; Action DT-2.1.1; Action DT-2.2.1; Action DT-2.5.2; Action DT-2.5.2; Action ED-1.5.6
Infrastructure Preference: The City/County will give preference for infrastructure that support or enhance desired land uses and projects.	Consistent See Policy LU-1.4; Action LU-1.4.1; Action LU-1.4.2; Action LU-5.1.2; Action ED-1.5.2
Hardscape Heat Gain: The City/County will reduce heat gain from pavement and other hardscaping, including: • Reduce street rights-of-way and pavement widths to pre-World War II widths (typically 22 to 34 feet for local streets, and 30 to 35 feet for collector streets, curb to curb), unless landscape medians or parkway strips are allowed in the center of roadways; • Reinstate the use of parkway strips to allow shading of streets by trees; • Include shade trees on south- and west-facing sides of structures; • Include low-water landscaping in place of hardscaping around transportation infrastructure and in parking areas; • Install cool roofs, green roofs, and use cool paving for pathways, parking, and other roadway surfaces; • Establish standards that provide for pervious pavement options; • Remove obstacles to xeriscaping, edible landscaping and low-water landscaping.	Consistent See Action SUS-4.3.4; Action SUS-7.3.1; Action DT-3.3.2

CAPCOA-Recommended Policies	Consistency
Transportation Policies	
Transportation Planning: The City/County will ensure that new developments incorporate both local and regional transit measures into the project design that promote the use of alternative modes of transportation. • Project Selection: The City/County shall give priority to transportation project that will contribute to a reduction in vehicle miles traveled per capita, while maintaining economic vitality and sustainability. • Equal Pedestrian Access: The City/County shall include sidewalks, separated sidewalks whenever possible, on both sides of all new street improvement projects, except where there are sever topographic or natural resource constraints. • Public Involvement: Carry out a comprehensive public involvement and input process that provides information about transportation issues, projects, and processed to community members and other stakeholders, especially to those traditionally underserved by transportation services.	Consistent See Policy CIRC-1.1; Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.4; Policy CIRC-3.1; Action CIRC-3.1.1; Policy CIRC-4.3; Action CIRC-4.3.1; Policy CIRC-5.2; Policy CIRC-5.3; Policy CIRC-6.1; Action CIRC-6.1.1; Action CIRC-6.4.2
System Interconnectivity: The City/County will create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car-sharing, bicycling and walking. • Ensure transportation centers are multi-modal to allow transportation modes to intersect; • Provide adequate and affordable public transportation choices, including bus routes and service, as well as other transit choices such as shuttles, light rail, and rail; • To the extent feasible, extend service and hours of operation to underserved arterials and population centers or destination such as colleges; • Focus transit resources on high-volume corridors and high-boarding destinations such as colleges, employment centers and regional destinations; • Coordinate schedules and route across service lines with neighboring transit authorities; • Support programs to provide "station cars" for short trips to and from transit nodes (e.g., neighborhood electric vehicles); • Study the feasibility of providing free transit to areas with residential densities of 15 dwelling units per acre or more, including options such as removing service from less dense, underutilized areas to do so; • Employ transit-preferential measures, such as signal priority and bypass lanes. Where compatible with adjacent land use designations, right-of-way acquisition or parking removal may occur to accommodate transit-preferential measures or improve access to transit. The use of access management should be considered where needed to reduce conflicts between transit vehicles and other vehicles; • Provide safe and convenient access for pedestrians and bicyclists to, across, and along major transit priority streets; • Use park-and-ride facilities to access transit stations only at ends of regional transitways or where adequate feeder bus service is not feasible.	Consistent See Policy CIRC-1.1; Policy CIRC-2.1; Policy CIRC-3.1; Policy CIRC-6.2; Policy CIRC-6.2; Policy CD-2.1; Policy DT-6.1
Transit System Infrastructure: The City/County will upgrade and maintain transit system infrastructure to enhance public use, including: • Ensure transit stops and bus lanes are safe, convenient, clean and	Consistent See Action CIRC-2.1.3; Action CIRC-3.1.3; Policy CIRC-6.1; Action CIRC-6.1.1; Policy CIRC-6.2; Action CIRC-

CAPCOA-Recommended Policies	Consistency
efficient; • Ensure transit stops have clearly marked street-level designations, and are accessible; • Ensure transit stops are safe, sheltered, benches are clean, and lighting is adequate; • Place transit stations along transit corridors within mixed-use or transit-oriented development areas at intervals of 3 to 4 blocks, or no less than 0.5 mile.	6.2.1; Action CIRC-6.2.2; Action CIRC-6.2.3; Action CIRC-6.2.4; Policy CIRC-6.4
Customer Service: The City/County will enhance customer service and system ease-of-use, including; • Develop an Regional Pass system to reduce the number of different passes and tickets required of system users; • Implement "Smart Bus" technology, using GPS and electronic displays at transit stops to provide customers with "real-time" arrival and departure time information (and to allow the system operator to responds more quickly and effectively to disruptions in service); • Investigate the feasibility of an on-line trip planning program.	Consistent See Policy CIRC-6.1
Transit Funding: The City/County will prioritize transportation funding to support a shift from private passenger vehicles to transit and other modes of transportation, including: • Give funding preference to improvements in public transit over other new infrastructure for private automobile traffic; • Before funding transportation improvements that increase roadway capacity and VMT, evaluate the feasibility and effectiveness of funding projects that support alternative modes of transportation and reduce VMT, including transit, and bicycle and pedestrian access.	Consistent See Action CIRC-6.2.4
Transit and Multimodal Impact Fees: The City/County will assess transit and multimodal impact fees on new developments to fund public transportation infrastructure, bicycle infrastructure, pedestrian infrastructure and other multimodal accommodations.	Consistent See Policy CIRC-11.1, Policy CIRC-11.2
System Monitoring: The City/County will monitor traffic and congestion to determine when and where the city needs new transportation facilities in order to increase access and efficiency.	Consistent See Policy CIRC-1.3; Action CIRC-1.3.1; Action CIRC-1.3.2
Arterial Traffic Management: The City/County will modify arterial roadways to allow more efficient bus operation, including bus lanes and signal priority/preemption where necessary.	Consistent See Action CIRC-6.4.1
Signal Synchronization: The City/County will expand signal timing programs where emission reduction benefits can be demonstrated, including maintenance of the synchronization system, and will coordinate with adjoining jurisdictions as needed to optimize transit operation while maintaining a free flow of traffic.	Consistent See Action CIRC-1.3.2
HOV Lanes: The City/County will encourage the construction of high-occupancy vehicle (HOV) lanes or similar mechanisms whenever necessary to relieve congestion and reduce emissions.	Consistent See Policy CIRC-1.1; Policy CIRC-1.6
Delivery Schedules: The City/County will establish ordinance or land use permit conditions limiting the hours when deliveries can be made to off-peak hours in high traffic areas.	Consistent See Policy CIRC-10.2; DT-3.7.2
Ride-Share Programs: The City/County will promote ridesharing programs, including:	Consistent

CAPCOA-Recommended Policies	Consistency
• Designate a certain percentage of parking spaces for ridesharing vehicles; • Designate adequate passenger loading, unloading, and waiting areas for ridesharing vehicles; • Provide a web site or message board for coordinating shared rides; • Encourage private, for-profit community car-sharing, including parking spaces for car share vehicles at convenient locations accessible by public transit; • Hire or designate a rideshare coordinator to develop and implement ridesharing programs.	See Policy CIRC-10.1
Employer-Based Trip Reduction: The City/County will support voluntary, employer-based trip reduction programs, including: • Provide assistance to regional and local ridesharing organizations; • Advocate for legislation to maintain and expand incentives for employer ridesharing programs; • Require the development of Transportation Management Associations for large employers and commercial/industrial complexes; • Provide public recognition of effective programs through awards, top 10 lists, and other mechanisms.	Consistent See Action CIRC-10.1.2
Ride Home Programs: The City/County will implement a city/county wide "guaranteed ride home" program for those who commute by public transit, ride-sharing, or other modes of transportation, and encourage employers to subscribe or support the program.	Consistent See Policy CIRC-10.1
Local Area Shuttle: The City/County will encourage and utilize shuttles to serve neighborhoods, employment centers and major destinations. • The City/County will create a free or low-cost local area shuttle system that includes a fixed route to popular tourist destinations or shopping and business centers; • The City/County will work with existing shuttle service providers to coordinate their service.	Consistent See Policy CIRC-6.3; Action CIRC-6.3.1
Low- and No-Travel Employment Opportunities: The City/County will facilitate employment opportunities that minimize the need for private vehicle trips, including: • Amend zoning ordinances and the Development Code to include live/work sites and satellite work centers in appropriate locations; • Encourage telecommuting options with new and existing employers, through project review and incentives, as appropriate.	Consistent See Action LU-6.2.3; Policy DT-2.1; Action DT-2.2.1; Action ED-1.6.3
Congestion Pricing: Advocate for a regional, market-based system to price or charge for auto trips during peak hours.	Consistent See Policy CIRC-1.1; Policy CIRC-1.6
Development Standards for Bicycles: The City/County will establish standards for new development and redevelopment projects to support bicycle use, including: • Amending the Development Code to include standards for safe pedestrians and bicyclist accommodations, including: – "Complete Street" policies that foster equal access by all users in the roadway design; – Bicycle and pedestrian access internally and in connection to other areas through easements; – Safe access to public transportation and other non-motorized uses	Consistent See Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-3.1.1; Policy CIRC-4.3; Action CIRC-4.3.1; Policy CIRC-5.2; Action CIRC-5.2.1; Policy CIRC-5.3; Action CIRC-5.3.1; Action CIRC-5.3.2; Action CD-3.3.1; Action CD-3.3.2

CAPCOA-Recommended Policies	Consistency
through construction of dedicated paths; – Safe road crossing at major intersections, especially for school children and seniors; – Adequate, convenient and secure bike parking at public and private facilities and destination in all urban areas; – Street standards will include provisions for bicycle parking within the public right-of-way; • Require new development and redevelopment projects to include bicycle facilities, as appropriate with the new land use, including: – Construction of weatherproof bicycle facilities where feasible, and at a minimum, bicycle racks or covered, secure parking near the building entrances; – Provision and maintenance of changing rooms, lockers, and showers at large employers or employment centers. • Prohibit projects that impeded bicycle and pedestrian access, such as large parking areas that cannot be safely crossed by non-motorized vehicles, and developments that block access on existing or potential bicycle and pedestrian routes; • Encourage the development of bicycle stations at intermodal hubs, with attended or "valet" bicycle parking, and other amenities such as bicycle rental and repair, and changing areas with lockers and showers; • Conduct a connectivity analysis of the existing bikeway network to identify gaps, and priority bikeway development where gaps exist.	
Bicycle and Pedestrian Trails: The City/County will establish a network of multiuse trails to facilitate safe and direct off-street bicycle and pedestrian travel, and will provide bike racks along these trails at secure, lighted locations.	Consistent See Policy CIRC-4.1; Policy CIRC-5.2
Bicycle Safety Program: The City/County will develop and implement a bicycle safety education program to teach drivers and riders the laws, riding protocols, routes, safety tips, and emergency maneuvers.	Consistent See Policy CIRC-4.4; Action CIRC-4.4.1; Action CIRC-4.4.2; Action CIRC-4.4.3; Action CIRC-4.4.4
Bicycle and Pedestrian Project Funding: The City/County will pursue and provide enhanced funding for bicycle and pedestrians facilities and access projects, including, as appropriate: • Apply for regional, state, and federal grants for bicycle and pedestrian infrastructure projects; • Establish development exactions and impact fee to fund bicycle and pedestrian facilities; • Use existing revenues, such as state gas tax subventions, sales tax funds, and general fund monies for projects to enhance bicycle use and walking for transportation.	Consistent Policy CIRC-4.5; Action CIRC-4.5.1; Action CIRC-4.5.2
Bicycle Parking: Adopt bicycle parking standards that ensure bicycle parking sufficient to accommodate 5 to 10 percent of projected use at all public and commercial facilities, and at a rate at least 1 per residential unit in multiple-family developments.	Consistent See Policy CIRC-4.6; Action CIRC-4.6.1; Action CIRC-4.6.2
Parking Policy: The City/County will adopt a comprehensive parking policy to discourage private vehicle use and encourage the use of alternative transportation, including: • Reduce the available parking spaces for private vehicles while increasing parking spaces for shared vehicles, bicycles, and other alternative modes	Consistent See Action LU-6.4.3; Action CIRC-9.1.1; Action DT-7.1.1; Action DT-7.1.2; Action DT-7.2.1; Action DT-7.2.2

CAPCOA-Recommended Policies	Consistency
of transportation; • Eliminate or reduce minimum parking requirements for new buildings; • "Unbundle" parking (require that parking is paid separately and is not included in the base rent for residential and commercial space); • Use parking pricing to discourage private vehicle use, especially at peak times; • Create parking benefit districts, which invest meter revenues in pedestrian infrastructure and other public amenities; • Establish performance pricing of street parking, so that it is expensive enough to promote frequent turnover and keep 15 percent of spaces empty at all times; • Encourage shared parking programs in mixed-use and transit-oriented development areas.	
Event Parking Policies: The City/County will establish policies and programs to reduce onsite parking demand and promote ridesharing and public transit at large events, including: • Promote the use of peripheral parking by increasing onsite parking rates and offering reduces rates for peripheral parking; • Encourage special event center operators to advertise and offer discounted transit passes with event tickets; • Encourage special event center operators to advertise and offer discount parking incentives to carpooling patrons, with 4 or more persons per vehicle for on-site parking; • Promote the use of bicycles by providing space for the operation of valet bicycle parking service.	Consistent See Policy DT-7.1; Action DT-7.1.1
Parking "Cash-Out" Program: The City/County will require new office developments with more than 50 employees to offer a Parking "Cash-Out" Program to discourage private vehicle use.	Consistent See Action CIRC-9.1.1
Electric/Alternative Fuel Vehicle Parking: The City/County will require new commercial and retail developments to provide prioritized parking for electric vehicles and vehicles using alternative fuels.	Consistent See Policy SUS-5.3
Low- and Zero-Emission Vehicles: The City/County will support and promote the use of low- and zero-emission vehicles, including: • Develop the necessary infrastructure to encourage the use of zero-emission vehicles (ZEV) and clean alternative fuels, such as development of electric vehicle charging facilities and conveniently located alternative fueling stations; • Encourage new construction to include vehicle access to properly wired outdoor receptacles to accommodate ZEV and/or plug-in electric hybrids (PHEV); • Encourage transportation fleet standards to achieve the lowest emissions possible, using a mix of alternative fuels, PZEV or better fleet mixes; • Establish incentives, as appropriate, to taxicab owners to use alternative fuel or gas-electric hybrid vehicles.	Consistent See Policy SUS-5.3
Vehicle Idling: The City/County will enforce state idling laws for commercial vehicles, including delivery and construction vehicles.	Consistent See Policy OS-5.1; Action OS-5.1.3

CAPCOA-Recommended Policies	Consistency
Energy Efficiency Policies	
Green Building Ordinance: The City/County will adopt a Green Building Ordinance that requires new development and redevelopment projects for both residential and commercial buildings to incorporate sufficient green building methods and techniques to qualify for the equivalent of a current LEED Certified rating, GreenPoints, or equivalent rating system.	Consistent See Policy SUS-4.1; Action SUS-4.1.1; Policy SUS-4.3; Action SUS-4.3.1; Policy SUS-5.2.1; Action SUS-5.2.2; Action SUS-5.2.5
Green Building Flexibility: The City/County will allow increased height limits and/or flexibility in other standards for projects that incorporate energy efficient green building practices.	Consistent See Policy SUS-5.2
Green Building Barriers: The City/County will identify and remove regulatory or procedural barriers to implementing green building practices within its jurisdiction, such as updating codes, guidelines, and zoning, and will ensure that all pan review and building inspection staff are trained in green building materials, practices, and techniques.	Consistent See Action SUS-5.2.6
Green Building Incentives: The City/County will support the use of green building practices by: • Providing information, marketing, training, and technical assistance about green building practices; • Establishing guidelines for green building practices in residential and commercial development; • Providing financial incentives, including reduction in development fees, and expedited permit processing for projects that use green building practices.	Consistent See Policy SUS-1.4; Action SUS-1.4.1; Policy SUS-4.3; Action SUS-4.3.1; Action SUS-4.3.2; Action SUS-5.2.1; Action SUS-5.2.2; Action SUS-5.2.3
Improved Building Standards: The City/County will adopt energy efficiency performance standards for building that achieve a greater reduction in energy and water use that otherwise required by state law, including: • Standards for the installation of "cool roofs"; • Performance standards for heat transfer across the building envelope that result in increased insulation and the use of low-emissive windows; • Requirements to install high-efficiency plumbing fixtures and tankless water heaters; • Performance standards that specify high-efficiency space heating and cooling systems; • Requirement for improved overall efficiency of lighting systems; • Requirement for the use of Energy Star® appliances and fixtures in discretionary new development; • New lots shall be arrange and oriented to maximize effective use of passive solar energy.	Consistent See Action SUS-4.3.1; Action SUS-4.3.4; Action SUS-5.2.2; Action SUS-5.2.3; Action SUS-5.2.4; Action SUS-5.2.5
Affordable Housing Energy Efficiency: Affordable housing development shall incorporate energy efficient design and features to the maximum extent feasible. • The City/County will target local funds, including redevelopment and community development block grant resources, to assist affordable housing developers in meeting the energy efficiency requirements.	Consistent See Policy SUS-4.1
Outdoor Lighting: The City/County will establish outdoor lighting standards in the Zoning Ordinance, including: • Requirements that all outdoor lighting fixtures be energy efficient, such as:	Consistent See Policy SUS-5.2; Action SUS-5.2.1; Action SUS-5.2.2

CAPCOA-Recommended Policies	Consistency
– Full cut-off light fixtures at parking lots and on buildings; – Photocells or astronomical time switches on all permanently installed exterior lighting; – Directional and shielded (LED) lights for exterior lighting, and install exterior and security lights with motion detectors. • Requirements that light levels in all new development, parking lots, and street lighting not exceed state standards; • Requirement that lighting at the urban-rural boundary be designed to provide one-half the light standard for urban areas; • Prohibition against continuous all-night outdoor lighting in sport stadiums, construction sites, and rural areas unless required for security reasons.	
Residential Wood Burning: The City/County will establish or enhance local ordinances that prohibit solid fuel wood-burning devices in mixed-use high-density development and restrict the installation of wood-burning appliances in new or redeveloped single family residential properties to those that burn pellets, natural gas, or propane, or at a minimum, EPA certified wood-burning units.	Consistent See Policy OS-5.1; Action OS-5.1.2; Action OS-5.1.3; Action OS-5.1.5
Exterior Heat Gain: The City/County will establish standards for new development and for large redevelopment or rehabilitation (for example, additions of more than 25,000 square feet commercial or 100,000 square feet industrial), to reduce exterior heat gain for 50 percent of non-roof impervious site landscape (roads, sidewalks, courtyards, parking lots, and driveways), including: • Achieving 50 percent paved surface shading with vegetation within 5 years, in consultant with city/county arborist; • Use of paving materials with a Solar Reflective Index (SRI) of at least 29, or open grid paving systems; • Covered parking (underground, beneath decking or roofs, or beneath a building), where any roof-covered parking uses roofing material with SRI of at least 29.	Consistent See Action SUS-4.3.4
Heat Island Mitigation: The City/County will adopt a Heat Island Mitigation Plan that requires cool roofs, cool pavements, and strategically placed shade trees, and will actively inspect and enforce-state requirements for cool roofs on non-residential re-roofing projects.	Consistent See Action SUS-4.3.4; Action LU-6.2.2
Energy Audits: The City/County will pursue incentives, grants, and creative financing for projects that improve energy efficiency, including, for example, the option for property owners to pay for such improvements through long-term assessments on their property tax bills.	Consistent See Policy SUS-5.1; Action SUS-5.1.1; Action SUS-5.1.2
Community Energy Program: The City/County will implement an outreach and incentive program to promote energy efficiency and conservation in the community, including: • Launch an "energy efficiency challenge" campaign for community residents; • Implement a low-income weatherization assistance program; • Implement conservation campaigns specifically targeted to residents, and separately to businesses; • Promote the purchase of Energy Star® appliances, including, where feasible, incentive grants and vouchers; • Promote participation in the local "Green Business" program;	Consistent See Policy SUS-4.3; Action SUS-5.1.1; Action SUS-5.1.3; Action SUS-5.2.1

CAPCOA-Recommended Policies	Consistency
• Distribute free CFL bulbs or other efficiency fixtures to community members; • Offer exchange programs for high-energy-use items, such as halogen torchiere lamps; • Adopt an ordinance requiring energy upgrades at the time of property sale.	
Alternative Energy Policies	
Site Designation: The City/County will identify possible sites for production of renewable energy (such as solar, wind, small hydro, and biogas), as compatible with surrounding uses, and will protect and promote that use, including: • Designate suitable sites to prioritize their development for renewable energy generation; • Evaluate potential land use, environmental, economic, and other constraints on that use, and mitigate such constraints, as feasible; • Adopt measures to protect the renewable energy use of the sites and their resource, such as utility easements, right-of-way, and land set-asides.	Consistent See Policy SUS-5.2; Action SUS-5.2.1; Action SUS-5.2.3; Action SUS-5.2.5; Action SUS-5.2.6
Removing Barriers: The City/County will identify and remove or otherwise address barriers to renewable energy production, including: • Review and revise building and development codes, design guidelines, and zoning ordinances to remove such barriers; • Work with related agencies, such as fire, water, health and others that may have policies or requirements that adversely impact the development or use of renewable energy technologies; • Develop protocols for safe storage of renewable and alternative energy products with the potential to leak, ignite or explode, such as biodiesel, hydrogen, and/or compressed air.	Consistent See Policy SUS-5.1; Action SUS-5.1.1; Action SUS-5.1.2; Action SUS-5.1.3; Action SUS-5.2.6
Zoning Flexibility: The City/County will allow renewable energy project in areas zones for open space, where consistent with the Open Space element, and other uses and values.	Consistent See Policy SUS-5.2; Action SUS-5.2.1; Action SUS-5.2.3; Action SUS-5.2.5; Action SUS-5.2.6
On-Site Renewable Energy Generation: The City/County will require that new office/retail/commercial or industrial development, or major rehabilitation (e.g., additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- of off-site to provide 15 percent of more the project's energy need.	Consistent See Action SUS-5.2.5
Co-Generation Projects: The City/County will promote and encourage co-generation projects for commercial and industrial facilities, provided they meet all applicable air quality standards and provide a net reduction in GHG emissions associated with energy production.	Consistent See Action SUS-5.2.5
Green Utilities: The City/County will promote and support green utilities, and will evaluate the creation of a locally or regionally owned green utility, perhaps in coordination with other regional strategies.	Consistent See Action SUS-5.1.3
Solar-Ready Buildings: The City/County will require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future, using such "solar-ready" features as: • Designing the building to include optimal roof orientation (between 20 to 55 degrees from the horizontal), with sufficient south-sloped roof surface;	Consistent See Action SUS-5.2.4

CAPCOA-Recommended Policies	Consistency
• Clear access without obstructions (chimneys, heating and plumbing vents, etc.) on the south sloped roof; • Designing the roof framing to support the addition of solar panels; • Installation of electrical conduit to accept solar electric system wiring; • Installation of plumbing to support a solar hot water system and provision of space for a solar hot water storage tank.	
Solar Home Partnership: The City/County will require that residential projects of 6 units or more participate in the California Energy Commission's New Solar Homes Partnership, which provides rebates to developers who offer solar power in at least 50 percent of new units, or a program with similar provisions.	Consistent See Policy SUS-5.2; Action SUS-5.2.1; Action SUS-5.2.3; Action SUS-5.2.5; Action SUS-5.2.6
Passive Solar Design: The City/County will require that any building constructed in whole or in part with City/County funds incorporate passive solar design features, such as daylighting and passive solar heating, where feasible.	Consistent See Action SUS-5.2.4
Protection of Solar Elements: The City/County will protect active and passive solar design elements and systems from shading by neighboring structures and trees, as consistent with existing tree shading requirements.	Consistent See Action LU-6.2.2
Renewable Energy Incentives: The City/County will provide, where possible, grants, rebates, and incentives for renewable energy projects, including reduced fees and expedited permit processing.	Consistent See Policy SUS-5.1; Action SUS-5.1.1; Action SUS-5.1.2; Action SUS-5.2.1
Creative Financing: The City/County will provide, where feasible, creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.	Consistent See Policy SUS-5.1; Action SUS-5.1.2
Partnerships: The City/County will pursue partnerships with other governmental entities and with private companies and utilities to establish incentive programs for renewable energy.	Consistent See Policy SUS-1.6; Action SUS-5.1.3
Information and Support: The City/County will establish and maintain a clearinghouse of information on available funding alternatives for renewable energy projects, rates of return, and other information to support developers and community members interested in pursuing renewable energy projects.	Consistent See Action SUS-1.6.1; Action SUS-5.1.3
Green Electricity Purchasing: The City/County will establish target for the purchase of renewable energy, in excess of the state Renewable Portfolio Standards, using such mechanism as green tags or renewable energy certificates.	Consistent See Action SUS-5.1.3
Community Choice Aggregation: The City/County will evaluate the feasibility and effectiveness of using Community Choice Aggregation as a model for providing renewable energy to meet the community's electricity needs, include potential partnerships with other jurisdictions.	Consistent See Policy SUS-2.2
Municipal Operations Policies	
Energy Efficiency Plan: The City/County will prepare and implement a comprehensive plan to improve energy efficiency of municipal facilities, including: • Conduct energy audits for all municipal facilities; • Retrofit for energy efficiency where feasible and when remodeling or replacing components, including increased insulation, installing green or reflective roofs and low-emissive window glass;	Consistent See Policy SUS-3.2; Action SUS-3.2.1; Policy SUS-6.1

CAPCOA-Recommended Policies	Consistency
• Implement an energy tracking and management system; • Install energy efficient exit signs, street signs, and traffic lights; • Install energy efficient lighting retrofits and occupancy sensors, and institute a "lights out at night" policy; • Retrofit heating and cooling systems to optimize efficiency (e.g., replace chillers, boilers, fans, pumps, belts, etc.); • Install Energy Star® appliances and energy efficient vending machines; • Improve efficiency of water pumping and use at municipal facilities, including a schedule to replace or retrofit system components with high-efficiency units (i.e., ultra-low-flow toilets, fixtures, etc.); • Provide chilled, filtered water at water fountains and taps in lieu of bottled water; • Install a central irrigation control system and time its operation for off-peak use; • Adopt an accelerated replacement schedule for energy inefficient system and components.	
Efficiency Requirement for New Facilities: The City/County will require that any newly constructed, purchased, or leased municipal space meet minimum standards as appropriate, such as: • Requirements for new commercial building to meet LEED criteria established by the U.S. Green Building Council; • Requirements for new residential buildings to meet criteria of the Energy Star® New Homes Program established by U.S. EPA; • Incorporation of passive solar design features in new building, including daylighting and passive solar heating; • Retrofitting of existing buildings to meet standards under Title 24 of the California Building Energy Code, or achieve a higher performance standard as established by the City/County; • Retrofitting of existing building to decrease heat gain from non-roof impervious surfaces with cool paving, landscaping, and other techniques.	Consistent See Policy SUS-4.1; Action SUS-4.1.1; Action SUS-5.2.5
Training and Support: The City/County will ensure that staff receives appropriate training and support to implement objectives and policies to reduce GHG emissions, including: • Provide energy efficiency training to design, engineering, building operations, and maintenance staff; • Provide information on energy use and management, including data from the tracking and management system, to managers and others making decisions that influence energy use; • Provide energy design review services to departments undertaking new constriction or renovation projects, to facilitate compliance with LEED standards.	Consistent See Action SUS-1.3.2; Action SUS-4.3.3
Wastewater System Efficiency: The City/County will maximize efficiency of wastewater treatment and pumping equipment.	Consistent See Policy PPFS-6.1
Drinking Water System Efficiency: The City/County will maximize efficiency at drinking water treatment, pumping, and distribution facilities, including development of off-peak demand schedules for heavy commercial and industrial users.	Consistent See Policy PPFS-9.1; Policy PPFS-9.2

CAPCOA-Recommended Policies	Consistency
Fleet Replacement: The City/County will establish a replacement policy and schedule to replace feet vehicles and equipment with the most fuel-efficient vehicles practical, including gasoline hybrid and alternative fuel or electric models.	Consistent See Policy SUS-3.4; Action SUS-3.4.2
Small Tools and Equipment: Install outdoor electrical outlets on buildings to support the use of electric lawn and garden equipment, and other tools that would otherwise be run with small gas engines or portable generators.	Consistent See Action OS-5.1.4
Trip Reduction Program: The City/County will implement a program to reduce vehicle trips by employees, including: • Providing incentives and infrastructure for vanpooling and carpooling, such as pool vehicles, preferred parking, and a website or bulletin board to facilitate ridesharing; • Providing subsidized passes for mass transit; • Offering compressed work hours; off-peak work hours, and telecommuting, where appropriate; • Offer a guaranteed ride home for employees who use alternative modes of transportation to commute.	Consistent See Policy CIRC-10.1; Action CIRC-10.1.1
Bicycle Transportation Support: The City/County will promote and support the use of bicycles as transportation, including: • Providing bicycle stations with secure, covered parking, changing areas with storage lockers and showers, as well as a central facility where minor repairs can be made; • Providing bicycles, including electric bikes, for employee to use for short trips during business hours; • Implementing a police-on-bicycles program; • Providing a bicycle safety program, and information about safe routes to work.	Consistent See Policy CIRC-4.1; Policy CIRC-4.4; Policy CIRC-4.6; Action CIRC-4.6.1; Action CIRC-4.6.2
Municipal Parking Management: The City/County will implement a Parking Management Program to discourage private vehicle use, including: • Encouraging carpools and vanpools with preferential parking and reduced parking fee; • Institute a parking cash-out program; • Renegotiate employee contract, where possible, to eliminate parking subsidies; • Install on-street parking meters with fee structures designed to discourage private vehicle use; • Establish a parking fee for all single-occupant vehicles.	Consistent See Policy CIRC-9.1; Action CIRC-9.1.1; Action CIRC-9.1.2; Policy CIRC-9.2; Action CIRC-9.2.1
Travel Mitigation: The City/County will mitigation business-related travel, especially air travel, through annual purchase of verified carbon offsets.	Consistent See Policy SUS-1.2
Transit Access to Municipal Facilities: Municipal employment and service facilities shall be located on major transit corridors, unless their use is plainly incompatible with other uses located along major transit corridors.	Consistent See Policy CIRC-6.2; Policy CIRC-6.3
Load Management and Demand Response: The City/County will design and implement peak load management and demand response programs for water pollution control, supply and treatment, and distribution, including interface with existing automated system for building energy management and SCADA systems.	Consistent See Policy PPFS-6.1; Policy PPFS-6.2; Policy PPFS-6.4; Policy PPFS-6.5

CAPCOA-Recommended Policies	Consistency
Renewable Energy Installation: The City/County will install renewable energy systems at its facilities where feasible, including: • Solar collection systems on municipal roofs; • Solar water heating for municipal pools; • Waste-to energy systems at waste handling operations.	Consistent See Action SUS-3.2; Policy SUS-4.1;Action SUS-5.2.5
Urban Tree Management: The City/County will conduct a comprehensive inventory and analysis of the urban forest, and coordinate tree maintenance responsibilities with all responsible departments, consistent with best management practices.	Consistent See Policy SUS-6.3; Action LU-6.2.2; Action CD-4.1.1; Action CD-4.1.3; Policy OS-8.1; Action OS-8.1.1; Action OS-8.1.4
Landscaping: The City/County will evaluate existing landscaping and options to convert reflective and impervious surfaces to landscaping, and will install or replace vegetation with drought-tolerant, low-maintenance native species or edible landscaping that can also provide shade and reduce heat-island effects.	Consistent See Policy SUS-4.2; Action SUS-4.2.1
Purchasing Practices: The City/County will adopt purchasing practices and standards to support reductions in GHG emissions, including preferences for energy-efficiency office equipment, and use of recycled materials and manufacturers that have implemented green management practices.	Consistent. See Policy SUS-3.1; Action SUS-3.1.1.
Contracting Practices: The City/County will establish bidding standards and contracting practices that encourage GHG emissions reductions, including preferences or points for the use of low and zero emission vehicles and equipment, recycled materials, and provider implementation of other green management practices.	Consistent See Policy SUS-3.1; Action SUS-3.1.1
Waste Reduction and Diversion Policies	
Methane Recovery: The City/County will establish methane recovery at all wastewater and solid waste treatment facilities.	Consistent See Action SUS-5.2.6
Waste to Energy: The City/County will implement waste-to-energy projects where characteristics meet criteria for effective energy generation.	Consistent See Action SUS-5.2.6
Best Management Practices: The City/County will utilize best management practices at all waste handling facilities.	Consistent. See Policy PPFS-13.1.
Diversion Targets: The City/County will achieve a solid waste diversion of 75 percent of the waste stream by 2020.	Consistent. See Policy PPFS-13.1
Diversion Services: The City/County will expand jurisdiction-wide waste diversion services to include, for example, single stream curbside recycling, and curbside recycling of food and greenwaste.	Consistent See Policy PPFS-13.1.1
Construction and Demolition Waste: The City/County will adopt a Construction and Demolition Waste Recovery Ordinance, requiring building projects to recycle or reuse a minimum percentage of unused or leftover building materials, including: • Require all new developments and major rehabilitation projects (additions of 25,000 square feet commercial or 100,000 square feet industrial) to recycle or salvage XX percent of non-hazardous construction and demolition debris (excluding excavated soil and land-clearing debris); • Require preparation of a construction waste management plan identifying materials to be diverted from disposal, and how material will	Consistent See Action PPFS-13.1.5

CAPCOA-Recommended Policies	Consistency
be stored and handled; • Establish clear and consistent guidelines for calculation methods, recordkeeping, and reporting to document compliance with the plan; • Establish clear and consistent guidelines for how and when used construction materials can be used in new or remodel construction.	
Reuse Center: The City/County will establish a reuse/recycling center where furniture, appliance, building materials, and other useful, non-hazardous items may be dropped off or purchased for a nominal fee.	Consistent See Action PPFS-13.1.2
Program Promotion: The City/County will promote and expand recycling programs, purchasing policies, and employee education to reduce the amount of waste produced.	Consistent See Action PPFS-13.1.2
Regional Coordination: The City/County will coordinate with other agencies in its region to develop and implement effective waste management strategies and waste-to-energy technologies.	Consistent See Action PPFS-13.1.4
Conservation and Open Space Policies	
Water Consumption Reduction Target: The City/County will reduce per capita water consumption by X percent by 2020.	Consistent See Policy PPFS-9.1; Policy PPFS-9.2
Water Conservation Plan: The City/County will establish a water conservation plan that may include such policies and actions as: • Tiered rate structures for water use; • Restrictions on time of use for landscape watering, and other demand management strategies; • Performance standards for irrigation equipment and water fixtures; • Requirements that increased demand from new construction be offset with reductions to that there is not net increase in water use.	Consistent See Policy PPFS-9.1; Policy PPFS-9.2
Recycled Water Use: The City/County will establish programs and policies to increase the use of recycled water, including: • Create and inventory of non-portable water uses within the jurisdiction that could be served with recycled water; • Produce and promote the use of recycled water for agricultural, industrial, and irrigation purposes, including grey water systems for residential irrigation; • Produce and promote the use of treated, recycled water of potable uses where GHG emissions from producing such water are lower than from other potable sources.	Consistent See Action PPFS-9.1.5; Action OS-1.4.2
Water Conservation Outreach: The City/County will implement a public education and outreach campaign to promote water conservation, and will highlight specific water-wasting activities to discourage, such as watering of non-vegetated surfaces and using water to clean sidewalks and driveways.	Consistent See Policy PPFS-9.1; Policy PPFS-9.2
Water-Efficient Design: The City/County will establish building design guidelines and criteria to promote water-efficient building design, including minimizing the amount of non-roof imperious surfaces around the building(s).	Consistent See Action PPFS-9.2.2
Water-Efficient Infrastructure and Technology: The City/County will establish menus and checklist for developers and contractors to ensure water-efficient infrastructure and technology are used in new construction, include low-flow toilets and shower heads, moisture-sensing irrigation, and other such advances.	Consistent See Action PPFS-9.2.2

CAPCOA-Recommended Policies	Consistency
Grey Water System Standards: The City/County will establish criteria and standards to permit the safe and effective use of grey water (on-site water recycling), and will review and appropriately revise, without compromising health and safety, other building code requirements that might prevent the use of such systems.	Consistent See Policy PPFS-9.1; Policy PPFS-9.2; Policy OS-1.4
Water-Efficiency Landscapes: The City/County will install water-efficient landscapes and irrigation, including: • Planting drought-tolerant and native species, and covering exposed dirt with moisture-retaining mulch; • Installing water-efficient irrigation systems and devices, including advanced technology such as moisture-sensing irrigation controls; • Installing edible landscapes that provide local food.	Consistent See Policy SUS-4.2; Action SUS-4.2.1; Action OS-3.4.6
Shade Tree Planting; The City/County will promote the planting of shade trees and will establish shade tree guidelines and specifications, including: • Recommendations for tree planting based on land use (residential, commercial, parking lots, etc.); • Recommendations for tree types based on species size, branching patterns, whether deciduous or evergreen, whether roots are invasive, etc.; • Recommendations for placement, including distance from structures, density of planning, and orientation relative to structures and the sun.	Consistent See Policy SUS-6.3; Action LU-6.2.2; Action CD-4.1.1; Action CD-4.1.3
Urban Forestry Management: The City/County will develop an Urban Forestry Program to consolidate policies and ordinance regarding tree planting, maintenance, and removal, including: • Establishing a tree-planting target and schedule to support the goals of the California Climate Action Team to plant 5 million trees in urban areas by 2020; • Establish guidelines for tree planting, including criteria for selecting deciduous or evergreen trees low-VOC-producing trees, and emphasizing the use of drought-tolerant native trees and vegetation.	Consistent See Policy SUS-6.3; Action LU-6.2.2; Action CD-4.1.1; Action CD-4.1.3; Policy OS-2.7; Action OS-2.7.1; Policy OS-8.1; Action OS-8.1.1; Action OS-8.1.4
Conservation Area Development: The City/County will establish programs and funding mechanisms to create protected conservation areas, including; • Imposing mitigation fees for development on lands that would otherwise be conservation areas, and use the funds generated to protect other areas from development; • Proposing for voter approval a small tax increment (e.g., a 0.25 cent sales tax, perhaps for a finite time period that could be renewed) to fund the purchase of development rights in conservation areas, or purchase of the land outright.	Consistent See Action OS-1.1.2; Action OS-1.1.5; Policy OS-2.1; Action OS-2.1.1; Action OS-2.1.2
Conservation Area Preservations: The City/County will establish policies to preserve existing conservation areas, and to discourage development in those areas.	Consistent See Policy LU-2.4; Action LU-2.4.1; Policy LU2.5; Action OS-1.1.1; Action OS-1.1.4; Action OS-2.1.1
Education and Outreach Policies	
Outreach Methods: The City/County will use a variety of media and methods to promote climate awareness and GHG reduction, including: • TV and radio spots with local celebrities and community leaders; • Advertising "Green Tips" in the local paper;	Consistent See Action SUS-1.1.1; Policy SUS-1.6; Action SUS-1.6.1, Action SUS-1.6.2; Policy SUS-2.1; Action SUS-2.1.1; Policy SUS-2.2; Policy SUS-4.3;

CAPCOA-Recommended Policies	Consistency
• Collaborating with utilities, business associations, civic groups, and non-profits to place tips and articles in billing materials or newsletters; • Designing and maintaining an interactive Climate Protection website and collaborating with other organizations to link to the website.	Action SUS-4.3.1; Action OS-1.1.5; Policy OS-5.2; Action OS-5.2.1
Outreach Topics: The City/County will coordinate with other agencies and outreach efforts to align messages on topics such as: • Energy efficiency and conservation, and green energy; • Trip reduction, public transit, carpooling, vanpooling, and alternative modes of transportation; • Green building and energy-efficient design; • Waste reduction, recycling, and composting; • Water conservation and water-efficient design and products; • The benefits of buying local, and information about locally grown, prepared, and manufactured goods and local services.	Consistent See Policy SUS-1.6; Action SUS-1.6.1, Action SUS-1.6.2; Policy SUS-2.2; Action SUS-5.1.3
Energy Efficiency Campaigns: The City/County will collaborate with local energy suppliers and distributors to establish energy conservation programs, Energy Star® appliance change-out programs, rebates, vouchers, and other incentives to install energy-efficient technology and products to cooperate on advertising.	Consistent See Action SUS-1.6.2; Action SUS-5.1.3; Action SUS-5.2.3
Pedestrian and Bicycle Promotion: The City/County will work with local community groups and downtown business association to organize and publicize walking tours and bicycle events, and to encourage pedestrian and bicycle modes of transportation.	Consistent See Policy CIRC-4.2; Action CIRC-4.4.3
Waste Reduction: The City/County will organize workshops on waste reduction activities for the home or business, such as backyard composting, or office paper recycling, and will schedule recycling drop-off events and neighborhood chipping/mulching days.	Consistent See Action SUS-1.6.2
Water Conservation: The City/County will organize workshops on water conservation activities, such as selecting and planting drought-tolerant, native plants in landscaping, and installing advanced irrigation systems.	Consistent See Action SUS-1.6.2
Energy Efficiency: The City/County will organize workshops on steps to increase energy efficiency in the home or business, such as weatherizing the home or building envelope, installing smart lighting systems, and how to conduct a self-audit for energy use and efficiency.	Consistent See Action SUS-1.6.2; Action SUS-5.1.3
Climate Protection Summit/Fair: The City/County will organize an annual Climate Protection Summit or Fair, to educate the public on current climate science, projected local impacts, and local efforts and opportunities to reduce GHG emissions, including exhibits of the latest technology and products for conservation and efficiency.	Consistent See Action SUS-1.6.2
School Programs: The City/County will develop and implement a program to present information to school children about climate change and ways to reduce GHG emissions, such as school based trip reduction and the importance of recycling.	Consistent See Action SUS-1.6.2
Climate Champions Awards: The City/County will establish a Climate Champions Awards program to acknowledge outstanding private and public efforts to reduce GHG emissions.	Consistent See Action SUS-1.6.2
GHG Reduction/Climate Protection Competitions: The City/County will sponsor competitions and contests with prizes for promoting climate protection and reducing GHG emissions, including such contests as:	Consistent See Action SUS-1.6.2

CAPCOA-Recommended Policies	Consistency
• Poster contests at schools, with winning entrants receiving scholarship grants and recognition a the Climate Protection Summit/Fair, and poster used in outreach campaigns or compiled in calendars; • Waste diversion contest between schools, businesses, civic organizations, and Scout troops or other groups with prizes for the greatest percent waste diverted and recognition at the Climate Protection Summit/Fair, and similar contest for planting trees, reducing vehicle trips, or other desired behaviors. • Walkathons, relays, or other similar fundraising challenges, with funds raised to support community climate protection programs and activities.	

Note: While the CAPCOA Model Policies for GHGs in General Plans includes alternative forms for many of the recommended policies, only one alternative is listed for this analysis.

Implementation of relevant policies and actions from the proposed General Plan Update and associated adoption and implementation of the upcoming CAP could potentially mitigate GHG emissions projected for build-out conditions consistent with the City's GHG reduction goal of 25 percent of 1990 levels by 2020 as well as state efforts to reduce GHG emissions. However, the CAP has not been fully developed at this time and its reduction measures are not currently known. Furthermore, while the proposed General Plan Update would improve GHG emission per service population, GHG calculations predict emissions in excess of the BAAQMD threshold and would still result in a net increase in GHG emissions. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable.**

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5.0 CUMULATIVE IMPACTS

This section summarizes the cumulative impacts associated with the proposed General Plan Update using the same environmental issue areas as Section 4.0. Cumulative impacts are the result of combining the potential effects of the project (i.e., the proposed General Plan Update) with other existing, approved, proposed, and reasonably foreseeable development projects in the region. The following discussion considers the cumulative impacts of the relevant environmental issue areas.

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." *Cumulatively considerable* means that the incremental effects of an individual 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 (as defined by Section 15130). As defined in CEQA Guidelines Section 15355, a cumulative impact IS an impact created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

> *. . . the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

In addition, Section 15130(b) identifies the following elements as necessary for an adequate cumulative impact analysis:

1) *Either:*

   (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,

   (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

2) *A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;*

3) *A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and*

4) *A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.*

Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

APPROACH TO THE CUMULATIVE IMPACT ANALYSIS

The analysis of cumulative impacts for each environmental factor can employ one of two methods to establish the effects of other past, current, and probable future projects. A lead agency may select a list or projects, including those outside the control of the agency, or alternatively, a summary of projects. These projects may be from an adopted general plan or related planning document, or from a prior environmental document that has been adopted or certified, and they may describe or evaluate regional or area-wide conditions contributing to the cumulative impact. The analysis provided in the Draft EIR utilizes both approaches.

Definition of Cumulative Setting

The cumulative setting conditions considered in this Draft EIR are based on:

- **Regional Growth Projections**. Butte County Association of Governments (BCAG) is an association of all the local governments within Butte County. Its members include the cities of Biggs, Chico, Gridley, and Oroville, the Town of Paradise, and the County of Butte. BCAG is responsible for developing federal and state transportation plans and programs that secure transportation funding for the region's highways, transit, streets and roads, as well as pedestrian and other transportation system improvements. Presented in **Table 4.0-2** and **4.0-3** are housing and population projections that BCAG anticipates within Butte County by the year 2030. County growth is anticipated to occur at an annual rate of 2 percent.

- **Local Adopted General Plans**. These are the existing land use plans in the region, consisting of the cities of Biggs, Gridley, and Oroville, the Town of Paradise, and Butte County. It should be noted that Butte County is currently in the process of updating its general plan (public draft released in 2009), which includes land use planning for some areas that are also addressed in the City of Chico's proposed General Plan Update. This Draft EIR cumulative setting and impact analysis acknowledges the Butte County general plan update process.

- **Large-Scale Development Projects**. This includes current large-scale proposed and approved development projects within Chico (see **Table 4.0-4**). It should be noted that this list is not intended to be all-inclusive of development activities in the city, but rather a general description of current development activities.

- **Effect of Regional Conditions**. The cumulative setting considers background traffic volumes and patterns on regional and state highways (e.g., State Route (SR) 99 and SR 32), background air quality conditions, and other associated environmental conditions that occur within the region, both inside and outside of the Planning Area.

- **Consideration of Existing Development Patterns**. The cumulative setting considers the current environmental conditions of existing development and past land use activities in the region. This includes major land use activities in the City of Chico and its associated SOI.

Each technical section of the Draft EIR includes a description of the geographic setting in the context of cumulative impacts based on the characteristics of the environmental issue under consideration as set forth in Section 15130(b) of the State CEQA Guidelines. For some issues, such as air quality, this area is very large, often extending over city and county lines to other parts of Northern California.

5.2 CUMULATIVE IMPACTS ANALYSIS

This subsection provides an analysis of overall cumulative impacts of the project taken together with other past, present and probable future projects producing related impacts, as required by Section 15130 of the CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the proposed General Plan Update project itself would cause a cumulatively considerable (and thus significant) incremental contribution to any such cumulatively significant impacts. (See CEQA Guidelines Section 15130[a]–[b], Section 15355[b], Section 15064[h], Section 15065[c]; *Communities for a Better Environment v. California Resources* Agency [2002] 103 Cal.App.4th98, 120.) In other words, the required analysis intends to create a broad context in which to assess the project's incremental contribution to anticipated cumulative development impacts, viewed on a geographic scale well beyond the project site itself (in this case, the Planning Area), and then to determine whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., cumulatively considerable in CEQA parlance).

Pursuant to Section 15130 of the CEQA Guidelines, "(t)he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impacts to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact." The proposed project is considered to have a significant cumulative effect if:

1) The cumulative effects of development without the project are not significant and the project's additional impact is substantial enough, when added to the cumulative effects, to result in a significant impact; or

2) The cumulative effects of development without the project are already significant and the project contributes measurably to the effect. The term "measurably" is subject to interpretation. The standards used herein to determine measurability are that either the impact must be noticeable to a reasonable person, or must exceed an established threshold of significance.

Identified below is a compilation of the cumulative impacts that would result from the implementation of the project and future development in the vicinity. The following cumulative impacts of the proposed General Plan Update are specifically identified in Sections 4.1 through 4.14 of this Draft EIR. The reader is referred to the various environmental issue areas of these sections for further details and analysis of the cumulative impacts.

As noted in this Draft EIR, most of the impacts associated with the proposed project are less than cumulatively significant in all but a few topic areas. Cumulative impacts will be less than significant in subject categories including land use, population and housing, human health/risk of upset, traffic and circulation, geology and soils, hydrology and water quality, cultural and paleontological resources, and public services and utilities.

LAND USE

Cumulative Land Use Impacts

Impact 4.1.4 Implementation of the proposed General Plan Update, in addition to existing, proposed, approved, and reasonably foreseeable development in the City of Chico and Butte County, would contribute to cumulative land use impacts associated with the division of an established community or conflicts with land use plans and regulations that provide environmental protection.

Under cumulative conditions, the proposed General Plan Update and subsequent development would not contribute to land use conflicts beyond those discussed in Impacts 4.1.1, 4.1.2, and 4.1.3 in Section 4.1, Land Use. There would be no further contribution to the division of an established community or conflicts between planning documents and regulations. As identified under Impacts 4.1.1 through 4.1.3, proposed General Plan Update policies and actions provide for land use compatibility within the Planning Area and for coordination with County land use planning as well as the HCP. Thus, this impact is **less than cumulatively considerable**.

AGRICULTURAL RESOURCES

Cumulative Impacts to Agricultural Resources

Impact 4.2.4 Implementation of the proposed General Plan Update, along with regional and statewide growth, would result in a contribution to the conversion of important farmland.

Key themes of the proposed General Plan include the protection of agricultural resources and keeping urban growth limits. These themes reflect the City's desire to retain a compact urban form, and to emphasize infill and redevelopment, as well as new complete neighborhoods contiguous to existing urban areas. Much of the agricultural land currently within the SOI is surrounded by urban uses, and as a result it has been compromised and may not be considered "viable" agricultural land. The City recognizes the importance of agricultural lands and is committed to protecting this resource as supported by its continued commitment to the Greenline. The Greenline restricts development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses and serves as an urban growth boundary to restrict the conversion of farmland.

However, the proposed General Plan Update could still result in the conversion of up to 1,041 acres of Prime farmland and 26 acres of Unique Farmland. The proposed General Plan policies and actions do not completely offset the loss of important farmland, which is a statewide cumulative concern. Since no cumulative threshold of acceptable important farmland loss has been established by the State or Butte County, any contribution is determined cumulatively considerable in this Draft EIR. Thus, the contribution to cumulative impacts on agricultural resources is considered to be a **cumulatively considerable** and **significant and unavoidable** impact.

POPULATION/HOUSING/EMPLOYMENT

Cumulative Population and Housing Increases

Impact 4.3.3 Subsequent land use activities associated with implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development, could result in a cumulative increase in population and housing growth in the City of Chico as well as in the surrounding Butte County region, along with associated environmental impacts. However, implementation of the proposed General Plan Update would accommodate anticipated residential and employment growth in an efficient and compact manner.

Both the City of Chico and BCAG anticipates that growth within Butte County as a whole with to occur at an annual rate of 2 percent. As discussed under Impact 4.3.1, the proposed General Plan Update would provide capacity to meet and exceed the city's anticipated 2030 housing and employment needs. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its build-out potential be attained and that additional land capacity beyond the projected need provides a land supply "buffer" to address the fact that not all of the identified land will be available for development at any given time based on landowner willingness to sell or develop, site readiness, environmental constraints, market changes, and other factors. Population growth in the city would be accommodated via infill and redevelopment focused in the Downtown and along transit, as well as in Special Planning Areas to be developed as connected and complete neighborhoods with a mix of residential densities, employment, services, and retail, parks and open space. The proposed General Plan Update policy provisions and its Land Use Diagram would provide for growth with minimal outward expansion of the city's existing boundaries and would retain the current Greenline along the western boundary of the city. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid the growth effects of sprawl development patterns or induced growth in the larger Butte County region. Thus, this impact is considered **less than cumulatively considerable.**

HUMAN HEALTH/RISK OF UPSET

Cumulative Wildland Fire Hazards

Impact 4.4.7 Potential development under the proposed General Plan Update, along with increased urban development in Butte County, would not result in cumulative wildland fire hazard impacts.

Any new development or redevelopment in areas at risk for wildland fire hazards would be required to comply with minimum standards for materials and material assemblies to provide a reasonable level of exterior wildfire exposure protection for buildings in wildland-urban interface areas as required by the 2007 California Fire Code. Proposed General Plan Update Actions S-4.3.2 and S-4.3.3 would reduce wildland fire hazards to future development by considering buffer areas and incorporating state standards to protect structures in wildland fire areas.In addition, the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan addresses the prevention of injury and damage from wildland fire hazards in Butte County and identifies past and present mitigation activities, current policies and programs, and mitigation strategies for wildland fire hazards. The Bidwell Park Master Management Plan also reduces the probability of wildfire impacts to landowners and residents surrounding Bidwell Park, one of the most wildland fire prone areas of the city. These policies and regulations, in conjunction with the

existing California Fire Code and the measures identified in the Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan, would reduce cumulative impacts associated with wildland fires to a **less than cumulatively considerable** level.

TRAFFIC AND CIRCULATION

Cumulative Traffic Impacts on Local Roadways and State Highways

Impact 4.5.7 When considered with existing, proposed, planned, and approved development in the region, implementation of the proposed General Plan Update would contribute to cumulative traffic volumes in the region that result in significant impacts to level of service and operations.

Build out of the proposed General Plan Update would add substantial traffic volumes on local roadways and state highway facilities that would result in significant traffic impacts within the Planning Area as well as in adjoining jurisdictions in Butte County. Improvements to regional transportation facilities associated with cumulative traffic conditions are intended to be addressed through implementation of regional programs, such as the Butte County Regional Transportation Plan. Impacted facilities include segments of SR 32 and SR 99.

Implementation of proposed General Plan Update policies and actions would assist in reducing its cumulative contribution to regional traffic effects. Specifically, the proposed General Plan Update includes Policy CIRC-1.3 that identifies the collection of the fair share cost of improvements necessary to address cumulative transportation impacts, including roadway, transit, pedestrian, and bicycle facilities, through the City's development impact fee program. In addition, the City of Chico and Caltrans have entered into a funding agreement for mitigating local developments' impact to state facilities. Further, Action CIRC-1.8.3 commits the City to continue to consult with BCAG and Caltrans regarding the prioritization and timely construction of programmed freeway and interchange improvements on the state highway system. However, this impact would still be considered **cumulatively considerable** and **significant and unavoidable** as the City does not have authority over improvements outside of the City's jurisdiction (e.g., facilities in Butte County and Caltrans facilities such as SR 32 and SR 99), and the City cannot ensure that these improvements would be completed. With the exception of funding sources for regional traffic improvements associated with the BCAG RTP, there are no other regional traffic mitigation programs in which the City could participate to minimize its regional traffic impact.

AIR QUALITY

Result in a Cumulatively Considerable Net Increase in Nonattainment Criteria Pollutant

Impact 4.6.7 Implementation of the proposed General Plan Update, in combination with cumulative development in the Sacramento Valley Air Basin, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter.

The proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. The proposed General Plan Update and its Land Use Diagram and Circulation Plan would provide for well-connected growth while minimizing outward expansion

of the City's boundaries, and would reduce per capita increases in vehicle miles traveled within the city and thus reduce air quality impacts as compared to a more sprawling growth pattern. In addition, as discussed above, all projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. The proposed General Plan Update contains Action OS-4.1.2 which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. BCAQMD's CEQA Air Quality Handbook (BCAQMD, 2008), identifies a list of best available mitigation strategies tailored to the type of project being proposed. However, while implementation of proposed General Plan Update policies and actions, as well as BCAQMD requirements, would assist in preventing, reducing, and minimizing the proposed General Plan Update's contribution to cumulative air quality impacts, a considerable amount of the ozone that is monitored in the SVAB results from pollutants that have been transported from the San Francisco Bay Area. Due to the lack of physical barriers and coastal winds blowing inland, air pollution generated in the metropolitan Bay Area is easily spread to the Sacramento Valley. As such, the City and other jurisdictions in the SJVAB often have little control over factors that affect air quality conditions. Even after implementation of smart growth policies and BCAQMD requirements, the project's contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact as these actions might not fully offset air pollutant emissions resulting from construction and operational activities and could violate or substantially contribute to a violation in O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards. There are no feasible mitigation measures that can further offset air pollutant emissions from subsequent development and growth under the proposed General Plan Update.

NOISE

Cumulative Transportation Noise Impacts

Impact 4.7.7 Implementation of the proposed General Plan Update, in combination with other development in nearby unincorporated areas of the county, would increase transportation noise along area roadways.

Implementation of the proposed General Plan Update noise policies discussed under Impact 4.7.3 would reduce potential transportation noise impacts in the city. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve applicable noise standards.

However, it is may not be possible to fully mitigate transportation noise in all areas of the city, particularly for existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residences fronting on the roadway that limits the ability to utilize noise barrier). In addition, the City does not have jurisdiction to implement noise mitigation outside of its boundaries (or may not be allowed to in Caltrans right-of-way) to address potential noise impacts to the surrounding, nearby unincorporated areas of Butte County. It is important to note that the increases in traffic noise levels associated with build-out of the proposed General Plan Update would occur gradually over a period of 20 years or more. Nonetheless, the proposed General Plan Update's contribution to cumulative traffic noise would be **cumulatively considerable** and a **significant and unavoidable** impact.

GEOLOGY AND SOILS

Cumulative Geologic and Soil Hazards

Impact 4.8.5 Subsequent land use activities associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, and reasonably foreseeable development in the region, may result in cumulative geologic and soil hazards. However, policy provisions in the proposed General Plan Update and continued implementation of the City's Municipal Code would ensure that potential development is not adversely impacted by cumulative geologic and soil hazards.

All new development, including development in areas outside of the City of Chico, would have to comply with the CBC, which requires stringent earthquake-resistant design parameters and common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. Furthermore, any development involving clearing, grading, or excavation that causes soil disturbance of 1 or more acres is subject to NPDES CGP provisions, which would significantly reduce the potential for substantial erosion or topsoil loss to occur in association with new development by requiring an approved SWPPP that provides a schedule for the implementation and maintenance of erosion control measures and a description of erosion control practices, including appropriate design details and a time schedule. The proposed General Plan Update also requires that damage to new structures from seismic, geologic, or soil conditions be prevented to the maximum extent feasible. Furthermore, site-specific review, including geotechnical reports, required by the City of Chico would reduce the proposed General Plan Update's contribution to cumulative impacts to **less than cumulatively considerable**, and no further mitigation is required.

HYDROLOGY AND WATER QUALITY

Cumulative Water Quality Impacts

Impact 4.9.5 Land uses and growth under the proposed General Plan Update, in combination with current land uses in the surrounding region, could introduce substantial grading, site preparation, and an increase in urbanized development.

As part of NPDES, the State Water Resources Control Board has adopted a General Permit for the Discharge of Storm Water from Small MS4s to provide permit coverage for smaller municipalities, with which the City complies through implementation of its Storm Water Management Program that provides water quality protections for surface water and groundwater.

Sections 16.22 through 16.32 of the Municipal Code, Grading Regulations and General Provisions, regulates grading on all property in Chico to avoid pollution of watercourses with nutrients, sediments, or other earthen materials generated or caused by surface runoff on or across the permit area. In addition, Chico Municipal Code Section 18R.08.050 states that development shall provide storm drainage facilities that will convey stormwater runoff to an existing drainage channel or drainage system. The California Stormwater Quality Association has prepared technical studies that have identified that water quality control features (when inspected and monitored properly), have been successful in controlling water quality and avoiding groundwater quality impacts. Furthermore, the proposed General Plan Update contains policies and actions with restrictions and corresponding performance standards that

address this surface water quality impacts. These are discussed under Impacts 4.9.1 and 4.9.2 in Section 4.9, Hydrology and Water Quality. These policies and actions, as well as compliance with the City's Municipal Code and Storm Water Management Program, would ensure that the proposed General Plan Update's contribution to cumulative water quality impacts would be mitigated. Thus this impact would be **less than cumulatively considerable**.

Cumulative Drainage and Flood Hazards

Impact 4.9.6 Implementation of the proposed General Plan Update could increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions downstream.

The City of Chico adopted a Storm Drainage Master Plan in September 2000 that identifies the public storm drain improvements necessary to serve a major portion of the city. The Storm Drainage Master Plan identifies specific projects to improve existing storm drainage and to provide drainage facilities for future development. Proposed Parks, Public Facilities, and Services Element Action PPFS-6.1.1 ensures periodic updates of the Storm Drainage Master Plan in order to identify areas with infrastructure deficiencies and to establish a program to install, upgrade, and enhance stormwater management infrastructure necessary to meet City standards. In addition, the City has adopted Section 18R.08.050, Design Criteria and Improvements Standards: Storm Drainage, into the Municipal Code, which establishes design criteria and improvement standards for storm drain management and facilities. Chapter 16R.37 of the City Municipal Code constitutes the floodplain standards of the City to apply to all development occurring within floodplains in Chico.

In addition, the proposed General Plan Update includes several policies and actions that address flooding. The policies and actions are discussed under Impacts 4.9.3 and 4.9.4 in Section 4.9, Hydrology and Water Quality.

The proposed General Plan's contribution to the cumulative condition of drainage and flood-related impacts in the area, as well as its potential incremental contribution to cumulative impacts, would be reduced to **less than cumulatively considerable**.

BIOLOGICAL RESOURCES

Cumulative Biological Resource Impacts

Impact 4.10.4 The proposed General Plan Update, in combination with other reasonably foreseeable projects, would result in direct and indirect mortality and loss of habitat for special-status species, sensitive and/or critical habitat.

A key goal of the General Plan Update is to produce a compact urban form through balanced growth that relies on infill, redevelopment, and several mixed-use new growth areas. This strategy is intended to reduce the amount of undeveloped land needed to meet the City's future housing and jobs needs. In addition, the proposed General Plan Update policy provisions and its Land Use Diagram require the city to maintain urban boundaries and to provide for growth with minimal outward expansion of the city's boundaries. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid the growth effects of sprawl development patterns, such as the loss of biological resources. Furthermore, the federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), and the California Fish and Game Code protect special-status species through regulatory permitting procedures that include mitigation and compensation

requirements. Implementation of these requirements, along with the proposed General Plan Update policies and actions described under Impacts 4.10.1 through 4.10.3 in Section 4.10, Biological Resources, would reduce the proposed General Plan Update's contribution to cumulative biological resource impacts. However, the extent of loss of sensitive and/or critical habitats that the proposed General Plan Update would contribute to the regional loss of these resources is considered considerable. It is anticipated that the eventual implementation of the proposed Butte County Habitat Conservation Plan would address and mitigate regional biological resource impacts. However, this plan has yet to be adopted. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable**.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Cumulative Impacts on Historic Resources, Prehistoric Resources, and Human Remains

Impact 4.11.4 Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to cultural resources in the region.

As discussed under Impact 4.11.1 and 4.11.2 in Section 4.11, the proposed General Plan Cultural Resources and Historical Preservation Element contains several policies and actions that would assist in reducing potential cumulative impacts to historical resources, prehistoric resources, and human remains throughout the Planning Area. General Plan Update Action CRHP-1.1.6 requires that conditions of approval for future proposed development projects to include best management practices that protect cultural and historic resources. Future discretionary approvals that could result in the potential disturbance of paleontological resources will be subject to individual review of potential impacts under a separate CEQA document. General Plan Update Policy CRHP-2.1 requires the city to integrate the values of historic preservation with infill development and adaptive reuse and Policy CRHP-2.3 limits the demolition of historic resources to an act of last resort. In addition, Section 7050.5(b) of the CHSC specifies protocol when human remains are discovered on a project site, while Public Resources Code Section 21083.2 includes requirements for activities that preserve unique archeological resources in place in an undisturbed state. Future environmental and discretionary review of development or redevelopment projects under the proposed General Plan Update would ensure that the project's contribution to cumulative impacts would be **less than cumulatively considerable**.

Cumulative Impacts on Paleontological Resources

Impact 4.11.5 Implementation of the proposed General Plan Update, in addition to existing, approved, proposed, and reasonably foreseeable development in the region, could result in cumulative impacts to paleontological resources in the region.

Implementation of the proposed project, in combination with cumulative development in the surrounding region, would increase the potential to disturb known and undiscovered paleontological resources in the region. However, during implementation of the current General Plan, little, if any impacts have occurred to paleontological resources. While multiple impacts may occur during the implementation period of the General Plan Update, cumulative impacts are unlikely. Cumulative impacts that may occur would be reduced to **less than cumulatively considerable** levels by implementation of proposed General Plan Action CRHP-1.1.6, which requires that conditions of approval for a proposed development project would have to include best management practices that protect cultural resources.

PUBLIC SERVICES AND UTILITIES

Cumulative Demand for Fire Protection and Emergency Medical Services

Impact 4.12.1.3 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in Butte County, would increase the demand for fire protection and emergency medical services and thus require additional staffing, equipment, and related facilities under cumulative conditions. The provision of these facilities could result in environmental impacts.

Project-level CEQA review of future fire protection/EMS facilities, along with compliance with the California Fire Code, would ensure that cumulative environmental impacts associated with the construction of new fire protection and emergency medical response services facilities to support community growth would be considered **less than cumulatively considerable**.

Cumulative Demand for Law Enforcement Services

Impact 4.12.2.2 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the CPD service area, would increase the demand for law enforcement services and thus require additional staffing, equipment, and facilities, the construction of which could cause significant environmental impacts.

Future law enforcement facilities projects would be subject to project-level CEQA review at such time as an application for a project was submitted to the appropriate agency. Project-specific environmental review would identify and mitigate cumulative environmental impacts. Therefore, the proposed General Plan Update's contribution to the continued provision of law enforcement services in the cumulative setting would be considered **less than cumulatively considerable.**

Cumulative Schools Impacts

Impact 4.12.3.3 Population growth associated with implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development in the cumulative setting, would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth.

As discussed under Impact 4.12.3.1 and Impact 4.12.3.2 In Section 4.12, Public Services and Utilities, current state law requires that the environmental impact of new development on grade school facilities is considered fully mitigated through the payment of required development impact fees. All new development associated with the proposed General Plan Update would be required to pay the applicable development impact fees. Furthermore, any significant expansion of school facilities or development of new school facilities (grade school and post-secondary) would be subject to the appropriate CEQA environmental review, which would identify any site-specific impacts and provide mitigation to reduce those impacts. Therefore, cumulative impacts on school facilities (grade school and post-secondary) are considered **less than cumulatively considerable**.

Cumulative Water Supply Impacts

Impact 4.12.4.3 Implementation of the proposed General Plan Update, in combination with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would increase the cumulative demand for water supplies and related infrastructure.

Implementation of the proposed General Plan Update, as well as future project-level CEQA review, would require the city to ensure that new development would not proceed without adequate water supply and necessary infrastructure. Build-out of the proposed General Plan Update directs the protection of groundwater recharge areas and would result in increased water use efficiency in the Planning Area as discussed under Impact 4.12.4.2 in Section 4.12, Public Services and Utilities. In addition, proposed General Plan Update policies and actions include requirements for conservation measures that would further reduce the proposed General Plan Update's contribution to cumulative water supply impacts. Cal Water, as well as the BCDWRC, is actively working to manage and conserve groundwater and maintain groundwater levels in the cumulative setting. For example, the Butte County Groundwater Management Ordinance includes the development and monitoring of basin management objectives to maintaining groundwater levels adequate to sustain municipal, agricultural, and domestic use. In addition, the Butte County Integrated Water Resource Plan discusses current and future water demands and water resource management options and the Butte County Groundwater Management Plan includes groundwater management objectives. Therefore, as it is anticipated that groundwater supply would be available to serve cumulative development without overdraft of the basin, this impact is considered **less than cumulatively considerable**.

Cumulative Wastewater Service Impacts

Impact 4.12.5.3 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development within the cumulative setting, would contribute to the cumulative demand for wastewater service. However, implementation of proposed General Plan Update policy provisions and continued implementation of City standards would ensure adequate wastewater facilities are provided.

As described under Impact 4.12.5.2 in Section 4.12, Public Services and Utilities, proposed General Plan Update policies require that wastewater conveyance and treatment capacity and infrastructure be available in time to meet the demand created by new development. Proposed policies also require monitoring and conservation that would serve to reduce demands placed on the sewer system capacity and ensure that capacity would not be exceeded. Therefore, the proposed General Plan Update would not contribute to cumulative wastewater infrastructure impacts, and this impact is considered **less than cumulatively considerable**.

Cumulative Solid Waste Impacts

Impact 4.12.6.3 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development in the region, would result in increased demand for solid waste services.

Implementation of General Plan policies and actions as discussed under Impact 4.12.6.1 in Section 4.12, Public Services and Utilities, would reduce the proposed General Plan Update's contribution to cumulative solid waste generation. Subsequent development in other areas of the region would also be subject to waste reduction programs consistent with Public Resources Code, Section 42900-42927. In addition, adequate landfill capacity would be available under cumulative conditions to meet the needs of the City of Chico and surrounding region through 2030. Therefore, the proposed General Plan Update would not contribute significantly to cumulative solid waste impacts, and this impact is considered **less than cumulatively considerable**.

Cumulative Demand for Electrical, Natural Gas, and Telecommunications Services

Impact 4.12.7.2 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would contribute to the cumulative demand for electrical, natural gas, and telecommunications services and associated infrastructure that could result in a physical impact on the environment.

Since future energy-related projects would be reviewed for project-level environmental impacts and the majority of this infrastructure would be collocated and constructed concurrently with other utilities within roadway rights-of-way to lessen or eliminate potential environmental effects, the proposed General Plan Update's contributions to the continued provision of electrical, natural gas, and telecommunications services and infrastructure in the cumulative setting would be considered **less than cumulatively considerable.**

Cumulative Park and Recreation Demands

Impact 4.12.8.2 Implementation of the proposed General Plan Update, along with other existing, planned, proposed, approved, and reasonably foreseeable development, would increase the use of existing parks and would require additional park and recreation facilities within the cumulative setting, the provision of which could have an adverse physical effect on the environment.

Policies and actions included in the General Plan Update support continued cooperation with CARD and other agencies (such as the CUSD, CSU Chico, Butte College) to provide parks and recreation facilities that offer recreation opportunities for the community (Policy PPFS-1.1). To that end, future development projects would be required to pay development impact fees for park facilities on behalf of CARD and the city in order to fund the acquisition and development of neighborhood and community parks and community use facilities, as well as open space, needed as a result of new development (Action PPFS-1.1.2). These fees and policy provisions would ensure that the city would adequately provide for park and recreation needs for residents and environmental review of new development would mitigate any environmental impacts of park and recreational facilities. Further, the Special Planning Areas (SPAs) include the provision of parks and open space, and Action PPFS-1.1.5 directs the City to include CARD as part of early project review for SPAs and larger subdivision proposals. Therefore, the proposed General Plan Update would have a **less than cumulatively considerable** impact on parks and recreation services.

VISUAL RESOURCES AND AESTHETICS

Cumulative Impacts to Scenic Vista, Scenic Resources, Existing Visual Character, and Light and Glare

Impact 4.13.5 Implementation of the proposed General Plan Update, in combination with other reasonably foreseeable development projects within Butte County, would contribute to the alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting.

As discussed under Impacts 4.13.1 through 4.13.4 in Section 4.13, the city's proposed and existing policy and regulatory framework (Municipal Code, Design Guidelines Manual) provides a comprehensive approach to reducing the visual prominence of new development, adverse impacts to existing scenic vistas, and substantial increases in light and glare in the Planning Area. Even so, new development and redevelopment in the Planning Area would contribute to other similar impacts resulting from development in the larger Butte County region. Even with incorporation of smart growth principles and other mitigation, the proposed General Plan Update would still contribute to significant cumulative impacts associated with alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting in the region. No additional mitigation measures are available to offset these impacts. Therefore, this impact is considered **cumulatively considerable** and **significant and unavoidable.**

ENERGY AND CLIMATE CHANGE

Generate Greenhouse Gas Emissions that May Have a Significant Impact on the Environment or Conflict with Applicable Adopted Reduction Measures

Impact 4.14.2 Implementation of the proposed General Plan Update would be consistent with the goals of AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). However, it could still result in greenhouse gas emissions that may further contribute to significant impacts on the environment.

Implementation of relevant policies and actions from the proposed General Plan Update and associated adoption and implementation of the upcoming Climate Action Plan (CAP) is anticipated to mitigate greenhouse gas (GHG) emissions projected for build-out conditions consistent with the City's GHG reduction goal of 25 percent of 1990 levels by 2020 as well as state efforts to reduce GHG emissions. However, the CAP has not been finalized at this time and all of its reduction measures are not currently known. Furthermore, while the proposed General Plan Update would improve GHG emission per service population, GHG calculations predict emissions in excess of the BAAQMD threshold and would still result in a net increase in GHG emissions. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable.** However, it should be noted that the environmental effects of climate change are gradual and, as such, it is not anticipated that substantial changes in the environment resulting from climate change would impact the City within the 20-year timeframe of the proposed General Plan.

6.0 ALTERNATIVES

6.1 INTRODUCTION

State of California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) states that an environmental impact report (EIR) shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those alternatives which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly (CEQA Guidelines Section 15126.6[b]).

According to the CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, CEQA Guidelines Section 15126.6 states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites." The CEQA Guidelines also specify that the alternatives discussion should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. These factors would be unique for each project.

The significant environmental impacts of the project that the alternatives will seek to eliminate or reduce were determined and based upon the findings contained within each technical section evaluated in Sections 4.1 through 4.14 of this DEIR.

6.2 ALTERNATIVES UNDER CONSIDERATION

Three alternatives were identified for examination and analysis in this DEIR:

- Alternative 1 – Existing General Plan Alternative (No Project Alternative)
- Alternative 2 – Expanded Urban Development Alternative
- Alternative 3 – Increased Density Alternative

These alternatives constitute an adequate range of reasonable alternatives as required under CEQA Guidelines Section 15126.6.

ALTERNATIVES CONSIDERED BUT NOT SELECTED FOR ANALYSIS

Off-Site Alternative

Given the nature of the project (adoption of a General Plan Update) it would not be pertinent to address another area outside of the Planning Area. Further, this alternative would not meet the basic project objectives identified in Section 3.0 (Project Description). For these reasons, an off-site alternative is considered infeasible pursuant to CEQA Guidelines 15126.6(c).

6.3 ALTERNATIVE 1 – EXISTING GENERAL PLAN ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

Under this alternative, the proposed City of Chico 2030 General Plan Update would not be adopted and the 1994 General Plan policy document, Land Use Map (see **Figure 6.0-1**) and Circulation System would remain in effect. Buildout under Alternative 1 would consist of 54,280 residential units (population of 134,000) and 2,700 acres of commercial, office and industrial uses. As shown in Figure 6.0-1, Alternative 1 would have similar extent of development expansion into the city's sphere of influence as the proposed General Plan Update. Notable differences include the lack of the establishment of the Bell/Muir Special Planning Area and the Doe Mill/Honey Run Special Planning Area.

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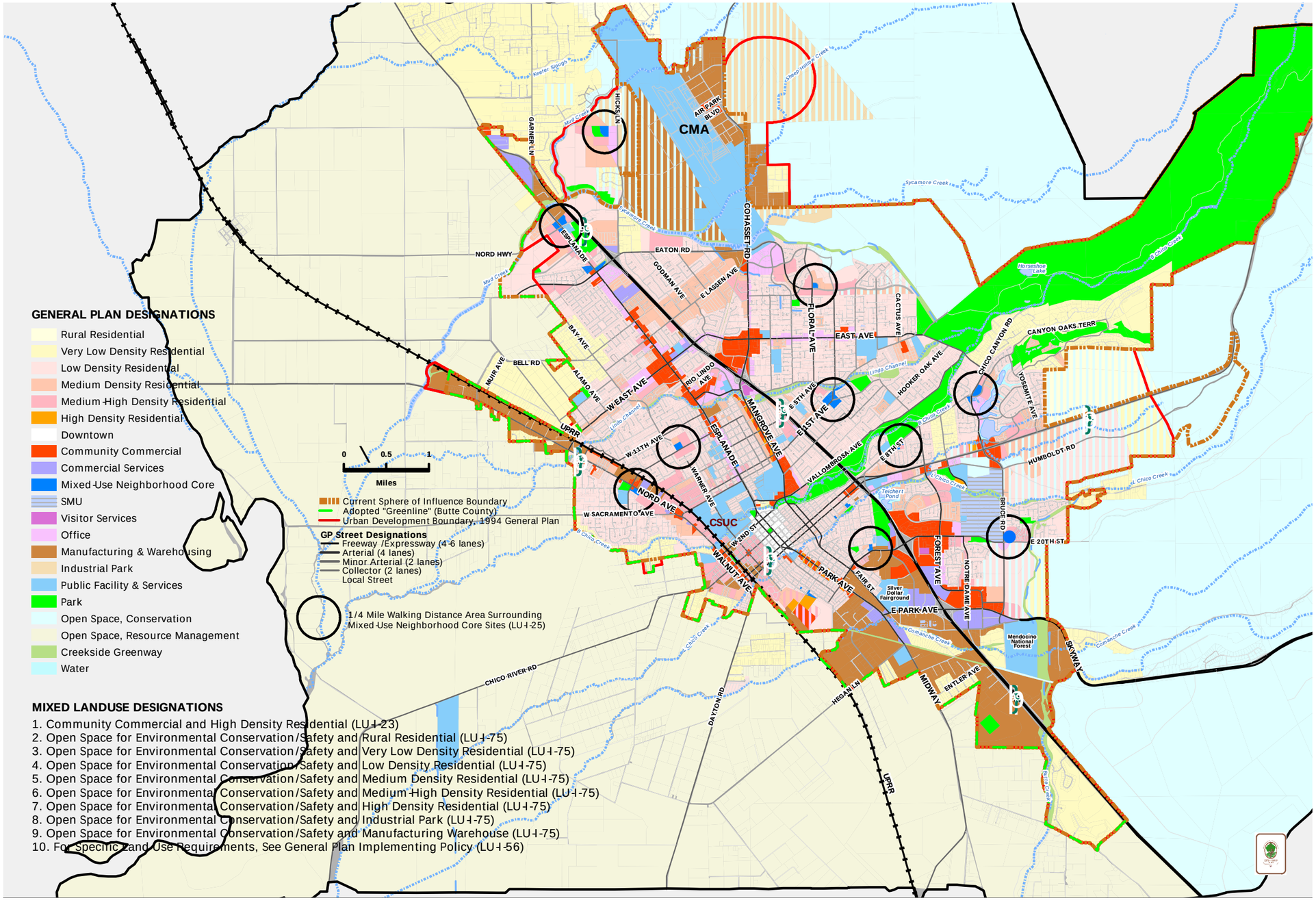

Source: City of Chico

Figure 6.0-1
Alternative 1

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ENVIRONMENTAL ANALYSIS

The following analysis is based on the significant environmental impacts identified in Sections 4.1 through 4.14. The reader is referred to these sections for further details on impacts associated with the proposed General Plan Update.

Land Use

As identified in Section 4.1 (Land Use), the proposed General Plan Update would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 1 would avoid these impacts similar to the proposed General Plan Update. However, Alternative 1 would not provide as extensive policies regarding land use as the proposed General Plan Update nor would Alternative 1 provide the level of support for the Butte Regional Habitat Conservation Plan / Natural Community Conservation Plan as the proposed General Plan Update. In addition, it is anticipated that build-out under the 1994 General Plan and Land Use Map would not meet projected future housing and employment needs for the city.

Agricultural Resources

Conversion of Important Farmland Under Project and Cumulative Conditions (Impact 4.2.1 and 4.2.4)

The proposed General Plan Update would result in significant and unavoidable loss of important farmland (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland).

Alternative 1 would also result in the loss of important farmland. However, this alternative would reduce the extent of Prime Farmland loss associated with reduced development potential (e.g., no establishment of the Bell Muir Special Planning Area).

Agricultural Use, Zoning, and Williamson Act Conflicts (Impacts 4.2.2 and 4.2.3)

The proposed General Plan Update would not result in any significant impacts regarding conflicts with agricultural uses, agricultural zoning and current Williamson Act contracts.

Alternative 1 would avoid these impacts similar to the proposed General Plan Update.

Population/ Housing/Employment

The proposed General Plan Update would not result in any significant population, housing, or employment impacts (see Section 4.3).

Alternative 1 would result in lesser population, housing, and employment impacts due to less intensive development. Alternative 1 is not expected to provide adequate development potential to meet year 2030 demands. Alternative 1's remaining residential growth potential is 12,842 units, which would not meet the expected demand of 16,376 units for year 2030 (see **Table 4.0-1**). This could result in the displacement of this growth to land areas outside of the Planning Area that could result in environmental impacts.

Human Health/Risk of Upset

Release and Expose to Hazardous Materials/Hazardous Material Handling/School Exposure (Impact 4.4.3 through 4.4.5)

The proposed General Plan Update would not result in any significant impacts regarding exposure to hazardous materials, hazardous material handling, or school exposure from development of contaminated sites. Any impacts would be reduced to less than significant by a comprehensive regulatory system including federal, state, and local regulations that would minimize exposure of the public to hazardous materials, both from accidental/reasonably foreseeable releases and from known contaminated sites.

Alternative 1 would have the same impact as the proposed General Plan Update, which could be reduced through application of the identified regulations.

Project and Cumulative Wildland Fire/Airport Hazards/ Emergency Response (Impacts 4.4.1, 4.4.2, 4.4.6, 4.4.7)

The proposed General Plan Update would not result in any significant impacts relating to hazards associated with wildland fires, airports, or conflicts with emergency response.

Alternative 1 would have the same impact as the proposed General Plan Update.

Traffic and Circulation

City Roadway Facilities (Impact 4.5.1)

The proposed General Plan Update would not result in any significant impacts relating to traffic operations on City roadway facilities.

Alternative 1 would have the same impact as the proposed General Plan Update.

Project and Cumulative Traffic Level of Service Impacts State Highway Facilities (Impacts 4.5.2 and 4.5.7)

The proposed General Plan Update would result in significant traffic impacts to the operation of SR 99 (East 1st Avenue to SR 32) and SR 32 (West Sacramento to West Sacramento Avenue). These traffic impacts are identified as significant and unavoidable.

Table 6.0-1 summarizes total daily VMT and VMT per household for the proposed project, Alternative 1, Alternative 2, and Alternative 3. While total VMT summarizes the amount of travel for a given land use scenario, the VMT per household measure is potentially more telling since it is a measure of travel efficiency. All households must travel to go to work, school, shop, and recreate; fewer and shorter vehicle trips (i.e., less VMT) represents a more energy efficient travel scenario.

The results in **Table 6.0-1** are somewhat mixed. In terms of total VMT, Alternative 2 has the greatest overall VMT, while the 1994 General Plan scenario (Alternative 1) has the least overall VMT. These results are not surprising given that Alternative 2 has the largest developed land area and the greatest number of households (and therefore represents the scenario with the most new growth), while Alternative 1 has the fewest number of households. The proposed

project and Alternative 3 fall in between Alternative 2 and Alternative 1 when it comes to total VMT.

In terms of VMT per household, the situation is reversed. Alternative 1 has the highest VMT per household at 64 miles, while Alternative 2 has the lowest VMT per household, at 55 miles (14 percent less). The fact that Alternative 1 has the greatest VMT per household (and is therefore the least travel efficient) is not surprising given the relatively sprawling, low density land use pattern outlined in the 1994 General Plan. All the new land use alternatives considered as part of the proposed General Plan Update have substantially lower VMT per household likely due to the inclusion of complete, mixed-use neighborhoods for new growth areas.

Alternative 2 resulted in less VMT per household than Alternative 3. It was anticipated that the more compact Alternative 3 land use plan would have the lowest VMT per household. A closer look at the analysis indicates that while Alternative 3 is denser than Alternative 2, Alternative 2 has a better mix of jobs and housing.

A potential reason for Alternative 2's lower VMT is related to the distribution of land uses. Specifically, Alternative 2's larger development footprint places work and retail opportunities closer to Oroville and Paradise. These Butte County communities rely on Chico for regional shopping and employment and a substantial amount of travel (and VMT) occurs between Chico and these locations. By placing work and shopping choices closer to Paradise and Oroville, the VMT between Chico and these other communities could be reduced.

TABLE 6.0-1
VEHICLE MILES TRAVELED COMPARISON OF ALTERNATIVES AND PROPOSED GENERAL PLAN UPDATE

Alternative	Total Vehicle Miles Traveled (VMT)	Residential Units at Buildout	VMT per Residential Unit	Difference in VMT per Unit as Compared to Alternative 1
Proposed General Plan Update	3,549,941	62,933	56	-11%
Alternative 1	3,448,831	54,280	64	N/A
Alternative 2	3,670,142	67,123	55	-14%
Alternative 3	3,500,948	59,344	59	-7%

Source: F&P, 2010.

Bicycle and Pedestrian, Transit, Roadway Safety and Railway Conflicts (Impacts 4.5.3 though 4.5.6)

The proposed General Plan Update would not result in any significant impacts associated with bicycle and pedestrian facilities, transit services, roadway safety or railway conflicts.

Alternative 1 would also not result in significant impacts in these issue areas. However, the existing General Plan does not include as extensive policies regarding promotion of bicycle, pedestrian and transit facilities or services as the proposed General Plan Update.

Air Quality

Project and Cumulative Increased Air Pollutant Emissions (Impacts 4.6.2, 4.6.3 and 4.6.7)

The proposed General Plan Update would result in increased criteria air pollutant emissions. As noted in Section 4.6 (Air Quality), the Planning Area is located in an area designated as nonattainment for ozone and particulate matter under state and federal air quality standards. These impacts are identified as significant and unavoidable.

Alternative 1 would result in reduced development and reduced total VMT (see **Table 6.0-1**) that would reduce the extent of increased criteria air pollutant emissions as compared to the proposed General Plan Update. However, Alternative 1 would not avoid this significant and unavoidable impact.

Exposure to Toxic Air Contaminant Emissions (Impact 4.6.5)

The proposed General Plan Update could expose sensitive receptors to toxic air contaminants, which has been identified as a potential impact. However, compliance with BCAQMD rules and regulations regarding stationary sources of TACs would reduce the exposure of sensitive receptors to substantial TAC pollutant concentrations from stationary and mobile sources because an air permit may not be issued unless proposed development meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources.

Alternative 1 would have the same impact as the proposed General Plan Update and that impact could be reduced by application of the same BCAQMD rules and regulations regarding stationary sources of TACs.

Conflicts with Air Quality Attainment Plan, Carbon Monoxide, and Odor Impacts (Impact 4.6.1, 4.6.4, and 4.6.6)

The proposed General Plan Update would not conflict with the North Sacramento Valley Planning Area (NSVPA) 2006 Air Quality Attainment Plan or result in excessive carbon monoxide emission or odor impacts.

Alternative 1 would also not result in significant impacts in these issue areas. However, the existing General Plan does not include as extensive policies regarding air quality as the proposed General Plan Update.

Noise

Project and Cumulative Traffic Noise (Impact 4.7.2 and 4.7.7)

Future traffic volumes of Planning Area roadways would result in significant and unavoidable traffic noise impacts associated with the proposed General Plan Update (see **Tables 4.7-7** and **4.7-8**).

Alternative 1 would result in reduced development and reduced total VMT (see **Table 6.0-1**). However, the extent of traffic reduction is not substantial enough to reduce traffic noise levels to avoid these impacts. Thus, Alternative 1 would result in similar traffic noise levels and impacts as the proposed General Plan Update.

Stationary Noise Sources (Impact 4.7.3)

The proposed General Plan Update would result in significant and unavoidable stationary noise source impacts associated with noise sources that the City does not control or regulate.

Alternative 1 would have the same impact as the proposed General Plan Update.

Noise Standards, Construction Noise, Aircraft Noise, and Groundborne Vibration (Impacts 4.7.1 and 4.7.4 through 4.7.6)

The proposed General Plan Update would not result in any significant impacts associated with conflicts with noise standards, aircraft noise exposure or groundborne vibration.

Alternative 1 would also not result in significant impacts in these issue areas.

Geology and Soils

The proposed General Plan Update would not result in any significant geologic or seismic impacts (see Section 4.8).

Alternative 1 would result in similar less than significant geologic and seismic impacts.

Hydrology and Water Quality

The proposed General Plan Update would not result in any significant hydrology or water quality impacts (see Section 4.9).

Alternative 1 would have the same impact as the proposed General Plan Update. Alternative 1 would reduce the extent of development and associated ground disturbance that affects water quality and drainage as compared to the proposed General Plan Update. However, it should be noted that Alternative 1, the current General Plan, does not provide as extensive policy provisions as the proposed General Plan Update regarding flooding.

Biological Resources

Special-Status Species and Sensitive Habitats (Impact 4.10.1)

The proposed General Plan Update could result in significant impacts to special-status plant and wildlife species identified in **Tables 4.10-2** and **4.10-3**. However, proposed General Plan Policy OS-1.2 ensures that special-status plant and animal species, including their habitats are protected consistent with all applicable state, federal and other laws and regulations, and the associated Action OS-1.2.1 ensures that project-related biological impacts are considered and mitigated consistent with local, state and federal regulations, which includes compliance with "no net loss" of acreage and values policies of the state and federal agencies. Individual projects associated with the implementation of the proposed General Plan Update would be required to address and mitigate special-status species and habitat impacts. Thus, this impact would be mitigated to less than significant.

Alternative 1 would reduce the extent of this impact as a result of reduced development and would be able to have its impacts mitigated similar to the proposed General Plan Update. Specifically, this alternative would not include the Bell Muir and Doe Mill/Honey Run Special Planning Areas (see Section 4.10 [Biological Resources] for a further discussion on habitat). Thus,

this alternative would result in reduced impacts as compared to the proposed General Plan Update.

Wildlife Corridors (Impact 4.10.2)

The proposed General Plan Update would result in less than significant impacts associated with the movement of native resident or migratory fish or wildlife species. These land uses could also restrict the range of special-status species in the Planning Area.

Alternative 1 would result in similar significant impacts, though Alternative 1 would reduce the extent of development and associated ground disturbance.

Conflicts with Habitat Conservation Plans or Local Ordinances (Impacts 4.10.3)

No Habitat Conservation Plan (HCP), recovery plan, or natural community conservation plan has been adopted encompassing all or portions of the City of Chico. The General Plan Update would not conflict with Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) that regulates the removal and preservation of trees on undeveloped parcels within the city. Therefore, **no impact** would occur.

Alternative 1 would also result in no impact. However, Alternative 1, the current General Plan, does not provide as extensive policy provisions regarding the city's participation in the proposed Butte Regional Habitat Conservation/Natural Community Conservation Plan as the proposed General Plan Update.

Cumulative Biological Resource Impacts (Impact 4.10.4)

The proposed General Plan Update would result in significant and unavoidable cumulative impacts associated with the loss of sensitive and critical habitats in the Planning Area.

As noted above, Alternative 1 would have a reduced development footprint and would not include the Bell Muir and Doe Mill/Honey Run Special Planning Areas and would reduce impacts to biological communities that contain sensitive and critical habitat. Thus, this alternative would result in reduced impacts as compared to the proposed General Plan Update.

Cultural and Paleontological Resources

Project and Cumulative Historic and Archaeological Resource Impacts (Impacts 4.11.1, 4.11.2 and 4.11.4)

The proposed General Plan Update would result in less than significant impacts to historic and archaeological resources.

Alternative 1 would result in similar less than significant impacts, though Alternative 1 would reduce the extent of development and associated ground disturbance that could impact undiscovered resources.

Project and Cumulative Paleontological Resources (Impacts 4.11.3 and 4.11.5)

The proposed General Plan Update would result in less than significant impacts to paleontological resources.

Alternative 1 would result in similar significant impacts, though Alternative 1 would reduce the extent of development and associated ground disturbance that could impact resources.

Public Services and Utilities

Project and Cumulative Fire Protection and Emergency Services Impacts (Impacts 4.12.1.1 through 4.12.1.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of fire protection or emergency services.

Alternative 1 would result in reduced service demands for fire protection and emergency services, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Law Enforcement Service Impacts (Impacts 4.12.2.1 and 4.12.2.2)

The proposed General Plan Update would not result in any significant impacts associated with the provision of law enforcement services. Alternative 1 would result in reduced service demands for law enforcement services, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Public School Impacts (Impacts 4.12.3.1 through 4.12.3.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of public school services.

Alternative 1 would result in reduced service demands for public schools, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Water Supply Impacts (Impacts 4.12.4.1 through 4.12.4.3)

The proposed General Plan Update would not result in any significant water supply or related service impacts.

Alternative 1 would result in reduced water supply demands as a result of reduced development potential by approximately 4,348,620 gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 1 would also result in reduced non-residential water demands as well as compared to the proposed General Plan Update. This reduced water demand would also reduce the extent of infrastructure required to service buildout under Alternative 1.

Project and Cumulative Wastewater Service Impacts (Impacts 4.12.5.1 through 4.12.5.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of wastewater or related services.

Alternative 1 would result in reduced wastewater generation as a result of reduced development potential by approximately 2.49 million gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 1 would also result in reduced non-residential wastewater generation as well as compared to the proposed General Plan

Update. This reduced wastewater service demand would also reduce the extent of infrastructure required to service buildout under Alternative 1.

Project and Cumulative Solid Waste Impacts (Impacts 4.12.6.1 through 4.12.6.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of solid waste services. Alternative 1 would result in reduced solid waste generation as a result of reduced development potential by approximately 51,117 pounds per day in residential waste as compared to the proposed General Plan Update. Alternative 1 would also result in reduced non-residential wastewater generation as well as compared to the proposed General Plan Update.

Project and Cumulative Utility Impacts (Impacts 4.12.7.1 and 4.12.7.2)

The proposed General Plan Update would not result in any significant impacts associated with electrical, natural gas or telecommunication services. Alternative 1 would result in reduced utility service demand as a result of reduced development as compared to the proposed General Plan Update.

Project and Cumulative Recreation Impacts (Impacts 4.12.8.1 and 4.12.8.2)

The proposed General Plan Update would not result in any significant park or recreation service impacts.

Alternative 1 would result in reduced park and recreation service demand as a result of reduced development as compared to the proposed General Plan Update.

Visual Resources and Aesthetics

Substantial Adverse Effect on a Scenic Vista (Impact 4.13.1)

The proposed General Plan Update would not result in any significant impacts to scenic vistas in the Planning Area as a result of implementation of proposed policy provisions as well as continued implementation of the City Municipal Code.

Alternative 1 would result in similar less than significant impacts, though Alternative 1 would reduce the extent of development and associated ground disturbance as compared to the proposed General Plan Update. However, Alternative 1 does not include as extensive policy provisions regarding development design.

State Scenic Highway Impacts (Impact 4.13.2)

The proposed General Plan Update would not result in any significant impacts to any designated state scenic highway.

Alternative 1 would result in the same less than significant impact.

Project and Cumulative Impacts Associated With Substantial Change to Visual Character and Cumulative Glare/Lighting Impacts (Impact 4.13.3 and 4.13.5)

The proposed General Plan Update would result in significant and unavoidable impacts associated with the alteration of open space and agricultural lands to urban development, as well as increased lighting and glare in the cumulative setting.

Alternative 1 would result also result in this significant and unavoidable impact. As further discussed under Impact 4.13.3, the city previously acknowledged the significant and unavoidable aesthetic impacts of urbanizations associated with the 1994 General Plan in Resolution No. 81 94-95. However, Alternative 1 would reduce the extent of this impact by not including expanded development in the eastern portion of the Planning Area associated with the Doe Mill/Honey Run Special Planning Area. Thus, Alternative 1 would have reduced impacts as compared to the proposed General Plan Update.

New Sources of Substantial Light and Glare (Impact 4.13.4)

Implementation of the proposed General Plan Update would include sources of daytime glare and nighttime light. This impact is considered less than significant after implementation of existing city standards, use of the city's Design Guidelines, and adherence to Municipal Code Section 19.60.050.

Alternative 1 would result in similar potential lighting and glare impacts. However, Alternative 1 would have reduced impacts as a result of the reduced extent of development as compared to the proposed General Plan Update.

Energy and Climate Change

Inefficient, Wasteful and Unnecessary Consumption of Energy (Impact 4.14.1)

The proposed General Plan Update would not result in significant wasteful or inefficient consumption of energy impacts given policy provisions of the proposed General Plan Update, Title 24 energy efficiency requirements, vehicle fuel efficiency requirements of Assembly Bill 1493, and the proposed land use development and density pattern of the General Plan Land Use Diagram.

Alternative 1 would result in a similar less than significant impact and would have further reduced energy demands as a result of reduced development. However, the proposed General Plan Update would provide a more efficient land use pattern that would have reduced VMT per residential unit at buildout as compared to Alternative 1 (see **Table 6.0-1**).

Increased Greenhouse Gas Emissions (Impact 4.14.2)

The proposed General Plan Update would result in increased greenhouse gas emissions above existing conditions and would result a significant and unavoidable impact to climate change.

While Alternative 1 would result in reduced development that may generate reduced greenhouse gas emissions, the BAAQMD threshold would still be exceeded and Alternative 1 does not contain any policy provisions that address greenhouse gas emissions or energy reduction measures and would not be consistent with state and local measures to reduce greenhouse gas emissions and would result in a significant and unavoidable impact. As noted above, Alternative 1 would have higher total VMT per residential unit than the proposed General

Plan Update. Thus, Alternative 1 would have a greater impact than the proposed General Plan Update.

6.4 ALTERNATIVE 2 – EXPANDED URBAN DEVELOPMENT ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

Alternative 2 is based on Land Use Alternative A as described in the Chico 2030 General Plan Update Land Use Alternatives Report (March 2009). This alternative would expand the development footprint of the city beyond the proposed General Plan Update. In this alternative, development is distributed more widely throughout the Planning Area, with less emphasis on infill within existing urban areas and with densities which are generally lower. Expansion is focused on the north/south corridor, southeast area, and beyond the Butte County designated Greenline. This is a continuation of existing development patterns and uses (see **Figure 6.0-2**).

Alternative 2 provides significant growth areas within nine Special Planning Areas (SPAs) along the north/south corridor, select areas to the southeast, and in four areas west of the Greenline. Some of the SPAs represent growth areas previously investigated by the City in 2003 (Mud Creek, Macintosh/Estes, and Midway), and some are new areas suggested by landowners (Nance Canyon, Bell Muir and Doe Mill/Honey Run). Conceptual land use plans for the SPAs focus on residential land uses with lower densities. Three large constrained areas (West of Airport, Bruce Road/Skyway, and Bruce Road/Stilson Canyon Road) are shown with the new Resource Management–Habitat Conservation Plan designation. Job growth (office and industrial) in Alternative 2 is concentrated in the Nance Canyon SPA and along the railroad in the Midway, Diamond Match, and Macintosh/Estes SPAs. Retail growth is concentrated in the South Entler SPA and in areas along State Route 99. **Table 6.0-2** provides a summary of Alternative 2. With the exception of General Plan Update policy provisions associated with development intensity and the Butte County designated Greenline, the remaining policy provisions of the proposed General Plan Update would remain as part of this alternative.

TABLE 6.0-2
ALTERNATIVE 2

Land Use Category	Units	Buildout Conditions
Residential	DUs	67,123
Commercial	KSF	14,678
Office	KSF	5,918
Industrial	KSF	23,019

Note: DU's = Dwelling Units
KSF = 1,000 Square Feet

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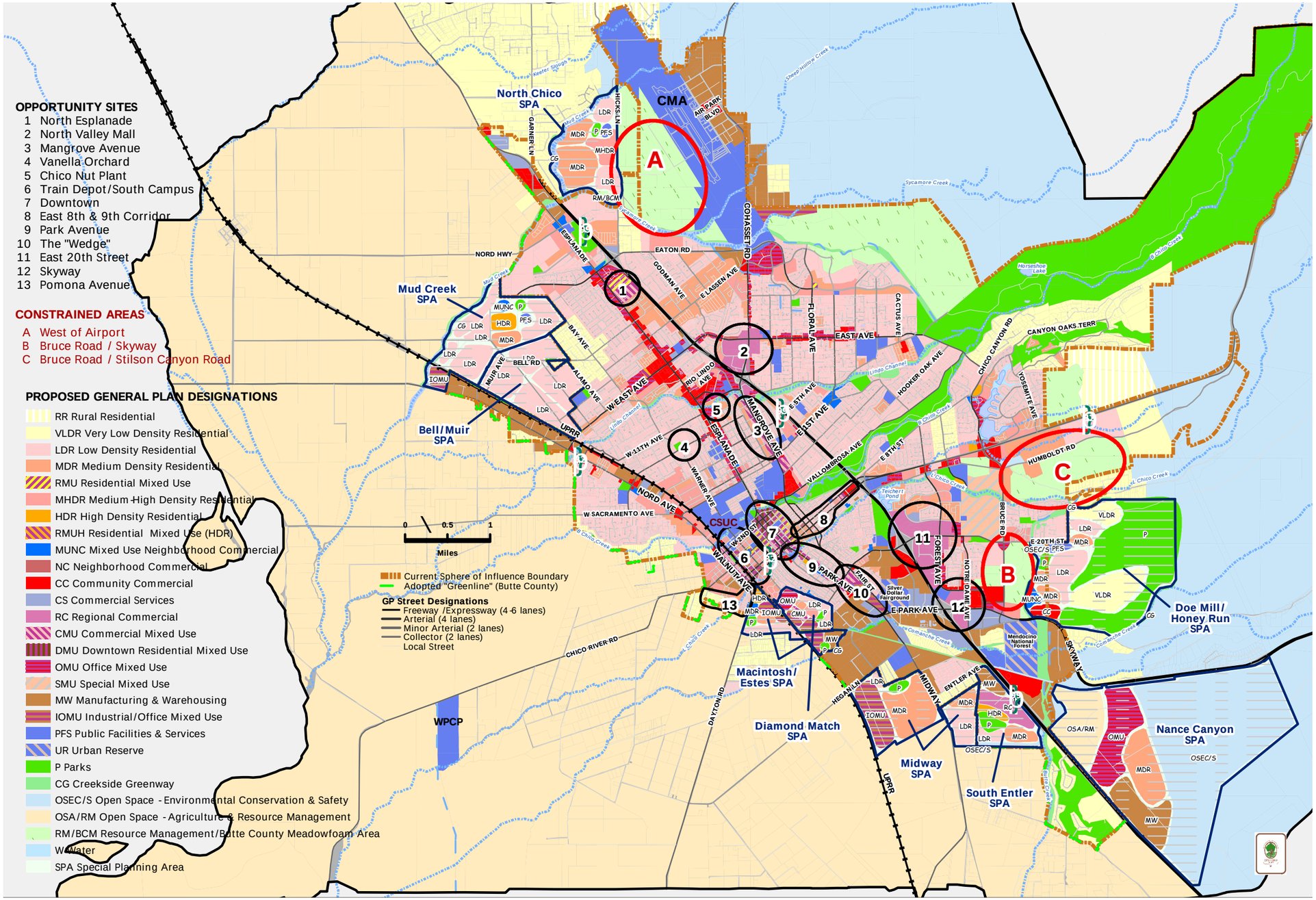

Source: City of Chico

Figure 6.0-2
Alternative 2

PMC®

ENVIRONMENTAL ANALYSIS

The following analysis is based on the significant environmental impacts identified in Sections 4.1 through 4.14. The reader is referred to these sections for further details on impacts associated with the proposed General Plan Update.

Land Use

As identified in Section 4.1 (Land Use), the proposed General Plan Update would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 2 would substantially expand the urban boundary of the City, increasing the potential for land use conflicts with existing land uses in Butte County. In addition, Alternative 2 would expand the City beyond the Butte County designated Greenline in multiple locations. Thus, Alternative 2 would result in significant land use conflicts that are currently avoided under the proposed General Plan Update.

Agricultural Resources

Conversion of Important Farmland Under Project and Cumulative Conditions (Impact 4.2.1 and 4.2.4)

The proposed General Plan Update would result in significant and unavoidable loss of important farmland (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland).

Alternative 2 would result in additional loss of Prime Farmland associated with the establishment of the Midway, Macintosh/Estes, and Mud Creek SPAs beyond the 74,508 acres identified for the proposed General Plan Update. Thus, Alternative 2 would have worse impacts than the proposed General Plan Update.

Agricultural Use, Zoning, and Williamson Act Conflicts (Impacts 4.2.2 and 4.2.3)

The proposed General Plan Update would not result in any significant impacts regarding conflicts with agricultural uses, agricultural zoning and current Williamson Act contracts.

Alternative 2 would avoid impacts to Williamson Act contract lands similar to the proposed General Plan Update. However, it would result in further conflicts with land areas currently zoned for agricultural uses as well as further expand land areas where urban/agricultural use conflicts could occur. Thus, Alternative 2 would have worse impacts than the proposed General Plan Update.

Population/ Housing/Employment

The proposed General Plan Update would not result in any significant population, housing, or employment impacts (see Section 4.3).

Alternative 2 would result in similar population, housing, and employment impacts (though more development would occur under this alternative). However, it would consist of lower development density and utilize more undeveloped land that would result in greater environmental effects as identified in this alternatives analysis.

Human Health/Risk of Upset

Release and Expose to Hazardous Materials/Hazardous Material Handling/School Exposure (Impact 4.4.3 through 4.4.5)

The proposed General Plan Update would not result in any significant impacts regarding exposure to hazardous materials, hazardous material handling, or school exposure from development of contaminated sites. Any impacts would be reduced to less than significant by a comprehensive regulatory system including federal, state, and local regulations that would minimize exposure of the public to hazardous materials, both from accidental/reasonably foreseeable releases and from known contaminated sites.

Alternative 2 would have the same impact as the proposed General Plan Update, which could be reduced through application of the identified regulations.

Project and Cumulative Wildland Fire/Airport Hazards/ Emergency Response (Impacts 4.4.1, 4.4.2, 4.4.6, 4.4.7)

The proposed General Plan Update would not result in any significant impacts relating to hazards associated with wildland fires, airports, or conflicts with emergency response.

Alternative 2 would avoid these impacts similar to the proposed General Plan Update.

Traffic and Circulation

City Roadway Facilities (Impact 4.5.1)

The proposed General Plan Update would not result in any significant impacts relating to traffic operations on City roadway facilities.

Alternative 2 would have a similar impact as the proposed General Plan Update (see **Table 6.0-4**).

Project and Cumulative Traffic Level of Service Impacts to Local Roadways and State Highway Facilities (Impacts 4.5.2 and 4.5.7)

The proposed General Plan Update would result in significant traffic impacts to the operation of SR 99 (East 1st Avenue to SR 32) and SR 32 (West Sacramento to West Sacramento Avenue). These traffic impacts are identified as significant and unavoidable.

Tables 6.0-3 and **6.0-4** show changes in levels of service (LOS) for Alternative 2 as compared to the proposed General Plan Update. As shown in these tables, Alternative 2 would result in new significant LOS impacts to the following roadway segments:

- E 8th Street/E 9th Street (Pine Street to Cypress Street) – Operations would change from LOS E to LOS F. LOS F would exceed the Caltrans LOS E threshold for acceptable operations.

- Nord Avenue (SR 32) (West Sacramento Avenue to West Sacramento Avenue) – Operations would continue at LOS F, but with higher traffic volumes. LOS F would exceed the Caltrans LOS E threshold for acceptable operations.

- Nord Avenue (SR 32) (Oak Way to West 8th Avenue) – Operations would change from LOS E to LOS F. LOS F would exceed the Caltrans LOS E threshold for acceptable operations.

- Nord Avenue (SR 32) (Glenwood Avenue to Glenwood Avenue) – Operations would change from LOS E to LOS F. LOS F would exceed the Caltrans LOS E threshold for acceptable operations.

- East Park Avenue/Skyway (Country Drive to Whitman Avenue) – Operations would change from LOS D to LOS E.

In addition, Alternative 2 would change LOS D operations under the proposed General Plan to LOS E on Nord Avenue (SR 32) (East Avenue to Kennedy Avenue). However, LOS would satisfy Caltrans LOS E threshold for acceptable operations.

TABLE 6.0-3
FREEWAY LEVEL OF SERVICE – LAND USE ALTERNATIVES YEAR 2030 CONDITIONS

Freeway Segment	Facility Type	Proposed General Plan LOS Threshold	Proposed General Plan Update			Alternative 2			Alternative 3		
			PM Peak			PM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
SR-99 – North of Eaton Road	4-Lane Freeway	E	3,320	0.41	B	3,290	0.41	B	3,270	0.41	B
SR-99 – Eaton Road to East Avenue	4-Lane Freeway	E	4,840	0.60	C	5,000	0.62	C	4,680	0.58	C
SR-99 – East Avenue to Cohasset Road	4-Lane Freeway + Auxiliary Lanes	E	6,290	0.62	C	6,610	0.66	C	5,980	0.59	C
SR-99 – Cohasset Road to East 1st Avenue	4-Lane Freeway + Auxiliary Lanes	E	8,470	0.84	D	8,700	0.86	D	8,250	0.82	D
SR-99 – East 1st Avenue to SR-32	4-Lane Freeway + Auxiliary Lanes	E	10,380	1.03	F	10,550	1.05	F	10,160	1.01	F
SR-99 – SR-32 to East 20th Street	4-Lane Freeway + Auxiliary Lanes	E	8,830	0.88	D	9,040	0.90	E	8,610	0.86	D
SR-99 – East 20th Street to Skyway	4-Lane Freeway + Auxiliary Lanes	E	6,430	0.64	C	6,810	0.68	C	6,430	0.64	C
SR-99 – South of Skyway	4-Lane Freeway	D	3,920	0.49	B	3,870	0.48	B	3,970	0.50	B

Source: Fehr & Peers, 2010

TABLE 6.0-4
ROADWAY LEVEL OF SERVICE – LAND USE ALTERNATIVES YEAR 2035 CONDITIONS

Roadway Segment	Facility Type	Proposed General Plan LOS Threshold	Proposed General Plan Update			Alternative 2			Alternative 3		
			PM Peak			PM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Deer Creek Highway											
Bruce Road to Yosemite Dr	4-Lane Arterial	D	1,410	0.49	C	1,470	0.51	C	1,440	0.5	C
El Monte Ave to Bruce Road	4-Lane Arterial, Divided	D	2,920	0.78	D	2,790	0.75	D	2,660	0.71	D
Forest Ave to El Monte Ave	4-Lane Arterial, Divided	D	2,820	0.75	D	2,840	0.76	D	2,800	0.75	D
Start of undivided highway to Forest Ave	4-Lane Arterial, Divided	E	3,320	0.89	D	3,260	0.87	D	3,120	0.83	D
E 8th St/Fir St to road merge at undivided highway	4-Lane Arterial, Divided	E	3,220	0.86	D	3,160	0.84	D	3,020	0.81	D
CA-99 NB Ramp to E 8th St/Fir St	4-Lane Arterial, Divided	E	3,490	0.93	D	3,420	0.91	D	3,220	0.86	D
8th Street/9th Street (one-way couplets functioning as divided arterial)											
SR-99 SB Ramp to Bartlett St (8th Street only, half-capacity)	4-Lane Arterial, Divided	E	1,130	0.6	D	1,130	0.6	D	1,160	0.62	D
Cypress St to Poplar St	4-Lane Arterial, Divided	E	3,000	0.8	D	3,010	0.8	D	2,990	0.8	D
Pine St to Cypress St	4-Lane Arterial, Divided	E	3,700	0.99	E	3,770	1.01	F	3,710	0.99	E
Main St to Wall St	4-Lane Arterial, Divided	E	2,610	0.7	D	2,700	0.72	D	2,690	0.72	D
Ivy St to Hazel St	4-Lane Arterial, Divided	E	2,300	0.61	D	2,260	0.6	D	2,300	0.61	D
Orange St to Cherry St	4-Lane Arterial, Divided	E	2,380	0.64	D	2,700	0.72	D	2,310	0.62	D
Walnut St to Cedar St	4-Lane Arterial, Divided	E	2,170	0.58	D	2,490	0.67	D	2,090	0.56	D
Walnut Street											
W 8th St to W 9th St	4-Lane Arterial, Undivided	E	1,710	0.59	C	2,020	0.7	D	1,670	0.58	C
Bidwell Ave to W 1st St	4-Lane Arterial, Undivided	E	2,240	0.78	D	2,340	0.81	D	2,170	0.75	D
Nord Avenue											
W Sacramento Ave to W Sacramento Ave	2-Lane Arterial	E	2,020	1.08	F	2,070	1.11	F	1,950	1.04	F
Oak Way to W 8th Ave	2-Lane Arterial	E	1,830	0.98	E	2,040	1.09	F	1,760	0.94	D
Glenwood Ave to Glenwood Ave	2-Lane Arterial	E	1,790	0.96	E	2,010	1.07	F	1,720	0.92	D
East Ave to Kennedy Ave	2-Lane Arterial	E	1,620	0.87	D	1,800	0.96	E	1,630	0.87	D
1st Avenue											
Village Lane to Longfellow Ave	2-Lane Arterial	D	1,410	0.75	D	1,390	0.74	D	1,410	0.75	D
Calgary Ln to Mildred Ave	2-Lane Arterial	D	1,390	0.74	D	1,380	0.74	D	1,390	0.74	D
Esplanade to Oleander Ave	2-Lane Arterial	D	1,100	0.59	D	1,100	0.59	D	1,030	0.55	D
Magnolia Ave to Esplanade	2-Lane Arterial	D	940	0.5	C	950	0.51	C	960	0.51	C
Hobart St to Citrus Ave	2-Lane Arterial	D	920	0.49	C	920	0.49	C	930	0.5	C
2nd Street											
Walnut St to Cedar St	4-Lane Arterial, Undivided	E	600	0.21	C	550	0.19	C	600	0.21	C
5th Street											

Roadway Segment	Facility Type	Proposed General Plan LOS Threshold	Proposed General Plan Update			Alternative 2			Alternative 3		
			PM Peak			PM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Walnut St to Cedar St	2-Lane Arterial	E	370	0.2	C	400	0.21	C	350	0.19	C
Oak St to Walnut St	2-Lane Arterial	E	570	0.3	C	600	0.32	C	540	0.29	C
8th Avenue											
CA-32 (Nord Ave) to Greenwich Dr	2-Lane Arterial	D	860	0.46	C	900	0.48	C	840	0.45	C
Magnolia Ave to Esplanade	2-Lane Arterial	D	730	0.39	C	790	0.42	C	750	0.4	C
8th Street											
Ashford Way to Centennial Ave	Major 2-Lane Collector	D	610	0.4	D	600	0.39	D	580	0.38	D
El Monte Ave to Husa Ln	Major 2-Lane Collector	D	610	0.4	D	610	0.4	D	590	0.39	D
Vista Verde Ave to Park Vista Dr	Major 2-Lane Collector	D	600	0.39	D	600	0.39	D	600	0.39	D
20th Street											
Bruce Road to Notre Dame Blvd	4-Lane Arterial, Divided	D	2,100	0.56	D	2,100	0.56	D	1,800	0.48	C
Forest Ave to Huntington Dr	4-Lane Arterial, Divided	D	1,760	0.47	C	1,630	0.44	C	1,500	0.4	C
Business Lane to Forest Ave	4-Lane Arterial, Divided	D	2,550	0.68	D	2,530	0.68	D	2,340	0.63	D
Sierra Nevada Ct to Dr MLK JR Pkwy	4-Lane Arterial, Divided	D	1,740	0.47	C	1,750	0.47	C	1,820	0.49	C
Bruce Road/Chico Canyon Road											
E 20th St to Raley Blvd	4-Lane Arterial, Divided	D	1,890	0.51	C	1,930	0.52	D	1,990	0.53	D
Remington Dr to E 20th St	4-Lane Arterial, Divided	D	2,290	0.61	D	2,570	0.69	D	2,980	0.8	D
Humboldt Road to Picholine Way	4-Lane Arterial, Divided	D	2,910	0.78	D	2,980	0.8	D	3,060	0.82	D
Lakeside Village Commons to Lakewest Dr	4-Lane Arterial, Divided	D	1,770	0.47	C	1,780	0.48	C	1,750	0.47	C
Cohasset Road											
Eaton Rd to Thorntree Dr	4-Lane Arterial, Undivided	D	1,960	0.68	D	2,050	0.71	D	1,920	0.66	D
East Ave to Lorinda Ln	4-Lane Arterial, Undivided	D	1,820	0.63	D	1,830	0.63	D	1,820	0.63	D
Pillsbury Rd to East Ave	4-Lane Arterial, Undivided	D	2,380	0.82	D	2,420	0.84	D	2,390	0.83	D
Dayton Road											
Archer Ave to Pomona Ave	2-Lane Arterial	D	680	0.36	C	1,070	0.57	D	650	0.35	C
East Avenue											
Floral Ave to Coleman Ct	4-Lane Arterial, Undivided	D	1,800	0.62	D	1,800	0.62	D	1,800	0.62	D
Cohasset Road to North Ave	4-Lane Arterial, Undivided	D	1,530	0.53	C	1,600	0.55	C	1,550	0.54	C
Pillsbury Rd to Cohasset Road	4-Lane Arterial, Divided	D	1,210	0.32	C	1,300	0.35	C	1,210	0.32	C
Connors Ave to Esplanade	4-Lane Arterial, Divided	D	2,530	0.68	D	2,620	0.7	D	2,490	0.67	D
Esplanade to Ilahee Ln	4-Lane Arterial, Divided	D	2,260	0.6	D	2,370	0.63	D	2,160	0.58	D
Cussick Ave to Alamo Ave	4-Lane Arterial, Divided	D	1,620	0.43	C	1,770	0.47	C	1,700	0.45	C
Guynn Ave to Streamside Ct	4-Lane Arterial, Divided	D	1,400	0.37	C	1,480	0.4	C	1,340	0.36	C

Roadway Segment	Facility Type	Proposed General Plan LOS Threshold	Proposed General Plan Update			Alternative 2			Alternative 3		
			PM Peak			PM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
Kennedy Ave to CA-32	4-Lane Arterial, Divided	D	1,520	0.41	C	1,510	0.4	C	1,410	0.38	C
Eaton Road											
Michael Way to Burnap Ave	4-Lane Arterial, Divided	D	1,460	0.39	C	1,500	0.40	C	1,390	0.37	C
Hicks Lane to Silverbell Road	4-Lane Arterial, Divided	D	2,790	0.75	D	2,690	0.72	D	2,620	0.70	D
Constitution Drive to CA-99 SB Ramp	4-Lane Arterial, Divided	D	2,410	0.64	D	2,690	0.72	D	2,320	0.62	D
El Monte Avenue											
E 8th St to Kirk Way	Major 2-Lane Collector	D	330	0.22	C	320	0.21	C	290	0.19	C
Esplanade											
W Shasta Ave to Mandalay Ct	4-Lane Arterial, Undivided	D	1,840	0.64	D	1,860	0.64	D	1,720	0.6	C
Panama Ave to East Ave	4-Lane Arterial, Undivided	D	2,050	0.71	D	2,140	0.74	D	2,010	0.7	D
Connors Ave to White Ave	4-Lane Arterial, Undivided	D	1,890	0.65	D	1,890	0.65	D	1,850	0.64	D
E 2nd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	2,020	0.7	D	2,030	0.7	D	1,990	0.69	D
E Washington Ave to W Sacramento	4-Lane Arterial, Undivided	D	2,440	0.84	D	2,480	0.86	D	2,380	0.82	D
Park Avenue											
E 16th St to E 17th St	4-Lane Arterial, Undivided	D	1,720	0.6	C	1,850	0.64	D	1,620	0.56	C
Meyers St to E Park Ave	4-Lane Arterial, Undivided	D	1,880	0.65	D	1,830	0.63	D	1,790	0.62	D
Midway											
E Park Ave to Hegan Lane	2-Lane Arterial	D	1,530	0.82	D	1,480	0.79	D	1,540	0.82	D
Hegan Lane to Sandrill Ct	2-Lane Arterial	D	1,070	0.57	D	1,210	0.65	D	1,110	0.59	D
Floral Avenue/ 5th Avenue											
Ravenshoe Way to East Ave	4-Lane Arterial, Undivided	D	1,000	0.35	C	1,050	0.36	C	990	0.34	C
Esplanade to Oleander Ave	2-Lane Arterial	D	600	0.32	C	570	0.3	C	590	0.32	C
Forest Avenue											
Humboldt Rd to Wildflower Ct	4-Lane Arterial, Undivided	D	2,030	0.7	D	2,050	0.71	D	1,920	0.66	D
E 20th St to Pkwy Village Dr/Barney Ln	4-Lane Arterial, Undivided	D	1,780	0.62	D	1,800	0.62	D	1,770	0.61	D
Hicks Lane											
Eaton Road to Calle Principal	4-Lane Arterial, Undivided	D	1,170	0.4	C	1,160	0.4	C	1,120	0.39	C
E. Lassen Avenue											
Esplanade to San Jose St	Major 2-Lane Collector	D	1,040	0.68	D	1,080	0.71	D	1,010	0.66	D
Burnap Ave to Scenic Ln	Major 2-Lane Collector	D	830	0.55	D	860	0.57	D	820	0.54	D
W. Lindo Ave											
CA-32 (Nord Ave) to Trenta Dr	2-Lane Arterial	D	160	0.09	C	160	0.09	C	160	0.09	C
Mangrove Avenue/Pine Street											
Cohasset Road to E Lindo Ave	4-Lane Arterial, Undivided	D	2,080	0.72	D	2,100	0.73	D	2,040	0.71	D

Roadway Segment	Facility Type	Proposed General Plan LOS Threshold	Proposed General Plan Update			Alternative 2			Alternative 3		
			PM Peak			PM Peak			PM Peak		
			Volume	V/C	LOS	Volume	V/C	LOS	Volume	V/C	LOS
E 3rd Ave to E 1st Ave	4-Lane Arterial, Undivided	D	1,890	0.65	D	1,960	0.68	D	1,860	0.64	D
E 1st Ave to Palmetto Ave	4-Lane Arterial, Undivided	D	1,960	0.68	D	2,050	0.71	D	1,920	0.66	D
Vallombrosa Ave to Woodland Ave/E 3rd St	4-Lane Arterial, Divided	E	1,840	0.49	C	1,940	0.52	D	1,760	0.47	C
Woodland Ave/E 3rd St to E 4th St (couplet, half-capacity)	4-Lane Arterial, Divided	E	810	0.22	C	900	0.24	C	900	0.24	C
Manzanita Avenue											
Vallombrosa Ave to Chico Canyon Rd	2-Lane Arterial	D	1,580	0.84	D	1,590	0.85	D	1,510	0.81	D
Hooker Oaks Ave to Vallombrosa Ave	2-Lane Arterial	D	1,370	0.73	D	1,380	0.74	D	1,320	0.71	D
Mariposa Ave to Lakewood Way	Major 2-Lane Collector	D	990	0.65	D	980	0.64	D	990	0.65	D
Martin Luther King Junior Parkway											
Dr MLK JR Pkwy - E 20th St to E 23rd St	Major 2-Lane Collector	D	640	0.42	D	690	0.45	D	700	0.46	D
Mulberry Street											
E 14th St to E 15th St	4-Lane Arterial, Undivided	D	970	0.34	C	1,070	0.37	C	1,000	0.35	C
Palmetto Avenue											
Downing Ave to Bryant Ave	Major 2-Lane Collector	D	540	0.36	C	530	0.35	C	550	0.36	C
East Park Avenue/Skyway											
Forest Ave to Dominic Dr	4-Lane Arterial, Divided	D	3,100	0.83	D	3,160	0.84	D	3,020	0.81	D
Country Dr to Gilman Way	4-Lane Arterial, Divided	D	3,540	0.95	D	3,640	0.97	E	3,410	0.91	D
Midway to Fair St	4-Lane Arterial, Divided	D	1,600	0.43	C	1,600	0.43	C	1,600	0.43	C
Sacramento Avenue											
Hobart St to Citrus Ave	2-Lane Arterial	D	700	0.37	C	700	0.37	C	700	0.37	C
Columbus Ave to CA-32 (Nord Ave)	2-Lane Arterial	D	1,200	0.64	D	1,200	0.64	D	1,120	0.6	D
CA-32 (Nord Ave) to Oak Lawn Ave	Major 2-Lane Collector	D	650	0.43	D	700	0.46	D	700	0.46	D
Salem Street											
W 4th St to W 5th St	Major 2-Lane Collector	E	840	0.55	D	830	0.55	D	830	0.55	D
Vallombrosa Avenue											
Covell Park Ave to Manzanita Ave	2-Lane Arterial	D	470	0.25	C	470	0.25	C	450	0.24	C
Rey Way to Vallombrosa Circle	2-Lane Arterial	D	650	0.35	C	650	0.35	C	630	0.34	C
Warner Street/Ivy Street											
W Sacramento Ave to Stadium Way	2-Lane Arterial	E	1050	0.56	D	1120	0.6	D	990	0.53	D
W 10th St to W 11th St	2-Lane Arterial	E	970	0.52	C	1170	0.63	D	920	0.49	C
Hegan Lane											
Midway to Skyway Ave	2-Lane Arterial	E	700	0.37	C	1050	0.56	D	660	0.35	C

Source: Fehr & Peers, 2010

Bicycle and Pedestrian, Transit, Roadway Safety and Railway Conflicts (Impacts 4.5.3 though 4.5.6)

The proposed General Plan Update would not result in any significant impacts associated with bicycle and pedestrian facilities, transit services, roadway safety or railway conflicts.

Alternative 2 would also not result in significant impacts in these issue areas.

Air Quality

Project and Cumulative Increased Air Pollutant Emissions (Impacts 4.6.2, 4.6.3 and 4.6.7)

The proposed General Plan Update would result in increased criteria air pollutant emissions. As noted in Section 4.6 (Air Quality), the Planning Area is located in an area designated as nonattainment for ozone and particulate matter under state and federal air quality standards. These impacts are identified as significant and unavoidable.

Alternative 2 would result in increased development conditions (total VMT would also increase - see **Table 6.0-1**) that would result in increased criteria air pollutant emissions as compared to the proposed General Plan Update.

Exposure to Toxic Air Contaminant Emissions (Impact 4.6.5)

The proposed General Plan Update could expose sensitive receptors to toxic air contaminants, which has been identified as a potential impact. However, compliance with BCAQMD rules and regulations regarding stationary sources of TACs would reduce the exposure of sensitive receptors to substantial TAC pollutant concentrations from stationary and mobile sources because an air permit may not be issued unless proposed development meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources.

Alternative 2 would have the same impact as the proposed General Plan Update and can be reduced through application of the same BCAQMD rules and regulations regarding stationary sources of TACs.

Conflicts with Air Quality Attainment Plan, Carbon Monoxide, and Odor Impacts (Impact 4.6.1, 4.6.4, and 4.6.6)

The proposed General Plan Update would not conflict with the North Sacramento Valley Planning Area (NSVPA) 2006 Air Quality Attainment Plan or result in excessive carbon monoxide emission or odor impacts.

Alternative 2 would also not result in significant impacts in these issue areas.

Noise

Project and Cumulative Traffic Noise (Impact 4.7.2 and 4.7.7)

Future traffic volumes of Planning Area roadways would result in significant and unavoidable traffic noise impacts associated with the proposed General Plan Update (see **Tables 4.7-7** and **4.7-8**).

Alternative 2 would result in increased development and VMT (see **Table 6.0-1**). However, the extent of traffic increase is not enough to substantially increase traffic noise levels. Thus, Alternative 2 would result in similar traffic noise levels as the proposed General Plan Update.

Stationary Noise Sources (Impact 4.7.3)

The proposed General Plan Update would result in significant and unavoidable stationary noise source impacts associated with noise sources that the City does not control or regulate.

Alternative 2 would have the same impact as the proposed General Plan Update.

Noise Standards, Construction Noise, Aircraft Noise, and Groundborne Vibration (Impacts 4.7.1 and 4.7.4 through 4.7.6)

The proposed General Plan Update would not result in any significant impacts associated with conflicts with noise standards, aircraft noise exposure or groundborne vibration.

Alternative 2 would also not result in significant impacts in these issue areas.

Geology and Soils

The proposed General Plan Update would not result in any significant geologic or seismic impacts (see Section 4.8).

Alternative 2 would result in similar less than significant geologic and seismic impacts.

Hydrology and Water Quality

The proposed General Plan Update would not result in any significant hydrology or water quality impacts (see Section 4.9).

Alternative 2 would result in similar less than significant impacts, though it should be noted that this alternative would increase the extent of development and associated ground disturbance that affects water quality and drainage as compared to the proposed General Plan Update.

Biological Resources

Special-Status Species and Sensitive Habitats (Impact 4.10.1)

The proposed General Plan Update would result in significant impacts to special-status plant and wildlife species identified in **Tables 4.10-2** and **4.10-3**. However, proposed General Plan Policy OS-1.2 ensures that special-status plant and animal species, including their habitats are protected consistent with all applicable state, federal and other laws and regulations, and the associated Action OS-1.2.1 ensures that project-related biological impacts are considered and mitigated consistent with local, state and federal regulations, which includes compliance with "no net loss" of acreage and values policies of the state and federal agencies. Individual projects associated with the implementation of the proposed General Plan Update would be required to address and mitigate special-status species and habitat impacts. Thus, this impact would be mitigated to less than significant.

Alternative 2 would increase the extent of this impact as a result of expanded development. Specifically, this alternative would include additional urban development associated with the

Nance Canyon, Midway, Macintosh, and Mud Creek SPAs that would result in additional impacts to biological communities, including Agriculture, Annual Grassland, Blue Oak Savanna, Chaparral, Interior Live Oak Woodland, Mixed Oak Woodland, and Wetlands (see Section 4.10 [Biological Resources] for a further discussion on habitat). Thus, this alternative would result in greater impacts to special-status species as compared to the proposed General Plan Update.

Wildlife Corridors (Impact 4.10.2)

The proposed General Plan Update would result in less than significant impacts associated with the movement of native resident or migratory fish or wildlife species. These land uses could also restrict the range of special-status species in the Planning Area.

Alternative 2 would result in a larger development footprint and would have a greater impact to wildlife movement.

Conflicts with Habitat Conservation Plans or Local Ordinances (Impacts 4.10.3)

No Habitat Conservation Plan (HCP), recovery plan, or natural community conservation plan has been adopted encompassing all or portions of the City of Chico. The General Plan Update would not conflict with Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) that regulates the removal and preservation of trees on undeveloped parcels within the city. Therefore, **no impact** would occur.

Alternative 2 would result in a larger development footprint and would have a greater impact on provisions of the draft Butte Regional Habitat Conservation/Natural Community Conservation Plan. However, the HCP has not been adopted yet, so no significant impacts are identified.

Cumulative Biological Resource Impacts (Impact 4.10.4)

The proposed General Plan Update would result in significant and unavoidable cumulative impacts associated with the loss of sensitive and critical habitats in the Planning Area.

As noted above, Alternative 2 would have a larger development footprint and would increase impacts to biological communities that contain sensitive and critical habitat. Thus, this alternative would result in worse impacts as compared to the proposed General Plan Update.

Cultural and Paleontological Resources

Project and Cumulative Historic and Archaeological Resource Impacts (Impacts 4.11.1, 4.11.2 and 4.11.4)

The proposed General Plan Update would result in less than significant impacts to historic and archaeological resources.

Alternative 2 would result in similar less than significant impacts, though it should be noted that this alternative would increase the extent of development and associated ground disturbance that could impact undiscovered resources.

Project and Cumulative Paleontological Resources (Impacts 4.11.3 and 4.11.5)

The proposed General Plan Update would result in less than significant impacts to paleontological resources.

Alternative 2 would result in similar significant impacts, though it should be noted that this alternative would greater the extent of development and associated ground disturbance that could impact resources.

Public Services and Utilities

Project and Cumulative Fire Protection and Emergency Service Impacts (Impacts 4.12.1.1 through 4.12.1.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of fire protection or emergency services.

Alternative 2 would result in increased service demands for fire protection and emergency services, given increased development potential as compared to the proposed General Plan Update.

Project and Cumulative Law Enforcement Service Impacts (Impacts 4.12.2.1 and 4.12.2.2)

The proposed General Plan Update would not result in any significant law enforcement service impacts.

Alternative 2 would result in increased service demands for law enforcement services, given increased development potential as compared to the proposed General Plan Update.

Project and Cumulative Public School Impacts (Impacts 4.12.3.1 through 4.12.3.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of public school services.

Alternative 2 would result in increased service demands for public schools, given increased development potential as compared to the proposed General Plan Update.

Project and Cumulative Water Supply Impacts (Impacts 4.12.4.1 through 4.12.4.3)

The proposed General Plan Update would not result in any significant water supply or related service impacts.

Alternative 2 would result in increased water supply demands as a result of increased development potential by approximately 1,706,102 gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 2 would also result in increased non-residential water demands as well as compared to the proposed General Plan Update. This increased water demand would also increase the extent of infrastructure required to service buildout under Alternative 2.

Project and Cumulative Wastewater Service Impacts (Impacts 4.12.5.1 through 4.12.5.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of wastewater or related services.

Alternative 2 would result in increased wastewater generation as a result of reduced development potential by approximately 1.21 million gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 2 would also result in increased

non-residential wastewater generation as well as compared to the proposed General Plan Update. This increase wastewater servicer demand would also increase the extent of infrastructure required to service buildout under Alternative 2.

Project and Cumulative Solid Waste Impacts (Impacts 4.12.6.1 through 4.12.6.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of solid waste services.

Alternative 2 would result in increased solid waste generation as a result of increased development potential by approximately 46,278 pounds, or 23 tons, per day in residential waste as compared to the proposed General Plan Update. Alternative 2 would also result in increased non-residential wastewater generation as well as compared to the proposed General Plan Update. However, the Neal Road Landfill has over 85 percent remaining capacity and an addition 23 tons of residential waste per day would not exceed the landfill's maximum permitted disposal of 1,500 tons per day. Solid waste generation under Alternative 2 would also be reduced by General Plan Update policies and associated actions that require the city to ensure solid waste collection services that meet or exceed state requirements for source reduction, diversion, and recycling. Therefore, although impacts under Alternative 2 would be greater than under the proposed project, impacts under Alternative 2 would not be significant.

Project and Cumulative Utility Impacts (Impacts 4.12.7.1 and 4.12.7.2)

The proposed General Plan Update would not result in any significant impacts associated with electrical, natural gas or telecommunication services.

Alternative 2 would result in increased utility service demand as a result of increased development as compared to the proposed General Plan Update.

Project and Cumulative Recreation Impacts (Impacts 4.12.8.1 and 4.12.8.2)

The proposed General Plan Update would not result in any significant park or recreation service impacts.

Alternative 2 would result in increased park and recreation service demand as a result of increased development as compared to the proposed General Plan Update.

Visual Resources and Aesthetics

Substantial Adverse Effect on a Scenic Vista (Impact 4.13.1)

The proposed General Plan Update would not result in any significant impacts to scenic vistas in the Planning Area as a result of implementation of proposed policy provisions as well as continued implementation of the City Municipal Code.

Alternative 2 would result in similar less than significant impacts, though it should be noted that this alternative would increased the extent of development and associated ground disturbance as compared to the proposed General Plan Update and would place new development in areas of increased visibility.

State Scenic Highway Impacts (Impact 4.13.2)

The proposed General Plan Update would not result in any significant impacts to any designated state scenic highway.

Alternative 2 would result in the same less than significant impact.

Project and Cumulative Impacts Associated With Substantial Change to Visual Character and Cumulative Glare/Lighting Impacts (Impact 4.13.3 and 4.13.5)

The proposed General Plan Update would result in significant and unavoidable impacts associated with the alteration of open space and agricultural lands to urban development, as well as increased lighting and glare in the cumulative setting.

Alternative 2 would result also result in this significant and unavoidable impact. However, Alternative 2 would substantially increase the extent of this impact by expanding development in the southern and western portions of the Planning Area associated with the with the Nance Canyon, Midway, Macintosh, and Mud Creek SPAs. Thus, Alternative 2 would have increased impacts as compared to the proposed General Plan Update.

New Sources of Substantial Light and Glare (Impact 4.13.4)

Implementation of the proposed General Plan Update would include sources of daytime glare and nighttime light. This impact is considered less than significant after implementation of existing city standards, use of the city's Design Guidelines, and adherence to Municipal Code Section 19.60.050.

Alternative 2 would result in similar potential lighting and glare impacts. However, Alternative 2 would have increased impacts as a result of the increased extent of development as compared to the proposed General Plan Update.

Energy and Climate Change

Inefficient, Wasteful and Unnecessary Consumption of Energy (Impact 4.14.1)

The proposed General Plan Update would not result in significant wasteful or inefficient consumption of energy impacts given policy provisions of the proposed General Plan Update, Title 24 energy efficiency requirements, vehicle fuel efficiency requirements of Assembly Bill 1493, and the proposed land use development and density pattern of the General Plan Land Use Diagram.

Alternative 2 would result in a similar less than significant impact, though it would result in increased energy use due to the increased extent of development as compared to the proposed General Plan Update.

Increased Greenhouse Gas Emissions (Impact 4.14.2)

The proposed General Plan Update would result in increased greenhouse gas emissions above existing conditions and would result a significant and unavoidable impact to climate change.

Alternative 2 would result in increased development that would generate increased greenhouse gas emissions. Thus, Alternative 2 would have a greater impact than the proposed General Plan Update.

Environmental Effects of Climate Change (Impact 4.14.3)

As identified under Impact 4.14.3, the Planning Area is not currently expected to experience any substantial adverse environmental effects of climate change that would require additional mitigation and/or adaptation measures.

Alternative 2 would result in the same impact as the proposed General Plan Update.

6.5 ALTERNATIVE 3 – INCREASED DENSITY ALTERNATIVE

DESCRIPTION OF ALTERNATIVE

Alternative 3 is based on Land Use Alternative C as described in the Chico 2030 General Plan Update Land Use Alternatives Report (March 2009). Alternative 3 has the most limited additional acreage, and development is directed towards existing urban areas. Higher density development would occur through infill and redevelopment of the 17 Opportunity Sites, and limited expansion would occur north and south in three SPAs (North Chico, Diamond Match, and South Entler) with no expansion to the east or west beyond the Greenline. This alternative assumes significant redevelopment of mixed use at medium and higher densities (see **Figure 6.0-3**). Policy provisions of the proposed General Plan Update would be modified to reflect these land use changes (e.g., elimination of actions LU-6.2.2 and LU-6.2.4 associated with Bell Muir and Doe Mill/Honey Run SPAs).

This alternative represents a paradigm shift for the community as it would require concentrated redevelopment of multi-story, multi-family residential and office buildings along existing transportation corridors to meet housing and job creation needs. New job opportunities are in close proximity to residential areas, and housing densities are on the higher density end of the spectrum. Job growth is concentrated to the south, in the Downtown core and surroundings, and in the North Chico and South Entler SPAs. **Table 6.0-5** provides a summary of buildout conditions for this alternative.

TABLE 6.0-5
ALTERNATIVE 3

Land Use Category	Units	Buildout Conditions
Residential	DUs	59,344
Commercial	KSF	14,263
Office	KSF	5,844
Industrial	KSF	17,852

Note: DU's = Dwelling Units
KSF = 1,000 Square Feet

ENVIRONMENTAL ANALYSIS

The following analysis is based on the significant environmental impacts identified in Sections 4.1 through 4.14. The reader is referred to these sections for further details on impacts associated with the proposed General Plan Update.

Land Use

As identified in Section 4.1 (Land Use), the proposed General Plan Update would not result in any significant land use impacts related to physical division of an established community, conflicts with adopted land use plans, or conflicts with an adopted habitat conservation plan or natural community conservation plan.

Alternative 3 would avoid these impacts similar to the proposed General Plan Update.

Agricultural Resources

Conversion of Important Farmland Under Project and Cumulative Conditions (Impact 4.2.1 and 4.2.4)

The proposed General Plan Update would result in significant and unavoidable loss of important farmland (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland).

Alternative 3 would also result in the loss of important farmland. However, this alternative would reduce the extent of Important Farmland loss associated with reduced development potential (e.g., no establishment of the Bell Muir Special Planning Area).

Agricultural Use, Zoning, and Williamson Act Conflicts (Impacts 4.2.2 and 4.2.3)

The proposed General Plan Update would not result in any significant impacts regarding conflicts with agricultural uses, agricultural zoning and current Williamson Act contracts.

Alternative 3 would avoid these impacts similar to the proposed General Plan Update.

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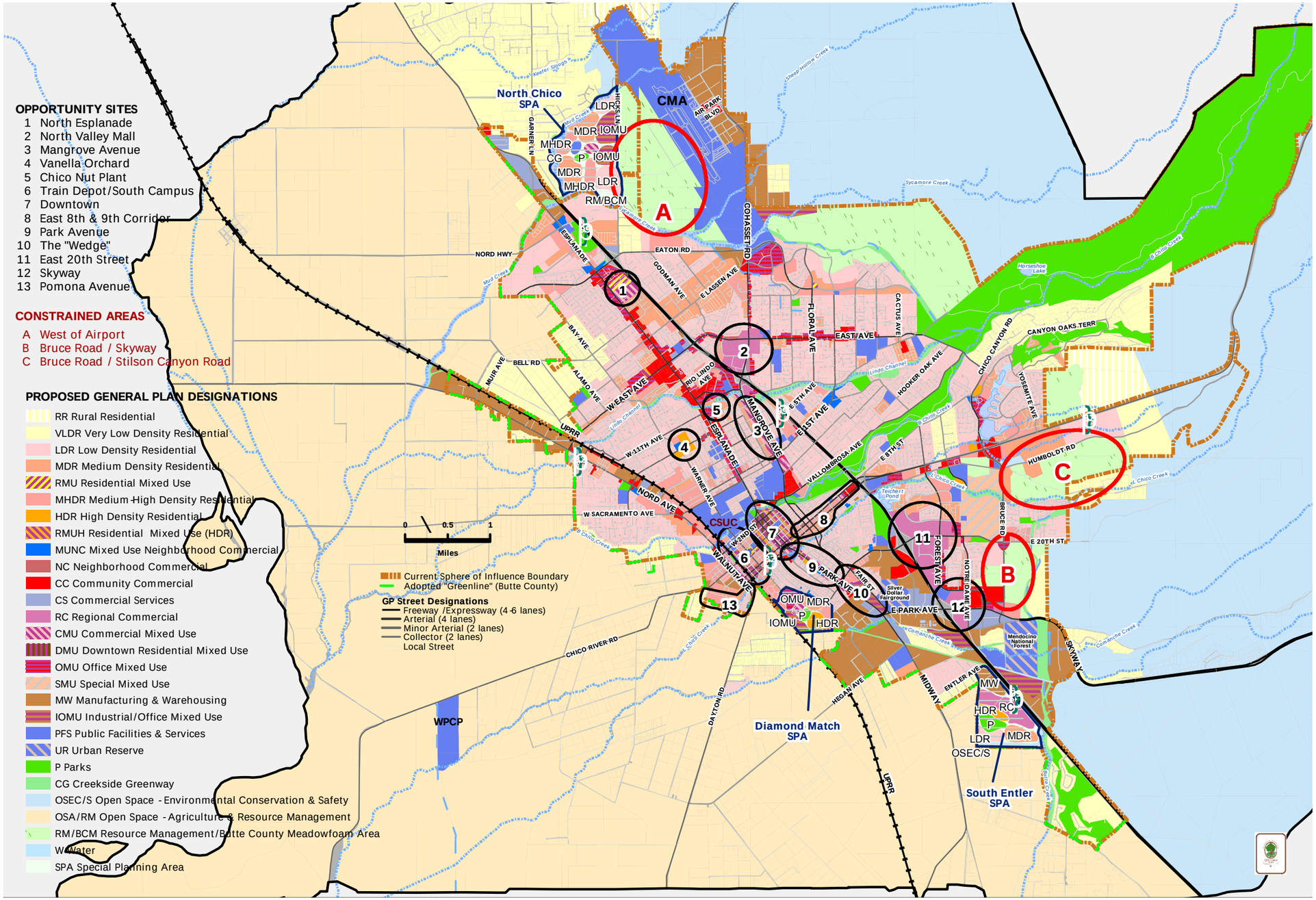

Source: City of Chico

Figure 6.0-3
Alternative 3
PMC®

Population/ Housing/Employment

The proposed General Plan Update would not result in any significant population, housing, or employment impacts (see Section 4.3).

Alternative 3 would result in lesser population, housing, and employment impacts due to less development overall and is not expected to provide adequate residential or non-residential development potential to meet year 2030 demands. This could result in the displacement of this growth to land areas outside of the Planning Area that could result in environmental impacts.

Human Health/Risk of Upset

Release and Expose to Hazardous Materials/Hazardous Material Handling/School Exposure (Impact 4.4.3 through 4.4.5)

The proposed General Plan Update would not result in any significant impacts regarding exposure to hazardous materials, hazardous material handling, or school exposure from development of contaminated sites. Any impacts would be reduced to less than significant by a comprehensive regulatory system including federal, state, and local regulations that would minimize exposure of the public to hazardous materials, both from accidental/reasonably foreseeable releases and from known contaminated sites.

Alternative 3 would the same impact as the proposed General Plan Update, which could be reduced through application of the identified regulations.

Project and Cumulative Wildland Fire/Airport Hazards/ Emergency Response (Impacts 4.4.1, 4.4.2, 4.4.6, 4.4.7)

The proposed General Plan Update would not result in any significant impacts relating to hazards associated with wildland fires, airports, or conflicts with emergency response.

Alternative 3 would avoid these impacts similar to the proposed General Plan Update.

Traffic and Circulation

City Roadway Facilities (Impact 4.5.1)

The proposed General Plan Update would not result in any significant impacts relating to traffic operations on City roadway facilities.

Alternative 3 would have the same impact as the proposed General Plan Update (see **Table 6.0-3**).

Project and Cumulative Traffic Level of Service Impacts to Local Roadways and State Highway Facilities (Impacts 4.5.2 and 4.5.7)

The proposed General Plan Update would result in significant traffic impacts to the operation of SR 99 (East 1st Avenue to SR 32) and SR 32 (West Sacramento to West Sacramento Avenue). These traffic impacts are identified as significant and unavoidable.

Tables 6.0-3 and **6.0-4** show changes in levels of service (LOS) for Alternative 3 as compared to the proposed General Plan Update. The following LOS impacts to the following roadway segments would occur under this alternative:

- Nord Avenue (SR 32) (West Sacramento Avenue to West Sacramento Avenue) – Operations would continue at LOS F, but with lower traffic volumes. LOS F would exceed the Caltrans LOS E threshold for acceptable operations.

Alternative 3 would result in fewer impacts to local roadway and state highways due to reduced vehicle trips from a decreased development footprint and reduced population and housing. However, Alternative 3 would still exceed the Caltrans LOS E threshold for acceptable operations at Nord Avenue. Therefore, this impact Alternative would be significant and unavoidable under Alternative 3.

Bicycle and Pedestrian, Transit, Roadway Safety and Railway Conflicts (Impacts 4.5.3 though 4.5.6)

The proposed General Plan Update would not result in any significant impacts associated with bicycle and pedestrian facilities, transit services, roadway safety or railway conflicts.

Alternative 3 would also not result in significant impacts in these issue areas.

Air Quality

Project and Cumulative Increased Air Pollutant Emissions (Impacts 4.6.2, 4.6.3 and 4.6.7)

The proposed General Plan Update would result in increased criteria air pollutant emissions. As noted in Section 4.6 (Air Quality), the Planning Area is located in an area designated as nonattainment for ozone and particulate matter under state and federal air quality standards. These impacts are identified as significant and unavoidable.

Alternative 3 would result in reduced development and reduced VMT (see **Table 6.0-2**) that would reduce the extent of increased criteria air pollutant emissions as compared to the proposed General Plan Update. However, Alternative 3 would not avoid this significant and unavoidable impact.

Exposure to Toxic Air Contaminant Emissions (Impact 4.6.5)

The proposed General Plan Update could expose sensitive receptors to toxic air contaminants, which has been identified as a potentially impact. However, compliance with BCAQMD rules and regulations regarding stationary sources of TACs would reduce the exposure of sensitive receptors to substantial TAC pollutant concentrations from stationary and mobile sources because an air permit may not be issued unless proposed development meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources.

Alternative 3 would have the same impact as the proposed General Plan Update and can be reduced through application of the same BCAQMD rules and regulations regarding stationary sources of TACs.

Conflicts with Air Quality Attainment Plan, Carbon Monoxide, and Odor Impacts (Impact 4.6.1, 4.6.4, and 4.6.6)

The proposed General Plan Update would not conflict with the North Sacramento Valley Planning Area (NSVPA) 2006 Air Quality Attainment Plan or result in excessive carbon monoxide emission or odor impacts.

Alternative 3 would also not result in significant impacts in these issue areas.

Noise

Project and Cumulative Traffic Noise (Impact 4.7.2 and 4.7.7)

Future traffic volumes of Planning Area roadways would result in significant and unavoidable traffic noise impacts associated with the proposed General Plan Update (see **Tables 4.7-7** and **4.7-8**).

Alternative 3 would result in reduced development and reduced VMT (see **Table 6.0-1**). However, the extent of traffic reduction is not substantial enough to reduce traffic noise levels to avoid to these impacts. Thus, Alternative 3 would result in similar traffic noise levels as the proposed General Plan Update.

Stationary Noise Sources (Impact 4.7.3)

The proposed General Plan Update would result in significant and unavoidable stationary noise source impacts associated with noise sources that the City does not control or regulate.

Alternative 3 would have the same impact as the proposed General Plan Update.

Noise Standards, Construction Noise, Aircraft Noise, and Groundborne Vibration (Impacts 4.7.1 and 4.7.4 through 4.7.6)

The proposed General Plan Update would not result in any significant impacts associated with conflicts with noise standards, aircraft noise exposure or groundborne vibration.

Alternative 3 would have the same impact as the proposed General Plan Update.

Geology and Soils

The proposed General Plan Update would not result in any significant geologic or seismic impacts (see Section 4.8).

Alternative 3 would result in similar less than significant geologic and seismic impacts.

Hydrology and Water Quality

The proposed General Plan Update would not result in any significant hydrology or water quality impacts (see Section 4.9).

Alternative 3 would result in similar less than significant impacts, though it should be noted that this alternative would reduce the extent of development and associated ground disturbance

activity that affects water quality and drainage as compared to the proposed General Plan Update.

Biological Resources

Special-Status Species and Sensitive Habitats (Impact 4.10.1)

The proposed General Plan Update would result in significant impacts to special-status plant and wildlife species identified in **Tables 4.10-2** and **4.10-3**. However, proposed General Plan Policy OS-1.2 ensures that special-status plant and animal species, including their habitats are protected consistent with all applicable state, federal and other laws and regulations, and the associated Action OS-1.2.1 ensures that project-related biological impacts are considered and mitigated consistent with local, state and federal regulations, which includes compliance with "no net loss" of acreage and values policies of the state and federal agencies. Individual projects associated with the implementation of the proposed General Plan Update would be required to address and mitigate special-status species and habitat impacts. Thus, this impact would be mitigated to less than significant.

Alternative 3 would reduce the extent of this impact as a result of reduced development and would be able to have its impacts mitigated similar to the proposed General Plan Update. Specifically, this alternative would not include the Bell Muir and Doe Mill/Honey Run Special Planning Areas (see Section 4.10 [Biological Resources] for a further discussion on habitat). Thus, this alternative would result in reduced impacts as compared to the proposed General Plan Update.

Wildlife Corridors (Impact 4.10.2)

The proposed General Plan Update would result in less than significant impacts associated with the movement of native resident or migratory fish or wildlife species. These land uses could also restrict the range of special-status species in the Planning Area.

Alternative 3 would result in similar impacts, though it should be noted that this alternative would reduce the extent of development and associated ground disturbance.

Conflicts with Habitat Conservation Plan (Impacts 4.10.3)

No Habitat Conservation Plan (HCP), recovery plan, or natural community conservation plan has been adopted encompassing all or portions of the City of Chico. The General Plan Update would not conflict with Chico Municipal Code Chapter 16.66 (Tree Preservation Regulations) that regulates the removal and preservation of trees on undeveloped parcels within the city. Therefore, **no impact** would occur.

Alternative 3 would also result in no impacts.

Cumulative Biological Resource Impacts (Impact 4.10.4)

The proposed General Plan Update would result in significant and unavoidable cumulative impacts associated with the loss of sensitive and critical habitats in the Planning Area.

As noted above, Alternative 3 would have a reduced development footprint and would not include the Bell Muir and Doe Mill/Honey Run Special Planning Areas and would reduce impacts

to biological communities that contain sensitive and critical habitat. Thus, this alternative would result in reduced impacts as compared to the proposed General Plan Update.

Cultural and Paleontological Resources

Project and Cumulative Historic and Archaeological Resource Impacts (Impacts 4.11.1, 4.11.2 and 4.11.4)

The proposed General Plan Update would result in less than significant impacts to historic and archaeological resources.

Alternative 3 would result in similar less than significant impacts, though it should be noted that this alternative would reduce the extent of development and associated ground disturbance that could impact undiscovered resources.

Project and Cumulative Paleontological Resources (Impacts 4.11.3 and 4.11.5)

The proposed General Plan Update would result in less than significant impacts to paleontological resources.

Alternative 3 would result in similar significant impacts, though it should be noted that this alternative would reduce the extent of development and associated ground disturbance that could impact resources.

Public Services and Utilities

Project and Cumulative Fire Protection and Emergency Service Impacts (Impacts 4.12.1.1 through 4.12.1.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of fire protection or emergency services.

Alternative 3 would result in reduced service demands for fire protection and emergency services, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Law Enforcement Service Impacts (Impacts 4.12.2.1 and 4.12.2.2)

The proposed General Plan Update would not result in any significant impacts associated with the provision of law enforcement services.

Alternative 3 would result in reduced service demands for law enforcement services, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Public School Impacts (Impacts 4.12.3.1 through 4.12.3.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of public school services.

Alternative 3 would result in reduced service demands for public schools, given reduced development potential as compared to the proposed General Plan Update.

Project and Cumulative Water Supply Impacts (Impacts 4.12.4.1 through 4.12.4.3)

The proposed General Plan Update would not result in any significant water supply or related service impacts.

Alternative 3 would result in reduced water supply demands as a result of reduced development potential by approximately 1,891,856 gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 3 would also result in reduced non-residential water demands as well as compared to the proposed General Plan Update. This reduced water demand would also reduce the extent of infrastructure required to service buildout under Alternative 3.

Project and Cumulative Wastewater Service Impacts (Impacts 4.12.5.1 through 4.12.5.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of wastewater or related services.

Alternative 3 would result in reduced wastewater generation as a result of reduced development potential by approximately 1.03 million gallons per day in residential demand as compared to the proposed General Plan Update. Alternative 3 would also result in reduced non-residential wastewater generation as well as compared to the proposed General Plan Update. This reduced wastewater service demand would also reduce the extent of infrastructure required to service buildout under Alternative 3.

Project and Cumulative Solid Waste Impacts (Impacts 4.12.6.1 through 4.12.6.3)

The proposed General Plan Update would not result in any significant impacts associated with the provision of solid waste services.

Alternative 3 would result in reduced solid waste generation as a result of reduced development potential by approximately 11,598 pounds per day in residential waste as compared to the proposed General Plan Update. Alternative 3 would also result in reduced non-residential wastewater generation as well as compared to the proposed General Plan Update.

Project and Cumulative Utility Impacts (Impacts 4.12.7.1 and 4.12.7.2)

The proposed General Plan Update would not result in any significant impacts associated with electrical, natural gas or telecommunication services.

Alternative 3 would result in reduced utility service demand as a result of reduced development as compared to the proposed General Plan Update.

Project and Cumulative Recreation Impacts (Impacts 4.12.8.1 and 4.12.8.2)

The proposed General Plan Update would not result in any significant park or recreation service impacts.

Alternative 3 would result in reduced park and recreation service demand as a result of reduced development as compared to the proposed General Plan Update.

Visual Resources and Aesthetics

Substantial Adverse Effect on a Scenic Vista (Impact 4.13.1)

The proposed General Plan Update would not result in any significant impacts to scenic vistas in the Planning Area as a result of implementation of proposed policy provisions as well as continued implementation of the City Municipal Code.

Alternative 3 would result in similar less than significant impacts, though it should be noted that this alternative would reduce the extent of development and associated ground disturbance as compared to the proposed General Plan Update.

State Scenic Highway Impacts (Impact 4.13.2)

The proposed General Plan Update would not result in any significant impacts to any designated state scenic highway.

Alternative 3 would result in the same less than significant impact.

Project and Cumulative Impacts Associated With Substantial Change to Visual Character and Cumulative Glare/Lighting Impacts (Impact 4.13.3 and 4.13.5)

The proposed General Plan Update would result in significant and unavoidable impacts associated with the alteration of open space and agricultural lands to urban development, as well as increased lighting and glare in the cumulative setting.

Alternative 3 would result also result in this significant and unavoidable impact. However, Alternative 3 would reduce the extent of this impact by not including expanded development in the eastern portion of the Planning Area associated with the Doe Mill/Honey Run Special Planning Area. Thus, Alternative 3 would have reduced impacts as compared to the proposed General Plan Update.

New Sources of Substantial Light and Glare (Impact 4.13.4)

Implementation of the proposed General Plan Update would include sources of daytime glare and nighttime light. This impact is considered less than significant after implementation of existing city standards, use of the city's Design Guidelines, and adherence to Municipal Code Section 19.60.050.

Alternative 3 would result in similar potential lighting and glare impacts. However, Alternative 3 would have reduced impacts as a result of the reduced extent of development as compared to the proposed General Plan Update.

Energy and Climate Change

Inefficient, Wasteful and Unnecessary Consumption of Energy (Impact 4.14.1)

The proposed General Plan Update would not result in significant wasteful or inefficient consumption of energy impacts given policy provisions of the proposed General Plan Update, Title 24 energy efficiency requirements, vehicle fuel efficiency requirements of Assembly Bill 1493, and the proposed land use development and density pattern of the General Plan Land Use Diagram.

Alternative 3 would result in a similar less than significant impact and would have further reduced energy demands as a result of reduced development and reduced VMT (see **Table 6.0-1**).

Increased Greenhouse Gas Emissions (Impact 4.14.2)

The proposed General Plan Update would result in increased greenhouse gas emissions above existing conditions and would result a significant and unavoidable impact to climate change until such time as the proposed Climate Action Plan is adopted by the city.

Alternative 3 would result in reduced development and would generate reduced greenhouse gas emissions. As noted above, Alternative 3 would have reduced VMT and VMT per residential unit than the proposed General Plan Update. Thus, Alternative 3 would have a reduced impact as compared to the proposed General Plan Update.

Environmental Effects of Climate Change (Impact 4.14.3)

As identified under Impact 4.14.3, the Planning Area is not currently expected to experience any substantial adverse environmental effects of climate change that would require additional mitigation and/or adaptation measures.

Alternative 3 would result in the same impact as the proposed General Plan Update.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 6.0-8 provides a summary of the potential impacts of the alternatives evaluated in this section, as compared with the potential impacts of the proposed General Plan Update. The Circulation Plan Alternative is not included in this table given that its analysis is limited to traffic impacts. The impact significance is identified for each alternative as well as the ranking of the impact as compared to the proposed General Plan Update. A "B" ranking means that the alternative would be "better" or would have less of an environmental impact than the proposed General Plan Update, while a "W" ranking means the alternative would result in a "worse" impact. The "S" ranking identifies where the alternative has a "similar" impact as the proposed General Plan Update. Based upon the evaluation described in this section, Alternative 3 would be the environmentally superior alternative, with Alternative 1 being the next environmentally superior alternative. However, it should be noted that buildout of the Alternative 1 Land Use Diagram would likely not achieve the objective of the project to meet the housing and jobs needs of the community for the next 20 years.

TABLE 6.0-8
SUMMARY COMPARISON OF ALTERNATIVES

Environmental Impacts	Proposed General Plan Update	Alternative 1	Alternative 2	Alternative 3
Land Use				
Physical Division of an Established Community, Conflicts with Adopted Land Use Plans, or Conflicts with an Adopted Habitat Conservation Plan or Natural Community Conservation Plan	Less Than Significant	Less Than Significant	Significant	Less Than Significant
Rank		S	W	S
Agricultural Resources				
Conversion of Important Farmland Under Project and Cumulative Conditions.	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		B	W	B
Agricultural Use, Zoning, and Williamson Act Conflicts.	Less Than Significant	Less Than Significant	Significant	Less Than Significant
Rank		S	W	S
Population/Housing/Employment				
Housing and Resident Displacement and Substantial Growth	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		W	S	W
Human Health/Risk of Upset				
Release and Expose to Hazardous Materials/Hazardous Material Handling/School Exposure	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Project and Cumulative Wildland Fire/Airport Hazards/ Emergency Response	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Traffic and Circulation				
City Roadway Facilities	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Project and Cumulative Traffic Level of Service Impacts to Local Roadways and State Highway Facilities	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		B	W	B
Bicycle and Pedestrian, Roadway Safety and Railway Conflicts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		W	S	S
Air Quality				

Environmental Impacts	Proposed General Plan Update	Alternative 1	Alternative 2	Alternative 3
Project and Cumulative Increased Air Pollutant Emissions	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		B	W	B
Exposure to Toxic Air Contaminant Emissions	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Conflicts with Air Quality Attainment Plan, Carbon Monoxide, and Odor Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		W	S	S
Noise				
Project and Cumulative Traffic Noise	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		S	S	S
Stationary Noise Sources	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		S	S	S
Noise Standards, Aircraft Noise, and Groundborne Vibration	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Geology and Soils				
Geologic or Seismic impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Hydrology and Water Quality				
Water Quality and Drainage, Project and Cumulative Flood Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Biological Resources				
Special-Status Species and Sensitive Habitats	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Wildlife Corridors	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	W	S
Conflicts with Habitat Conservation Plans and Local Ordinances	No Impact	No Impact	No Impact	No Impact
Rank		S	S	S
Cumulative Biological Resource Impacts	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		B	W	B
Cultural and Paleontological Resources				

Environmental Impacts	Proposed General Plan Update	Alternative 1	Alternative 2	Alternative 3
Project and Cumulative Historic and Archaeological Resource Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Paleontological Resource Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Public Services and Utilities				
Project and Cumulative Fire Protection and Emergency Service Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Law Enforcement Service Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Public School Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Water Supply Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Wastewater Service Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Solid Waste Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Utility Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Project and Cumulative Recreation Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Visual Resources and Asethetics				
Substantial Adverse Affect on a Scenic Vista	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
State Scenic Highway Impacts	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		S	S	S
Project and Cumulative Impacts Associated With Substantial Change to Visual Character and Cumulative Glare/Lighting Impacts	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		B	W	B
Sources of Substantial Light and Glare	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant

Environmental Impacts	Proposed General Plan Update	Alternative 1	Alternative 2	Alternative 3
Rank		B	W	B
Energy and Climate Change				
Inefficient, Wasteful and Unnecessary Consumption of Energy	Less Than Significant	Less Than Significant	Less Than Significant	Less Than Significant
Rank		B	W	B
Increased Greenhouse Gases	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
Rank		W	W	B

Notes:

B: Alternative would result in better conditions than the proposed General Plan Update.
S: Alternative would result in similar conditions as the proposed General Plan Update.
W: Alternative would result in worse impacts than the proposed General Plan Update.

7.0 LONG-TERM IMPLICATIONS

This section discusses additional topics statutorily required by the California Environmental Quality Act (CEQA) concerning the long-term implications of the proposed General Plan Update. The topics discussed include growth-inducing impacts, significant irreversible environmental changes, including irretrievable commitment of resources, and significant and unavoidable environmental impacts.

7.1 GROWTH-INDUCING IMPACTS

INTRODUCTION

CEQA Guidelines Section 15126.2(d) requires that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA Guidelines as:

> *The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth . . . It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth inducement potential. For example, direct growth inducement would result if a project involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand (*Napa Citizens for Honest Government v. Napa County Board of Supervisors*). Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered growth-inducing.

The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with, or accommodated by, the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service.

COMPONENTS OF GROWTH

The timing, magnitude, and location of land development and population growth in a community are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public services,

proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Since the general plan of a community defines the location, type, and intensity of growth, it is the primary means of regulating development and growth in California.

GROWTH EFFECTS OF THE PROJECT

Based on Government Code Section 65300, the proposed General Plan Update is intended to serve as the overall plan for the physical development of the City of Chico. While the General Plan Update does not specifically propose any specific development projects, it does accommodate as well as regulate future population and economic growth of the city that would result in direct and indirect growth-inducing effects.

Implementation of the proposed General Plan Update would refine existing land use designations in the City of Chico and establish new policy provisions, actions, and design guidelines that will guide and manage future development and land uses in the city. This would also include policy direction on roadway facility improvements, public service improvements, and the extension and expansion of utilities. The specific environmental effects resulting from the direct growth effects of proposed land use patterns and associated extension of public services are discussed in Sections 4.1 through 4.14 of this Draft EIR. The following is a discussion of the potential growth-inducing effects of the project.

Population Growth

As part of the development of the proposed General Plan Update, an analysis of residential and nonresidential (retail, commercial, office, industrial, and other uses) demands for the city for the year 2030 was conducted (BAE City of Chico General Plan Update Market Opportunity and Land Absorption Projections [2008]). A comparison of year 2030 demands and total growth potential under the proposed General Plan Update is provided in **Table 4.0-1**. As demonstrated in **Table 4.0-1**, the proposed General Plan Update growth capacity would exceed the City's anticipated needs for year 2030 for both residential and nonresidential growth. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that the Plan's build-out potential be attained.

As identified in Section 3.0, Project Description, the intent of the proposed General Plan Update is to accommodate anticipated growth through compact, walkable, infill, and mixed-use development, as well as to focus redevelopment along transit corridors and at other key locations. The proposed General Plan Update and its Land Use Diagram would provide for this growth, would minimize outward expansion of the city's boundaries, and would retain the current Butte County Greenline along the western boundary of the city. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid growth effects of sprawl development patterns. The environmental effects of build-out under the proposed General Plan Update are addressed in the technical sections of this Draft EIR.

Growth Effects Associated with Infrastructure Improvements

The proposed General Plan Update could indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. The City's infrastructure and public services are largely provided by other public and private service providers that utilize master plans for guiding planned facility and service expansions which are subject to environmental review under CEQA. The proposed General Plan Update does not include any provisions requiring the oversizing of infrastructure facilities to serve

growth not anticipated in the proposed General Plan Update. Therefore, significant growth effects resulting from infrastructure improvements as a result of implementing the updated General Plan are not anticipated.

ENVIRONMENTAL EFFECTS OF GROWTH

As described above, the intent of the proposed General Plan Update is to accommodate anticipated growth through compact, walkable, infill, and mixed-use development, as well as to focus redevelopment along transit corridors and at key locations in the community. The proposed General Plan Update policy provisions and its Land Use Diagram would provide for this anticipated growth, would minimize outward expansion of the city's boundaries, and would retain the current Butte County Greenline along the western boundary of the city. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid growth effects of sprawl development patterns or induced growth on parcels adjacent to the city. The environmental effects of build-out of the General Plan Update are addressed in Sections 4.1 through 4.14 of this Draft EIR, and the project's cumulative impacts are addressed in Section 5.0.

7.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of a plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes that would result from project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes in the following manner:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

Implementation of the proposed General Plan Update could result in the conversion of undeveloped and/or underutilized residentially zoned properties to residential, commercial, office, public, and recreational uses. Subsequent development under the General Plan Update would constitute a long-term commitment to these uses. It is unlikely that circumstances would arise that would justify the return of those sites to their original condition.

Development of the city would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure. Renewable, nonrenewable, and limited resources that would likely be consumed as part of the development of the proposed project would include, but are not limited to, oil, gasoline, lumber, sand and gravel, asphalt, water, steel, and similar materials. In addition, development of the project would result in the increased demand on public services and utilities (see Section 4.12, Public Services and Utilities, and Section 4.14, Energy and Climate Change).

7.3 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of

insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it prepares a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The following impacts of the proposed General Plan Update, which have been recognized as "significant and unavoidable" in either the project or cumulative context, are specifically identified in Sections 4.1 through 4.14 and Section 5.0 of this Draft EIR. The reader is referred to the various environmental issue areas of these sections for further details and analysis of these significant and unavoidable impacts.

Loss of and Conversion of Agricultural Land

Impact 4.2.1 Implementation of the proposed General Plan Update would result in the conversion of important farmlands (Prime Farmland, Unique Farmland, Farmland of Statewide Importance) as designated by the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

Key themes of the proposed General Plan include the protection of agricultural resources and keeping urban growth limits. These themes reflect the City's desire to retain a compact urban form, and to emphasize infill and redevelopment, as well as new complete neighborhoods contiguous to existing urban areas. Much of the agricultural land currently within the SOI is surrounded by urban uses, and as a result it has been compromised and may not be considered "viable" agricultural land. The City recognizes the importance of agricultural lands and is committed to protecting this resource as supported by its continued commitment to the Greenline. The Greenline restricts development on the prime farmlands west of Chico and preserves this area for agricultural production. Preservation of the Greenline would continue to ensure the long-term ability of agricultural uses and serves as an urban growth boundary to restrict the conversion of farmland. However, the proposed General Plan Update could still displace areas currently in agricultural production and result in the conversion of a total of 1,041.73 acres of Prime Farmland and 25.9 acres of Unique Farmland to urban uses. The proposed General Plan policies and actions described above do not completely offset the loss of important farmland and no feasible mitigation measures are available to avoid this impact. Therefore this impact is considered **significant and unavoidable**.

Cumulative Impacts to Agricultural Resources

Impact 4.2.4 Implementation of the proposed General Plan Update, along with regional and statewide growth, would result in a contribution to the conversion of important farmland.

As noted above, the Greenline is intended to restrict development on the prime farmlands west of Chico and preserves this area for agricultural production. The use of the Greenline would continue to ensure the long-term ability of agricultural uses to serve as an Urban Growth Boundary. However, the proposed General Plan Update could still result in the conversion of a total of 1,041.73 acres of Prime Farmland and 25.9 acres of Unique Farmland to urban uses. The proposed General Plan policies and actions do not completely offset the loss of important farmland, which is a statewide cumulative concern. Since no cumulative threshold of acceptable important farmland loss has been established by the State or Butte County, any contribution is determined cumulatively considerable in this Draft EIR. Thus, the contribution to

cumulative impacts on agricultural resources is considered to be a **cumulatively considerable** and **significant and unavoidable** impact.

State Highway Facilities

Impact 4.5.2 Implementation of the proposed General Plan Update would result in an increase in traffic volumes on state facilities that would operate below Caltrans LOS thresholds under year 2030 conditions.

State highway facilities projected to be impacted include the following:

- Segment of SR 99 between East 1st Avenue and SR 32.
- SR 32 (Nord Avenue) between West Sacramento Avenue (west) and West Sacramento Avenue (east)

Both of these facilities would operate unacceptably at LOS F during the PM peak hour under year 2030 conditions.

The policies and actions included in the proposed General Plan Update are intended to mitigate the City's impact to state facilities due to planned development as the result of the proposed General Plan Update. Specifically, the proposed General Plan Update includes Policy CIRC-1.3 that identifies the collection of the fair share cost of improvements necessary to address cumulative transportation impacts, including roadway, transit, pedestrian, and bicycle facilities, through the City's development impact fee program. In addition, the City of Chico and Caltrans have entered into a funding agreement for mitigating local developments' impact to state facilities. Further, Action CIRC-1.8.3 commits the City to continue to consult with BCAG and Caltrans regarding the prioritization and timely construction of programmed freeway and interchange improvements on the state highway system. However, implementation of future improvements on state facilities is uncertain because the future improvements of Caltrans facilities do not fall under the jurisdiction (or control) of the City. Given this uncertainty of the timing of improvements to these state facilities, this impact would be **significant and unavoidable**.

Cumulative Traffic Impacts on Local Roadways and State Highways

Impact 4.5.7 When considered with existing, proposed, planned, and approved development in the region, implementation of the proposed General Plan Update would contribute to cumulative traffic volumes in the region that result in significant impacts to level of service and operations.

Highway facilities projected to be impacted under cumulative conditions include the following:

- Segment of SR 99 between East 1st Avenue and SR 32.
- SR 32 (Nord Avenue) between West Sacramento Avenue (west) and West Sacramento Avenue (east)

Both of these facilities would operate unacceptably at LOS F during the PM peak hour under year 2030 conditions.

Implementation of proposed General Plan Update policies and action items would assist in reducing its cumulative contribution to regional traffic effects. Specifically, the proposed General Plan Update includes Policy CIRC-1.3 that identifies the collection of the fair share cost of improvements necessary to address cumulative transportation impacts, including roadway, transit, pedestrian, and bicycle facilities, through the City's development impact fee program. In addition, the City of Chico and Caltrans have entered into a funding agreement for mitigating local developments' impact to state facilities. Further, Action CIRC-1.8.3 commits the City to continue to consult with BCAG and Caltrans regarding the prioritization and timely construction of programmed freeway and interchange improvements on the state highway system. However, this impact would still be considered **cumulatively considerable** and **significant and unavoidable** as the City does not have authority over improvements outside of the City's jurisdiction (e.g., facilities in Butte County and Caltrans facilities such as SR 32 and SR 99), and the City cannot ensure that these improvements would be completed. With the exception of funding sources for regional traffic improvements associated with the BCAG RTP, there are no other regional traffic mitigation programs in which the City could participate to minimize its regional traffic impact.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions

Impact 4.6.2 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter.

All projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. The proposed General Plan Update contains Action OS-4.1.2 which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. BCAQMD's CEQA Air Quality Handbook (BCAQMD, 2008), identifies a list of best available mitigation strategies tailored to the type of project being proposed. However, these actions might not fully offset air pollutant emissions resulting from construction activities. Projected growth under the General Plan Update could add a significant amount of development and supporting infrastructure in Chico. Construction of these projects could result in construction emission in excess of the BCAQMD threshold levels**.** Thus, this impact is considered **significant and unavoidable**.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions

Impact 4.6.3 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in long-term, operational emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter.

The intent of the proposed General Plan Update is to accommodate anticipated growth in a compact, walkable community that relies on infill, mixed-use development, redevelopment along transit corridors and at other key locations, and new growth areas (Special Planning Areas) with a mix of residential densities and land uses. The proposed General Plan Update and its Land Use Diagram would provide for this growth and would minimize outward expansion of the City's boundaries. Thus, growth accommodated under the proposed General Plan Update would be confined to the immediate Chico area and would avoid growth effects of sprawl

development patterns (sprawl development patterns contribute to increased vehicle miles traveled and thus air pollutants emissions). Implementation of the proposed General Plan Land Use Diagram, however, could violate or substantially contribute to a violation in O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards as shown in **Table 4.6-7** (Section 4.6). Thus, this impact is considered **significant and unavoidable**.

Result in a Cumulatively Considerable Net Increase in Nonattainment Criteria Pollutant

Impact 4.6.7 Implementation of the proposed General Plan Update, in combination with cumulative development in the Sacramento Valley Air Basin, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter.

The proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. The proposed General Plan Update and its Land Use Diagram would provide for growth while minimizing outward expansion of the City's boundaries, would reduce increases in vehicle miles traveled within the city and thus reduce air quality impacts. In addition, as discussed above, all projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. The proposed General Plan Update contains Action OS-4.1.2 which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. BCAQMD's CEQA Air Quality Handbook (BCAQMD, 2008), identifies a list of best available mitigation strategies tailored to the type of project being proposed. However, while implementation of proposed General Plan Update policies and actions, as well as BCAQMD requirements, would assist in preventing, reducing, and minimizing the proposed General Plan Update's contribution to cumulative air quality impacts, a considerable amount of the ozone that is monitored in the SVAB results from pollutants that have been transported from the San Francisco Bay Area. Due to the lack of physical barriers and coastal winds blowing inland, air pollution generated in the metropolitan Bay Area is easily spread to the Sacramento Valley. As such, the City and other jurisdictions in the SJVAB often have little control over key factors that affect air quality conditions. Even after implementation of smart growth policies and BCAQMD requirements, the contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact as these actions might not fully offset air pollutant emissions resulting from construction and operational activities and could violate or substantially contribute to a violation in O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards. There are no feasible mitigation measures that can further offset air pollutant emissions from subsequent development and growth under the proposed General Plan Update.

Exposure to Surface Transportation Noise

Impact 4.7.2 Traffic conditions under the proposed General Plan Update could result in a substantial permanent increase in ambient noise levels that could adversely affect noise-sensitive land uses. In addition, future development of noise-sensitive land uses could be exposed to roadway and/or railroad noise levels in excess of the City's noise standards.

Implementation of the proposed General Plan Update noise policies, such as Policy N-1.3 that requires an acoustical analysis as part of environmental review for projects likely to expose noise-

sensitive land uses to noise levels exceeding the City's standards, would reduce potential transportation noise impacts. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve the applicable noise standards of the proposed Noise Element. However, it may not be possible to fully mitigate traffic and/or railroad noise in all areas, particularly in existing developed areas constrained due to age, placement, or other factors which limit the feasibility of mitigation such as residences fronting the right of way that limit the placement of noise barriers. It is important to note that the increases in traffic noise levels associated with build-out of the proposed General Plan Update would occur gradually over a period of approximately 20 years, or more. However, increases in transportation noise associated with the proposed General Plan Update could result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project and would result in exposure of persons to or generation of noise levels in excess of standards established in the proposed General Plan, which is considered to be a **significant and unavoidable** impact.

Exposure to Stationary Noise

Impact 4.7.3 Subsequent development associated with the proposed General Plan Update could result in new noise-sensitive land uses encroaching upon existing or proposed stationary noise sources or new stationary noise sources encroaching upon existing or proposed noise-sensitive land uses.

While many aspects of this impact can be mitigated to levels that are less than significant, some stationary noise impacts cannot be mitigated to a less than significant level due to limitations on the City to control the exact placement of substantial noise-generating uses (e.g., school facilities) in proximity to noise-sensitive land uses (e.g., residential). Accordingly, stationary source noise levels from activities on uses over which the City has limited control could result in noise levels that exceed the City's maximum allowable noise standards. Thus, this impact is considered **significant and unavoidable**. No additional feasible mitigation has been identified that would further reduce this impact.

Cumulative Transportation Noise Impacts

Impact 4.7.7 Implementation of the proposed General Plan Update, in combination with other development in nearby unincorporated areas of the county, would increase transportation noise along area roadways.

Implementation of the proposed General Plan Update noise policies discussed under Impact 4.7.3 would reduce potential transportation noise impacts in the city. Future development projects would be required to analyze project-related noise impacts and incorporate necessary noise reduction measures sufficient to achieve applicable noise standards.

However, it is may not be possible to fully mitigate transportation noise in all areas of the city, particularly for existing development that may be constrained due to age, placement, or other factors which limit the feasibility of mitigation (residences fronting on the roadway that limits the ability to utilize noise barrier). In addition, the City does not have jurisdiction to implement noise mitigation outside of its boundaries (or may not be allowed to in Caltrans right-of-way) to address potential noise impacts to the surrounding, nearby unincorporated areas of Butte County. It is important to note that the increases in traffic noise levels associated with build-out of the proposed General Plan Update would occur gradually over a period of 20 years, or more. Nonetheless, the proposed General Plan Update's contribution to cumulative traffic noise would be **cumulatively considerable** and a **significant and unavoidable** impact.

Cumulative Biological Resource Impacts

Impact 4.10.4 The proposed General Plan Update, in combination with other reasonably foreseeable projects, would result in direct and indirect mortality and loss of habitat for special-status species, sensitive and/or critical habitat.

Implementation of the proposed General Plan Update policies and actions described under Impacts 4.10.1 through 4.10.3 in Section 4.10, Biological Resources, would reduce the proposed General Plan Update's contribution to cumulative biological resource impacts. However, the extent of loss of sensitive and/or critical habitats that the proposed General Plan Update would contribute to the regional loss of these resources is considered considerable. It is anticipated that the eventual implementation of the proposed Butte County Habitat Conservation Plan would address and mitigate regional biological resource impacts. However, this plan has yet to be adopted. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable**.

Substantially Degrade the Existing Visual Character, Including the Scenic Quality of the Foothills

Impact 4.13.3 Implementation of the proposed General Plan Update would result in increased development which would alter the existing visual character of the Planning Area.

While the city's proposed and existing policy and regulatory framework as described under Impact 4.13.3 in Section 4.13 would be effective in reducing the visual prominence and aesthetic impact of new development in the foothills, any new development in these areas would be in contrast to the existing, undeveloped conditions that provide a natural visual backdrop to the city. The city's approach to protecting and maintaining the scenic qualities of the foothill areas is comprehensive and there are no additional mitigation measures available to offset this alteration of the current landscape characteristics of the Planning Area. Therefore, this impact is considered **significant and unavoidable**.

Cumulative Impacts to Scenic Vista, Scenic Resources, Existing Visual Character, and Light and Glare

Impact 4.13.5 Implementation of the proposed General Plan Update, in combination with other reasonably foreseeable development projects within Butte County, would contribute to the alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting.

As discussed under Impacts 4.13.1 through 4.13.4 in Section 4.13, the city's proposed and existing policy and regulatory framework (Municipal Code, Design Guidelines Manual) provides a comprehensive approach to reducing the visual prominence of new development, adverse impacts to existing scenic vistas, and substantial increases in light and glare in the Planning Area. Even so, new development and redevelopment in the Planning Area would contribute to other similar impacts resulting from development in the larger Butte County region. Even with incorporation of smart growth principles and other mitigation, the proposed General Plan Update would still contribute to significant cumulative impacts associated with alteration of the visual character of the region, impacts to scenic vistas, and increased glare/lighting in the region. No additional mitigation measures are available to offset these impacts. Therefore, this impact is considered **cumulatively considerable** and **significant and unavoidable.**

Generate Greenhouse Gas Emissions that May Have a Significant Impact on the Environment or Conflict with Applicable Adopted Reduction Measures

Impact 4.14.2 Implementation of the proposed General Plan Update would be consistent with the goals of AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, etc.). However, it could still result in greenhouse gas emissions that may further contribute to significant impacts on the environment.

Implementation of relevant policies and actions from the proposed General Plan Update and associated adoption and implementation of the upcoming Climate Action Plan (CAP) is anticipated to mitigate greenhouse gas (GHG) emissions projected for build-out conditions consistent with the City's GHG reduction goal of 25 percent of 1990 levels by 2020 as well as state efforts to reduce GHG emissions. However, the CAP has not been developed at this time and its reduction measures are not currently known. Furthermore, while the proposed General Plan Update would improve GHG emission per service population, GHG calculations predict emissions in excess of the BAAQMD threshold and would still result in a net increase in GHG emissions. Thus, this impact is considered **cumulatively considerable** and **significant and unavoidable.**

REFERENCES

Bay Area Economics (BAE). 2008. *Draft City of Chico General Plan Update: Market Opportunities and Land Absorption Projections.*

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